
PULLING TASSELS
by
LEONARD PEGG

PULLING TASSELS

A history of seed corn in Ontario

LEONARD PEGG

1988

Sponsored By —

The Ontario Seed Corn Growers Marketing Board

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"Pulling Tassels" — O.M.A.F. Centennial Milestone

During the past century, developments within agriculture have been dramatic and exciting. And like a drama, there have been thousands of men and women behind the scenes whose efforts have made Ontario's food system one of the finest in the world.

This year is a time for celebration in the agricultural community. This is the 100th anniversary of the Ministry of Agriculture and Food, and this book, "Pulling Tassels," is a 100-year review of seed corn in Ontario.

Seed corn growers can be proud of their industry pioneers who saw potential in hybrid seed corn, and, in the late 1930s, introduced it to Essex and Kent Counties from the United States.

The Seed Corn Growers Marketing Board — one of the oldest marketing boards in Ontario — plays a vital role in negotiating fair market price for growers.

"Pulling Tassels" is an excellent record of these achievements, and a testament to the dedication that has made seed corn a multi-million dollar industry in Ontario.

Best wishes during this centennial year to everyone whose efforts help to feed millions of Ontarians, and to make Ontario's seed corn industry strong and vital.

JACK RIDDELL
Minister of Agriculture and Food
Province of Ontario

Hon. Jack Riddell
Ontario Minister of
Agriculture and Food

The Title — "Pulling Tassels"

Hundreds — yes thousands — of people who were students in Southwestern Ontario — from the cities of Chatham and Windsor and the towns in Essex and Kent, as well as bus loads from London and other urban centres, will relate to this title. They were employed at "Pulling Tassels" for two or three weeks of mid-summer, walking or riding on the detasseling machines up and down the rows of the fields where hybrid seed corn was being produced.

These "pullers" removed the tassels of the female plants before they began to shed pollen — so the silks at the tips of the female ears would receive only the pollen from the nearby "male" plants — carried by the breeze "from sire to dam."

The yellow school buses or "box" trucks used in transporting the pullers to the fields have been a familiar sight on rural roads since the hybrids were first extensively grown in the 1940's.

Pulling the tassel from one corn plant so cross-pollination from another corn plant could be effected, is the essential part played in producing hybrid corn seed — probably the most significant achievement in agriculture in the last 100 years.

Foreword

In the latter part of the nineteen-eighties decade, we tend to take for granted many of the entities that are parts of every-day life. The present generation enjoys a multitude of benefits without realizing how they happen to be available — available now but not even any more than an idea at the beginning of the century. There's no need to list them here, other than to say that science has changed the life-style of the progressive peoples of the world in the categories of power, transportation, communication, housing, culture, pursuit of knowledge, trade and commerce, clothing, recreation and most importantly products of agriculture which sustain life.

It is easy to make a case for hybrid corn being the most important agricultural achievement of this century and for our purpose, we will accept this without debate.

The story of seed corn and the impact of hybrids in Ontario. I had thought for a long time that it should be recorded and recognition given to those who had the foresight, wisdom and perseverance necessary to see it through its early days of development, production, promotion and distribution (marketing).

As a news reporter principally interested in progress in agriculture during the 'thirties, and editor of The Blenheim News-Tribune for seven years before I became a farmer and "grower" of hybrid seed corn in 1946, I was involved in writing about the responsible people and their pursuits during the "introduction" years.

I "just happened" to express my idea of recording the hybrid corn story to my long-time friend and neighbor, John Cumming, whose farm is near Guilds, and served as a director of the Ontario Seed Corn Growers Marketing Board, 1969 - 1988.

The response was positive and he "took it up with the board" where it was also positive.

We discussed the possibilities with Napoleon "Nap" King, who also thought it should be done and offered his assistance..

I undertook the research in the spring of 1986, the first material being some scrap books in the "archives" of the board's office.

Then Barry Fraser, Kent's agricultural representative, with the senior member of his staff, Mrs. June Schmitchen (nee Jack), produced a bundle of files which had been meticulously kept by Miss Nellie Johnston during the days when she was secretary for the late James A. Garner, Kent County provincial agricultural representative (March 1929 — October 1946) who, in collaboration with the late N. D. MacKenzie, of Plant Products Division, Canada Department of Agriculture, contributed much of the technical and professional guidance in the introduction of hybrids. Mr. Garner moved to Toronto in 1946 to become Director of Extension for the Ontario Ministry of Agriculture, and for a year before he passed away in February, 1958, was "Chief Agricultural Officer."

When Mr. MacKenzie was playing such an important part in the introduction of hybrids to Ontario, he was in charge of the Chatham Section (Southwestern Ontario) of the Plant Products Division, Canada Department of Agriculture. He later was moved to the Ontario office in Toronto, and in 1953 when he retired from that position, returned to Chatham to become secretary of the Ontario Seed Corn Growers Marketing Board until May, 1969. He passed away June 30, 1972, at age 84.

I studied the copies of the correspondence, memos and other information contained

in the files. John Cumming and I visited with Jim Grant, of Funk's G. Hybrids and with Ian Maynard, who, with "Nap" King and the late Oliver Wilcox, had produced the first hybrid seed corn grown in Ontario.

Grant, Maynard and King were available (hale, hearty and healthy) in 1986, and their stories were representative of the hybrid seed corn industry in Ontario.

The contributions these men made to the industry and their reminiscences are subsequently presented herein.

The story of hybrids cannot be told without relating it to the part already being played by corn in the "corn belt" of Ontario. The countryside had been dotted for many years with silos, some of concrete blocks, but most of wooden staves with steel hoops. In corn country they were filled with "cut corn fodder," which was an excellent feed, especially for dairy cows. My great-grandfather Pegg, a roof thatcher in his native Norfolk, England, came to the Blenheim area in the 1840's and was disappointed in that the corn he grew wasn't satisfactory for "thatch,"nor was any other straw or fibre plant grown in the Kent area.

Although not in chronological order, I include information gleaned from the files, copies of other documents and newspaper clippings. The documentation of the provincial enactment of the legislation leading to the eventual establishment of the Ontario Seed Corn Growers Marketing Board is presented.

The first secretary-manager of the Ontario Seed Corn Growers Marketing Board in 1941 was J. Duff Brien until his untimely death in 1947. He had undertaken to assemble historical matter and commentary from those involved in seed corn for Ontario. Mr. W. J. W. Lennox succeeded Mr. Brien and carried on the project. We were fortunate in obtaining the material (December 1987) and identify it as the "Lennox Files," with much of it being included.

Historically, the first white settlers found natives growing corn in Ontario, and maize was one of the most important early crops, providing food for humans and livestock. The Lennox file provided us with some very interesting data on the growth of the corn industry, including the formation of the "Ontario Corn Growers Association" in 1908. This base group received much of its inspiration from Canada's first dealer in seed corn, Mr. J. O. Duke, of Ruthven, in Essex County, described by Jim Grant, who remembers him, as an honorable man who tried to have a good reputation, and who made a considerable contribution in his time.

The "Association" was the vehicle used throughout the years by corn growers striving to work together for the common good, and enjoying the co-operation of government in achieving objectives. Much of our legislation can be credited to this association, and from it sprung the "Ontario Seed Corn Growers Marketing Board," the corn committee, which decides on licensing of hybrid varieties, other growers groups which have come and gone, and to a large extent the current "Ontario Corn Producers Association." The original association sponsored exhibitions (corn shows) and with co-operation of the Canadian Seed Growers Association, promoted seed improvement.

It would not be practical to tell the stories of all the seed corn dealers and companies operating in Ontario, so one that is representative, Canadian-owned, in at the beginning and still in, was chosen. The story of Napoleon King embodies the story of the seed corn business he developed and which in 1988 is keeping pace with the industry.

The Ontario Seed Corn Growers Marketing Board Directors for 1987 and 1988. Seated, left to right, Larry Cowan (chairman 1988), Don Wills (chairman 1987), John Cumming, Brad Caughy (secretary-manager). Standing, Mike Denys, Mike Schneider (1988), Lyle Clark, Ron Sullivan, Lynn Girty (1988) and Ed Waddick.

Seated, Ian Maynard and James T. Grant. Standing, Leonard Pegg and Napoleon King.

The Story of Corn in Ontario — Coming of the Hybrids

In North America we call it "Corn" (the name used for wheat and other grains in various parts of the world). In Europe, Asia and many countries which were originally colonies, it is "Maize." We probably should call it "Indian Corn" in North America, and in French Canada it is known as "Ble d'Inde" — Indian grain. Fossils found in the caves inhabited by early native people of the Americas establish it as the world's most ancient cultivated food plant — corn has to be planted and nurtured for every crop. And it is a phenomenon — how important it is as a food for humans, feed for livestock and feedstock for an ever-increasing number of consumer products, including beverage alcohol.

Corn, bought or stolen from the Indians, is said to have served more than once to save the English Colonies of Virginia and Massachusetts from starvation. The English grudgingly took humble lessons from the natives on learning how to grow corn (a fish with every hill) and soon adapted it to their culinary use. The Indian corns were basic and primitive, changed very little during the centuries they had been grown. Yes, corn was a subsistence food in the Americas before Columbus arrived.

Sweet corn and the varieties of "dents" and "flints" with colors ranging from black to white as with what we now know as the "decorative" Indian flints, are all of ancient origin. Purity was maintained by isolating a variety so it would not be cross-pollinated with another variety, and in some cases it was known that hybridizing or "crossing" resulted in enhanced vigor of the plant.

Improved varieties were developed as open-pollinated strains throughout the temperate zone of United States, and during the 1800's and early 1900's in areas of Ontario which had the longest frost-free growing seasons. Dimensions of fields expanded as demand for the product increased. Hiram Walker's distillery at Walkerville and the other smaller distilleries throughout Ontario provided a good market for corn in addition to the demand for food and most importantly for hogs.

The corn-hog ratio became a major factor in the food-related economy of United States. Large diameter ears were fed to hogs from cribs (scoop-shovelled). The corn binder appeared and sheaves were "shocked," hauled to barns and fed to cattle. Some farmers preferred to "husk out" the shocks, feed the ears to hogs or ration them to cattle. A staple item at hardware stores was the husking pin. Farmers' hands bore the calouses to wit. Fodder (ears removed) supplemented hay in wintering animals. Then came the corn shredder which pinched off the ears and the fodder was blown into barns or stacks. The cutting box or chopper with blower was developed to fill silos. The shredder or cutting box would be located at the barn and sheaf corn brought to them, in wagons. It was very heavy work. The flint varieties were popular in some areas because of their earlier maturity, finer stalks (as winter feed) and the ability of a bullock to mouth the ears. The cutting box and then the hammer mill eventually made it possible to feed the higher-yielding larger ears of dent varieties.

Thousands of acres were picked by hand, a team hauling a "box" wagon with "bang board" across the field with the crew picking, husking and tossing. The cham-

pionship in hand-picking corn was of at least equal significance in the corn belt of United States as the world series or a title boxing match.

The seed corn business in Ontario had its beginning during this era of the open-pollinated varieties and many good selections appropriate to Ontario's needs were developed and marketed.

The husking corn was mostly produced in Kent and Essex with some grown as ensilage in areas north and east. Ear or grain corn for feed produced in Kent and Essex was trucked to feedlots in areas where growing seasons were shorter.

The European corn borer hit all the corn areas of North America in the twenties, thirties and forties. The pure corn strains without strength of stalk lodged and yield decreased. It was a crisis. In Ontario, laws compelling complete plowing-down or clean-up and burning of corn debris were strictly enforced. Corn fodder could not be used as feed and bedding unless the residue was plowed down as manure before emergence of the corn borer moth in May.

It was under these conditions of desperation that development of hybrid corn received enhanced impetus as it was realized stronger stalks could resist the devastating damage caused by borers — produce a crop in spite of the insect.

Various sources of corn industry information agree that it was 1929 when commercial production of hybrid corn began in United States. Before that time, there had been some experimental and test acreages. By 1933 one percent of the corn acreage in the U.S. corn belt was planted to Hybrids. In 1939 the percentage had risen to 22.9. In 1949 it was 78.3%, in 1959 it was 94.8 and in 1962 became 99 percent.

The hybrids in use were the result of breeding and testing programs conducted by U.S. federal, state and private corn breeders.

The hybrid story had its beginning when Dr. E. M. East, at the Connecticut Agricultural Experiment Station, and Dr. G. H. Shull, at Cold Spring Harbor, started studying inbreeding and cross-breeding of corn, and in 1906 grew lines from seed produced by one previous season of self-pollination. East and Shull both independently believed the commercial crop would eventually benefit from the hybrid vigor, and the early history is based to a large extent upon their studies. East published the first paper on the subject in 1908.

Dr. Herbert K. Hayes understudied Dr. East and succeeded him at Connecticut Station. In Dr. Hayes's book, "A Professor's Story of Hybrid Corn" he writes that the crosses between inbred lines were superior to open-pollinated corn varieties "but we did not see how these crosses could be used commercially."

The Connecticut studies continued and a publication "Inheritance in Maize" by East and Hayes was issued in 1911.

Dr. Hayes started new studies of selection in inbred lines in 1915 in Minnesota and most of the Corn Belt states had research in progress.

Henry A. Wallace in 1913 started studies of "self-fertilization" and this led eventually to the organization of the Pioneer Hi-Bred Seed Company of Iowa. "In some cases, Wallace has been referred to as the father of hybrid corn." Dr. Hayes writes. "It is evident to this writer that hybrid corn had many fathers and resulted from the work of numerous investigators."

F. D. Richey, researcher with U.S.D.A., began self-pollination in 1916, and even-

A photo probably taken in the 'twenties or early 'thirties. One team of horses pulls the corn binder, which cuts the plant off, ties it in a sheaf and elevates the sheaf into the wagon (power derived from the ground-driven "bull wheel.") At the silo, the cuting box chops and blows the material into the silo. Note the stubble — the corn was planted in hills of three or four plants and was "checked," allowing cultivation in both directions.

A typical scene at a seed corn company's dryer and processing plant during the 1960's

tually was credited with developing cooperation between U.S.D.A. and state corn breeders. Richey helped arrange conferences between State and Federal corn breeders. Wallace was a participant. In 1925 the cooperative effort was formalized under the Purnell Act.

After extensive research and development of a process for production of hybrid corn seeds scientists asked themselves the question, "Now that we have them, what are we going to do with them?"

During the mid-twenties a considerable bank of self-pollinated material was built up at the various centres involved in the cooperative program, and data taken became of great value in determining the characteristics of the eventual product.

The double-cross plan had made seed production of hybrid corn economically feasible and research was expanded in the 1929 - 1932 era.

The chronology of the hybrid seed industry is summed up by John M. Airy of Pioneer Hi-Bred Company, Johnston, Iowa, as a contributor in Sprague's "Corn and Corn Improvement" as follows:

"The first plot for crossing inbred lines by detasseling was at the Connecticut Agricultural Experiment Station, Mount Carmel, in 1916. The first crossing field for production of hybrid seed, a cross of Burr-Leaming, was grown at Clinton, Conn., in 1921, producing about 8 bushels of seed. The second hybrid to be produced and the first to be sold commercially was a 40-acre seed field crossed by detasseling near Des Moines, Iowa, in 1923; it was sold for planting in 1924 under the name "Copper Cross," a cross between a Leaming inbred line produced by the Connecticut Station and an inbred from Chinese Bloody Butcher produced by H. A. Wallace. The first seed company for commercial production of hybrid corn seed was organized in Iowa in 1926 (Jenkin's 1936)."

Yields in the U.S. corn belt in 1929 were 25.7 bushels to the acre. By 1939 it was 29.7 per acre; 37.8 in 1949 and 51.5 in 1959.

The importance of corn in the food economy of United States even prior to the hybrids was noteworthy. Oilséeds were not yet common, and the cooking fat in use consisted principally of lard from "lard-type hogs" fed with corn. When soybeans took over much of the "shortening" market, a type of hog capable of producing a greater percentage of lean meat products had to be developed. Canada was far ahead of the U.S., in their meat-hog research.

In United States the corn-hog ratio was a recognized basis for establishing the market prices of the two commodities. Cheap corn meant a short-term demand for hog breeding stock (temporary higher pork price) followed by a surplus and lower price.

World War II and the corn industry of North America. There were those who asserted that the advent of hybrids contributed to victory. There was an increase in production with less manpower. Higher quality grain increased the number of uses. Scientists also developed the production of synthetic nitrogen for explosives and eventually as a corn fertilizer, which, with hybrids, created a different type of explosion — corn yield. Dr. Norman P. Neal, (native of Australia) a research plant scientist with University of Wisconsin, had been one of the first to make use of the hybrid corn program. Much investigation and consideration of all available information and data, as well as some experimental small-acreage tests of hybrids had been undertaken in Essex and Kent, and those interested in the possibilities

for Ontario decided (in 1938) to send two of their most knowledgeable agri-servants to meet with Dr. Neal with a view to bringing the program into Ontario. They were Kent's provincial agricultural representative, James A. Garner and the head of the district office of the federal Plant Products Division, Norman D. MacKenzie.

Wisconsin had been chosen because of the similarity in climate and type of agriculture with Ontario. Garner and MacKenzie reported on their return from Wisconsin with data and an offer to supply inbred crossing stocks that their enthusiasm was so great they considered going into hybrid seed corn production on their own. They chose to offer the opportunity to the existing seed companies in Ontario and a scheme to produce the crossing stocks was set up. Inbreds were multiplied and crossed at Dominion Experimental Farms at Harrow and Ottawa and at Ontario Farms at Guelph and Ridgetown.

Single Crosses and Three-Ways were not available to commercial growers until much later. Selected contract growers for various seed companies received the "male and female" two-way parent stocks distributed from Ridgetown. The hybrid seeds produced and made available by seed companies to their farm-customers were "four-ways." It was in 1939 that the first crossing stocks, Wisconsin hybrids produced by the University of Wisconsin, were planted in Ontario. Crossing stocks were imported until the production program was in place in Canada, and Wisconsin hybrids became "Canada Hybrids."

Open-pollinated varieties continued to be produced for a number of years but rapidly gave way as new hybrids were developed. The government production of crossing stocks was also discontinued as companies developed, purchased from research plant breeders and promoted their own hybrid varieties.

There was reluctance on the part of some cattle feeders to use hybrids because it was believed silage from hybrids was too high in fiber and cellulose, but this was forgotten as yields were given prime consideration.

Ontario had its own corn-hog ratio but with a context based on the quality of the pork. It was a fact that corn fed to the hogs of the early thirties caused an excess of fat and for the Canadian preference this was undersirable. A breeding program conducted by the Dominion (George Foster) and Provincial (W. R. Reek) agricultural departments at the Ridgetown Experimental Farm produced hogs that could be fed a ration containing mostly corn and balanced proteins and minerals. A new hog program not based on oats, barley, tankage and milk by-products was born and provided a market for Ontario's expanding corn production.

Canadian manufacturers of starch, syrups, oil and other products from corn tended to import their feedstocks, often on the pretense that Ontario corn lacked quality (disputed by the growers in Essex and Kent), and that it should be artificially dried to prevent spoilage when stored. There was only one drier in Ontario, at Walker's in Walkerville.

The CEO of one of Canada's corn starch manufacturers was aware of the fact that higher quality and quantity starch was available from hybrid corn varieties. He had a good friend whose steam bath he patronized in Toronto. He told the fitness expert about the opportunity for someone to produce hybrid corn seed in Ontario and was willing to provide the means of financing the project by agreeing to make him a broker for purchasing all the commercial corn bought in Ontario for the starch company. The steam-bath career was dropped for a new career in company with

The seven men in this photo are among those who contributed significantly to the seed corn industry of Ontario. Standing: Glen Mortimer, of the Harrow Research Station; Dr. William R. Reek, Ontario Deputy Minister of Agriculture, and Don Rutherford, Kent Agricultural Representative 1958-1968. Seated: Norman D. MacKenzie, whose contribution inspired "Pulling Tassels;" Dr. L. Ward Koch, superintendent of the Harrow Research Station; E. M. "Ernie" Warwick, of Warwick's Seeds, and Dr. Norman P. Neal, plant breeder, whose University of Wisconsin hybrids became the Canada Hybrids.

Left ro right - James A. Garner, Norman D. MacKenzie, William Wallace, Prof. J. C. Stackley.

partners who were already experts in seed corn and had been contemplating hybrids.

Other seed companies with their bases already established on open-pollinated corns, were also ready to participate, and companies based in the corn belt of U.S. came into Ontario.

These companies developed production systems and ear-corn artificial drying facilities were installed, most of the technology coming from U.S. Contracts were entered into with farmers, the inspection and sealing regulations in Canada being carefully developed along lines already in place with the Canadian Seed Growers Association, of which the Ontario Seed Corn Growers Association became a part when the first provincial charter was issued in 1940, known as "The Ontario Seed Corn Growers' Marketing Scheme."

A "Hybrid Corn Letter" dated July 1938 gave "Suggestions for Grading Seed Corn" noting that "the grading of seed corn is now probably the most difficult problem in the processing of hybrid seed "

There had been very few corn planters in Ontario prior to the expansion that came with the hybrids. Grain drills were used and a very large percentage of corn planting was done by a man and a "jabber" in a field that had been marked in rows and cross-checked or "gridded" with a two-row "sled-like" contrivance pulled by a horse or even by manpower. Corn was check-planted in hills of three or four kernels (plants) so it could be "cultivated both ways of the field" — usually by a one-horse "between-the-rows" cultivator. A one-row riding cultivator pulled by a team became popular — it could be used for tobacco and beans as well as for corn. Two-row corn planters came on the scene in the 'thirties. They would check plant, using a long segmented chain to "click out" the hill drops of three or four kernels in 40 or 42-inch row spacings. Early growers took a great deal of pride in the precision planting and general appearance of the fields

Until the late 1940's, fertilizer, usually ammonium phosphate or a blend having an analysis of 2-12-10 (100 pounds per acre) was put on with the planter (or by hand). It was long before the nitrogen side-dresser or anhydrous ammonia. The fertilizer came in jute bags - 125 pounds.

Seed companies vied for the quality of their kernel sizing to conform to the planter plates, and growers often didn't pay too much attention to matching the seed to the plate, much to their disappointment, and then endeavouring to blame the seed company or the planter manufacturer because the "stand" was uneven.

By 1939 the "Ontario Corn Growers' Association" (not "seed" growers) was a recognized organization with J. A. Garner, B.S.A., agricultural representative for Kent County, as its secretary. It had a membership of 146 "farmers," with William Wallace of Woodslee, Ont., president; Harry Shellar, Port Lambton and H. M. Hessenauer, Rodney, vice-presidents. Concerns of the Association were the administration of the "Corn Borer Control Act" and at a "general meeting" 21 March '39, "growers were advised of the tentative plans of the Ontario Department of Agriculture in respect to a more comprehensive corn breeding program," with emphasis on disease and insect control.

The association had been active in representing the producers of corn since 1908.

The Association's objectives were to help corn producers of Essex, Kent and Elgin make use of the best seed available, share knowledge about corn production and

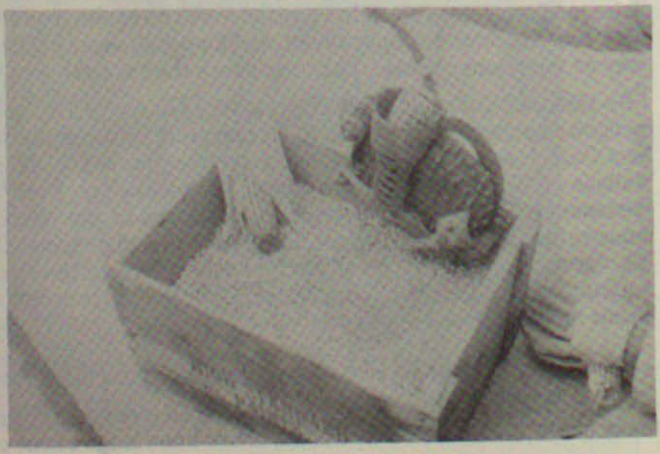
marketing, to represent the corn producer in dealing with governments, and to hold an annual "corn show." The corn shows were the main events on the agricultural scene in Southwestern Ontario. It was originally held in Essex (town) alternately with Chatham (in the Armoury) but for its latter years always Chatham,until its final show in 1942. Staged in the winter "off-season," it complemented the fall fairs and made farmers conscious of the importance of the corn crop. Competition was keen and eventually interest in improved corn resulted in Ontario seed corn growers winning championships at the Royal Winter Fair in Toronto and the Chicago International Exposition. Ontario was noted for its "flint" varieties.

A letter dated April 27, 1931, from James A. Garner, Kent's agricultural representative and secretary of the Ontario Corn Growers' Association, to Prof. L. Caesar, Dept. of Entomology, Ontario Agriculture College, Guelph, cited the urging by the directors that they are in favour of and are taking "certain steps" to make a formal request of the Canadian government for a 25 cent per bu. duty on all corn imported into Canada. The directors also passed on a resolution from a members meeting, seeking whatever assistance is available from government and inspectors and to "urge all producers in Ontario to thoroughly clean up and destroy all corn stubble and remnants" and "assist the authorities in this work by hearty co-operation, believing that in so-doing they will be working in their own best interests."

In 1932, in the grip of "The Great Depression," a fledgeling corn industry was surviving as a result of a superb effort on the part of its men of action. It was an integrated industry in that most of the corn seed used in commercial production was selected from the best of the crop, used year after year or exchanged between neighbors, with some of the pioneer seed corn growers "peddling" their products, usually a carefully selected sampling, multiplied, produced, tested and inspected for germination. Yield records provided some information on the varieties and brands. The seed business was developing.

Including the Ontario Farm Products Marketing Board, the Canadian Seed Growers Association, Plant Products Division of the Canadian Department of Agriculture, and the Board of Grain Commissioners, there were government bodies in place to provide regulations, inspections and services to the seed industry.

The Hand Sheller



Grant, King, Maynard, Wilcox

Three of the four who first grew hybrid corn seed in Ontario being alive and active when "Pulling Tassels" was taking form, it was appropriate that we should have them tell their own stories and that we should let the accounts of their achievements be the basis of the history of hybrid corn in Ontario.

Oliver Wilcox, who produced the first hybrid seed (in 1938) made a considerable contribution prior to his untimely death when he was killed in the crash of his R.C.A.F. trainer plane during World War II. He worked closely with Jim Grant in 1939 as related in Mr. Grant's recollections, setting up his own Wilcox Hybrid Seed Corn firm, then becoming one of the principals in the Essex Hybrid company.

This 1938 photo is of Oliver Wilcox in the field where he produced the first hybrid corn seed grown in Ontario. The photo was supplied by Mrs. Jim McKinlay (nee Edith Wilcox), younger sister of Oliver, who said the plot was a family affair, and she is proud of the fact that she was the tassel puller.

The James Grant Story

On a pleasant September, 1986, afternoon, John Cumming, a director on the Ontario Seed Corn Growers' Marketing Board and I went to Cottam where we hoped to have an interview with James Grant. We had been advised by Essex and Kent Agricultural Representatives Lee Weber and Barry Fraser (respectively) that Mr. Grant had retired but would enjoy talking about his experiences as a producer and merchant of hybrid seed corn.

We went to what used to be his home, on a farm near the Funks Seed Corn Plant (now owned by Ciba-Geigy) some three kilometers south of Cottam. There we met Evan Grant, the "son" in "James Grant and Son", who said his father and mother had retired a number of years ago to a high-rise apartment in Leamington, that they were both in excellent health at age 90 and preparing to celebrate their 69th Wedding Anniversary September 29. We phoned ahead and were soon talking corn with the Grants in their seventh floor apartment which faces Lake Erie and from which on a clear day you can see Pelee Island.

Aware of our mission, Mr. Grant had some material ready for us to see, and it served to document some of the information on his early experiences in hybrid seed corn. This "documentation" consisted of a layout of pictures and an extensive article in The Windsor Daily Star of Thursday, November 2, 1939.

This newspaper piece was the story of how hybrid corn came to Ontario, and we will reproduce it in part after we relate some of the reminiscences of Mr. Grant on the matter.

He recalled that Oliver Wilcox, son of John Wilcox, a farmer and tobacco buyer in nearby Woodslee, was a student at the Ontario Agricultural College, Guelph, where one of the Professors, Dr. McRostie, suggested that he try producing some hybrid corn seed on the Wilcox farm. It involved obtaining the 4-way crossing stocks from the University of Wisconsin, planting six rows of the female and two rows of male, with perimeter male isolation, detasseling the female rows, harvesting the female production separately as the "hybrid" seed, drying artificially to preserve germination and size-grading for planting.

There were no artificial dryers in Canada at that time, Mr. Grant said, and with only cribbing and natural crib drying during the winter, the quality of the first seed left much to be desired.

Oliver Wilcox grew more seed in the same manner the next year (1939) and so also did Mr. Grant, who, in the meantime, had made a trip through some of the corn country in mid-U.S.A.

"I hadn't heard of anyone other than Oliver Wilcox growing hybrid seed in Canada," Mr. Grant said. "I went up the Maumee River in Ohio to Van Wert and I believe that is where growing of hybrid commercial corn really started. I went to the Marsh Foundation Farms, where they had been using an ear corn dryer very similar to what is used today."

Mr. Grant then went to Wisconsin, where he refined his concept from what he had already learned and came home with a plan for a dryer and a good understanding of the Wisconsin hybrid program.

"I had a fairly large hog operation, but with all the squealing the pigs did, they

made too much noise for me. I kicked the pigs out and converted the buildings to house a dryer and the grading equipment for seed corn. The first inbreds were for Wisconsin 606. Wilcox grew Wisconsin 645 and A. S. (Sylvester) Maynard and son Ian and Napoleon King in Kent grew Wisconsin 625.

Mr. Grant recalls how he devised the automatic controls for the furnace supplying the heated air for the dryer. Its fuel was hard coal and the opening and closing of the draft damper was handled with a thermostat "that worked to perfection in keeping the air temperature in the 100 to 105 degree (Fahrenheit) range, and the capacity of the circulation fan with ½ inch pressure worked well too. We ran the air in one direction through the ear corn for 12 hours then reversed it a like time, for a total of about 72 hours."

In 1939 the dryer handled 350 bushels of seed, some for Mr. Wilcox, who brought his crop to Mr. Grant's facility.

Concurrently, a fairly similar dryer had been built at the nearby Harrow Experimental Farm of the Dominion Department of Agriculture, where research into the best hybrids for Southern Canada was being carried on.

That's how Mr. Grant got into the seed corn business. Prior to that, the leading seed corn operations in Essex, grading and selling open-pollinated varieties (crib dried by various growers in Essex and Kent) were J. O. Duke, of Ruthven, and the Tellier (Belle River Feed and Seed) firm, at Belle River.

Mr. Grant, commenting that he may now be the oldest living man who had "much to do with seed corn," said he would have been 12 when J. O. Duke was playing a leading part in pioneering the seed corn business, and when about 18, "I drew loads and loads of open pollinated seed corn and scooped it into Duke's cribs at Ruthven. Germination was the main thing for seed corn shipped east for ensilage. The premium to the grower would be only a few cents above feed corn prices. Mr. Duke was an honorable man and tried to have a good reputation."

Mr. Grant produced Wisconsin hybrids until 1942, when he became an "associate grower" for Funk's and the "Funk's G. Hybrids" were on their way to becoming one of the leading brands in Ontario.

By 1963, business had expanded to the extent, and he having attained age 67, that Mr. Grant was confronted with making the decision to enlarge the processing division of his operation or to seek some other solution. He had been an "associate grower" with Funk's for 21 years — a producer and distributor — and Mr. Grant decided it would be best to step aside so offered to sell to the parent company. The company urged him to continue, but he declined and his offer was taken up.

Although not involved in the seed corn business since selling out, Mr. Grant has continued to be keenly interested in the developments taking place since he no longer was an integral part of what he had helped establish. He says he was always on the friendliest terms with his competitors, and he enjoys reminiscing with "Nap" King about the days when they were striving to "make the sale." He recalls the long hours and long distance driving to sell his corn "all the way from Essex County to Ottawa."

Although Mr. Grant gave up the "grower" category for that of a "dealer," he was recognized for his contribution as a seed grower in being made a "Robertson Associate" by the Canadian Seed Growers Association. He was presented with the award at the same time as Harold Huffman and Clarence Nichols, both of Blenheim, at a convention in Halifax. Mr. Huffman and Mr. Nichols were both members of the

first "local board" of the Ontario Seed Corn Growers Marketing Board, Mr. Huffman the first chairman and Mr. Nichols later a chairman for many years. Mr. Grant is also proud of his recognition as an "Architect of Agriculture" by the Ciba-Geigy Company.

Oliver Wilcox, who is credited with being the first to produce hybrid corn seed in Canada, enlisted during the Second World War with the Royal Canadian Air Force and lost his life when the trainer plane he was piloting crashed. In the meantime, he had been associated with Art Reid and Tom Pogue in the Essex Hybrid Seed Corn Company.

The feature article in The Windsor Daily Star, November 2, 1939, referred to previously, included a layout of photos "taken on the farm of James Grant near Cottam, where one of the two dryers in the district is installed. The other was at the Dominion Experimental Farm at Harrow. In one photo, Oliver Wilcox and Mr. Grant are shown in a bin of hybrid seed corn, which has been approved for sale." Another photo was of "four experts examining samples, Dr. G. F. H. Buckley, of the experimental station; N. D. MacKenzie, Chatham, Plant Products Inspector; C. W. Owen, of the station, and Mr. Wilcox, owner and grower of the corn."

The feature was datelined Leamington, from the South Essex Bureau of The Star, and was as follows:

Pioneering in a field which promises to increase Canada's wartime corn production, a half dozen Kent and Essex farmers this year produced 4,000 acres of hybrid corn and about 42 acres of seed.

FIRST YEAR IN QUANTITY

This is the first year hybrid corn has been grown by farmers in any quantity and under strict government regulations. Essex and Kent agriculturists have produced seed which ranks with any product of U.S. hybrid corn firms. Total amount of seed produced in the province this year will not exceed 2,500 bushels. This seed will not be sold unless it passes government inspection and is properly pedigreed.

Hybrid corn this year proved its adaptability to South Essex climate and growers here are confident their seed is every bit as good as that imported from Wisconsin. Rigid department of agriculture regulations control growing of the corn here and each bag of seed produced is tested and sealed by the department.

Possibilities of hybrid corn as a regular crop were explained by Oliver Wilcox, Cottam district, who is growing the crop for a second time this year. Hybrids offer opportunities for increased production, with no increase in acreage, he said.

INCREASED YIELD

"Annually 180,000 acres of husking corn are grown in the province," he pointed out," if all this was grown from hybrid stock and the average increase were taken as 10 per cent, which is lower than the actual increase in many cases, and the average yield were 40 bushels per acre, growers would increase their production by 100,000 bushels, or seven trainloads of corn, each one a mile in length."

The United States has increased annual corn production by about 300 million bushels per year since hybrids became common in that country, he said. With hybrids surpassing all other types of corn in every way this year, it is expected acreage of these types will increase rapidly.

Thus far tests being carried out at the Dominion Experimental Station at Harrow

have given no definite results which point to one type of hybrid as preferable to another, but three varieties which have been tested over a period of three years have proven their value to the Ontario farmer. These three, 645, 606 and 625 are "good," according to Dr. G. F. H. Buckley, of the station, but could not yet be pointed out as the best.

The first two types were grown this year in Essex and the third in Kent. Essex exceeded Kent 2,500 to 1,500 in total number of acres of hybrids grown, but Kent is producing about two acres more seed. There are approximately 20 acres of seed in Essex and 22 in Kent.

SAME AS IN U.S.

Grown under Ontario's regulations and in Ontario climate seed produced here is very little different to that imported from the United States. The original crossing stock is imported from Wisconsin, which has a similar soil and climate to Ontario, and the result varies little, be it produced in Essex or Wisconsin.

The three Wisconsin brands which have proved their worth are, in the terms of corn growers, in their "safe maturity," and offer practically no risk to the buyer. Tests have been under way at the Harrow experimental station for some time and it is expected results will point, in time, to the type which is most suited to conditions of this section of the country.

In years past all seed has been imported from the United States, most of it from Wisconsin. Last winter the University of Wisconsin agreed to sell crossing stocks to Canadian growers and pedigrees and registration are provided through the Canadian Seed Growers' Association. Since all inbred lines and crossing stocks are controlled by the university, growers must purchase from there each year before planting.

SIX INSPECTIONS

"There are six field inspections during the season," N. D. MacKenzie, agriculture department inspector, pointed out, and there is little chance of corn not being grown according to specifications. "There may be more of these inspections if deemed necessary.

"We go through the fields at planting time, to make certain the corn is the proper distance from other fields; there are several visits during the detasseling of female rows to see that it is properly carried out and to see that the rows are properly handled; there is an inspection at harvest time when seed is taken from the female rows. The seed is graded, each bag is examined and germination tests made and, if it passes, the bag is sealed."

"Requirements of the Canadian Seed Growers' Association with regard to registration, isolation and de-tassel-ing are much more strict than any of the states with the exception of Wisconsin and Minnesota, Mr. MacKenzie continued.

"ABSOLUTE" CONTROL

The Canadian grower, he pointed out, cannot secure any seed from any state until the variety has been approved as being suitable to this district. Control over hybrid corn is "absolute."

Immediately following husking of hybrid corn it is taken to a specially constructed dryer where the moisture content is brought down to at least 13 per cent. There are two of these dryers in Canada today, one at the Dominion Experimental Station, Harrow, and one on the farm of James Grant, Cottam. After drying, the corn is shelled

and graded by a special type grader. A grader is to be installed at the Grant farm as soon as the most satisfactory type is decided on.

Seed sealed by the inspector must have a germination test of 95 per cent, or over to be first class seed. Sale of uncertified hybrid seed is unlawful.

Dryers for hybrid corn are built in the form of a bin dryer so that air can be forced through in one direction for a few hours then changed. Drying time varies from 72 to 120 hours depending on the moisture content of the corn.

NEVER WHOLE CROP

Hybrids will probably never pass a peak of 75 per cent of the crop, in the opinion of Dr. Buckley, corn authority at the Harrow station, because farmers, are not likely to grow these types for all purposes. Growing of these varieties is an expensive proposition and on some large United States farms as many as 60 persons are employed during the de-tasseling season. This work has to be done by hand although artificial methods have been tried unsuccesslly. In many states 70 per cent of the corn crop at the present time is made up of hybrids.

Hybrids are preferable for a number of reasons according to agricultural experts. Hybrid types offer more resistance to wind, drought, borer and other hazards which beset the grower and give a heavier yield.

In addition to the larger American firms producing hybrid seed there are other firms whose product is not so desirable and the farmer who purchases hybrid seed would be well advised to consult his agricultural representative.

Canada has an advantage over United States producers at the present time as far as isolation problems are concerned. Space for isolating hybrid corn from other types here is more available than it is in the state of Wisconsin where most Canadian hybrids originated.

Two types of husking pins (one on wrist and other on fingers). They harvested millions of bushels of corn before mechanical harvesting machines were invented.

The "Nap" King Story

As of the fall of 1986, the success story of Napoleon "Nap" King is really the story of an all-Canadian agri-business that was in at the beginning in seed corn, progressively and consistently became larger and now ranks as one of the most significant after more than fifty years.

One rainy day in early October, 1986, "Nap" reminisced as we met in the comfort of his president's office at the Pain Court King Grain headquarters of his various corporate undertakings. In all, they engage a total of 160 people. He said it all traced back to his interest in seed and crop improvement that was triggered by his participation in that division of the school fair for the Pain Court district. The Kent County agricultural representative at the time the young Napoleon King became so inspired was the late Ralph White, who had a reputation for the success of his school fair projects, his belief that the effort would pay off if an interest could be instilled in the participants (as told to me by Nellie Johnston, long time secretary in the agricultural office in Chatham).

"Nap" recalls that about a peck of seed barley, seed wheat and seed oats were distributed to those entering the competition and fledgeling farmers were judged on the products they exhibited at the fall school fair. This seed production was only a small part of the school fair project — but that is a whole other story in itself. It was, however the part that most interested "Nap," and proved to be the key that opened the door to his successful career.

Nap's father, Henry, with uncles Alphy and Eugene, were among the prominent farm families descended from settlers in the Pain Court area of Dover Township, Kent County, who had come from the area of Quebec province south of Montreal some 150 years ago. The oldest in a family of nine, Nap was actively engaged in farming the fertile fields of the King farm, and with his brother Gerard (he and his sons operate a large farming operation near Pain Court on the Thames River) set up a seed cleaning and treating plant on Third Concession to serve the community, originally the bulk of the business being for winter wheat. This partnership was known as N and G King Seed Co. "My father was never really interested in the seed business," Nap said. "In 1934 our partnership was dissolved and Gerard farmed with their father, producing sugar beets, wheat and seeds for the seed company I operated."

Nap also trucked beets from Dover farms to the sugar refinery in Chatham — "The first year it was 900 tons, all pitched on and pitched off."

After going into business by himself, Nap began to expand his operations and advertised his seeds in the farm publications of the day. Seeds were produced and marketed according to the rules and guidelines of the Dominion Seed inspection services and the Canadian Seed Growers Association — field inspection, purity and certification. By 1935 he had developed a good market for his seeds, which now included open-pollinated corn varieties. The seed corn was grown by himself and his neighbors, and the quality selection was based on the product of the best crops and the reputation for consistency of the varieties. Another such operation in Dover Township at the time Nap was getting into seed corn was run by Alfred Caron. Among others operating in the county during the mid-thirties were Rennies Seeds with the largest business, at Chatham and T. C. Warwick and Sons at Blenheim, A. S. Maynard and Sons in Harwich, as well as Edgar Mallory, at Guilds, near Blenheim, and various

others who specialized in certain varieties. The Tellier family with Belle River Seeds and J. O. Duke, at Ruthven, had important seed businesses in Essex county.

In the thirties, Nap pointed out, the corn industry was developing fast, and the county corn show held in the old market building and also in the Armoury in Chatham served to give exposure to the improvements being achieved in the open pollinated corns.

News about the hybrid corn being grown in the United States corn belt was the talk of the industry in the late thirties and Nap is of the opinion that the late Hugh Ferguson, of Cottam (his sons still farm in the Woodslee area), was the first farmer to grow hybrid (commercial) corn in Canada, in 1934. It was "Wis-bred," a variety produced by a Wisconsin company with parent stocks from Wisconsin University.

Two Dover Township top seed corn producers, who showed selected ears at the corn shows in Chatham, the Royal in Toronto, and the International in Chicago were Hercules Trahan and Arthur Houle.

"I always believed in putting up an appealing package," Nap said. "I wouldn't say that my product was any better than the others, but we used good bags, good tags, a sewing machine.

"I learned a great deal about the business from Mr. W. A. Jenkins, of Royal Purple Products, London, who was a pioneer in the business. He was a customer for seeds, including seed corn, and also for feed corn. The feed corn was shelled at the crib and delivered to various customers such as Mr. Jenkins, where it was sold at retail for feeding of poultry and livestock. "The Jenkins firm also handled our hybrid seed corn when it came on the market."

"Our representative in Quebec for many years was the Co-operative Federee, of Montreal," Nap related.

"Our seeds were put up in 100-pound plain jute bags when the products were seed wheat, oats, barley and open-pollinated seed corn. For the corn, it was cleaned well and smalls were screened out, that being the only sizing until we began putting up hybrid seeds, using the grader-sizer, which separated the flats and rounds each into three sizes.

When the King hybrids, along with those of other companies were becoming widely known, a dryer became essential. An ear corn dryer was newsworthy and the one developed by Nap was written up in The Windsor Daily Star, January 18, 1941 under the following captions: "Homemade Corn Drying Plant in Kent Embodies New Principles — Built at Pain Court By Youthful Dealer — Capacity of 3,000 Bushels, It Requires Staff of Seven; Napoleon King Finds It Attracts Business." The article pointed out that it was similar to those at Ridgetown and Harrow experimental farms and that it would "prove the salvation of the corn grower," and would be handling seed from the 300 acres contracted with growers within the rules of the Ontario Seed Corn Marketing Board, and that "contracts for the 1941 crop will likely be on a bushel basis rather than on acreage."

In early October of 1986 Nap visited a former associate in seed corn breeding, 88-year-old Clarence Nuti, of Glen Haven, Wis., with whom he had established a business arrangement in 1950, when the Pride line was taken on by the King company. Mr. Nuti, as a Pride plant breeder, cooperated closely with Nap in plot-testing and selection of the lines best adapted to Canada, supplying the stocks of inbreds

for production of four-way and three-way seeds, and eventually the single crosses, which now constitute almost the entire market. In 1965 Northrup King acquired the Pride operation, and franchised the Canadian branch to the King organization. In 1984 Nap and his son Paul became owners of the Pride name and all that had been included in the franchise in a deal separating it from the U.S. based company.

Nap said Mr. Nuti, originally a farmer in Wisconsin, grew four acres of commerical corn from Wisconsin Hybrids in 1934. It was in 1938 that eight Wisconsin farmers formed a business known as "Wisconsin Corn Associates" to produce the Wisconsin hybrid seeds under the name of 'Wis-Bred," one of the most popular brands during the early days of hybrid corn.

Mr. Nuti also told Nap that the Pride company introduced a new hybrid (Pride D 66) in 1944 by having a hand picking contest, attended by 2500 fans, and featuring some of the top huskers. This variety was the one that triggered the increased interest in and the expansion of Pride Hybrids. This was before the development of the mechanical picker.

It was in 1938 that Nap made a trip to Ohio, Illinois and Indiana, saw the hybrids growing and was impressed. He was able to make deals for seed stocks to produce 4-way hybrids known as Illinois 366, Iowa 931 and an early Ohio variety. These varieties received special registration certificates for the product of some 15 acres grown by Nap in 1939. He did not grow a Wisconsin hybrid that first year.

Nap sold the seed, mostly to neighbors, the maturities being late enough to limit them to the long-season area. "At $8 to $10 a bushel, farmers thought it was pretty expensive, but the corn was very impressive and everyone came to see it."

More of the crossing stocks (including some single crosses and inbred parent material) were obtained by Nap, but instead of planting this himself, he "took the good advice" of N. D. (Mac) MacKenzie, representative of the Dominion Plants Products Branch, in Chatham, and turned them over to the Experimental Farm at Harrow for further development and testing with some of the single crosses they were working with. From these emerged eventually the K 300 (about 115 - day) 4-way hybrid, the first licensed variety developed in Canada and awarded exclusively to a Canadian company."

This K 300 proved to be an excellent corn, Nap said. It was sold extensively in United States as well as Canada. It was suitable for grain in Kent and Essex and ensilage in areas north and east. The yellow dent deep kernel had a reddish tinge, was medium height, leafy, uniform, with good standability — "yes, this was the variety that gave us a good push."

In these early years of the King company, other varieties produced were the Wisconsins, which came to be known as Canada Hybrids when the parent stocks of Wisconsin origin were produced in Canada, 696 (120-day) 645 (115-day) 625 and 606 (110 - 112 day) 531 (105 day) 355 (100 day) 275, 255 and 240 (75 to 90 day), the earlier types opening up the corn industry in Quebec, where the King company had the first trials in 1943. "It was the 355 and earlier corns that really brought on the expansion of the corn industry. Most thought it couldn't be done. A dairy school at St. Hyacinthe, Que., had the first trial plots. It expanded from that and in 1946 - 47 we sold our seeds through the co-operative. About 1960 the sales were taken on by "Semance Champ Plain" and then "Seminco," which we sold out to the Quebec government in 1982."

It was in 1941 that a group of undergraduate agricultural students from a college

in Quebec came to Kent County to work in and learn about the production of hybrid seed corn. They were employed at various farm locations, including the King farm at Pain Court. One of the young agri-students was Paul Raymond, who became "hooked" on the business and life in Kent County. "Nap" hired him in 1942, made him plant superintendent and credits him with much of the success of the King seed business (Retired May, 1987).

Paul King, one of Nap's sons, graduated in business administration at the University of Ottawa in 1964. Currently, he is general manager and vice-president of Kingroup.

"Nap" is president of each of the enterprises that make up the "Kingroup Inc.," the successor to "King Grain Limited." Kingroup has two subsidiaries, "King Agro Inc." and "King Grain (1985) Limited." King Agro Inc. is in research, production and marketing seeds through the Pride Brand and King Brand dealer networks in Canada. In addition, two wholly-owned subsidiaries operate under King Agro Inc., (I) King Grain Inc. markets seed throughout Northern United States under the King Brand label, and (II) King Agri-Serve Inc., national distributor of agricultural chemicals across Canada. "King Grain (1985) Limited" incorporates the grain and farm service division and the milling division.

The Fiftieth Anniversary of the King organization was marked in 1984, and the Windsor Star carried a feature article written by Janice Vansickle, telling of the growth and various developments since Nap's going on his own in 1934. Cited were the "winter nurseries in Chile" allowing it to speed up the development of new seed corn varieties.

The milling operation in Chatham uses prime grain corn, separating it into various special components used in brewing beer and in production of a long list of widely used foods.

More of the article:

The company hasn't forgotten the local farmers, the people who provided Napoleon with his early customers.

Grain storage elevators dot the landscape around the company's head office. The farm service division provides customers with market information, fertilizer formulas and custom applications of both fertilizers and chemicals.

The King family maintains friendly relations with the company's 130 employees, including 18 who are shareholders. As he tours the head office and the research farm near Chatham, Napoleon takes the time to say hello to each worker he encounters. (The annual payroll is $3 million; as well about 600 area students find summer employment with the company, detasseling corn and doing research).

THE RESPECT appears to be mutual, judging by the wooden plaque the employees presented Napoleon with in honor of the company's 50th anniversary.

At 72 years, the elder King is semi-retired, spending winters at his home in Arizona, travelling and keeping up the gardens around his home in Pain Court. But, as president, he still keeps close watch on the company.

"I don't want to quit, I want to know what is going on."

The day-to-day operations are overseen by Paul in his role as executive vice-president. Son Maurice is the research farm manager and a younger son, Jules, is expected to join the company when he finishes university.

The father of nine children from two marriages, Napoleon never finished high school.

"I've never taken any agriculture courses," says the silver-thatched Napoleon in his characteristically quiet voice. "I was born and raised on a farm and I've always had a soft heart for farming.

"Where I got most of my education was through travelling, going many places in the world to find out what others were doing."

The tack has worked well. "I've tried many things... I didn't succeed in everything, but if you don't try you don't succeed."

Paul says success has come from favoring gut feelings and dedication over the guidance of consultants.

Success came in spite of adversity, including the death of Napoleon's first wife in 1948 and a fire that destroyed his mill and warehouse in 1947.

The latest challenge: What new directions the company will take.

Paul says the recession has made the company aware of the limitations of a family-owned operation. "We have not been as successful in moving as fast as we would have liked to with the economic conditions in agriculture in the last few years. Being family owned, there are limited resources as far as capital investments."

The company has missed opportunities to move into new fields because of a lack of funding he says. And it may be necessary to join forces with the multi-national corporations in some aspects of the business, particularly research.

"We haven't made up our mind as to whether we will remain family and employee-owned in the next generation."

Paul says this, the year of the company's 50th anniversary, will not necessarily be the turning point. But: "there are new challenges facing us and new opportunities for development in various areas."

Among the recognitions Napoleon King has received are the following:

1967 - Served as President of the Chatham Chamber of Commerce.

December 1, 1971 - During Farmers' Week at St. Hyacinthe, Quebec, was presented a plaque by the Quebec Minister of Agriculture, Norman Toupin, for outstanding services rendered to the development of grain corn in the Province of Quebec.

July 18, 1972 - Made Honorary Life Member of Canadian Seed Growers' Association during Annual Meeting in Halifax.

February 19, 1975 - Was presented the O.A.C. Centennial Medal by the Ontario Agricultural College, University of Guelph, for contribution to the world of agriculture.

1977 - On the occasion of the 25th anniversary of the accession of Her Majesty the Queen to the throne, was presented a Medal of the Queen.

November 16, 1978 - In recognition for outstanding contribution in agriculture, was presented with a plaque at the 32nd Annual Rural Urban Dinner in Chatham.

July 6, 1982 - Was made Honorary Life Member of the Canadian Seed Trade during the Annual Meeting held at Pointe au Pic, Quebec.

The Ian Maynard Story

In 1982, the Ontario Institute of Agrologists awarded an Honorary Life Membership to Ian Maynard, in recognition for: "His innovative farm practices included the first production of hybrid seed corn in Canada in 1938, the interplanting of male pollinating corn between the female rows, artificial drying of seed corn and the use of specialized seed treatments." In 1985 he was the recipient of the Ontario Bicentennial Medal Award. In 1979 Ian hosted the International Plowing Match and Farm Machinery Show.

John Cumming and I spent an evening with Ian at his home in March, 1987, and reminisced about his experiences as one of the first (as mentioned above) to produce hybrid seed corn in Ontario. Ian recalled receiving the Wisconsin crossing stocks from N. D. (Mac) MacKenzie, and growing a small acreage. It required artificial drying, without which the germination would be damaged by freezing, so Ian built a crib ear-corn dryer that received its warm forced-air from the same furnace that heated his nearby home, and embodied an alternating circulation system to reverse the direction of the warm air through the ears of seed corn.

When interviewed on the occasion of his becoming mayor of the tented city of the 1979 International Plowing Match, Ian recalled being one of the first three Ontario farmers to grow hybrid seed, in 1938. "I guarded those fields like they were gold," he said. Some detasseling was done on horseback, it being easier to reach the tassels on the high "female" plants (a modern application would be the mobile detasseling machines).

The second son of Mr. and Mrs. Archibald Sylvester "Vess" Maynard, Ian was born in Harwich Township in the Northwood area 31 Oct., 1906. The family moved to the "St. Paul's" area bordering No. 40 Highway (Communication Road), Harwich. "Vess" became one of the pioneer seed corn growers (open-pollinated varieties), and when hybrids appeared on the horizon he did not have very high expectations for them because of the complicated production process. Ian's experimenting with hybrids were "on his own." Ian's older brother "Mac" was noted for his "Wisconsin 7" a tall leafy plant with large ears of white dent grain (open-pollinated).

The firm of A. S. Maynard and Sons was noted for its flint varieties, Salzers North Dakota (a white 8-rowed flint) and later Longfellow (an 8-rowed yellow flint). There were early-maturing strains and most of the seed was sold in Ontario's "dairy country — Oxford County." The flints were succulent, leafy, with fine stalks and ears slender enough that they could be "mouthed" by a cow without having to be chopped or hammered. As feed, the whole plant was harvested (sickle-cut by hand), bundled in sheaves and dried in shocks before being hauled in and fed. Eventually, the Maynard firm added Golden Glow, a popular yellow dent for grain production.

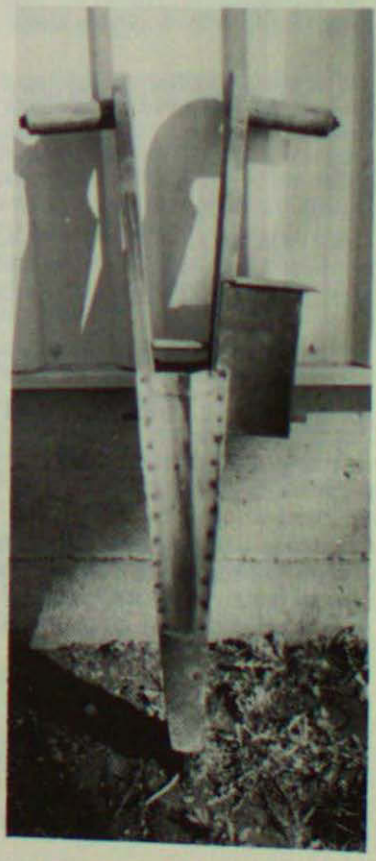
Ian recalls that a good crop of yellow dent open-pollinated corn grown in Kent for grain use would be 100 bus. of ears per acre. (The seed was sold in 56-lb. bushels but field yields were usually calculated in ears. It took 72 lbs. of ears to yield 56 lbs. of grain, dry basis). "The same acre could now be expected to produce up to 200 bus. of dry shelled grain as a result of high-yield hybrids and modern culture and fertilizer," Ian said.

Ian said the corn show in the Chatham Armoury was a very important event in the improvement of corn in Kent County. Some of those from Harwich Township who

were noted for their exhibits and production of open-pollinated corns were R. J. Johnston, William McNeill, William and Ross Townsend, Edgar Mallory, Harry Laird and Archie Campbell (Ridge).

When one discusses the impact of hybrid corn with those who participated in its introduction and were involved with it during much of their lives, many rate it as "the biggest thing that ever happened in agriculture." Ian ranks it with tile drainage of farm land and the development of commercial fertilizer.

Although Ian produced "Maynard's Hybrids" from the Wisconsin hybrid varieties for many years, he consistently operated his seed cleaning business for all kinds of seeds — the commonly grown grains and beans, and even lima beans, tomato and pumpkin. He has also done custom sizing and processing of seed corn, and is recognized as an authority in selection of quality. In his eighties, he continues to operate his plant with the same acumen as always, and still displays the innovative interest and love of the land, having always been recognized as a conservationist in his agricultural pursuits.



The hand corn planter, commonly known as "JABBER." Would drop one or more (as adjusted) kernels per jab.

Wilcox Told the Hybrid Story - 1940

Hybrid seed corn produced in Ontario came on the market from the 1939 and 1940 crops. The first hybrid seed was grown by Oliver Wilcox, of Woodslee, Essex County, in 1938. The next year, he and three others produced about a thousand bushels, which found a ready market in a limited area. The other growers were Jim Grant, Napoleon King and Ian Maynard, whose stories we have already included.

In 1940, all four of the "first year growers" were "in the hybrid seed corn business" and promoted their wares. Oliver Wilcox would later join in the Essex Hybrid Seed Corn Company, but in 1940 was known as the "Wilcox Hybrid Seed Corn Company," and issued an information folder which told the hybrid story to the Ontario corn grower. Because of his untimely death, Oliver Wilcox's career was of short duration, but he did leave an important impression, which is very clearly expressed in the words of the 1940 folder (his words), which were as follows:

Quality Hybrid Corn Adapted to Ontario Conditions

WILCOX HYBRID SEED CORN

"Producing Only the Best"

OLIVER WILCOX B.SA.
MANAGER

Telephone 19 r 3
WOODSLEE, ONTARIO

What Hybrid Corn is, and Why You Should Grow It!

Hybrid corn is the result of many years of tireless and painstaking work on the part of United States corn breeders.

When one realizes that the United States produce seventy per cent of the world's corn, growing each year approximately 1,000,000 acres of corn, it is easily understood that any increased production per acre becomes very significant.

Consequently the chief efforts in corn improvement work have been achieved in the U.S.A.

For many years corn breeders attempted to improve the crop by mass selection and ear-to-row selection, but the results from this were very disappointing.

The question arose, "Why do these not improve our

corn." The answer being that no matter how vigorous and true to type the selected corn plants were, the breeder had no assurance whatsoever of the origin of the pollen grains that fertilized the selected ear or ears of corn.

Consequently when this selected corn was planted the results were often very contrary to what was expected.

This type of improvement work can be compared to a dairy farmer attempting to improve his herd by placing all emphasis on his cows and paying no attention to the bull he uses. All farmers know that such efforts in animal breeding are doomed to failure. Similarly in corn breeding. Both sides of the parents must be taken into consideration.

That is the basic reason for the outstanding superiority of hybrid corn over open pollinated corn, namely: — controlled pollination. The corn breeder in putting the idea of controlled pollination into practice adapted still another breeding principle from livestock men. Namely: — that by inbreeding it is possible to concentrate certain characteristics within a strain whether they be good or bad.

In hybrid corn production inbreeding is used as the basis for selecting the strains to be used in the final crosses. The breeding starts with a number of strains of standard open pollinated corn and inbreeds them by placing a bag over the tassel which produces the pollen grains and another bag over the ear to protect it against pollen from other corn plants.

When the proper time comes the bag is removed from the tassle and the pollen grains are dusted on the silks of the ear of the same plant.

This inbred ear of corn is saved and planted the following year and plants are selected from the resulting corn and inbred again.

After repeating the process of inbreeding and selection for a number of years inbred strains are arrived at that grow true to type and constantly show the same characteristics year after year.

Since many different inbred strains are produced there must be some standard to go by in selecting those strains that are to be used in crosses.

Some of the characteristics for which inbred lines are selected are:

1. Higher yield per acre.
2. Larger root system.
3. Stiff, erect stalk.
4. Quality of grain.
5. Numerous and broad leaves.
6. Vitality of the young seedlings.
7. Ability to withstand drought.

8. Uniformly placed ears.
9. Ease of husking.
10. High shelling percentage.
11. Adaptability to certain soil and weather conditions.

If it were possible to get all the above characteristics bred into one line it would be unnecessary to go any further, but as yet it has been impossible to get more than three or four of these in one line, consequently it is necessary to combine those strains that contain a maximum of these factors.

Herein lies the most tedious and painstaking part of hybrid seed corn production, since it is necessary to cross the inbred strain in every possible combination and by trial and error ascertain which crosses are most suitable.

To clarify this we will say we have six inbred strains, call them A. B. C. D. E. and F.

We cross them every possible way. A crossed with B., C. with D. are good, but strains E. and F. do not fit in anywhere.

Strains E. and F. are therefore discarded and we have left what are termed two single cross hybrids. But for one fact, the work could stop here.

It cannot however, because in making these single crosses the two inbred strains used are planted side by side in a field at least 40 rods from all other corn to protect them from foreign pollen, in the ratio of one row of the one strain A., which we will term male, to two rows of strain B. termed female.

The tassels are removed from the two rows of B. strain to prevent it pollinating or fertilizing itself, and the tassels are left on A. or male row.

The reason for the low ratio is that the strains being crossed are both inbred and are more or less degenerate. Therefore only two-thirds of the field can be saved for seed since the crossed seed is produced only on the two female rows.

The only way to increase this ratio is to go on and cross again two single cross hybrids. By doing this it is possible to step the ratio to one male row to four female rows, thus four-fifths of the field produces hybrid seed corn.

Seed cannot be saved from a commercial crop of hybrid corn without disastrous results.

The reason being that each strain used to build up the hybrid originally had in itself only a few good characteristics along with a number of bad ones that were covered up by the crossing process.

Consequently when seed is saved the following year the corn reverts back to one of the strains and all the

good work is undone.

Dr. N. P. Neal, of the Wisconsin University, has shown conclusively that hybrids that outyield the open pollinated corn approximately 12% have when used a second year fallen down much below the open pollinated corn.

Going back now for a moment to the United States, we will point out what this great advance in corn breeding and improvement has done for that country.

As stated previously, the U.S.A. produces each year approximately 100,000,000 acres of corn.

Ten years ago it is safe to say that 10% of that vast acreage was planted with hybrid seed corn, whereas now there is 60% or more of the crop grown from hybrid seed corn. This phenominal increase did not arise from mere assumption that hybrid corn was superior to open pollinated corn, but because thousands of tests have been conducted in every corn-growing state. These tests proved that hybrid corn had many advantages to offer. They showed that hybrids increased the yield of grain and fodder per acre anywhere from 10 to 20% over open pollinated corn. This in itself was very remarkable. Hybrid corn is resistant of lodging. Anyone who has inspected a field of corn which contains both hybrid and open pollinated corn realizes this fact.

The reason being that the hybrid corn root system is much larger and stronger than that of the open pollinated.

Hybrid corn has a stalk that is so strong that if a corn borer enters it the plant is still capable of going on and producing an ear of corn or good fodder for the silo, not falling down as does open pollinated corn.

Hybrid corn is free from barren stalks, produces a much more uniform crop and fodder, and has the ear placed at a uniform height on the stalk.

Hybrid corn, due to its extensive root system, is capable of withstanding adverse conditions that would prove fatal to open pollinated corn.

These advantages coupled with vitality of the young seedlings, ease the husking and high shelling percentage explains the rapid advance in the use of hybrid seed corn in the U.S.A.

Realizing what hybrid seed corn has to offer, your Department of Agriculture turned to hybrid seed corn as a means of helping the Ontario farmers. At no time was it a matter of ascertaining whether or not hybrid corn was superior to Ontario open-pollinated corn, but rather to find those hybrids most adaptable to Ontario soil and climatic conditions.

Extensive tests have been conducted in Ontario dur-

ing the last three years. We who are the largest Ontario hybrid seed corn producers, have based our selection of hybrids on the results of these tests and have for sale at the present time three outstanding hybrids, all of Wisconsin origin. The material used in the production of these hybrids comes direct from the Wisconsin Agricultural College, and all subsequent work is carried on under the strict supervision of the Canadian Seed Growers Association.

It is logical that Wisconsin hybrids are best suited to our conditions since that state is very similar to Ontario both in soil and climate.

We offer for sale this year limited quantities of the following three approved Wisconsin hybrids: —

645 — A leafy, medium early maturing hybrid producing large yields of both corn and fodder. It is advised that this hybrid be grown for husking corn in Essex or Kent Counties, or for ensilage purposes in other counties.

625 — A hybrid much like the above hybrid, probably most suited for ensilage purposes since it does not yield quite so much as 645.

606 — An earlier hybrid, popular with men that practice late planting or for husking corn in areas that do not attempt to produce husking corn at present due to a shorter growing season.

Our hybrid seed corn is dried to 12% moisture content to assure vitality.

It is carefully graded into three grades: flats, medium flats, round.

It is treated with Semisan Jr.

There is no duty or exchange to pay as in the case of American corn.

Use Wilcox Hybrid Seed Corn next year and increase production and profits on your farm.

WILCOX HYBRID SEED CORN COMPANY
Phone 19-3
WOODSLEE, ONT.
OLIVER WILCOX, B.SA, Manager.

Ontario Had Its Corn Problems

There was an interesting period in the history of the Ontario corn industry prior to the coming of the hybrids in 1939. The stage was being prepared for the entry of the prima donna, although the players had no knowledge of what the eventual entrant on the scene would be. And it would indeed steal the show.

Growing of corn in the Essex-Kent area of Ontario during the early years was principally for on-farm feeding. Yellow dent varieties were used most extensively. Hogs could shell the kernels off the cob and make efficient use in converting to meat and lard. For the poultry flocks the hand-cranked sheller was normally used, providing kernel corn for the birds and corn cobs for fueling the cooking and heating stoves as well as complementing the Eaton's catalogue's end-use in the out house. Depending on the size of the herd, cattle were fed sheaves of whole plant corn from which the larger beasts could separate the ears and make reasonably efficient use, with hogs normally following the cattle to glean the ears that could not be handled by the bullock and the undigested grain that was passed in the manure. Corn-fed cattle from Kent and Essex were in a class by themselves on the Ontario market, most of which was otherwise supplied by beef produced on grass, hay and small grains (rolled). Although the horse tended to become "too fat" when fed corn, the whole ear was extensively used, particularly when the horse was being "worked." A horse could remove and eat the kernels, leaving the cob.

With the introduction of tractors and improved tillage equipment, planters, cultivators, fertilizer and harvesting machinery, corn became more significant with the beginning of the third decade. Interfering with progress was the corn borer. By 1930, the Ontario Corn Growers' Association, with W. R. Reek as president, had the borer as one of its main concerns. Dated April 27, 1931, Kent's agricultural representative, James A. Garner, addressed a letter to Prof. L. Caesar, Dept. of Entomology, Ontario Agricultural College, Guelph, enclosing a copy of a resolution passed by the O.C.G.A., "appreciating the fact that in spite of the very favourable seasons for control in 1930 in addition to the clean-up which decreased very materially the infestation, nevertheless we fully recognize the danger, particularly, unless a thorough clean-up is made in 1931. Therefore we as growers of corn especially urge all producers in Ontario to thoroughly clean up and destroy all corn stubble and remnants and to assist the authorities in this work by hearty co-operation, believing that in so doing they will be working in our best interests."

At the same O.C.G.A. meeting it was decided to request Ottawa to impose a duty of 25 cents per bushel on all corn imported into Canada.

One must bear in mind that in 1931 the Great Depression was reaching its depths. Live cattle and hogs were priced at about three cents a pound and corn 50 cents per bushel. And there were those in the farming community then, as at all times, who felt challenged to do something about the farmer's predicament.

A leading voice in agriculture at that time was D. D. Gagner Jr., of Dover Township. He was chosen by the Association to present the case of the corn grower to the Dominion Minister of Agriculture, in May, 1931, and March, 1932. He presented reports to the association on returning from the Ottawa sorties, and they are as follows:

ONTARIO CORN GROWERS ASSOCIATION
c/o W. R. Reek President

Pain Court, Ont.
May 6/31

Dear Sir: Having been delegated by The Ontario Corn Growers Association to be one of a delegation to wait on The Minister of Agriculture and present the views of the corn growers and ask for a duty on foreign corn, I wish to submit the following report.

I left Chatham for Ottawa Sunday evening May 3, on the train. I met Mr. John Lickman of Essex, who was representing The Essex Farm Bureau and in Toronto we met Mr. Gott, M.P. for Essex, and at Ottawa we were joined by Dr. Morand M.P. and Dr. Poisson, M.L.A.

Mr. Gott and Dr. Morand had arranged for an appointment and we met The Minister of Agriculture, The Hon. Robert Weir at noon on Monday May 4.

The delegation was exceptionally well received by the minister who outlined to us what he had already done in our interests. He explained to us that shortly after his arrival in Ottawa he had interested himself in trying to work out a plan whereby a duty on corn would be satisfactory to all sections of the country and he informed us that there would now be a duty on corn had it not been for the opposition of the British Columbia poultry raisers who use a large quantity of corn and are not in favor of a raise in the price which would be bound to happen.

The minister however suggested that it might be possible to overcome this difficulty by bonusing The British Columbia poultry raisers in freights for shipments of corn from the East or by educating them to feed Western grains instead of corn which are as profitable to feed as corn and probably more so.

The members of Essex on the delegation presented a brief to the minister showing the amount of corn raised in Canada, cost of same and the amount of corn imported from other countries, also much other information.

The minister assured us that his sympathies were with the corn growers and the delegation was impressed with the splendid hearing accorded them by the minister who is himself a practical farmer and understands very well the many difficulties which farmers have to contend with.

My own impression is that we are fortunate in having the Hon. Robert Weir as head of Canadian agriculture.

Below is a copy of a letter I left with the minister:

Honorable Robert Weir
Minister of Agriculture
Parliament Buildings
Ottawa, Canada.

As the delegate of The Ontario Corn Growers Association I wish to express my appreciation to the present government for the interest they have shown in agriculture.

It is indeed a pleasure to be privileged to place before you the views of so many who are making an honest endeavour to make of Agriculture an industry which will continue to be classed as the basic industry of Canada.

It is to be regretted that while we as farmers do not seem to realize that we are

in charge of the largest business in Canada and are largely responsible for existing conditions, other leading interests seem to forget that agricultural prosperity means prosperity for all Canadian industries and agriculture which can very well be called the flagship of Canadian industries is more or less allowed to shift for itself and in many instances is not given the protection so essential to its profitable existence.

Financial interests, other industries, the Press and the government can do a great deal to help agriculture; for instance, by undertaking an educational campaign, which would no doubt take considerable time, possibly years, to teach us as farmers that we must learn to conduct the affairs of our industry in a businesslike way. We are now in charge of the biggest business in Canada and are running it in direct contrast to sound business principles.

There is no business, no matter how small or how large, which can successfully carry on unless those in charge are in a position to control the production and the marketing of what they produce.

The fact that agriculture has carried on when the marketing of its produce is under the control of other interests proves that it is not only the largest industry but also the best industry in Canada because no other business could exist under the conditions which agriculture has had to go through.

We in Western Ontario are favoured with some of the best land under the sun and the particular section where I am I believe is second to none on the North American continent. We have thousands of acres of level clay loan land that will grow any crop in abundance. We have ideal weather, excellent drainage and we know no crop failures. (Dover Twp.-Kent).

Having been so exceptionally favoured is probably the reason that we have not asked for protection before but we must now have some measure of relief and we see in the proposed corn tariff, which has been so well explained, an excellent opportunity, not only as an incentive to increase our corn production which we can very easily and profitably do, but we could at the same time help to create a market for Oats and Barley from the Western Provinces as we would be growing far less of these crops and we could in that way eliminate the importation of millions of bushels of foreign corn. We are in a position to be able to supply Canadians with a Canadian product. Why not do so?

We are also asking for a substantial tariff on distillery molasses which has largely replaced Canadian corn for distilling purposes. This means that far less corn is being consumed than should be. We know that you are very much interested in the welfare of the Canadian farmer and we trust that our request for a protective tariff on corn and molasses will meet with your approval and cooperation.

D. D. Gagner Jr., Ontario Corn Growers Ass'n.

Mr. Gagner
A year later, March 31, 1932:

To The Ontario Corn Growers Association,
Chatham, Ont.

As a result of several meetings of dealers and growers in the counties of Essex and Kent for the purpose of furthering the marketing of corn when it was disclosed that nearly 8,000,000 bushels of corn had been imported into Canada in 1931 while

home-grown corn could not find a suitable market, it was decided to appeal to the Dominion Government and urge the necessity of further tariff protection for the corn growers of Southwestern Ontario because of the fact that approximately 96 per cent of imported corn had entered Canada free of duty.

At one of these meetings, Mr. Justus Miller of the Border Chamber of Commerce was instructed to prepare a brief and a committee was appointed to present this brief to the government and as a member of this committee who waited on the government I wish to submit the following report:

Arrangements were made for an appointment with the proper authorities and on Tuesday Mar. 29/32. This delegation who were E. P. Tellier, Lorne Murray, F. B. Stevens, Wm. Wallace and D. D. Gagner Jr. met the Hon. E. N. Rhodes, Minister of Finance, in Ottawa.

The brief, of which a copy had previously been sent to several members of the cabinet, was discussed and while he accorded us a favorable hearing, and seemed to be in sympathy with our problems, he informed us that the strongest opposition to an upward revision of the tariff came from the poultry feeders of British Columbia and the millers of cereals.

During the discussion, it was brought out that the South African corn grower was subsidized by his government to the extent of 12 cents per bushel. The Minister informed us that if this were the case our government had the power to apply the dumping duty act and that all further imports of South African corn would be watched closely. He also expressed the opinion that it would be unwise to revise tariffs at this time due to approaching the Imperial Economic Conference to be held in Ottawa next July.

After our interview with the Hon. E. N. Rhodes, one member of our delegation expressed disappointment at the fact that the Minister of Agriculture the Hon. Robert Weir was not present and there did not appear to have been any appointment made with him. However, with the cooperation of some of the members of parliament for Southwestern Ontario and particularly of Col. Robinson M.P. The committee succeeded in having an interview which was very interesting and I am convinced that the present minister of Agriculture is one of the best friends we as farmers have and we are indeed fortunate in having at the head of the Department of Agriculture one who seems to understand the problems facing agriculture so well, and who is so much interested in the welfare of the farmer.

During this interview, which lasted from 10.45 until past midnight on Tuesday, Mar. 29, we were assured that we were not imposing due to the lateness of the hour, and that we should go over the whole brief with him, which we did.

As in the case of the Hon. E. N. Rhodes he informed us that certain interests had already approached him opposing any additional tariff protection giving as their reasons that Ontario corn was inferior in quality to imported corn and not suitable for the manufacturing trade. He advised that a proper test of moisture contents, also a thorough analysis of all varieties of Ontario corn as well as imported corn, which we would be able to have made by The Research Foundation of Ontario, be forwarded.

The committee have requested Mr. George Paterson of The Ontario Marketing Board to have these tests and analysis made as soon as possible.

When the result of these tests is made known to the committee, same will be sent to the Minister of Agriculture so that he will be in a position to place facts before

the cabinet.

The matter of the subsidizing of the corn grower by the South African government was also discussed and while, in view of the approaching Imperial Economic Conference, he did not favor applying the dumping duty against a sister colony, at the present time he outlined to us his manner of dealing with such cases which has been satisfactory in dealing with Australia.

What the minister has in mind, he told us, that instead of causing the dumping duty to be applied at this time at the risk of causing illfeeling in Africa his plan is to call the South African Government attention to the fact that by having been allowed to export corn to Canada duty-free, they have been granted a special privilege and while it is not Canada's intention to apply the dumping duty Africa must not take undue advantage of these special privileges for fear of causing illfeeling in Canada and this method he is confident will have the desired effect.

As I see it, the committee feel that they have succeeded in interesting the government in the matter of subsidized corn entering Canada duty-free and the Minister of Agriculture assures us that he is confident of satisfactory results in his dealings with the South African government.

The Committee also feels that by having placed some of the problems and difficulties of the corn growers before the minister of Agriculture will mean that he will have first hand information to place before The Imperial Economic Conference in July next, and as a member of the committee, I wish to recommend to the corn growers that we should not lose a single opportunity of discussing agricultural problems with our government representatives and to see that these problems are made known to the proper authorities.

I am D. D. Gagner Jr.

Some consideration was given by the federal government to the solicitations by Mr. Garner and other delegates to Ottawa. But it turned out to be ineffective, details of which are revealed, along with other problems, in this letter from W. B. Somerset, chairman of the Ontario Marketing Board, to the then Ontario Minister of Agriculture, Col. T. L. Kennedy, a copy of which was sent to Agricultural Representative J. A. Garner, and was included in the office files:

Colonel The Honourable T. L. Kennedy, *January 18, 1932*
Minister of Agriculture,
Department of Agriculture,
Toronto, Ontario

Dear Colonel Kennedy:—

Re Corn Situation.

Following up our meeting with the Corn Growers and Shippers in Chatham I would like to summarize the situation briefly as follows.

Last year the Corn Growers and Shippers made representations to Ottawa for protection in the way of a tariff against the importation of corn into Canada contending that Ontario produces or can produce enough corn to fill all Canadian needs.

A tariff measure was adopted, but the Corn Growers, through not entirely understanding the situation, did not get and have not now got what they wanted. The tariff adopted was against American corn and corn from the Argentine but although adopted in June was not put in effect until August and during the interval the corn

trade was allowed to import large quantities of American and Argentine corn and put it in storage. There was no general tariff adopted against all corn coming into the country and after August 1st it was discovered that the corn trade was importing large quantities of corn through New York from South Africa which country up to that time was not even thought of as a competitor.

Furthermore corn brought into the country for Starch manufacturing and such by-products as Corn Syrup and Gluten Meal, for cereal mills and making Corn Flakes also for distillation purposes is exempted from the tariff and the Ontario growers find themselves up against a difficult situation not only through competition abroad but competition that has a handicap over them in freight rates when it comes to selling to Canadian manufacturers.

American corn is hauled by Canadian Railways at nearly half the rates from Windsor to Toronto or Montreal on a through haul from Chicago than they charge Canadian corn between these points so that starch plants and cereal mills can buy American corn more cheaply than Canadian corn as they are exempted from duty. Ocean rates on South African corn handicap them in freight rates they have to pay to Quebec or even Ontario points.

To further add to their troubles the Grain Trade, to whom they should be able to look to act as their selling agents are definitely antagonistic to them because they have been the importers of the foreign corn now held in storage which they wish to sell rather than the Canadian article.

Even in corn for seed purposes they have no advantage. While Canadian grown seed is very much superior for Ontario growers for silage purposes, there has been little or none available for years owing to corn borer infestation and growers of silage corn have been used to purchasing seed from the United States or rather using imported feed corn as seed.

As to what can be done to help them we have advised the following steps and are assisting them in all ways possible.

1. We have advised them to take steps to re-state their case at Ottawa as to tariff protection. We see no reason why they should not be given a general tariff against all imported corn the same as the U.S.A. has in effect and as far as the exempted industries are concerned there seems no good reason why the Canadian Starch and Cereal manufacturers and distillation industry which are all given protection under the Canadian tariff should not be required to manufacture from Canadian raw material as long as it is available.

2. We are endeavouring to arrange a conference between the different Railway lines and the Corn Growers and Shippers with a view to discussing their grievances in hopes that some adjustment can be arrived at, failing which, the corn interests propose to appeal to the Railway Board.

3. We have suggested that the Ontario Growers and Shippers should approach the Seed Branch with a view to enlisting their cooperation in an effort to educate Ontario growers of corn to the advantages of Canadian-grown seed for all purposes, particularly silage corn. The Growers have in mind establishing seed grades and the colouring of imported seed to distinguish it as less suitable as is now done with clover seed.

4. The setting up of some other form of Sales Organization to reach feed and seed

dealers other than the present Grain Trade, which is antogonistic as explained above, is under consideration and steps are being taken to bring into existence some form of organization of the Corn Growers, including the Shippers, to promote the sale of Ontario corn and prevent price-cutting and other demoralizing practices.

To sum up the situation, the Corn Growers and Shippers realize that extraordinary efforts are necessary unless this season's splendid corn crop is to be sold at prices lower than cost of production. They contend that it is possible to largely increase our Canadian corn growing industry to the benefit of all concerned, including Western grain growers, and that such a set back should be avoided at all costs.

The Ontario Marketing Board has already taken steps to help the Corn Growers in bringing the situation home to our farmers. We will assist them in every way possible with their freight and marketing problems and we hope they will go forward with organization of the Growers and Shippers into some form of Marketing Council or Sales organization that will overcome antagonistic trade conditions and get their corn properly into the hands of the feed and seed users.

Yours very truly, W. B. Somerset.

What ensued was the following document. The author and sponsorship were not indicated in the files, but it was probably issued by the Ontario Corn Growers Association in the early part of 1932:

MEMORANDUM
Re The Necessity of Further Tariff Protection
For the Corn Growers of Southern Ontario

A Brief Historical Review of Situation *- Indian corn has been the staple crop of Southern Ontario since the development of commercial agriculture in this region. It has been grown both as a cash crop and as a feed crop for farm animals. From 1925 to 1929 inroads by the European corn borer caused so serious a diminution of crop as to entail the loss of its prime position in Southern Ontario agriculture, and during those years disrupted the normal trade channels. During that period corrective measures were applied, however, which eventually controlled the corn borer so that the corn crop has again assumed its position of prime importance in this region. In 1931, as reported by the Ontario Marketing Board, the counties of Essex, Kent, Lambton, Elgin, and Norfolk grew a total of 106,964 acres, with a production of 7,333,583 bushels. If a normal market can again be secured, this crop will at once increase to at least twice this acreage and total yield. In that event sufficient corn will be grown in Southern Ontario fully to meet the total market demands of Canada.*

Production, however, must await upon stable market conditions. As will be shown, the Ontario 1931 corn crop cannot be sold because of a market flooded by foreign imports admitted virtually free of duty.

Up to about five years ago practically all these importations came from the United States. At that time, due to conditions in the grain markets of the world, it developed that, quality and price considered, Argentine corn could be delivered in Canada at most consuming points at prices lower than the American product. The result was that up to 1931 the quantity of corn imported from the Argentine was considerably larger than that imported from the United States. During the period under review, practically all imported corn came from these two countries.

Customs Duty on Indian Corn as of August 1, 1931 *- In 1931 these facts were con-*

sidered in relation to the revival of the Ontario corn growing industry and the Federal Government graciously acceded to the request of the Ontario Corn Growers for tariff protection. The Dominion Parliament, therefore, placed the following tariff on corn, to become effective on June 2, 1931, but which was subsequently postponed until August 1, 1931: —

	British Preferential	Most Fav. Nation	Intermediate	General
x55 - Corn, Indian, n.o.p. per bushel on and after August 1, 1931	Free	.20c	.20c	.25c
x54A - Corn, Indian imported or taken out of warehouse by manufacturers of starch or of cereal foods, for use exclusively in their own factories in the manufacture of starch or of such prepared cereal foods	Free	Free	Free	Free

It will be noted that a general tariff was imposed on corn of 25 cents a bushel, an intermediate tariff of 20 cents and that British preferential was free. This tariff, however, did not apply on corn used in manufacturing cereals for human consumption or used in manufacturing starch, both classes being admitted free. The tariff, also, did not apply to corn used for distillation purposes. In that case the tariff of 7½ cents remained. In short, the customs imposts of 25 cents a bushel applied only to corn imported for seed or feed purposes which originated outside the British Empire.

It is now a little over nine months since the tariff became effective and it is interesting to note the particulars in connection with importations during that period. Immediately after the tariff was put into effect, importers of corn through the Boards of Trade, of which they were members, objected to the tariff becoming immediately effective, as they were seriously affected in view of contracts entered into previous to that date covering corn then afloat or bought to arrive. These importers petitioned the Government to exempt from duty all corn purchased prior to June 1st. It was submitted that much of this corn had already been sold while the portion unsold would not be saleable at enhanced prices, thereby causing losses to importers. It was strongly urged that these contracts be protected. Subsequently the Prime Minister introduced a resolution in the House of Commons postponing the new duties on Corn until August 1, 1931. As a result, all corn passed through Customs prior to that date was admitted duty free. This enabled the free entry of all corn then en route or which could arrive from the Argentine by August 1 and also enabled a considerable quantity of United States corn to be shipped to Georgian Bay elevators for storage and enter Canada free of duty.

***How the 1931 Customs Tariff on Corn Worked Out in Actual Practice** - A review of corn importations, exclusive of that imported for purposes of distillation, discloses most significant facts in regard to imports. In the following table four months period from April 1 to July 21 inclusive, before the said duty went into effect, is compared with the five months' period from August 1 to December 31 inclusive, after it was*

imposed.

IMPORTS OF INDIAN CORN, NOT FOR PURPOSES OF DISTILLATION

Country of Origin	April 1 - July 31 Free Bushels	April 1 - July 31 Dutiable Bushels	Aug. 1 - Dec. 31 Free Bushels	Aug. 1 - Dec. 31 Dutiable Bushels	April 1 - Dec. 31 Free Bushels	April 1 - Dec. 31 Dutiable Bushels
Great Britain	103				103	
Br. So. Africa	239,759		3,325,927		3,563,686	
Argentine	1,200,063	83,200	941,357	158,339	2,141,420	241,559
Netherlands	80,679				80,679	
United States	544,288	4,144	1,392,677	10,045	1,936,965	14,189
Australia				40		40
Spain				1,000		1,000
Br. India				2		2
	2,064,892	87,344	5,657,961	169,466	7,722,853	256,790

It will be noted that in the first four months' period 2,064,892 bushels of corn were imported duty free, while in the second period, 5,657,961 bushels of corn were imported free of duty. During the entire nine months' period 7,722,853 bushels were imported free of duty, while only 256,790 bushels, upon which duty was paid, were imported. In other words, the duty on corn did not protect the Ontario corn grower for the simple reason that 96.68 percent of the corn imported into Canada bore no duty at all.

A further analysis of the foregoing table shows that imports of corn from British South Africa in 1931, from which all corn was free of duty, exclusive of corn imported for purposes of distillation, increased from 239,759 bushels from April 1 to July 31, to 3,325,927 bushels from August 1 to December 31. The further fact is disclosed that while during this ten months' period 4,078,385 bushels of corn were imported from the United States and the Argentine, only 255,728 bushels were subject to duty. The inference, therefore, is that 3,822,657 bushels were imported from these two countries for milling purposes. In other words, because of the exemption of British Empire corn, together with the exemption on milling corn, the hoped-for protection became, in fact, 96.68 percent ineffective.

But particularly significant is the fact that much the larger part of the imports after August 1, 1931, came from British South Africa where formerly but relatively small quantities were shipped from there. It just demonstrates that the system of corn trading was revised. Immediately the duty became effective on importations from the United States and Argentina, importers began buying from South Africa in order to evade the said duty. It is also well to keep in mind that all corn originating in South Africa or Argentina and brought into Canada for use in Ontario and Quebec comes in during the season of navigation, May to November, in order to reach the Port of Montreal for distribution from there. The importations from South Africa during the four months' period from August 1 to November 30 reached the large total of 3,325,927 bushels.

The stocks of foreign corn at present stored in elevators throughout Eastern Canada, compared with those of a year ago, amply demonstrate how fully this principle has operated. "Canada Grain Statistics", published by the Dominion Bureau of Statistics, Agricultural Branch, reports that as of February 26, there were held in elevators the following:—

	Corn in Store February 26, 1932	Corn in Store Same Week 1931
South African Corn -	1,524,412 bushels	92,873 bushels
Argentine Corn -	262,075 bushels	684,433 bushels
American Corn -	871,706 bushels	422,604 bushels
TOTAL -	2,658,193 bushels	1,199,910 bushels

These figures clearly indicate that the partial tariff which the Dominion Government placed on corn did not have the effect of keeping out foreign corn but simply transferred the source of supply from Argentina and the United States to South Africa, the stocks of Argentina and American corn being 1,133,781 bushels as compared with 1,117,037 bushels a year ago; while the stocks of South African corn are 1,524,412 bushels compared with 92,872 bushels a year ago, or over sixteen times as large. It is also significant that total stocks of foreign corn are over twice as large this year as in the same week last year.

Canadian Market Requirements for Corn - In giving consideration to the matter of tariffs on corn, definite market requirements must be kept in mind. The following, briefly, is the marketing situation in this country.

(1) **Definite Markets Already Developed:**

(a) Distillation.
(b) Cereal Manufacturing.
(c) Starch Manufacturing.
(d) Feed Manufacturing.
(e) Feed and general use as whole corn.
(f) Seed corn.

(2) **Distribution of Markets in Eastern Canada:**

(a) Corn for Distilling is used in Montreal, Corbyville, Toronto, and Walkerville.

(b) Corn for cereal manufacturing is milled principally in mills distributed throughout the Province of Ontario.

(c) Corn for starch purposes is used at Port Credit and Cardinal, Ontario, there being only two such plants in Canada.

(d) Corn used in feed manufacturing is milled principally in mills scattered throughout Ontario and Quebec with a limited number in the Maritimes.

(e) Corn for feed and general use as whole corn is used throughout Ontario, Quebec, and the Maritimes.

(3) **Methods of transportation in distribution** should also be kept in mind. Briefly, all corn from Argentina or South Africa for use in Ontario and Quebec must come to Montreal by water during the season, May to November, while that port is open to navigation. Less than ten per cent of the corn used in Eastern Canada is used in the Maritimes; this can come into the ports of Halifax and St. John the year around.

(4) **Types of Corn best suited for these different purposes:**

(a) Either white or yellow corn is used for distillation.

(b) Cereal and starch manufacturers use white corn so that Argentine corn, which is yellow, is not suitable for these purposes. South African corn is satisfactory for starch purposes and to some extent for cereals. Of the foreign corn, United States white corn is best suited for cereal purposes.

(c) Feed manufacturers prefer yellow corn so that Argentine corn is satisfac-

tory for this purpose or for making yellow corn meal.

(d) Seed corn of the highest quality for corn growing areas in Canada can be grown only within such of these areas as permit of proper maturity.

(5) **Domestic Supplies Suitable to All Purposes:**

There is no corn shipped from abroad which has any natural superiority for these different purposes than that grown in the commercial growing area of Ontario. Seed corn, in fact, from this district is much superior for use in Canada than any foreign seed supplies. Both white and yellow corn are grown and with suitable encouragement will be produced in sufficient quantity to meet all demands of the Canadian market. Moreover, with drying equipment now installed, and in process of installation, corn can be supplied with any degree of moisture required. In short, with adequate protection provided, the different types of corn will be produced in the quantities required for the foregoing purposes for the whole Canadian market.

Effect of Free Entry of Corn upon Southern Ontario Agriculture - The present system of permitting 96.68 percent of corn, exclusive of corn used for purposes of distillation, free entry to Canada is bad enough within itself. Actually it is much worse than the figures indicate because in the manufacture of starch, corn flakes, etc. the amount of by-products will average approximately 20 percent. These by-products are sold for feed and if, as appears, the 7,722,853 bushels under survey, which came in free of duty, are used principally for this purpose, there will be approximately a million and a half bushels of corn by-products, upon which no duty was paid, but which, nevertheless, will come in direct competition with the Southern Ontario corn growers' product.

These factors are having a most detrimental effect upon the corn growing industry of Southern Ontario. According to the latest figures of the Federal Experimental Station at Harrow, Ontario, the cost of producing an acre of corn is $51.42. According to the figures of the Ontario Marketing Board, the average yield in the counties of Essex, Kent, Lambton, Elgin, and Norfolk in 1931 was 66.9 bushels an acre. This would place the average cost of producing a bushel of corn this year in the husking corn belt at 76.8 cents.

Compared to these production costs, corn has been quoted during recent months as follows:

	South African Cash Sales	Domestic Kiln-Dried Quotations	Domestic Natural Corn Quotations
December, 1931	.59 cents	.50 cents	.45 cents
January, 1932	.58 cents	.48 cents	.40 cents
February, 1932	.58 cents	No Sales in Feb.	.38 cents

The reason for this break in Ontario corn prices during the last three months is lack of an available market, caused by the large stores of South African, Argentinian and American corn in Bay Port and other elevators in Eastern Canada.

The Southern Ontario corn grower, however, is at present in a much worse position than being forced to sell his corn at a loss. He cannot, indeed, sell it at all. As has already been noted, very large quantities of corn from these three sources, but particularly from South Africa, were stored in this country previous to the close of Great Lakes navigation. Most of it came in duty-free, and all of it not only depressed prices but, because of its presence, made the market for Ontario corn largely

non-existent. As a result of the virtual lack of protection, the cheap water haul, and in the case of American corn, cheaper railway rates, together with the large quantity stored for future delivery, the market for Southern Ontario corn has been restricted to a small area north and west of Toronto which cannot absorb the corn held by Ontario farmers, with the result that some 3,000,000 bushels are at present begging a market.

***An Impossible Situation Has Developed** - From the standpoint of the Southern Ontario corn-producing industry, therefore, it is either a matter of securing sufficient protection in the home market, or of surrendering a large and important agricultural industry in which millions of dollars have been invested in land, buildings, and equipment, to foreign competitors.*

It has, indeed, a more wide-reaching effect than that. Southwestern Ontario is the only part of Canada in which corn can be grown successfully as a commercial crop. The area is large enough so that all the corn required by Canadian distillers, millers, feed manufacturers, and farmers can be produced there. If the growing of corn as a commercial crop is abandoned, this whole area will then be forced to grow the ordinary small grains — wheat, barley, oats, etc. — which will come in direct competition with Western small grains, and will still further reduce the market and lower the price for Western feed and milling products.

The situation, in short, is impossible as it has developed in recent months. If it continues, thousands of farmers will be ruined in Southern Ontario, for the reason that their investment and capitalization are predicated upon a type of agriculture yielding a higher gross revenue than the growing of small grains. In the event of the corn land of Southern Ontario being devoted to the growing of small grains, this action will have a direct effect in narrowing the market for the farmers of Western Canada, who already are suffering from over-production in reference to available markets. The only solution is to create conditions whereby the farmers both of Southern Ontario and of the Northwest Provinces can enjoy to the greatest possible extent the benefit of their own natural market within the Dominion of Canada.

***Necessary Tariff Adjustments Requested** - In the light of the foregoing facts, therefore, the growers of Southern Ontario humbly petition the Honourable E. B. Ryckman, Minister of National Revenue, to correct this unforeseen and unfair situation by imposing a general tariff of 25 cents a bushel upon all Indian corn imported into Canada, for any purpose other than distillation, and a preferential tariff of 12½ cents upon all Indian corn imported into Canada from the British Empire, for any purpose other than distillation.*

Corn growers of Southern Ontario feel that a Preferential Tariff of only 50 percent of the general tariff is a more generous arrangement than South Africa, Australia, India, or other corn-growing countries within the Empire have made heretofore with Canada, and that in any case such a large preference will be adequate for the purpose of the Canadian delegates at the Imperial Economic Conference to be held in Ottawa beginning July 18.

Ontario Corn Improvement Committee

In 1932, there was particular interest in seeking for the best of the open - pollinated strains. Interest in better seed was not new, the "corn shows" for the Essex-Kent area having been demonstrative for 25 years. This report of December, 1932, gives an excellent concept of what thinking and exploitive people were doing about improving the corn crop. Born in 1929, the committee eventually set up its hybrid seed section and for more than four decades has been "The Ontario Corn Committee."

A meeting of the above Committee was held in the office of the Agricultural Representative, Chatham.

All members of the Committee were present with the exception of Angus McKenney, Ed. Tellier, Darcy Bondy, George Newman, Leo Bollard, W. P. Macdonald and Keith Hillier.

R. H. Clemens, M. Tait and A. H. Martin also sat in at the meeting.

As the permanent Secretary, George R. Paterson has severed his connection with the Ontario Marketing Board and is now representing the Ontario Export Honey Association in England, it was moved by J. A. Garner and W. J. W. Lennox that A. H. Martin act as Secretary. Carried.

Minutes of all former meetings were read, and it was moved by J. A. Garner and H. F. Murwin that the minutes of the last meeting be adopted. Carried.

On motion of Messrs. Squirrell and Cohoe, R. H. Clemens was appointed to fill the vacancy left by S. B. Stothers when he left Essex County to take a similar position in Wellington County.

W. J. W. Lennox reported the purchase of 3 bushels of American Seed Corn, consisting of 2 bushels Wisconsin No. 7 (1 early maturing and 1 late maturing) and 1 bushel Golden Glow. This seed was shipped to the Department of Agriculture at Essex and distributed to a number of farms including the Harrow Station and the O.A.C.

Messrs. Murwin, Owen and Squirrell each had a large quantity of data on the trial samples which were tested out this year. This data was briefly summarized by Dr. Kirk.

Varieties tested: Golden Glow, Wis. No. 7, Salzers N. D., Longfellow, Bailey, W.C.Y.D., Silver King. Of the imported varieties, some samples did not give as high yield as some of the local grown seed.

All of the high yields were late maturing, yields attaining a high of 77 bu./a for Wis. 7.

Local strains show more variation in time of maturity than the imported strains.

The meeting felt that much valuable information had been gathered from this year's experimental work and on motion of Messrs. Maynard and Squirrell, W. J. W. Lennox was instructed to secure 3 bushels imported corn similar to last year and that similar experiments be conducted again in 1933, the co-operating stations to be Ridgetown, Harrow and O.A.C., Guelph.

Mr. Weiner pointed out that growers furnishing seed should not introduce new varieties on their farms, to make sure that no crossing takes place in the strain that is being experimented with.

The question of registration was discussed to some length, and it was felt that registration should start with such varieties as seem to be most nearly pure. Dr. Kirk suggested that two maturity groups under each variety might be desirable. Some of the members felt that some of the Yellow Dents might well be combined and sold under one name.

The meeting finally decided that Registration should not be proceeded with till more experimental data has been gathered with regard to the strains under observation.

DRYING

The meeting entered into a full discussion on drying. Hiram Walker and Son is now offering a drying service at about 2 cents per bushel.

Mr. Murwin estimated the 1932 corn acreage to be about 50% of peak production.

Mr. Lennox was of the opinion that even without drying the market for Ontario corn is larger than the available supply.

It was further suggested that the 1932 crop now contains a high percentage of moisture and if extreme weather sets in at once large quantities will be spoiled for seed.

On motion of Messrs. Garner and Cohoe, W. J. W. Lennox and A. H. Martin (with power to add to the Committee) were instructed to study the Paterson report and carry on further investigational work re drying plants. This investigation should be carried on from the standpoint of both feed and seed, types and costs of plants should be studied. Some information should also be secured on the relative efficiency and cost of small local drying plants as compared with larger central plants.

This Committee was also instructed to study the requirements of the corn trade from the standpoint of feed, flour, starch, cereal and seed, and to determine if possible if our present supplies after being properly dried would be more suitable for the various branches of this trade.

Championships at Corn Shows were criticised.

The Crops and Markets Branch, and the Agricultural Representatives Branch were asked to give Ontario seed corn all the publicity possible commencing early in January and making use of such channels of publicity as are at the disposal of the Department such as displays of corn in the windows of the Agricultural Offices, circular letters, meetings, through the Daily, Weekly and Farm Press, Marketing News and the Busy Farmer.

During the early months of 1932, the Ontario Corn Growers' Association undertook a new mission, that of obtaining better railway freight rates on corn originating in Kent and Essex and destined for commercial use in the Toronto area. There was a better rate for corn shipped all the way from Chicago to Toronto than from Chatham to Toronto. Actually, it was a complicated situation and went unresolved for many years.

However, this problem tended to demonstrate the need for an organization capable of speaking for the producer and receiving the cooperation and in many cases a leadership role by the Ministers of Agriculture and their staff people. This is indicated in the copies of letters exchanged between the Ontario Marketing Board and Mr.

Garner, at the Chatham office.

The Association had to be financed, and although the files are lacking in information how funds were to be raised, there is a record of a "Guarantee Bond and Postponement of Claim" arranged with the Canadian Bank of Commerce, in the amount of Five Hundred Dollars, signed by W. R. Reek, Frank Weaver, Chas. R. Sturgis, R. J. Johnston, Geo. E. Newman, H. M. Hessenauer, Wm. Goulet, James Vance, H. J. Sheller and A. S. Maynard. This document was dated 18 Feb. 1932.

Additional names of corn-interested people were contained in a petition dated 28 May 1934, requesting the Royal Winter Fair to give more prominence to the corn crop "because of its value to Canada as a whole and what a plight the feeders of stock and poultry would be in without it." The petitioners: A. S. Maynard, John C. McMillan, C. R. Sturgis, Frank Weaver, H. F. Murwin, A. H. Martin, K. R. Hillier, W. R. Reek, Geo. E. Newman, B. R. Cohoe, L. D. Hankinson, W. M. Wallace, W. J. W. Lennox, C. W. Owen, Wm. W. Weaver, James T. Grant, Ellis C. Jones, Albert Wellwood, Darcy E. Bondy, James Brisley, H. I. Sheller and John Wallace.

For some reason it appears the "Ontario Corn Improvement Committee" skipped 1933 and had its "Fifth Meeting" in 1934 (Feb. 15). This was still fully four years before hybrid corn came to Canada, and of particular interest was finding the best system for providing the best quality open — pollinated varieties to the Ontario grower. Here are exerpts from the "Fifth" meeting:

All members of the Committee with the exception of Angus McKenney, W. P. Macdonald, Leo Bollard and R. H. Clemens were present.

In addition to the members of the Committee Messrs. Weaver, Turner and Johns sat in on request.

Reports were given by Messrs. Owen, Squirrell and Reek on the results of tests of imported vs. home-grown corn.

Mr. Reek reported 56 bushels shelled corn per acre from the imported and 66 bushels from the home-grown.

Mr. Maynard, who was co-operating in the field trials, reported 16 baskets per acre more from the home-grown than from the imported.

NOTE - Due to the fact that the key to varieties experimented with was not available at the meeting, the Secretary is not able to refer to the actual varieties in each case.

It was pointed out that some tests did not get a fair show due to Corn Borer infestation.

Dr. Kirk pointed out the wide difference in the three test stations with regard to soil, climate and Borer infestation and that it was very difficult to draw any definite conclusions.

Mr. Wallace suggested tests should be made right in the corn growing areas.

After considerable discussion the meeting came to a unanimous conclusion that although tests vary somewhat, the general results showed the best home-grown strains of Dents to be superior to the best imported strains.

In order that the best strains receive recognition and the type standardized, Mr. Murwin suggested that the next step should be the setting of standards as a basis

of registration.

Mr. Reek asked if strains kept pure for 10 or 15 years by individual growers would not be suitable to work?

Mr. Wiener suggested the mass selection of the best strains.

Mr. Lennox suggested purchasing quantities of the best strain of Yellow Dent and placing it with Corn Clubs as a means of wider distribution.

There was some objection to this in that the so-called best strain is often only best in a very limited area.

Mr. Reek suggested zoning the corn growing sections, using the best available strain in each zone.

This meeting as well as previous meetings recognized the fact that the Flint Corn situation is in a reasonably good condition but that the Dent situation is bad in that farmer buyers ask for 30 or more varieties; the dealer has a tendency to supply several of these from the same bag and that the so-called varieties are in many cases badly mixed anyway, and, although our best strains are of a quality and type more suitable for our needs than any imported corn, yet the general Ontario-grown seed offered for sale is below average and in some instances not representative of the variety under which it is sold or of a quality considered desirable for seed.

On recommendation of W. J. W. Lennox and W. J. Squirrell, the following resolution was passed: — That the types of corn recognized in Ontario be — Dents - Yellow, White and White Cap Yellow Dent. Flints - Yellow 8 rowed and White 8 rowed.

Also that this Committee dissolve and that further action in regard to improvement, certification and registration of strains of corn be left to the Canadian Seed Growers' Association.

Mr. Wiener asked that 20 ears of each of the suitable strains of the 1934 crop be forwarded to Dr. Kirk, Ottawa for further examination and testing, to determine the amount of damage, if any, from heat treating (for exhibition purposes).

The following agreed to secure the supplies required: — Wisconsin No. 7 - Blake Cohoe; Golden Glow - Blake Cohoe; White Cap Yellow Dent - Mr. Newman; Flints - J. A. Garner.

J. Duff Brien, of Ridgetown, was the first official secretary-manager of the Ontario Seed Corn Growers Marketing Board, 1941-1947, and contributed greatly in introducing hybrids in Ontario

A leading livestock judge and exhibitor he was one of those credited with founding the Royal Winter Fair, for which he was superintendent 27 years, beginning with the first exposition in 1919.

Borer And Other Concerns

On Feb. 28, 1935, the Ontario Corn Growers' Association, after conducting a "very successful combined field and seed competition in Dent Corn during the past season," sent to Mr. George H. Clark, Commissioner, Department of Agriculture, Seed Branch, Ottawa, a copy of a resolution passed at the annual meeting (this date).

This resolution expressed appreciation for the services of W. J. W. Lennox and L. D. Hankinson of the Dominion Seed Branch, "knowing full well that since the advent of the corn borer a general policy of corn improvement has been difficult to follow," and:

"Believing the corn crop to be of primary importance to the farmers of South Western Ontario and of Eastern Canada, we would respectfully urge that the Dominion and Provincial Departments of Agriculture in planning crop improvement policies, consider corn as a special crop requiring special direction."

More about Corn Borer:

Dated Dec. 2, 1935, James A. Garner, Kent's Ag. rep. addressed a letter to the Kent County Council, which read, in part:

"There appears to have been a growing impression during 1934 and 1933 that the corn borer was not likely to be a menace again to the Ontario corn crop. There is little to substantiate this belief. It is true the infestation was reduced during these two years by favourable weather conditions.

"Corn growers feel that control methods should be made as effective as possible to help avoid serious borer infestation."

As was indicated in some of the correspondence on file, inspectors did not have an easy task in attempting to compel growers to destroy corn crop debris, and there may have been pressures put on the politicians of the day (at all levels, township, county, provincial and federal.)

The Ontario Corn Growers' Association, as it carried on activities on behalf of all the growers without a "paid-up" membership represented a considerable contribution of time and energy on the part of those who had the good of the industry at heart. A great amount of consideration must have gone into the various resolutions passed and the constructive ideas presented, making an outstanding contribution to the structures which eventually resulted in Ontario's highly advanced farm marketing legislation. As one reads the material in the files of the mid-thirties, it is evident that much credit should be given to Dr. W. R. Reek and James A. Garner for the guidance and support they contributed. There were others, of course, but it would appear they had the ideas on which marketing legislation could be developed, and knew how to go about trying (with only a degree of immediate success) to achieve what they saw as solutions to the many problems faced by the agricultural community.

A good example of the progressive thinking of the corn growers is in the following resolutions produced in 1935 regarding grading and inspection, artificial drying equipment being duty-free, and setting up of a marketing scheme with government assistance:

Resolution re: Grading Corn

Whereas this Association finds that misunderstandings are continually arising bet-

ween buyers and sellers of corn as to alleged failure on the part of the seller to live up to representations as to quality, at time of sale and whereas such differences frequently work to the disadvantage of the original producer and often lead to litigation and whereas such differences frequently result in a falling off of sales and tendency to lower selling prices. Therefore, be it resolved that this Association is thoroughly of the opinion that some efficient system of inspection and grading of Ontario corn should be established by the Federal Government, preferably under the Department of Agriculture, and that said inspection and grading system should be put into effect at as early a date as possible with a view to facilitate sales and developing the corn growing industry and this Association does therefore respectfully pray that this matter be given early and favourable consideration.

Duty on Drying Equipment

Whereas, the use of corn by Canadian live stock and poultrymen is becoming of increasing importance and extends throughout the year, and whereas, it is becoming more and more evident that Canadian corn, like United States corn, must be artificially dried if shelled for storage or shipment the fall and winter months and whereas, South African corn admitted to Canada duty free shows a moisture content sufficiently low to permit of storage and shipment at any and all times, and hence is likely to replace the Canadian product in the fall and winter months and so becomes established to the detriment of Canadian corn, and whereas, the corn drier is an essential to such conditioning of our corn as will place it on equal footing with South African corn, and whereas, such driers are not likely to be used in Canada to such an extent as to justify their manufacture in this country.

Therefore be it resolved that this Association is of the opinion that any duty collected by this country on their importation from the United States or elsewhere for the purpose of drying corn, should be remitted to the importer and we would respectfully urge that an order-in-Council or regulation authorizing such remission of duty be passed at an early date.

"Some Types of Marketing Scheme..."

Whereas, the Ontario corn crop is one of wide importance in Canada from both the seed and feed standpoint although its production is confined largely to the counties of Essex, Kent, and parts of Lambton, Middlesex and Elgin, and, Whereas, the production of this crop has increased very rapidly in recent years and seems possible and necessary of still further expansion, and Whereas, the marketing of this crop is and has been for sometime in a most chaotic and distressful condition likely to result in disaster to the producer and collapse to the industry, and Whereas, it is admittedly of major importance that production of this crop increase rather than diminish for the general advantage of Canada and of course for the benefit of agriculture in South Western Ontario, Therefore, be it resolved that this Ontario Corn Growers' Association is strongly of the opinion that some type of marketing scheme under the Canadian Marketing Act or some other marketing act would be of very great assistance in facilitating the merchandising of this product to the advantage of the producer, the dealer and the consumer and would, therefore, most strongly urge that Departmental assistance and co-operation be made available to this end at as early a date as possible.

Elevators and Dryers

In 1936 corn growers of the "Belt" area of Ontario had an additional concern. It was believed by many that a large elevator at the Windsor harbor would provide storage, shipping, cleaning and drying facilities to relieve pressure during the delivery season. Needless to say, the elevator did not materialize for some 40 years, and meantime as corn production expanded, local elevators close to where the crop was grown was the fulfilment of an idea which had its birth in the "fertile" thirties.

Seed Corn Regulations - 1936

In a letter written by Mr. Garner concerning a related matter, he disclosed that as of May 8, 1936, the seed dealers of Western Ontario were anxious to have legislation compelling "everyone handling seed corn to have a license."

Dated Nov. 2, 1936, Mr. Garner forwarded a letter which reveals the progress being made in establishing controls and regulations for Ontario seed corn. It was sent to Angus McKenney, Essex; W. P. Macdonald, Petrolia (both ag. reps.); A. S. Maynard, Frank Weaver, William Wallace, B. R. Cohoe, John Lickman, B. R. Cumming, Alex Stewart and James McGregor, and in part was as follows:

"Mr. W. J. W. Lennox, District Inspector for the Dominion Seed Branch, desires to meet the members of the South Western Ontario Seed Dealers' Association and a number of corn and seed growers on Wednesday afternoon, November 4, in the offices of the Ontario Department of Agriculture, Chatham.

"It is his wish to discuss with this group the minimum quality standard, including the minimum percentage germination to be set for grades of corn for this year; the minimum percentage moisture which should be allowed for the various grades and also provide for type sample as control sample for each kind and variety of seed corn sold, offered, exposed or held in possession for sale for seeding purposes in Canada. It is our understanding that the Seed Commissioner and the Deputy Minister desire these recommendations at an early date."

It is evident in researching the part corn was playing in Ontario agriculture in the years 1936 and 1937 that it was becoming increasingly important. The provincially supported "Western Ontario Corn and Seed Exhibition" in Chatham was of considerable interest. There was no precedence for it, but the needs for marketing legislation with "associations" and "boards" were being recognized, attempts for producers of white pea beans being an important example. Those "in the know" about corn were tuned into what was happening in United States, and introduction of hybrids into the corn belt of Ontario was just waiting for someone to do it.

A good example of this situation is recalled by Joe Watts, who, in 1987, had been a "retired farmer" on Highway 40 (Communication Road) north of Blenheim for some years. His father, Joe Watts Sr., and uncle, Walter, had moved to the Huffman's Corners area of Harwich Township, having been growers of corn in Illinois. They had the know how and maintained connections with family and friends in Illinois. Joe remembers his father bringing a couple of pecks of Pioneer hybrid seed corn into Canada (the Customs officials gave no notice to it so it wasn't smuggling) and the year was probably 1937. The plot grown was of great interest to "those who knew

the corn crop best," and the two Watts brothers became importers and agents for U.S. produced hybrid seed corn for sale in Canada — not without encountering import problems at the U.S. - Canada border as the industry began to suffer from growing pains.

"Hybridized Corn"

The first reference to hybrids in Mr. Garner's letters was one addressed to "Mr. N. D. McKenzie, B.S.A., Dominion Seed Branch, Chatham, December 10, 1937, as follows:

"At a meeting of the Executive Committee of the Ontario Corn Growers' Association, a committee was named to study corn hybrids, the thought being that the committee would consult with Dr. McRostie of the Ontario Agricultural College, the Crops Branch of the Ontario Department of Agriculture, and interested parties in the Dominion Department of Agriculture, with a view of suggesting some definite program in respect to hybridized corn.

"Members of the committee are as follows: Frank Weaver, Turnerville, B. R. Cohoe, Woodslee, Wm. Wallace, Woodslee, Angus McKenney, Essex, N. D. McKenzie, Chatham, J. A. Garner, Chatham."

Hybrid seed was first grown in Canada in 1938, on a very small and purely experimental scale. There is a record in Mr. Garner's files of 24 farmers in Ontario also experimenting with "that new fangled hybrid seed corn from the States" grown in small plots from samples (usually a peck). Source of the seed supply is not mentioned, nor is the variety.

Those pioneer growers were: (105-day hybrid) Wilfred Webber, Wallaceburg; Walter Watts, Blenheim; Carl Lehrbass, Inwood; Alex M. Stewart, Ailsa Craig; William McNeill, Blenheim; Albert Moorehouse, Chatham; W. W. Bowe, Sombra; F. S. Thomas, St. Thomas; Lyle Weaver, Chatham.

110-day hybrids — Robert Forsyth, Turnerville; Eugene King, Pain Court; George Parry, Pain Court; Sam Smyth, Chatham; G. H. Wilson, Charing Cross; Robert Fletcher, Merlin; Lawrence Kerr, Chatham; George W. Arnold, Wallaceburg; Earl Montgomery, Dresden; Wilfred Davidson, Blenheim; Wilaferd Russell, Charing Cross; James Renwick, Merlin.

115-day hybrids - Nelson Russell, Charing Cross; V. R. Sheets, Merlin; Lyle Renwick, Merlin.

Corn growers in United States were well into hybrids before Canadians caught on. An example of this was a list of growers of hybrid corn seed in the State of Illinois, released by the University of Illinois College of Agriculture on January 3, 1938. This list included such names as De Kalb Agriculture Ass'n. with nine Illinois and five De Kalb numbers, including the famous 404; Funk Bros., with four of their own numbers and 18 of Illinois, Indiana and USDA numbers: Pfister Hybrid Corn Co., with four of their own and two Illinois numbers. There were numerous other seed companies and individuals, indicating the saturation hybrids had achieved in the growing year of 1937. The list contained names of 259 growers, most of them having hybrid seed for sale.

Dr. G. P. McRostie Opens Door to Hybrids

During this time when hybrids were finding their way into Ontario, some significant educational events were taking place in the corn belt of the province. A "short course in agriculture" for young farmers during the off-season winter months had been established in 1936 at the Ridgetown High and Vocational School, and it was recognized that this should be extended to the farm community at large — the first Farmers' Week at Ridgetown was in January, 1939, the High School Auditorium being used for the afternoon meetings. The story of hybrid corn was told and the door to a new concept in Ontario Agriculture was opened.

Both Ontario and Dominion Agricultural departments were watching the "hybrid corn situation" — what was happening across the border, and Dr. G. P. McRostie, professor of field husbandry at Ontario Agricultural College in Guelph released the following advisory the first week in January, 1938:

"Will I plant hybrid corn, and if so, where can I secure the seed is a question that is being asked very frequently at this time. Indeed, such queries are so numerous that we wish to make a few general statements regarding the whole hybrid corn situation.

"The term "hybrid corn" is used to designate any type that has been originated by the crossing of different varieties or different strains of the same variety. Such crosses are made with the object of combining for a single generation the good qualities of the parents used in producing it, and are useful for only one season's planting. In some instances outstanding success has been obtained in this connection, but in others the results have been entirely unsatisfactory.

"During the past summer forty of the most highly recommended hybrid corns from the Northern sections of the United States were planted in comparison with nine of our best local strains. Tests were located at Guelph, Ridgetown and Woodslee, and very careful records kept of the performance of each individual lot. In these tests only a very small percent of the hybrid lots outyielded the best of our local strains. Of course the results represent only a single season's investigations, but they indicate that there is a very wide variation in the value of **hybrid corns.** *It is significant that the most popular of such strains being grown widely in any state are those that have been developed by their local plant breeding stations. This means that there is a rather narrow adaptation of hybrid strains of corn as far as their maximum production is concerned. This being the case, it would appear to be a very poor policy to purchase any strain of corn just because it may be advertised as hybrid. The chances of bettering yields by using untested lots of seed are small indeed.*

"A very few years of testing will indicate the strains that can be planted with profit in Western Ontario. Until this fact has been established the continued use of local or other varieties that have proven satisfactory is recommended."

As referred to previously, Garner and MacKenzie made a trip into United States "to see this thing which had come to pass." In the files are various items of material they obtained. One was (under date July 1938) from the University of Wisconsin at Madison, entitled "Hybrid Corn Letter — Suggestions for Grading Seed Corn." This information was reproduced in Chatham and circulated among those who might be

interested in getting into the business. Other material available was from Indiana and Illinois.

The Wisconsin advice began with: "The grading of seed corn is now probably the most difficult problem in the processing of hybrid seed." It went on to state that "because of the scarcity and active demand in the past, hybrids that should have been discarded have been sold." Problems with proper sizing were taken into account in the various recommendations made for the consideration of Ontario processors of seed corn.

From Purdue came advice on how to conduct tests, outcome from which yield capabilities of the various hybrid selections could be established. Interest in these systems for setting up uniform tests was expressed in a letter dated Feb. 6, 1939, addressed to J. C. Steckley, superintendent of the Experimental Farm, Ridgetown, from Mr. Garner, and one dated Feb. 3, 1939, from C. W. Owen, Dominion Experimental Station, Harrow, to Mr. Garner.

On September 9, 1938, Dr. McRostie forwarded the following invitation to J. A. Garner to "go over the hybrid corn material, on the morning of Thursday, Sept. 15, at Guelph and if possible at Ridgetown in the afternoon. On Friday we hope to inspect the Woodslee plots and those Oliver Wilcox is growing along with other convenient hybrid tests in that area."

At the same time, H. F. Murwin, superintendent of the Dominion Experimental Station at Harrow, was issuing the following invitation to many of those interested in the newest thing in agriculture:

"In view of the fact that considerable interest has been shown by growers on the question of hybrid corn and its possibilities for this district, a day has been set for the inspection of the corn breeding work on the Dominion Experimental Station at Harrow. A number of hybrids have been produced here and are being tested this season, which, together with the parent stocks and intermediate crosses, will provide some interesting information for growers who will be using this type of seed.

"To outline briefly the work in progress, there are numerous inbred strains, single crosses and double crosses, all of which enter into the production of hybrid corn. In addition to the hybrids produced here, a number of imported hybrids are also being tested. Another test contains several of the most valuable open-pollinated strains obtained from local growers.

"The time for this inspection of plots is ***Thursday, September 15, starting at 2:00 p.m.*** *We feel that you will find some interesting information in these tests, and will appreciate your extending this invitation to your friends.*

Mr. Garner's "Discovery" Letters

Again, regarding the "voyage of discovery" made by Garner and MacKenzie, here are exerpts from Mr. Garner's letters leading up to and describing the trip:

August 17, 1938, from Mr. Garner to Mr. R. S. Duncan, Director, Agricultural Representative Branch, Ontario Department of Agriculture:

"May I at this time mention that I believe it is important that someone from the Corn Growing Area should visit some of the corn producing States. I feel it is

necessary that more definite information of a practical nature be procured in respect to Corn Hybrids, and further, the observations should be made and information gathered with a definite objective of rendering some assistance to the corn grower in the drying of his corn on the farm.

"In suggesting this action be taken, I do so, feeling that leadership is necessary. Hybrid Corn in United States has won itself a definite place on the practical farm. The local field tests we have this year are quite promising, and while it is too early at this time to say anything regarding yields, the growers are keenly interested.

"Speaking of the drying of corn, — On September 1, facilities for the grading of grain and corn are to be made available to Southwestern Ontario. The grading will be optional on the part of the seller, but it is only reasonable to presume that the purchaser of feed is going to ask for the protection of the grade, and grading means attention to moisture content. I would hazard the opinion that many growers will likely suffer because of moisture content, unless methods of cribbing are improved or changed. A great deal of work has been done in the state of Wisconsin on this subject.

"One going to the States to study this problem should do so just before husking, possibly around the middle of September.

"Your favorable consideration will be very much appreciated."

August 23, 1938, W. R. Reek, who had become Ontario Deputy Minister of Agriculture, to Mr. Garner:

"You will be advised later by Mr. Duncan that the trip suggested by you to the United States to investigate the source of hybrid seed corn, has been approved by the Minister.

"Mr. Duncan is away and I thought perhaps an earlier notification might be advantageous."

August 25, 1938, Mr. Garner to Mr. Reek:

"I was very pleased to have your advice that the Minister of Agriculture had given his approval to the proposed trip to investigate Hybrid Seed Corn.

"I would be very glad to know if temporary assistance can be made available, as School Fairs commence on September 9. We have also undertaken a plan for the distribution of young Sows, and if the programme is to be what it should be, considerable time should be spent on it during September."

August 29, 1938, Mr. Duncan to Mr. Garner:

"In reference to your letter of August 17 requesting permission to visit some of the corn growing areas in the corn producing States, I beg to state that the matter was discussed with the Deputy and the Minister and your trip was approved.

"I am rather concerned with your statement that you ought to go to the States around the middle of September. I note from your list of School Fairs that they commence on September 9 and conclude on September 30. Would it be possible to go to the States before School Fairs commence or would this be too early? If so, what provision would be required in the way of assistance to release you during days you would be absent? May I inquire exactly how many days you will be away?

"I believe Mr. N. D. McKenzie of the Dominion Seed Branch has also been given

sanction to take a similar trip. I presume the matter has been discussed between you and you have arranged to go together."

When all the "nitty-gritty" for the famous trip had been worked out, the event came to pass and on the return, the following letter was addressed to Mr. Duncan by Mr. Garner, under date of September 21, 1938:

"It is my wish to report to you in a very brief way some of the observations made on the trip of some 1,200 miles through the corn growing area of the United States from September 11 to 16.

"Accompanied by Mr. McKenzie of the Dominion Seed Branch, visits were made to the state agricultural institutions at Lafayette, Ind.; Urbana, Ill.; Madison, Wis.; Funk Brothers, a commercial seed firm at Bloomington, Ill., and to a number of farmers en route. A great deal of breeding work has been carried on at all three state colleges and probably even to a larger degree by Funk Brothers.

"The development of corn hybrids is without a doubt the biggest project being undertaken by the Agronomy Departments of the three state institutions visited. In fact a very large part of their staff and the major portion of their experimental fields is and has been devoted to the development of hybrids and to performance tests of the various strains developed. That very definite achievements have been made I believe is reflected in the fact that it is claimed by various authorities that 50% of the corn being grown in Indiana and Illinois is hybrid corn; and from 20 to 25% in the state of Wisconsin. Further, it was the unanimous opinion that the use of a good hybrid would show increased yields of from 5 to 20% over open pollinated varieties.

"Personally I am of the opinion that workers at our Provincial and Dominion experimental stations and those of us who are interested in the corn crop of Ontario are extremely vulnerable for not having undertaken a definite program long before this. The corn plant in the hands of a good plant breeder would seem to have no limitations. Not only is it possible to increase the yield but it is possible to develop strains with definite resistance to wind and storm, to insect injury, to certain diseases, and to extend the area in which corn can be grown to advantage. While it is true that Mr. Owen of the Experimental Farm at Harrow has been doing some corn breeding work in rather a limited way, it would appear that he was doing his work under severe handicaps.

"In conclusion might I say that I believe the Department of Agriculture can ill afford not to assume certain responsibilities and leadership. There is a very definite opportunity to contribute something worthwhile to a very large number of farmers in Ontario."

Mr. Garner also sent the same letter to the Deputy Minister, W. R. Reek, and a copy to Angus McKenney, Essex County Agriculture Representative.

Mr. Duncan and Mr. Reek called in Mr. Garner to tell the story of his trip at a meeting at Ontario Agricultural College, Guelph, October 20, 1938. Others present were Dr. G. P. McRostie, J. C. Steckley, of Ridgetown, and Mr. McKenney. In the invitation, Mr. Duncan wrote: "It will be necessary at a later date to enlarge this committee and include Federal representatives, but it was suggested that the preliminary steps should be taken by our own Ontario committee."

During the winter of 1938-39, people of the two Departments of Agriculture formulated plans to carry out the urgings of Mr. Garner and make up for the "lost time" relative to the progress in hybrids in United States. There was interest on the part

of progressive farmers and by companies and individuals already engaged in the seed corn business.

On May 3, 1939, Mr. Garner addressed the following letter to Mr. Steckley at the Ridgetown Experimental Farm:

"I am listing herewith the names and locations of the corn growers who have signified their willingness to co-operate with performance tests on hybrid corn.

"James W. Jubenville, Tilbury, R. R. 1, Lot 22, Middle Road, Tilbury E. Twp.,

"Jas. Keil, Chatham, R. R. 6, Lot 17, Concession 8, Raleigh Twp.,

"Chas. Craven, Eberts, Lot 13, Concession 4, Chatham Twp."

Mr. Garner's enthusiasm is further demonstrated in 1939 in a series of letters exchanged with Mr. Duncan. On July 18, Mr. Garner to Mr. Duncan:

"I should like very much to have leave of absence from July 20 to July 22 for the purpose of going to Illinois to make some further observations in respect to the production of Hybrid Corn. I should appreciate having the use of the car while making the trip."

July 18, 1939, Mr. Duncan's reply to Mr. Garner (in part): *"We shall grant you this time as part of your holidays and you may use the office car on the usual understanding that you supply the gas and oil and return the car in good condition, also that the Department will not be charged with any of the expenses in connection with this trip."*

July 24, 1939, Mr. Garner to Mr. Duncan (in part): *"Since your letter was not at hand I did not make use of the office car when making the trip. The three days spent in Michigan and Illinois were very interesting. A tremendous amount of work is being done in developing new strains of corn hybrids and there can be little doubt they are proving their worth to the farmer. Our best information is that 85 percent of the corn acreage in Illinois is in hybrid corn. I trust I may have the opportunity of writing you in the future and discussing with you some of the observations made."*

To demonstrate the progress being made, a number of growers produced "research" plots in 1939, and a Corn Growers' Tour was organized for September 7, 1938, with the following program:

Meeting at the farm of Chas. Keil, Raleigh Township. Inspection of 1/4 acre co-operative demonstration plots, consisting of nine hybrids and two open pollinated strains.

Inspection of similar arrangement of plots at the farm of Jas. Jubenville, Middle Road, Tilbury Township.

Inspection of regional tests plots at the farm of Geo. Parry and Sons, River Road, Dover Township. Forty-nine selections under test.

Stop briefly to view fields of commercial hybrids on River Road.

Visit farm of Lawrence Kerr, near Maple Leaf Cemetery, Opportunity to look over a new piggery and Wisconsin hybrids.

Call at the farm of Ian Maynard, Lot 6, Con. 5, Harwich Township. An opportunity of seeing further comparative tests of different varieties.

Experimental Farm, Ridgetown. Inspection of experimental test work on corn.

Another tour on September 14 and 15, 1939, organized by Dr. McRostie, and including agronomy personnel as well as corn growers visited "the three variety tests at Guelph,

Ridgetown and Woodslee," as well as "seeing something of the breeding and testing at the Dominion Station, Harrow. In any case we plan to fill the two days with very interesting studies of the hybrid corns. The stands of corn are very satisfactory (this taken from the invitation)."

A letter dated December 23, 1939, to Mr. Garner from W. J. W. Lennox, district supervisor of the Canada Department of Agriculture Plant Products Division, Toronto, requested information he could supply to seedsmen "in regard to Hybrids suitable for planting in Ontario and source of supply."

In reply, Mr. Garner forwarded the "Hybrid Corn Committee" report, which contained in part the information from which the following exerpts are taken:

Hybrid Seed Producers In Ontario (1939) - B. R. Cohoe, Woodslee, (Wis. 645), Jas. Grant, Cottam, (Wis. 606), Ian Maynard, Chatham, R. 3, (Wis. 625), Oliver Wilcox, Woodslee, (Wis. 645), Napoleon King, Pain Court, (Ill. 366).

Ontario Agents for U.S.A. Produced Hybrids (1939) -The Essex Hybrid Seed Co., Essex, Wisconsin, Oliver J. Wilcox, Woodslee, Wisconsin, Hugh Ferguson, Cottam, Wisconsin, Jas. T. Grant, Cottam, Wisconsin, C. G. Winsor, Wheatley, DeKalb, Jas. Jubenville, Tilbury, R. R. 1, Pioneer, Wm. Munch, Essex, Iowa 939, Oscar Paulus, Tilbury, Iowa 939.

The Ontario Corn Growers Association, in December, 1939, issued a "Brief Description of Recommended Hybrids" and advice to growers. Seed was offered to farmers in six grades, flats (Large, Medium, Small) and Rounds (Large, Medium and Small).

Based on tests in Ontario, Early varieties recommended for planting in 1940 were:

Early - Kingscrost M, Wisconsin 531 and Wisconsin 606. The hybrids listed in this group have given satisfactory yields of grain in areas adjacent to what is commonly regarded the corn husking area. Earlier hybrids than the ones listed are available and possibly are worthy of trial for production of grain in Central Ontario. Growers of ensilage, not emphasizing maturity of grain, would be well advised to make their selection from either Medium or Late Groups.

Medium - Wisconsin 645, Wisconsin 625, De Kalb 202, Funks G15. These strains are adapted to a fairly wide range of conditions in Essex and Kent and should give good results. All strains have strong root systems and are resistant to wind and borer. Satisfactory for ensilage purposes.

Late - Wisconsin 676, Wisconsin 696, Pioneer 322, Iowa 939, Illinois 366. These strains are full season for corn area of Essex and Kent and should be planted early for best results. They are all resistant to borer damage. All strains are notably strong rooted and with good stalks. This group might be used for ensilage where grower does not stress maturity of grain for ensiling.

It was in the year 1939 when Europe was seething in the early phases of World War II, which began in early September, that the real groundwork was being laid for the corn industry to "go hybrid" in Ontario. With Chatham as the focal point, regulations were beginning to give Ontario a reputation for the highest quality hybrid seed corn obtainable.

Mr. Garner, secretary, issued a report of an historic meeting of the "Corn Hybrid Committee," held December 11, 1939. Some of the salient features were:

Those present: Committee - W. J. W. Lennox, Chairman; Dr. G. P. McRostie, Dr.

T. M. Stevenson, Prof. J. C. Steckley, J. A. Garner, Secretary. Others - Dr. G. F. H. Buckley, C. Sweet, Dr. G. M. Stirrett, Angus McKenney, Art. Reid, C. P. Maxwell, Jas. T. Grant, B. R. Cohoe, H. F. Murwin, Frank Weaver, Thos. White, C. W. Owen, Oliver Wilcox, N. D. MacKenzie, R. B. Cumming, Ian Maynard, A. H. Houle and Chas. Baker.

Dr. McRostie submitted his "Report on Hybrid Corn Tests Conducted in Ontario" — Guelph and Ridgetown.

Dr. Buckley (Harrow) tabled his "Summary of 1939 Tests — Hybrids Grouped for Maturity and Comparative Yield at Harrow."

Prof. Steckley (Ridgetown) in a verbal report, cited the results of tests in Essex, Kent and Middlesex.

Mr. McKenney said growers in Essex County had had satisfactory results in 1939, and Mr. Cohoe reported on the testing at his farm in Essex with a full range of early, medium and late varities.

The committee then agreed to issue the first list of recommended varieties (as previously listed).

Following a discussion and offer from Dr. McRostie to "provide material for Ontario seed producers," the group supported a motion by Oliver Wilcox and Art Reid "that the production of inbred lines and single cross material be undertaken in Ontario."

An additional motion by Dr. T. M. Stevenson and Dr. J. C. Steckley: "We are in agreement that production of inbreds and single crosses shall form a definite part of the corn breeding program of the Harrow Experimental Station." — Carried. Mr. Murwin said Harrow would probably need cooperation with Ridgetown in the project.

The "Corn Hybrid Committee" then discussed and approved with minor changes a submission by Mr. C. Sweet, titled:
"Hybrid Seed Corn Program" (Field Varieties) and in part it was as follows:

HYBRID CORN BREEDING - Plant breeders located at experimental stations and agricultural colleges, and private plant breeders designated by the C.S.G.A. are to produce and/or import pure inbred strains from which single crosses are maintained.

SEED PRODUCTION - Seed producers and commercial organizations may buy each year from experiment stations or colleges, the first crosses or single hybrids from which the second crosses or double hybrids are produced, such seed producers to be responsible for isolation, detasselling, curing, cleaning and grading, and storing. Provision for central plants where seed may be assembled, dried, selected, shelled, cleaned, stored and treated for disease before selling or sowing — is recommended.

REGISTRATION AND CERTIFICATION - Inspection of double hybrid seed fields for isolation, detasselling and purity and grading of the seed for moisture, germination, size of kernels and physical appearance is to be done by inspectors of the Plant Products Division.

TESTS - Corn yields or performance trials are to be established in corn-producing districts under direction of plant breeders. Five to ten trials in each province are suggested to establish suitability of certain hybrids for different zones.

Hybrids to be recommended for Registration or Certification must have shown their superiority over open pollinated strains of a similar maturity group, and be satisfactory in other respects.

IMPORTS - Import of inbred lines is to be restricted to those stations, colleges, or designated plant breeders maintaining single crosses to supply seed producers and commercial organizations for production of double hybrids. Single crosses may be procured from commercial concerns having certification of their single cross material.

Import of double hybrids is to be restricted to first generation stock, certified by an accredited certifying agency with official certification tags attached to each container stating hybrid designation and approximate days of maturity in the state or country where developed.

The Corn Borer situation in 1939 was still of much concern, and on March 21, the Ontario Corn Growers' Association issued to the area county councils and others in authority the following resolution:

"That we commend the action taken by the Agricultural Committees of Essex and Kent Counties in their efforts to improve the administration of the Corn Borer Control Act; and we strongly urge that all growers make every effort to co-operate in the clean-up of corn refuse; and we further recommend that those in charge of the administration of the Corn Borer Control Act pursue clean-up measures vigorously."

It was not yet realized that hybrid corn was the answer to the problem, and indeed, there was still a large amount of open pollinated being grown, both commercially and for seed. The clean-up regulations were relaxed somewhat in 1946 and dropped completely in 1947.

Corn as a Canadian grain was first recognized by the Board of Grain Commissioners for Canada in 1939 "by an amendment to Section 25 of the "Canada Grain Act 1930," and the Ontario Corn Growers' Association chose its president, William Wallace, of Woodslee, to become a member of the "Committee on Eastern Grain Standards," for the 1939-40 term.

The Ontario Corn Growers' Association, in making its report for inclusion in the Annual Report on Organization in Industry, Canada Department of Labour, revealed that in 1939 there were 146 members, William Wallace was president, and J. A. Garner the secretary.

Federation Origin - 1939

In Mr. Garner's files of 1939 was an announcement and invitation to a meeting in the Royal Connaught Hotel, Hamilton, October 30, 1939, "to discuss a policy for agriculture under war time economy," sent out by the "Ontario Chamber of Agriculture," and to which Mr. Wallace was delegated. This organization later became the Federation, and for 1939, officers listed were H. H. Hannam, president, V. S. Milburn and Cecil Delworth, vice-presidents, Erle Kitchen, secretary-treasurer, and R. J. Scott and Roy Lick, executive. Member organizations: First Co-operative Packers, Ontario Beekeepers, Ontario Cream Patrons, Ontario Sugar Beet Growers, Ontario Vegetable Growers, Ontario Concentrated Milk Producers, Ontario Whole Milk Producers, Farmers Mutual Underwriters, United Farmers of Ontario and United Farmers Co-operative.

Ann Ouellette
Kent Federation

"Mac"
MacKenzie

Nellie Johnston
Mr. Garner's Secretary

1937 - 1940

"Corn Show" Prize Lists

In researching the material for this publication, I received from Archie McLaren, secretary of the Ontario Corn Committee, two copies of Prize List Booklets for the Western Ontario Provincial Corn and Seed Exhibition (The Corn Show) under management of the Ontario Corn Growers' Association for the years 1937 (February 24 to 26) and 1940 (February 21 to 23). In 1937 it was in the Chatham Armouries, but due to the war, it was held in 1940 and other war years in the "Hudson Sales and Service, J. W. Harrington, 40 Market Square."

In 1937, OCGA officers were: President, Frank Weaver; vice-presidents, Clarence Haggins and Harry Shellar, and secretary-treasurer, J. A. Garner. Directors were H. M. Hessenauer, Martin Hux, F. S. Thomas, B. R. Cohoe, Howard Sellars, Rosaire Quenneville, John Lickman, Thomas McCormick, W. P. MacDonald, Wallace Laidlaw, Alex M. Stewart, W. K. Riddell, William McNeill, James McGregor, G. V. Robinson and Earl Montgomery.

Judges at the 1937 show: Corn - W. J. W. Lennox, B. R. Cohoe, William Wallace and R. B. Cumming. Grains and seeds — Prof. G. P. McRostie and S. B. Stothers.

Special features in 1937 were a Corn Husking Competition and a Hog Calling Competition. There were 25 "Rules Governing Exhibits." Eugene King, of Dover, was in charge of the corn husking contest.

The prize list of 1937 had some minor wheat, oat and clover seed contests, but was comprehensive in corn except that there was no mention of "hybrid."

Of utmost importance was "a two-page" spread for which the author was not identified and credited, in spite of the excellence and importance of the article. It is reprinted as follows:

(From the 1937 Corn Show Prize List)

The Story of the Corn Plant

(America's Gift to the World)

Corn is America's greatest single contribution to the world. As far back as human remains record man's activities on this continent, man and corn have never parted company. Nowhere does corn grow without man's aid nor can it, and nowhere in the Americas, from Canada to Peru, did early man live without corn. A chain of evidence from the prehistoric records of the Mound Builders reveals that corn played a very important part in the Red Man's welfare as he blazed the trail from savagery towards some semblance of civilization. In recent times corn has proved worthy of rank with its rival cereals of other continents, the wheat of Europe and the rice of Asia. When the White Man came to live among the native Americans, corn had already reached some degree of development. Today the corn plant stands as a symbol of perhaps the world's greatest plant breeding achievement: a living memorial to the ancient American agriculturist.

Columbus, we are told, was the first European to record corn. He wrote that he saw "a kind of corn called maiz" on the Island of Cuba in 1492. Eleven years later another explorer relates that "he saw six leagues of ground full of maize and cultivated" on the American mainland. In 1540, DeSoto found "maes everywhere along his route from Florida and Alabama to the upper part of the Mississippi in fields or stored in granaries" and when Cartier visited Hochelaga, now Montreal, in 1535, he found "that town situated in the midst of extensive corn fields."

The stories of corn as told by other early explorers in America also inform us of its wide cultivation from Ontario to Peru and from Brazil back to British Columbia. Varieties were abundant, the Indians seemingly paying particular attention to colour forms, such as yellow, red, blue, black, white and variegated; they also cultivated hard corns and soft corns, few-rowed and many-rowed. The Indian's varieties of corn were naturally not as highly perfected as those of our time, which like the cultivator himself, have been remoulded and changed through the centuries.

When European explorers came to live on this continent the Red Man taught him how to select the best corn ears for seed, how and when to plant it, and the use of fish (one to a hill) as fertilizer. Then when autumn came they told him how to harvest the corn crop and store it in pits. One of these pits, which authorities claim to be several thousand years old, was discovered a few years ago in Ohio state. It contained "about a bushel of mixed corn and beans" perfectly preserved in carbonized form as a result of previous burning. Furthermore, it fell to the Red Man's lot to teach the early White settlers how to make succotash, hominy, corn bread and other corn foods.

According to Indian legend corn was of divine origin — "it was the food of the gods that created the earth." One legend associates it with the crow, which some of the Indian tribes protected, for this bird was "the seed bearer who brought the corn from heaven." Modern man gives us many theories as to the origin of corn but all have objections that prevent unqualified acceptance. Perhaps the most plausible theory is that the early natives finding the seeds of some plant edible began to select plants and seeds, and thus in time development came about of the plant found by our forefathers. One thing is certain, corn has been cultivated for thousands of

years in America. We are assured of the correctness of our assumption here by a vast array of evidence preserved in the prehistoric village sites of the Mound Dwellers – evidence which tempts authorities to proclaim corn "the most ancient of the cultivated cereals, if not of all cultivated plants." Collins, the great American authority on corn, is of the opinion that this plant has a continuous history behind it on America's soil of 10,000 years. He points out as further proof of his contention that "wild wheat still grows on Mount Hermon and that wild forms of other cereals are known – all but corn; corn being the only cereal completely dependent on man for existence."

From the few bushels first grown by the Indian in Canada for hominy and succotash, corn has now become an important agricultural commodity. The acreage planted to corn in the Dominion of Canada is now approximately 600,000 acres and of this total amount more than one-third is grown in the South Western portion of the Province of Ontario.

History reveals that corn, or maize as it is known in Europe, was introduced to that continent by Columbus on his return to Spain from his first trip to America. Since its introduction to the Old World corn has become the "staff of life" for a vast population in the northern provinces of China; it plays a similar role in northern Italy; its green blades and golden tassels wave along the historic Nile, where this contribution of the American Indian is taking notable part in the agricultural regeneration of the Land of Joseph and Pharaoh.

In 1933 world production of corn exceeded 4,042,989,082 bushels, this figure being only slightly surpassed by the world wheat crop. This volume of corn is enough to fill a crib eight feet wide to a uniform depth of eight feet for a length of 32,300 miles. Such a crib would extend from Chatham around the world and on again to Moscow, Russia. There were concerned in this production five continents including sixty-five different nations and protectorates, hence the phrase, "Corn, America's Gift to the World."

From its original use as a food for man, corn now yields over one hundred by-products to industry, a few of which are: dyes, oilcloth, paints, oil for soaps, size and glaze, corn gum (used as a substitute for rubber), starches, syrups, vegetable substitutes for lard and butter, nitro-starch (of which 1,720,000 pounds were being manufactured each month for loading hand grenades in the United States when the War closed), corn cellulose in press boards and insulating material and various chemical compounds.

With its ancient background and many uses, we may rightfully proclaim with the sages, "Corn is King," for its influence so momentous in the world's history "has changed the surface of the earth."

THE 1940 PRIZE LIST

When the 1940 Prize List for the Corn and Seed Exhibition was issued, it announced that the Ontario Corn Growers' Association had been joined by the Kent Crop Improvement Association as sponsor.

1940 Officers of the Corn Growers: Hon. Pres., William Wallace; President, Harry Shellar; vice-presidents, H. M. Hessenauer and R. B. Cumming; secretary-treasurer, J. A. Garner. Directors: F. S. Thomas, Martin Hux, B. R. Cohoe, Clarence Hagins, Rosaire Quenneville, John Lickman, W. F. Campbell, W. P. MacDonald, An-

drew G. Murray, Alex M. Stewart, W. K. Riddell, Frank Weaver, George Parry, William McNeill, Earl Montgomery.

1940 Officers of the Kent Crop Improvement Association: Hon. Presidents, Frank Weaver, N. D. MacKenzie; President, R. Bruce Cumming; vice-president, Mac L. Maynard; Secretary-treasurer, J. A. Garner. Directors, C. R. Sturgis, Arthur Houle, Harold Huffman, Keith McLean, James Brisley, Ezra Clark, Albert Wellwood, Charles Baker, Forrest Hyatt, Archie Shanks, James E. McGregor, Ellis C. Jones, Cecil Tinney.

In the 1940 Show various references were made to the hybrids, significant being this by the K.C.I.A. president, Bruce Cumming: "It is the patriotic duty of every farmer to increase yields, including the use of rust resistant seed grains and the extended planting of proven varieties of hybrid corn."

The 1940 Corn Show was indeed one of the most important of the agricultural events that gave impetus to the adaptation of the hybrids. A 5-acre Corn Club had been active in 1939-40 in "comparing performance of open pollinated and hybrid strains."

The year 1939 was noteworthy for the formative accomplishments of the "Corn Hybrid Committee." The committee meeting of February 23, 1939, set out a program of testing (plots), evaluating and making recommendations based thereon. These recommendations were duly made, but were only a part of the committee's concerns.

An important meeting of the committee was held October 16, 1939, at the Chatham office. Present were committee members W. J. W. Lennox, chairman, Prof. J. C. Steckley, Dr. G. P. McRostie and J. A. Garner, secretary, and others, W. R. Reek, Dr. G. F. H. Buckley, C. W. Owen, Angus McKenney, W. Wallace, C. Sweet, B. R. Cohoe, K. R. Hillier, N. D. MacKenzie, Ian Maynard and R. B. Cumming.

It was revealed that about 1,000 bushels of hybrid seed corn were produced in Essex and Kent in 1939 and "whereas importers were active in the seed market," a committee was named "to co-operate with local growers of hybrid seed with a view of effecting a satisfactory method of selling the local seed." The committee: N. D. MacKenzie, J. A. Garner, James T. Grant, B. R. Cohoe, O. J. Wilcox, Ian Maynard, Napoleon King.

This meeting also agreed with regulations of the Plant Products Division covering importation of hybrid seed corn material, and that the accrediting agencies of states exporting hybrid seed to Canada be advised regarding Canada's import regulations concerning labelling and sealing of containers (official certification tags and seals).

Regarding imported seed, in 1939 seed companies in U.S. were reluctant to comply with Canada's import regulations requiring disclosure of pedigree. The Hybrid Corn Committee, meeting at Guelph January 6, 1939, "suggested that the following might safely be accepted as certifying agencies: De Kalb Seed Co., De Kalb, Ill.; Funk Bros., Bloomington, Ill.; Northrup King Seed Co., Minneapolis, Minn., and the Pioneer Hybrid Seed Corn Co., Des Moines, Ia.

It was at the meeting of the Corn Hybrid Committee at Chatham, December 11, 1939, that Mr. C. Sweet, Chief, Seed Division, Plant Products Division, submitted a suggested "Hybrid Seed Corn Program."

This resulted in a "Memorandum" being adopted on motion of H. F. Murwin and

J. C. Steckley, establishing the "Division of work involved in the production of single-cross seed for Southwestern Ontario, between Dominion Experimental Station, Harrow, and the Provincial Experimental Station, Ridgetown.

Text of the Memorandum (in part):

During the Committee Meeting held at Chatham on December 11, 1939, it was announced that single crosses, necessary for the production of Wisconsin hybrids, would not be available to Ontario producers of hybrid seed after 1940. Therefore, some other source of seed must be found for our growers. At the above meeting the Hybrid Corn Committee recommended that the Harrow Station be responsible for the maintenance and multiplication of necessary inbred lines and cooperate with the Ridgetown Experimental Farm in the production of the single crosses.

To carry out this programme it has been agreed by the parties concerned that the work should be divided between Harrow and Ridgetown as follows: —

Harrow Experimental Station

1. To maintain and multiply the inbred lines necessary for the making of recommended hybrids.
2. To supply seed of inbred lines to the Ridgetown Experimental Farm for the making of the single crosses.
3. To advise in the planting, detasselling, and harvesting of single cross plots.
4. To inspect inbred lines planted for production of the first-cross seed during the growing season.

Ridgetown Experimental Farm

1. To receive seed of the necessary inbred lines from Harrow.
2. To make arrangements and draw up contracts with farmers selected by the Ontario Corn Growers' Association for the growing of single-crosses. These contracts are to be for one year's duration only. The farmer is guaranteed a definite amount per acre to cover loss by crop failures. The crop is to be paid for on the basis of average yield of all crossing plots.
3. To choose the location of plots on each farm, considering isolation and soil.
4. To supervise planting of plots, exercising care in the placing of male and female rows and also male border rows.
5. To supervise detasselling, making sure sufficient help is provided to ensure complete detasselling of the female rows at the proper time. Daily inspections will be necessary during this period.
6. To supervise harvesting of plots. The male rows harvested first, by hand, and the ears placed in special cribs or containers so that no mixing can occur. Female rows, which produce the hybrid seed, harvested next, and the ears given the same care as those from the male rows. All ears from all plots to be brought to Ridgetown. There they are to be dried, shelled, cleaned and graded.
7. To act as sales and distributing agent of single-cross seed. The price of seed is to be determined by the actual cost of production — wages, salaries, or travelling expenses of government employees not to be included.
8. To receive orders for single-cross seed; these orders must be received at the Ridgetown Experimental Farm on or before April 1 of the year prior to seed delivery.
9. To notify the plant breeders at Harrow before April 15 of the quantity of single-cross seed ordered, so that sufficient inbred seed will be reserved.

The Experimental Station at Harrow and the Experimental Farm at Ridgetown

will work closely together in effecting the above programme. Any omissions that might have been made in drafting this form or any alterations that seem advisable concerning detail will be worked out jointly by these two Institutions.

Various refinements in regulating the production of hybrid seed corn in Ontario were effected at meetings of the Hybrid Corn Committee during 1940. Most important was "That in the production of hybrid seed corn in Canada there be only one agency for registration or certification of hybrid corn; and that if the method be registration, then this committee recommends to the Canadian Seed Growers' Association, that at their next annual meeting, they review the conditions of acceptance of hybrid corn for registration."

The committee drew up a comprehensive set of regulations for importing and sale of hybrids, all designed to assure the purchaser that he could have confidence in the seed in the bag bearing the tag.

Growers of open pollinated seed corn took a concern to the Hybrid Corn Committee February 15, 1940, delegates being R. A. Jackson, R. Tellier, C. Nichols, G. Parry, E. Warwick and W. Wallace. They asked that all open pollinated seed corn offered for sale be from certified fields and in certified containers. "There was grave danger of open pollinated strains becoming mixed with hybrids." The matter was referred to the seed commissioner.

Seed Corn Board Goes On Stream

First reference to the Ontario Seed Corn Growers' Association in the files of the Hybrid Corn Committee was at a meeting December 16, 1940, when a delegation headed by Harold Huffman, member of the association's "Local Board," and including E. M. Warwick, Napoleon King, Ian Maynard, James Jubenville and Bruce Cumming, asked the committee for assistance in effecting changes in the Canadian regulations to make the Canadian producer equally competitive with the U.S. producer of hybrid seed admitted for sale in Canada. The committee gave favorable consideration to the delegation and appointed N. D. MacKenzie, W. J. W. Lennox and W. T. G. Wiener to ask the Plant Products Division to consider changes in standards.

Production of the new hybrid seed having reached what amounted to "saturation" conditions in United States before the Ontario hybrids had become firmly established, the new board representing growers and with the co-operation of the dealers, undertook one of their first projects, which was to seek assistance in regulating the importation of U.S. seed corn. The submission:

"We, the Marketing Board of the Ontario Seed Corn Producers' Association, respectfully submit to the Honourable the Minister of Agriculture, that the present regulations under the Seeds Act regarding the importation of hybrid corn seed, combined with the regulations of the Canadian Seed Growers' Association regarding the production of hybrid seed in Canada, are unfair to our growing industry, in that a Canadian producer is put under a handicap as compared to the imported hybrid seed. We are not asking for protection or for any advantage over the American producer, but only that we be put on an equal basis with the importer and the United States producer.

"The main cause of the present unfair competition is the fact that under the pre-

sent regulations under the Seed Act for the importation of hybrid seed corn, any certified hybrid produced in a State having a recognized certifying agency can be imported and sold for seed in Canada irrespective of its merits or suitability as a hybrid corn under Canadian conditions. Also, we question the methods and operations of some of the recognized certifying agencies as their inspection methods and the issuance of certifying tags, etc. are conducted in a very loose and unsatisfactory manner, and in no way compare with the rigid inspection of the growing crop, and also the thorough and careful inspection and sealing of the seed under the Canadian Seed Growers' Association regulations and the Seeds Act and regulations.

"Numerous salesmen and agents of hybrid seed corn produced in the United States are importing newly developed hybrids from the United States for sale in Canada without any information as to their performance or suitability under our conditions. Consequently, these newly developed hybrids are being imported for sale in Canada before our Government testing agencies have had an opportunity to test them under our growing conditions. The simple sales talk of representing all new introductions as "new superior hybrids" regardless of merit makes an appeal to the average corn grower. This type of salesman, who is operating in our midst, always has something which he calls new and better. This type of salesman sells his product which has not been tested in Canada without any investment or without any risk whatever, in direct competition with our newly established hybrid seed corn industry, which has very substantial investments and necessarily takes annual production risks. Further, under the present import regulations, hybrid seed corn can and is being imported and sold in Canada that is not eligible for production and sale in Canada. Moreover, the seed that is imported very often is surplus seed in the United States finding a market outlet in Canada.

"If the list of hybrids eligible for importation were made the same as the list of hybrids recommended for production and sale in Canada, all of this unfair competition would be eliminated, and our farmers would have much more protection in the matter of hybrid seed offered for sale than they have at present.

"We producers of hybrid seed have expended a tremendous amount of effort, and have made very substantial investments in order to establish this new industry in Ontario. While we welcome fair competition, the situation which is rapdily developing offers a real threat to our young hybrid seed corn industry.

"Therefore, be it resolved that we request of the Minister of Agriculture, that he amend the present regulations governing the importation of hybrid seed corn into Canada to permit the importations of only those hybrids that are recommended for production and sale in Canada, and that the present requirement of certification be dropped, and the system of licensing be substituted for it, and only hybrids properly tested and recommended be licensed for import, production and sale in Canada."

Chartered December 19, 1940

The representation by Harold Huffman on behalf of the "Local Board" was actually made three days before this "Local Board," otherwise officially known as "The Ontario Seed Corn Growers' Marketing Board," came into being by Order-in-Council under date of 19 December 1940, as constituted under the "Ontario Seed Corn

Growers' Marketing Scheme." The "Scheme" was established under "The Farm Products Control Act."

The struggles by producers of the various farm products of Ontario to establish systems for fair marketing practises had been going on for many years, and permissive legislation was in place to accommodate a number of crops. In some cases, farmers had banded together in association, attempted to control marketing through "pools" and co-operatives, only to see them collapse, usually from "within." Onions and white pea beans were good examples. Sugar beets and vegetables for processing presented formidable challenges. This was the pre-war period — the "dirty thirties" when prices were normally very low except for rare seasons when shortage resulted in an isolated upward bulge in price for a short time. It was a time when transportation and communication progress could be credited with enlightening the farmer — his becoming more business-oriented and capable of seeking recognition — striving for fair treatment. There really was no other jurisdiction with systems that could be copied. The thinkers and formers had to start from scratch and in many cases revise — actually trial and error — in attaining what eventually resulted in the best marketing legislation anywhere in the world. Credit for much of this progressive marketing legislation must be given to the people who devised a workable system for marketing seed corn.

Marketing legislation in place when the first charter was issued in 1940 was good, but proved inadequate in some cases, especially as other products were being brought under the "Control" act. Changes were inevitable, and a revised "Ontario Seed Corn Growers' Marketing Scheme" was approved 5 September 1944, so it would comply with the covering legislation and effect some minor changes in the sections particularly concerned with licensing and other matters involving "persons engaged in the business of dealers in seed corn."

In the 1940 "Scheme," a "local board" was appointed, charter members being Clarence Nichols, Blenheim; Eugene King, Pain Court; Harold J. Huffman, Blenheim; William M. Wallace, Woodslee; Joshua Nussey, Tilbury; Wilfred St. Pierre, Woodslee, and Carl Lehrbass, Inwood. For the first year, these committee members were not elected, the first election by the member growers being on or before 15 November 1941 and for one year, three being from Essex, three from Kent and one from other counties.

Five representatives of the growers and four representing "The Seed Corn Dealers' Association of Ontario" made up the "Advisory Committee" to "forward their recommendations to the local board."

There was also "The Seed Corn Negotiating Committee" of three appointed by the local board for the growers, and three by the licensed dealers. This committee was "empowered to negotiate and fix agreements respecting the forms of contract, conditions of sale, minimum prices and fulfilment of contract."

A "Board of Arbitration" of three members, one from growers, one from dealers and one agreed upon by these two delegates, was available to handle disputed matters unresolved by the negotiating committee. Decisions were submitted "to the Board with a request for the Board's approval."

There are few records of the activities of the early years of the Seed Corn Growers' Marketing Board's existence. Minutes of meetings are lacking. We were unable to find minutes of the meetings at which important decisions were made. Without such information, one has to "draw conclusions" based on the evidence at hand.

1940 Seed Not "Priced"

One of these conclusions would be that the pricing of the hybrid seed corn produced in 1940 was not negotiated by the board. There may have been such a limited amount that the pricing was left to the growers or the dealers who processed the product.

The board's concern was with the open-pollinated seed corn produced in 1940, and a document dated 31 January 1941 cites not only the prices for the common varieties, but is issued by "The Farm Products Control Board" as an "Order of the Board" under "The Ontario Farm Products Control Act."

The series of "Whereases" in the document is indicative of the supervisory authority the Control Board seems to hold over the Growers' Board, and its approval of the prices and other conditions agreed upon by the negotiating committee. The Control Board announced its approved prices and other conditions over the signatures of George Wilson, chairman, and G. F. Perkin, secretary.

The prices per shelled-bushel to the grower were based on grades, and differed for varieties, as follows:

Yellow Dents: Golden Glow (Early, Medium, Late) and Bailey, (1) - $1.20; (2) - $1.05; (3) .95 c.

Wisconsin No. 7, White Cap Yellow Dent, Bloody Butcher, (1) - $1.30; (2) - $1.15; (3) - $1.05.

Sweepstakes, Salzer's North Dakota, Longfellow and Compton's, (1) - $1.45; (2) - $1.30; (3) - $1.20.

Although there were such newsworthy corn related concerns as corn borer, marketing problems and kiln drying during the 'thirties, once hybrids came on the scene, newspapers realized that there was general interest in the technology of the corn crop as well as orderly marketing organization, and considerable space was devoted to telling the corn story. It was also a favourite "on the radio" with farmcasters, to the extent that expansion of the corn business could be described as an explosion — not just a "pop."

Hybrids were becoming (by degrees) to be better understood by the average farmer. They were a favourite item for discussion and boasting wherever farmers congregated — the country store, gas station, blacksmith shop, barber shop, main street on Saturday night. Seed companies used every gimmick and sought out the most adept salesmen to promote their particular lines of hybrids. As I recall this situation, the variety that was "the one to beat" was De Kalb 404A. One competing salesman told the story this way:

De Kalb was one of the first companies off the mark with hybrids in United States and one of the first and best varieties was 404, known when brought into Ontario as 404A. De Kalb had an excellent sales and promotion system and they used 404A to become very competitive in Essex and Kent. It was a very showy, long-eared, open husked, uniform, fast drying, high yielder, but those who sold other hybrids against it contended it had a serious fault, a very weak shank that became weaker as it matured, and would not support the ear, which would drop with the least disturbance. The variety had been excellent for hand-picking before mechanical corn pickers were invented and armies used to harvest the corn crop. It "snapped off" easily. The admonition was: Don't grow it too near a railway — a passing train might sound its whistle, causing the ears to drop off.

A "Scheme" With "Teeth" — December 1940

Fifty years ago (1938), one of the common expressions made by growers seeking to establish orderly marketing plans for their products was that "the legislation lacks teeth," meaning that it couldn't be enforced. Some schemes had been declared "ultra vires" by the Supreme Court of Canada. Considerable credit should be given to the men who came up with the original "scheme" and who revised it to accommodate the "situations" that arose as it was used.

The grass roots sector spent hundreds of hours and drove hundreds of miles meeting with "government" people and learning what could or couldn't be done. One group learned from the other. Representatives of both provincial and federal governments have been mentioned in the correspondence and reports included on previous pages. The "local board" members in the "scheme" adopted 19 December 1940 were eventually honored by their peers for the collective contribution they made, and because of my close association with him, I can say that Harold "Pete" Huffman was the man for the job when he became the first chairman, a "task" and responsibility in which he served for many years "and helped set the course" for the excellent record of achievement of the Ontario Seed Corn Growers Marketing Board.

The Ontario government's "Farm Products Control Act" provided the legislative vehicle for the seed corn marketing (and production) system. Also essential was the federally-legislated Canadian Seed Growers Association. It was an excellent example of cooperation for the common benefits intended and derived. Control of quality and orderly marketing were achieved — and there were "teeth" in the controls. The 1940 "Scheme":

The Ontario Seed Corn Growers' Marketing Scheme

ORDER-IN-COUNCIL

Copy of an Order-in-Council approved by the Honourable the Lieutenant-Governor, dated the 19th day of December, A.D. 1940.

Upon the recommendation of the Honourable the Minister of Agriculture, the Committee of Council advise that pursuant to the provisions of The Farm Products Control Act seed corn produced in Ontario be designated a farm product within the meaning of The Farm Products Control Act and the attached Regulations made by the Farm Products Control board under the said Act for the marketing of seed corn produced in Ontario be approved and that your Honour declare the attached scheme, together with the

attached order of The Farm Products Control Board and the said Regulations, to be in force in Ontario as from the 19th day of December, 1940.

Certified,

C. F. BULMER,

Clerk, Executive Council.

THE FARM PRODUCTS CONTROL ACT

SCHEME

for the marketing of seed corn produced in Ontario

1. This scheme may be cited as "The Ontario Seed Corn Growers' Marketing Scheme."

2. A local board established by The Farm Products Control Board under *The Farm Products Control Act* and known as The Ontario Seed Corn Growers' Marketing Board shall have power to control the marketing of seed corn produced in Ontario and to regulate its sale in accordance with the provisions of *The Farm Products Control Act* and the regulations passed thereunder.

3. The local board shall in addition to the powers and duties vested in and imposed upon it by *The Farm Products Control Act* and any regulations passed thereunder, have authority to stimulate, increase and improve the marketing of Ontario seed corn by appointing such persons and doing such acts as it deems advisable provided that expenses thereby incurred shall be paid out of the moneys raised by license fees levied by the regulations under *The Farm Products Control Act* for the marketing of seed corn produced in Ontario or out of such other funds as the local board may determine.

THE FARM PRODUCTS CONTROL ACT

The Farm Products Control Board, Monday the 16th day of December, 1940.

ORDER

1. It is ordered that a local board which shall be known as "The Ontario Seed Corn Growers' Marketing Board" be and it is hereby established in accordance with the further provisions of this Order.

2. The local board shall consist of seven members.

3. Every grower of seed corn in Ontario who has contracted to sell or deliver seed corn to a dealer shall register his name and address with the local board.

4. The growers who have registered for the current year and

the year previous shall be the only growers entitled to vote for the election of the local board as provided for in section 5 of this Order.

5. The seed corn growers registered with the local board in accordance with the provisions of this Order shall annually hold a meeting or meetings prior to the 15th day of November in each year and elect the seven members to the local board provided that three members shall be elected to represent the growers of the County of Kent, three members shall be elected to represent the growers of the County of Essex and one member shall be elected to represent the growers of the other Counties and districts in Ontario.

6. The first members of the local board who shall hold office until not later than the 31st day of December 1941 unless they are re-elected, or until their successors are elected, shall be,—

George Clarence Nichols.....R. R. 3, Blenheim, Ont.
Eugene King .....R. R. 1, Paincourt, Ont.
Harold Joseph Huffman.....R. R. 3, Blenheim, Ont.
William Melville Wallace.....R. R. 4, Woodslee, Ont.
Joshua Nussey .....R. R. 4, Tilbury, Ont.
Wilfred St. Pierre .....R. R. 1, Woodslee, Ont.
Carl Lehrbass .....Inwood, Ont.

7. Members of the local board except the first members thereof and of the Advisory Committee except the first members thereof shall hold office for one year and shall commence to hold office on the 1st day of January in the year following their election provided that they may continue to hold office until their successors have been elected.

8. The members of the local board shall annually elect a chairman from among themselves and may appoint a secretary-treasurer and such other officers and employees as they may deem expedient.

9. In a case where the chairman is not present at a meeting the members present may elect an acting chairman.

10. The offices of the local board shall be located in the city of Chatham, in the Province of Ontario, or such other place as the local board may determine.

11. The Farm Products Control Board may remove from office any member of the local board if he is convicted of any offence under this Act, or any offence under the Criminal Code.

12. Where a vacancy occurs on the local board by reason of death, resignation, removal or any other cause, the remaining representatives of such local board shall appoint a member to fill such vacancy provided that the member shall be appointed to represent the growers of the County or Counties and district in which the vacancy occurred.

13. Notwithstanding any irregularity in the appointment or election and qualification of any member of the local board, every act of the local board shall be as valid as if the local board were duly constituted and every member thereof duly appointed or elected and qualified.

14. Meetings of the local board may be called: —

(a) by the chairman by giving reasonable notice thereof by telegraph, telephone, or post;

(b) by any four members of the local board by giving reasonable notice by post;

and shall be held at the offices of the local board, or at such other place as the Chairman or any four members may determine.

15. Four members of the local board shall constitute a quorum.

16. Questions arising at any meeting of the local board shall be decided by the majority of the votes of the members present and in the case of an equality of votes the chairman or acting chairman shall have a second or casting vote.

17. Minutes shall be kept of the proceedings of the local board and shall be signed by the chairman or acting chairman and secretary.

18. Any business of the local board may be conducted by correspondence or by telegram, and any vote taken by correspondence or by telegram shall be as effective and binding as if taken at a meeting of the said local board regularly called, and shall be recorded in the minute book and confirmed at the next meeting of the local board.

19. Copies of all orders, directions and other determinations and of the minutes of the local board shall be forthwith forwarded to the secretary of The Farm Products Control Board.

20. (1) All moneys received by the local board shall be deposited in a chartered bank or a Province of Ontario Savings Office and all payments shall be made by cheque drawn on such bank or savings office by the secretary-treasurer and countersigned by the Chairman of the local board and in the absence of the secretary-treasurer or the chairman, or both, cheques may be signed by such persons as the local board may authorize.

(2) Accounts may be paid when passed by the chairman and the secretary-treasurer and in the absence of either of them, or both, by such persons as the local board may authorize provided all accounts shall be submitted to the local board for inspection at the first meeting of the local board following the payment of such accounts.

21. The local board shall keep proper books of account which shall be audited at the end of each calendar year or within three months thereof by an auditor approved by The Farm Products Control Board and a report of such audit shall be forthwith sent

to The Farm Products Control Board, accompanied by a report of the local board on its operations during the preceding calendar year.

22. Service of any order, direction or other determination of the local board may be effected by prepaid post.

23. Orders, directions and other determinations of the local board may be approved by the signature of the secretary.

24. (1) There shall be a committee of nine persons which shall be known as "The Advisory Committee" and which shall be annually elected on or before the 15th day of November in each year and consitituted as follows:

(a) The Ontario Seed Corn Growers shall annually nominate and appoint five members to such Advisory Committee,

(b) The association known as "The Seed Corn Dealers' Association of Ontario" shall annually nominate and appoint four members to such Advisory Committee

provided that the first members of The Advisory Committee shall be appointed forthwith after the coming into force of this scheme and shall hold office until their successors are elected.

(2) The Advisory Committee shall act in an advisory capacity and shall forward their recommendations to the local board.

25. The expenses of the local board shall be paid out of such license fees as may be levied by the regulations under The Farm Products Control Act for the marketing of seed corn produced in Ontario.

THE FARM PRODUCTS CONTROL ACT
REGULATIONS
made by The Farm Products Control Board for the Marketing of Seed Corn produced in Ontario.

I. DEFINITIONS

1. In these regulations and in any order, direction or determination made by the Board or the local board, —

(a) "Act" shall mean *The Farm Products Control Act.;*

(b) "Dealer" shall mean an original purchaser of seed corn produced in Ontario for resale but shall not include a producer who purchases seed corn from another producer for use on his own farm;

(c) "Local Board" shall mean The Ontario Seed Corn Growers' Marketing Board;

(d) "Person" shall include association, corporation, firm, partnership and syndicate;

(e) "Process" shall include shelling, cleaning, drying,

grading, treating or any of them or any other treatment or preparation used in making seed corn ready for market.

(f) "producer" shall mean a person engaged in the production in Ontario of seed corn for resale;

(g) "Regulations" shall mean regulations under *The Farm Products Control Act.*

(h) "Seed Corn" shall mean field corn on the ear, shelled or processed of any variety or strain produced in Ontario in accordance with the provisions of The Seeds Act (Canada) and regulations passed thereunder for the purpose of being used as seed corn.

II. LICENSES FOR DEALERS

2. The Board is hereby empowered to grant licenses to persons engaged in the business of dealers in seed corn.

3. No person shall engage in the business of a dealer in seed corn except under the authority of a license granted by the Board.

4. Every application to the Board for a license shall be made in writing upon and according to the form prescribed by the Board.

5. Such licenses shall be issued annually for the period from the 1st day of January in the year in which the license is issued to the 31st day of December in the same year and may be renewed for a similar period.

6. Subject to the provisions of section 7 of these regulations no fee shall be charged for any licenses granted to dealers.

III. MARKETING

7. (1) For the purpose of defraying the expenses of the local board for services rendered in carrying out the duties of the local board under the provisions of the Scheme, the Order of the Board attached hereto and these regulations every dealer shall pay license fees amounting to one cent per bushel for each bushel purchased or received by such dealer from a producer and every producer shall pay license fees amounting to one cent per bushel for each bushel sold or delivered to a dealer provided that the amount of the lecense fees, payable by a producer, shall be deducted by every dealer from the amount owing to such producer.

(2) The amount of the license fees deducted by a dealer for seed corn delivered to such dealer by a producer during any month together with the license fees payable by such dealer for seed corn received during such month, shall be forwarded by such dealer to the local board on or before the 15th day of the month following the delivery and receiving of such seed corn.

8. (1) There shall be a committee of six persons which shall be known as "The Seed Corn Negotiating Committee" and the said committee shall be annually elected and constituted as follows: —

(a) Subject to the approval of the Board the local board shall

annually on or before January 15th in each year nominate three members to The Seed Corn Negotiating Committee and the licensed dealers shall annually on or before January 15th in each year hold a meeting and nominate three members to The Seed Corn Negotiating Committee.

(2) The Seed Corn Negotiating Committee is hereby empowered to negotiate and fix agreements respecting the forms of contract, conditions of sale, minimum prices and fullfilment of contract.

9. In the event The Seed Corn Negotiating Committee referred to in Section 8 fail to arrive at an agreement in any matter, the same shall be referred to a board of arbitration.

10. The Board of Arbitration shall be elected and constituted as follows:

One member shall be nominated and appointed by the three grower members mentioned in section 8, another member shall be nominated and appointed by the three licensed dealers mentioned in section 8 and the third member shall be nominated by the first two mentioned members of such Board of Arbitration and in the event that the first two members of the Board of Arbitration fail to agree on the appointment of the third member the Board shall appoint such third member.

11. Notwithstanding any irregularity in the appointment or election or qualification of any member of the Seed Corn Negotiating Committee or The Board of Arbitration every act of the said Negotiating Committee or The Board of Arbitration shall be as valid as if the said Negotiating Committee or The Board of Arbitration were duly constituted and every member of such Negotiating Committee or Board of Arbitration were duly appointed or elected and qualified.

12. (1) The agreements respecting the forms of contract, conditions of sale, minimum prices and fullfilment of contract as so approved by The Seed Corn Negotiating Committee or the Board of Arbitration shall be submitted to the Board with a request for the Board's approval.

(2) The Board may approve in whole or in part or may refuse to approve the agreements respecting the forms of contract, conditions of sale, minimum prices and fullfilment of contract.

(3) When the Board has approved of the agreements, or any of them respecting the forms of contract, conditions of sale, minimum prices and fullfilment of contract the Board may by order declare such agreements to be in force in the Province of Ontario and written notice shall be sent by prepaid post to such persons as the Board may direct.

IV. GENERAL

13. No producer shall sell or deliver seed corn to any person

except to a dealer licensed under the provisions of the regulations or to a person who purchases the seed corn for use on his own farm.

14. Before purchasing or contracting for seed corn every dealer shall, if required by an order of the Board, furnish documentary proof of his financial responsibility in such form as the Board may determine.

15. The Board may exempt any seed corn or any variety or strain thereof, or any dealer, producer or other person from the whole or any portion of the Act, the Scheme or the regulations.

16. Every dealer or other person engaged in the marketing of seed corn shall permit any person authorized by the Board to inspect his books, records and premises and shall furnish to the Board copies of any invoices, contracts, bills of lading, accounts or other documents relating to seed corn which the Board may require.

17. Every dealer or other person who is required to furnish any information to the Board or the local board shall furnish such information to the Board or the local board by prepaid post at such times as the Board or the local board may determine.

18. The regulations shall come into force on the day upon which they are approved by Order-in-Council.

D. Harry Laird, of Blenheim, pictured in 1962 after his sample of dent corn won at the Toronto C.N.E., marking 40 consecutive years of exhibiting at Toronto and Chicago, and many championships.

1940-41 — The Formative Year

With the "Scheme" coming into effect in December, 1940, one realizes that this had been a busy year. Confirmation of this situation is a memorandum kept by Mr. Garner, the Kent Agricultural Representative, and his secretary, Miss Nellie Johnston. During 1940 and for part of 1941, the work of the Secretary-treasurer was done by Mr. Garner and Miss Johnston, prior to the appointment of J. Duff Brien as the first official holder of that position.

This memorandum was entitled "Meetings at Which Corn Was Discussed," and covered the period February, 1940, to March, 1941. It tells the story of the formative year as follows:

Date: Feb. 16/40, Place: Office, Nature of Meeting: Corn Growers and Dealers, Subject Discussed: Open pollinated seed corn situation, Attendance: 35.

Date: Feb. 22/40, Place: Office, Nature of Meeting: Dealers and Producers of Open Pollinated corn, Subject Discussed: Seed corn marketing problems, Attendance: 25.

Date: Feb. 22/40, Place: Chatham, Nature of Meeting: Corn Hybrid Committee, Subject Discussed: Import regulations, Attendance 9.

Date: Feb. 22/40, Place: Office, Nature of Meeting: Meeting of dealers and growers of open pollinated corn with Corn Hybrid Committee, Subject Discussed: Regulations re Certification of Open Pollinated corn, Attendance 30.

Date: March 5/40, Place: Office, Nature of Meeting: Committee re Open Pollinated Corn, Subject Discussed: Grades, Attendance: 6.

Date: March 19/40, Place: Office, Nature of Meeting: Dealers and growers of Open Pollinated corn, Subject Discussed: Seed corn Certification, Attendance 50.

Date: March 29/40, Place: Ridgetown, Nature of Meeting: Corn Hybrid Committee, Subject Discussed: 1940 Demonstration Tests, Attendance: 9.

NOTATION: March 31/40

Possibly one of the outstanding features of the past year's activities was the interest evidenced in corn hybrids. In 1938 small lots of hybrids were distributed to twenty farmers who grew approximately thirty acres. The hybrid seed sold within the county to date would indicate that at least 20,000 acres will be planted in 1940.

Date: Apr. 4/40, Place: Office, Nature of Meeting, Representative dealers and growers of Open Pollinated corn, Subject Discussed: Distribution of Seed Supplies and Seed prices, Attendance: 20.

Date: Apr. 18/40, Place: Office, Nature of Meeting: Representative dealers and growers of Open Pollinated corn, Subject Discussed: Seed stocks eligible for Certification, Attendance: 18.

Date: May 27/40, Place: Toronto, Nature of Meeting: Standing Committee on Field Crop Improvement, Subject Discussed: Consideration of seed plan for Open Pollinated corn, Attendance: 25.

Date: May 28/40, Place: Toronto, Nature of Meeting: Corn Hybrid Committee, Subject Discussed: Import regulations and seed grades, Attendance 8.

Date: Aug. 30/40, Place: Toronto, Nature of Meeting: Seed Corn Dealers and Marketing Board, Subject Discussed: Marketing of seed corn, Attendance: 15.

Date: Nov. 13/40, Place: Office, Nature of Meeting: Representative Seed Corn Growers and Dealers, Subject Discussed: Marketing of seed corn; Marketing Plan, Attendance: 30.

Date: Nov. 25/40, Place: Chatham, Nature of Meeting: Seed Corn Growers of Kent County, Subject Discussed: Presenting Marketing Plan, Attendance: 88.

Date: Nov. 28/40, Place: Office, Nature of Meeting: Provisional Local Board and Advisory Committee Corn Marketing Scheme, Subject Discussed: Drafting of Petition, Attendance: 11.

Date: Dec. 4/40, Nature of Meeting: Provisional Local Board and Advisory Committee Seed Corn Marketing Scheme, Subject Discussed: Petition to Control Board, Attendance: 7.

Date: Dec. 27/40, Place: Office, Nature of Meeting: Local Board, Seed Corn Marketing Scheme, Attendance: 6.

Date: Jan. 7/41, Place: Office, Nature of Meeting: Local Board, Seed Corn Marketing Scheme, Subject Discussed: Prices, grades, etc. Attendance: 10.

Date: Jan. 14/41, Place: Office, Nature of Meeting: Ontario Seed Corn Growers; Marketing Scheme, Subject Discussed: Negotiating Committee with Dealers, Attendance: 20.

Date: Jan. 23/41, Nature of Meeting: Negotiating Committee, Ontario Seed Corn Growers' Marketing Scheme, Subject Discussed: Standards of Seed Corn, Attendance: 12.

Date: Jan. 30/41, Place: Office, Nature of Meeting: Local Board, Ontario Seed Corn Growers' Marketing Board with Hybrid Growers, Subject Discussed: Seed corn prices, Attendance: 20.

Date: Jan. 30/41, Place: Office, Nature of Meeting: Local Board, Ontario Seed Corn Growers' Marketing Board, with Open Pollinated Corn Growers, Subject Discussed: Seed grades and prices for same, Attendance: 20.

Date: Jan. 30/41, Place: Office, Nature of Meeting: Local Board Ontario Seed Corn Growers' Marketing Board, Subject Discussed: Recommendations of Negotiating Committee, Attendance: 6.

Date: Feb. 20/41, Place: Office, Nature of Meeting: Ontario Seed Corn Growers' Marketing Board, Subject Discussed: 1941 Seed Supplies, Attendance: 9.

Date: Feb. 27/41, Place: Office, Nature of Meeting: Local Board, Ontario Seed Corn Growers' Marketing Board, Subject Discussed: Appointment of Secretary, Attendance: 15.

Date: Mar. 3/41, Place: Office, Nature of Meeting: Negotiating Committee of Ontario Seed Corn Growers' Marketing Board, Subject Discussed: Price schedule, Attendance: 16.

Date: Mar. 8/41, Place: Office, Nature of Meeting: Committee of Growers of Hybrid Seed Corn, Subject Discussed: Seed Corn Regulations as Applied to Hybrids, Attendance: 12.

Date: Mar. 24/41, Place: Office, Nature of Meeting: Local Board, Ontario Seed Corn Growers' Marketing Board with Dealers and Hybrid Committee, Subject Discussed: Seed Corn Contracts, Attendance: 20.

NOTATION: March 31/41

Seed corn growers of Western Ontario, seeking to improve their marketing position, sought the aid of the Ontario Farm Products Control Act. In the month of December a marketing scheme was approved. Until March 1, 1941 the office carried out the duties of Secretary-Treasurer of the Local Board.

First Annual Meeting - 1941

Early in December, 1941, The Ontario Seed Corn Growers Marketing Board held the first annual meetings since obtaining the Charter in 1940. One was held in Chatham and another in Essex. N. D. MacKenzie was the recognized authority on hybrids, and at the meetings predicted that the time would come when hybrids would replace completely the open pollinated varieties. Chairmen Harold Huffman in Chatham and William Wallace in Essex told of some of the board's problems having to do with rumors that Ontario seed was inferior to U.S. seed. Mr. MacKenzie assured Ontario growers that the inspection system in Ontario resulted in seed which is in no way inferior to any other "grown on this continent," and "it is a lie to state otherwise."

Changes in the "Scheme" were already being proposed in 1941, chief of which had to do with "licensing" of the growers. The annual meetings endorsed changes that would require licensing at all stages, including transporting, buying, selling of seed stock (the seeds the seed grower would plant), effectively requiring a seed grower to be licensed. Mr. MacKenzie made it clear that as the inspector he could say that "there are some men who should definitely not be growing seed corn."

Revision of the Scheme was achieved and became effective September 5, 1944. It imposed licensing of growers, the fee being two cents per bushel sold to the dealer, deducted by the dealer and remitted to the board. Dealers had been licensed and there was no fee.

Mr. Huffman, who returned as chairman for 1942, accompanied by Alex Stewart and Oliver Wilcox, went to Ottawa to discuss with Agriculture Minister J. G. Gardiner the imposing of a dumping duty against inferior grades of United States hybrids. Ontario hybrids were selling for about $5.00 a bushel.

Seed corn prices were controlled under the Wartime Prices regulations. Problems with U.S. hybrids being "dumped" into Canada diminished with the establishing of Canadian branches of U.S. Seed companies and their own varieties of hybrids. The business was expanding rapidly, and the Board carried on successfully in controlling production (through contracts between dealers and growers), assuring that Ontario seed was of the highest quality and that marketing was competitive but fair to all concerned.

J. Duff Brien had been engaged as secretary-teasurer in 1941, and much credit for the systemizing of the seed corn industry was attributed to his ability. In 1944, Harold Huffman continued to be chairman, and other directors were Eugene King, Pain Court; Clarence Nichols, Blenheim; William Wallace, Woodslee; M. C. Dalton, Kingsville; Charles Tellier, St. Joachim, and William Corneil, Appin.

With World War II coming to a close, in mid-July, 1945, a mile-stone event in the seed corn history of Ontario was staged. The newspaper account appearing in The Windsor Star:

Farmers, officials, businessmen and grain dealers give evidence of appreciation to Norman D. MacKenzie at big banquet in Pain Court — Presentations made — Over 300 attend.

In recognition of eight years of excellent service to the seed-growing and farming industries of southwestern Ontario a surprise testimonial banquet was last even-

ing tendered to Norman D. MacKenzie.

Upwards of 325 seed growers and farmers from various parts of western Ontario gathered last evening in the Immaculate Conception parish hall at Pain Court to pay tribute to the man whose leadership in the work of improving seed grains and especially seed corn in this district has created an important national industry.

Following tributes to Mr. MacKenzie and his work here, the guest of honor was made the recipient of a comfortable chair and a purse containing a substantial sum of money, while gifts of a lamp, table and chair were made to Mrs. MacKenzie.

Wilfrid Lennox, deputy administrator of the seed branch of the Wartime Prices and Trade Board, who was the guest speaker, was presented with a handsome watch in recognition of his work for the agricultural industry of western Ontario.

LARGE GATHERING

Shortly after 7 p.m. Mr. MacKenzie, the guest of honor was appropriately ushered in with the skirl of pipes and in a few moments a capacity crowd filled the tables in the commodious parish hall.

J. Duff Brien presided, and seated with him at the head table were the guest of honor, Mr. MacKenzie, Wilfrid Lennox, Rev. Fr. Bourdeau, C. E. Desmond, M.P., Geo. W. Parry, M.L.A., Jas Millman, A S. Maynard, Harold Huffman, Mark Vaughan, of Welland; Harry Wilson, Frank Weaver, Blake Cohoe of Woodslee, Alex Stewart of Ailsa Craig, Milo J. Smith, D. Shand, of Australia, and W. E. Reid.

The banquet was served by the ladies of the Altar Society of the Immaculate Conception Church of Pain Court, headed by Mrs. Trudell, and following its conclusion, Eugene King extended the thanks of the gathering to the ladies.

In behalf of Reeve Elmer Rose, D. D. Gagnier, clerk of Dover, welcomed the visitors.

TRIBUTE TO MAC KENZIE

Chairman Brien, in opening the proceedings, paid tribute to the work done by Mr. MacKenzie. "He came here a stranger to us, after doing his part in the first world war as a major overseas with the Highland Light Infantry," said Mr. Brien. "It's no wonder we won the last war as well as this one," he added. "He has taken a great part in the improvement of the seed crops in these southwestern counties." He added that no more fitting place could be found than the historic French-Canadian farming community of Pain Court to pay tribute to a man who had worked for and with farmers for the benefit of agriculture.

Letters expressing their regret at their inability to be present were read from Dr. Neal of the Wisconsin State Agricultural College; W. T. G. Wiener, of the Canadian Seed Growers Association; S. Murray Clark, M.P. for South Essex; Hon. W. G. Thompson, minister of lands and forests; J. C. Steckley, director of the Western Ontario Experimental farm; W. R. Reek, deputy minister of agriculture for Ontario; and R. H. Sibbett, acting supervisor of the department of agriculture at Ottawa.

PRESENTATION MADE

"It's a privilege to do honor to a friend," said Geo. W. Parry, M.L.A. "Mr. MacKenzie has done a real job for the people of the southwestern Ontario counties." Calling attention to the fact that these counties had produced nearly 400,000 bushels of corn in 1944, he expressed the belief that a better selection and treatment of corn before

it went into the driers and a little better system of drying would produce still better results.

Mr. Parry expressed his appreciation of assistance given him personally by Mr. MacKenzie, and urged continued cooperation by the farming industry to enable growers to improve, develop and maintain their markets.

SAVED CORN CROP

"If it hadn't been for Mr. MacKenzie, our open pollinated corn would have been lost," stated Ernest Warwick, chairman of the Seed Dealers, referring to the difficult winters experienced in the first and second years. As a result of the efforts of government officials, and especially Mr. MacKenzie, the former trend has been reversed and better seed was produced in Canada than in the States.

Napoleon King and Francis Couture joined in tribute to the guest of honor, as did Mr. Harrison, manager of the Rennie Seed Co. who announced that his company was about to build a modern drier with all equipment and that Ian Maynard would be in charge of the new enterprise.

Following the tributes on behalf of the seed growers, Mr. MacKenzie was presented with the chair and purse of money. The chair, table and lamp were the gift of the seed growers for Mrs. MacKenzie, who was not present.

MAC KENZIE SPEAKS

For some moments after he rose to speak, Mr. MacKenzie was too overcome by emotion to find words.

"I just want to thank you from the bottom of my heart for your kindness to me tonight," he said. "It is only rarely in a person's lifetime that he has an opportunity presented to him which he may not recognize at the time but which turns out to be a very, very pleasant, happy and profitable association. When I came here almost eight years ago, it just happened to be at the time when a distinct change was taking place in the seed corn industry in this part of the province and it was very lucky for me I happened to land in the district at that time. An opportunity arose and with the help of a lot of men I see here tonight, we were able to make an almost complete change in the way the seed corn business was handled in past years."

CO-OPERATION APPRECIATED

Mr. MacKenzie paid tribute to the co-operation of Agricultural Representative J. A. Garner and the farming community generally in the important work of revolutionizing the seed corn industry in southwestern Ontario, and briefly touched on the high points of his work.

"I have never been in a part of Canada where there is such an unanimous spirit of helpfulness and co-operation among the agricultural men as in this area," he added. "That explains to a large extent the reason for our successful work in the past.

"I really can't thank you the way I'd like to. I just can't do it," Mr. MacKenzie concluded.

Following Mr. MacKenzie's address the large gathering paid tribute to Mr. MacKenzie and Miss Betty MacKenzie, now on active service.

AUSTRALIAN VISITOR

D. Shand, a leading Australian agriculturalist now in Canada on a mission for the Commonwealth government, was introduced by W. E. Reid, and spoke briefly.

Mr. Shand remarked that from a small shipment of seed corn flown by bomber to Australia in the dark days of the war had been produced this year 90,000,000 cans of sweet corn for the fighting forces. Pointing out that the commonwealth was now merely 40 flying hours from America, he urged closer contacts between the people of Canada and Australia.

Speaking for the Seed Dealers' Association, Mark Vaughan of Welland joined in the tribute to Mr. MacKenzie. "He has proved his worth, not only to this district but to Canada," said Mr. Vaughan.

Alex Stewart of Ailsa Craig, president of the Seed Growers Association, was introduced by J. A. Garner, declared that Mr. MacKenzie had come into the area at the very time he was needed and had done a remarkably good job.

Tributes were also paid to the guest of honor by C. Earl Desmond, M.P. and Harold Huffman, chairman of the Ontario Seed Corn Marketing Board.

LENNOX HONORED

Wilfred Lennox, assistant seed administrator of the plant production division of the department of agriculture, who is on loan to the seeds branch of the W.P.T.B., in a brief address, recalled his early associations with southwestern Ontario, and joined heartily in the tribute to Mr. MacKenzie.

Following his remarks, Frank Weaver of Chatham township, Blake Cohoe of Woodslee and A. S. Maynard of Harwich, briefly paid tribute to the work done by Mr. Lennox for this district, and presented him on behalf of the seed growers of western Ontario, with a handsome wrist watch. Mr. Lennox responded briefly but feelingly.

Following the singing of "O Canada" Chairman Brien presented Mr. MacKenzie with a book containing the autographs of those present at the testimonial banquet.

Harry Wilson and Milo Smith were the committee in charge of the affair. Community singing was led by Jas. Millman.

WALLACE BOARD CHAIRMAN - 1947

William Wallace succeeded Harold Huffman as chairman in 1947, and Lawrence Kerr, of Chatham area, was vice-chairman. Representing growers on the negotiating committees were: For open pollinated, Eugene King, Ross Townsend, Mr. Wallace and John Walstead (alternate); for hybrids, William Corneil, Clarence Nichols, M. C. Dalton and Lawrence Kerr (alternate). The dealers association, with whom the negotiating was carried on, chose Napoleon King as chairman in 1947, with Adrian Tellier, of Belle River, as secretary. Negotiating committees for the dealers: Open pollinated, Ken Harrison, E. M. Warwick and Mr. Tellier; hybrids, James Grant, Don Painter and Mr. King.

GARNER EXPLAINS CONTROL ACT

Underlying the program of achievements in regulation of the Seed Corn Industry was the Ontario Farm Products Control Act. The story of this legislation was told to an April 1946 rural-urban meeting of Blenheim Rotary, and reported in The Chatham News:

Ontario's Farm Products Control Act might have appeared rather far advanced a few years ago, but now is accepted as the proper means of handling farm products, James Garner, agricultural representative for Kent County, said in an address to Blenheim Rotary.

Pointing out that farmers have acclaimed the Act widely in recent years, Mr. Garner also said that the Farm Products Control Board has been found very convenient for making many adjustments under the War Measures Act.

A few years ago, the Ontario Department of Agriculture representative said, it took hours to talk farmers into supporting the board in its proposals to organize the producers of certain farm products, but now the job of obtaining a majority vote in favor of organizing is an easy one when it becomes apparent that organization under the F.P.C.A. is necessary.

Mr. Garner emphasized especially the rapidity with which the growers of tomatoes in Ontario had enlisted in the Ontario Tomato Growers' Marketing Association under the act and cited facts to prove that this could not have been done a few years ago.

The apparent success of the Farm Products Control Act is an indication that the Natural Products Marketing Act which the Dominion Government passed and was turned down as ultra vires, and of which the F.P.C.A. is a close replica was not too drastically wrong.

APPLIES GENERALLY

Mr. Garner pointed out to the Rotarians that the Farm Products Control Act applies to the Blenheim community in many ways, for "on probably every farm in Kent are one or more products which are sold under the F.P.C.A."

"The act," he added, "is more or less in keeping with the times in which we live. One thing it does is give the opportunity of the producer to sit down and discuss problems in the proper way."

THE PROCEDURE

Summarizing the manner in which an organization is set up under the plan, Mr. Garner said that whenever a large group of the producers of any one commodity are in favor of organizing for the control of production and marketing of the product, the scheme is submitted and when it obtains the necessary majority vote, the provincial board of the Farm Products Control Board and the minister of agriculture review it and when they have okayed it, it goes into effect on an order in council passed by the provincial cabinet.

The Ontario Farm Products Control Act applies only to this province but most of the other provinces have similar systems, Mr. Garner said.

"At the present time, all agreements entered into by the Farm Products Control Board have to be approved by the Wartime Prices and Trade Board," Mr. Garner stated.

MARKETING SCHEMES

"Marketing schemes are past the experimental stage," he said. "Many have been operating successfully. This fact is a tribute to those who have been responsible for carrying on of the provincial control board and of those who make up the local boards.

"Marketing schemes lend themselves most particularly to those products which are limited to certain areas. They depend very largely on the type of men who make up the local boards and are responsible for the carrying on of the organization.

"The Farm Products Control Act offers the best opportunity possible for the farmer to do things in a collective way."

Seed Corn Production in 1948 — Hybrids 275,000 bushels; open pollinated 100,000

bushels. Corn production in Southwestern Ontario was 10,972,770 bushels with a value of $15,156,179. (Kent County's production was 40 percent of the total). Three out of four of the growers of seed corn were in Kent County.

J. Duff Brien's sudden passing due to a heart attack, April 18, 1947, came at a time when the post-war activities of the Seed Corn Board were taking the lead in a rapidly expanding corn industry in Ontario, as well as other parts of Canada. In association with N. D. MacKenzie, who had now become a salesman at large appointed by the Canadian government, markets for Ontario seed corn were being opened in Europe, where some large quantities of seed were sold. This market was to be substantially lost to United States seed, which was sent to Europe under post-war recovery assistance (Marshall Plan) given by the United States government.

Mr. W. J. W. Lennox became secretary-manager of the Seed Corn Board, succeeding Mr. Brien. Mr. Lennox had been head of the Ontario section of the Dominion Department of Agriculture Plant Products Inspection Service, and had taken a leading part in the development of Ontario's seed corn industry. During the war, Mr. Lennox was in charge of the seeds section of the Wartime Prices and Trade Board, and now was available to take over the office left vacant by Mr. Brien's death. Mr. MacKenzie now headed up the Ontario section of the Plant Products Division, in Toronto.

An exceptionally "wet" spring made the growing season very short in 1947, affecting the corn crop all over the U.S. and Canadian corn belt areas. Good seed from the 1947 crop was in very short supply, and prices for the seed went to $2.75 a bushel (to the grower on a Contract A basis (dealer supplies seed and detassels). As supplies were used, some growers who "stored" received as much for their commercial corn as seed growers received under their contracts. The Schedule A price was back down to $1.88 for the 1948 crop.

The Wisconsin Hybrids, which became "Canada Hybrids," and were the varieties on which many of the purely Canadian seed corn companies built their businesses, had been developed under the direction of Dr. N. P. Neal, who was a frequent visitor to Ontario in the mid-forties. He was closely associated with E. M. "Ernie" Warwick, of Warwick Seeds, Blenheim, who sponsored a banquet in honor of Dr. Neal at the Glen Gordon Manor, near Blenheim, August 27, 1947.

Dr. Neal paid tribute to Professor Jack Steckley, of the Ridgetown Experimental Farm, and Dr. J. F. Buckley, of the Harrow Experimental Station, who directed the production of the Canada Hybrids seed stocks. He cited the features "bred" into his corns, prompt germination, vigorous growth, maximum yields of grain and ensilage, resistance to stalk diseases, good root systems.

The White Hybrid Corn Company was another post-war event. The company paid a premium for white corn grown from a special white hybrid seed produced in United States, ostensibly because it was more suitable for corn flakes. The product had to be cribbed (air-dried on the cob) and special cribs were erected on many farms in the full-season corn areas of Ontario. The story is that a method of using yellow corn for flakes was developed and soon the White Hybrid business was history.

Directors for 1949 were: For Kent County, Wilfred Craven, Wallaceburg, Clarence Nichols and Ross Townsend, both of Blenheim; for Essex County, William Wallace, Milford C. Dalton, Kingsville, and John Walstead, Maidstone, with William Corneil, of Appin, for remainder of Ontario. Mr. Wallace was chosen as chairman, and

Clarence Nichols vice-chairman.

Hybrid seed had greatly extended the growing of corn for grain in Ontario by 1948. Until 1947, husking corn was only experimental east of Toronto. The acreage east of Toronto in 1948 grew to 6,500, including 3,500 in the Lower Ottawa Valley.

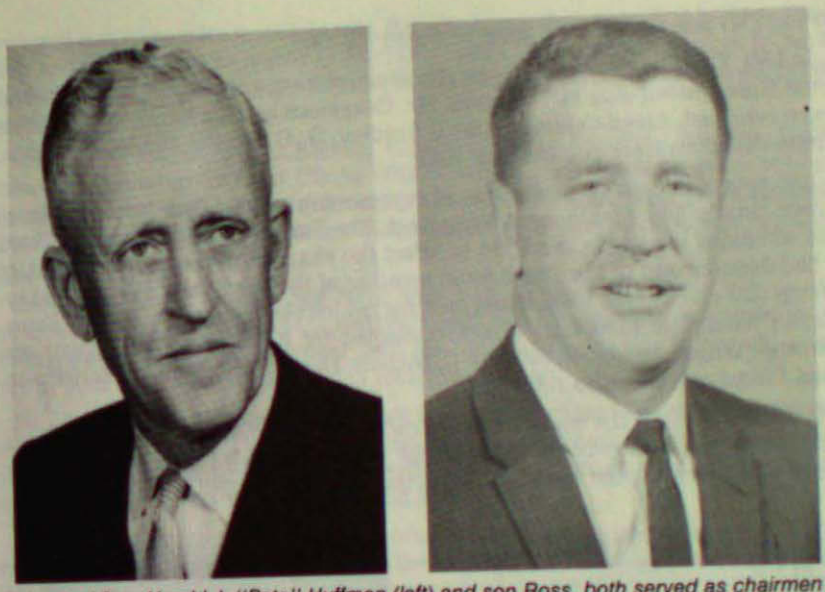
The price for Schedule A Hybrid Seed from the 1949 crop was $1.85 per bushel.

The 1949 directors were returned for 1950, Clarence Nichols succeeding Mr. Wallace as chairman, and Mr. Corneil as vice-chairman. Mr. Lennox was secretary-treasurer and negotiating teams were: Hybrid dealers, Don Painter (DeKalb), James Grant (Funks), Dave Nicholson (Warwicks) and alternate Walter Hawkins (Pioneer).

David Bradley (1963 - 1965) left and Tom Johnston (1980 - 1987) chairmen of the Ontario Seed Corn Growers Marketing Board.

Open-pollinated dealers, J. K. Harrison, Roy Grant, A. H. Tellier and Jack Maine (alternate); Growers of Hybrids, William Corneil, M. C. Dalton, G. C. Nichols and Wilfred Craven (alternate); open pollinated growers, Ross Townsend, William Wallace, John Walstedt and Eugene King (alternate). The same directors, officers and negotiators were returned for 1951.

The Schedule A price for the 1950 crop was increased to $2.43. To the average price of Chicago May futures was added a 30 percent premium. Reason was a poor growing season resulting in a short crop. In 1950, seed corn was grown in eight counties, Kent, Elgin, Lambton, Essex, Middlesex, Haldimand, Peel and Welland (only one grower in each of the latter three) 133 growers planted 3,819 acres of hybrid seed and 101 with a total of 2351 acres for open pollinated. Kent had 75.2 percent of the hybrid acreage.



Father and Son, Harold J. "Pete" Huffman (left) and son Ross, both served as chairmen of the Ontario Seed Corn Growers Marketing Board. Harold was the board's first, 1940-1947, and Ross 1967-1969.

The Schedule A price for 1952 was $2.50.

Directors for 1952 and also for 1953 were G. C. Nichols, Eugene King, Wilfred Craven, Ross Townsend, William Corneil, Howard Holden and William Wallace.

In March, 1953, Mr. Lennox retired as secretary-treasurer of the board and was succeeded by N. D. MacKenzie, who had retired as District Supervisor of the Plant Products Division, moving back to Chatham from Toronto.

The price of Schedule A hybrid seed for 1953 went down 41 cents to $2.09 "because of lower Chicago average and exchange."

Secretary-Treasurer N. D. MacKenzie told the annual meeting March 19, 1954, that a further reduction in the Schedule A price of $1.97 from $2.09 in 1953 was "mainly due to the difference in U.S. - Canada exchange rates." The 1953 directors were returned for 1954, with Clarence Nichols as chairman.

The directors elected at the annual meeting, March 18, 1955, were: Essex (two) Howard Holden and William Wallace; Kent (four) Lloyd Coleman, Ken Tuck, Eugene King and G. C. Nichols, and for other districts, J. Evans. G. C. Nichols was chairman for the year. The 1955 Board and Mr. Nichols as chairman returned for 1956. There were changes in the 1957 board, new directors being Ross Huffman, son of the board's first chairman, Harold Huffman, and David Bradley, others being G. C. Nichols, Lloyd Coleman, Howard Holden, William Wallace and J. Evans.

For 1958, G. Pearson took the place of Howard Holden, from Essex, and all others remained.

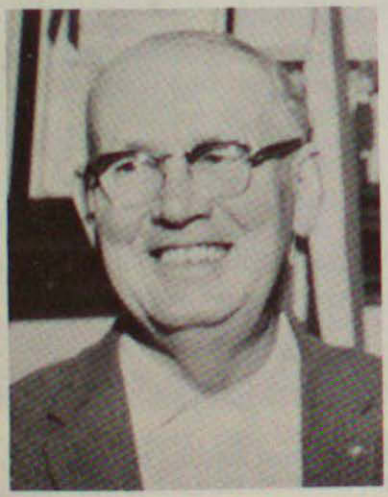
John Colquhoun was elected to represent "other counties," making the only change

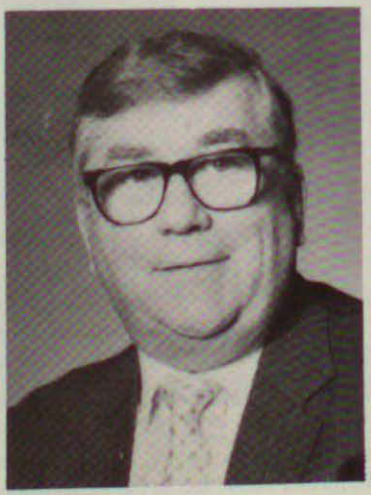
in the 1959 board, and they were returned for 1960.

In 1961, Douglas Sellars replaced Mr. Wallace as one of the two representatives from Essex, along with Mr. Pearson. Mr. Colquhoun and the Kent representatives were returned, Lloyd Coleman, David Bradley, G. C. Nichols and Ross Huffman. These directors were returned for 1962.

1963 saw a change in the number of representatives due to reduced acreage in Essex County and a large increase in Kent. The Farm Products Marketing Board had amended the Seed Corn Plan to effect the change after a motion suggesting it had been passed at the 1962 annual meeting of the Seed Corn Board. Final approval was given at the 1963 annual meeting, which elected a new man from Essex, Clarke Wilkinson. First-time directors elected for Kent were Ray Bellamy and Clarence Wilson, returnees being G. C. Nichols, David Bradley and Ross Huffman. John Colquhoun was also returned.

Dave Bradley left the board in 1964, Bradley farms no longer being a grower of seed corn, his position being filled by the return of Lloyd Coleman after a year absence. Otherwise, the members were the same as for 1963.





Lloyd Coleman (left) chairman of the Ontario Seed Corn Growers Marketing Board 1958-1963, and Clarence M. "Mike" Wilson, chairman 1969-1977.

In the early 1960's contracts for single crosses were of principal concern both at the directors' meetings and at the negotiating sessions with dealers.

The 1964 directors were returned for 1965, and there was one change for 1966, Glen Rogers succeeding C. Wilkinson for Essex, others returning being John Colquhoun, Ross Huffman, Clarence Wilson, Clarence Nichols, Ray Bellamy and Lloyd Coleman.

The 1966 Directors were re-elected for 1967 and 1968.

Production of single-cross seed was causing some additional concern in contracts

with seed corn companies in 1967. In 1968, the annual meeting, on motion by Lawrence Kerr and Jim Verstraete, voted to ask their board "to make an attempt to have the dealers group try to arrange suitable premiums for poorer yielding single cross varieties."

Directors for 1969 were G. C. Nichols, Clarence Wilson, Ray Bellamy, Ross Huffman, John Cumming, for Kent, Clarke Wilkinson returning to take the place of Glen Rogers for Essex, and John Colquhoun, for the other counties. John Cumming took the place of Lloyd Coleman, for Kent. Directors in 1969 received an increase to $15.00 per diem and .10 cents a mile.

Clarence Nichols, whose large farm was south of Blenheim, was one of the members of the local board of the Ontario Seed Corn Growers Marketing Scheme when it was chartered in December 1940. He continued to be a director until 1970, having been chairman for two terms totalling 10 years.

Mr. Nichols, in his autobiography, wrote that he started growing hybrid seed corn in 1940 and soon expanded to 200 acres. That year, he also bought his first corn picker, and "this was a big change from hiring people to pick the corn by hand. This machine was a one-row and not too fast but it did help a lot.

"Detasseling the corn was the most crucial of the whole operation, due to the weather. The detasselers walked through the fields until 1952 when I got two machines that they rode on — six people for the six rows plus the driver. In 1949 we had walked and detasseled corn for a week with temperatures ranging as high as 100 degrees F. We had a gang of about 50."

When Mr. Nichols retired, his place as a director for Kent was taken by Wilfred

G. Clarence "Nix" Nichols, chairman of the Ontario Seed Corn Growers Marketing Board for two terms, 1950 - 1958 and 1965 - 1967. Clarence was a charter director in 1940, and served as a member of the board for a total of 30 years.

Others who served as chairmen of the Ontario Seed Corn Growers Marketing Board are included in Group Photos elsewhere in Pulling Tassels. They are William Wallace, 1947 - 1950; Lyle Clark, 1977 - 1980; Don Wills, 1987 - 1988, and Larry Cowan, current.

Roy. Others were the same as for 1969.

Reid Leeson became a director in 1971, taking the place of Ross Huffman, the only change for that year.

Glen Rogers retired from the board as a director for Essex County in 1972, with Lyle Clark coming on.

Tom Johnston became a director for Kent in 1973, taking the place of Wilfred Roy.

The board members for 1973 were returned for 1974, 1975, and 1976, being Clarence M. Wilson, Tom Johnston, Ray Bellamy, John D. Cumming, Reid Leeson, for Kent, Lyle Clark for Essex and Fred Payne, the other counties.

The board undertook the changeover to "metric" in 1976, and continued to be concerned with suitable premiums for the growing of single cross varieties.

Directors for 1977: Clarence Wilson, John Cumming, Tom Johnston, Reid Leeson and Don Wills, for Kent; Lyle Clarke, for Essex, and Fred Payne, other counties.

Directors for 1978: Tom Johnston, Reid Leeson, John Cumming, Don Wills and Len Harwood, for Kent; Lyle Clark, for Essex, and Fred Payne for other counties. Len Harwood replaced Clarence Wilson. The per diem for directors was increased to $35.00 and mileage to 20 cents.

Directors for 1979: No change. The per diem was raised to $60.00.

Directors for 1980: No change.

Directors for 1981: No change. Per diem increased to $65.00.

Directors for 1982: No change. At the annual meeting, Director Reid Leeson reported negotiation proceedings with the dealers had broken down and would go to arbitration.

Directors for 1983: No change. Two successive large crops had produced a surplus of seed corn. There were 430 licensed growers in 1982. John Cunningham told the 1983 annual meeting that corn producers of Ontario were organizing as an Association and the founding convention would be held in Toronto the week of March 28.

Directors for 1984: No change, Tom Johnston, Len Harwood, John Cumming, Reid Leeson, Don Wills, Lyle Clark and Fred Payne. Chairman Tom Johnston and vice-chairman John Cumming.

Directors for 1985: For Kent, Tom Johnston, John Cumming, Don Wills, Ed Waddick and Ron Sullivan; for Essex, Lyle Clark, and for other counties, Larry Cowan. The three "new" directors, Waddick, Sullivan and Cowan, replaced Reid Leeson, Len Harwood and Fred Payne. Tom Johnston was again chairman and John Cumming vice-chairman.

The directors for 1986 were the same as for 1985. Tom Johnston was chairman and Don Wills vice-chairman.

One change in directors for 1987, Tom Johnston retiring and Michael Denys taking his place. Don Wills was chairman and Larry Cowan vice-chairman. In 1987 the per diem was $90.00 per day and auto allowance 25 cents per km.

Directors for 1988 - John Cumming and Don Wills retired, their places being taken by Mike Schneider and Lynn Girty. Other members returned were Lyle Clark, Essex: Ed. Waddick, Ron Sullivan, Michael Denys, Kent, and Larry Cowan for other coun-

ties. Larry Cowan, chairman, and Ed. Waddick, vice-chairman. The 1988 contract terms could not be readily arrived at in negotiations between board and dealers. Conciliation was not successful and it went to arbitration with Don Wills representing the board, Don Littlejohns (Hyland Seeds) the dealers, and Ralph Ferguson the arbitrator. It resulted in "another reduction in premium."

The Secretary-Managers

Secretary-managers of the Ontario Seed Corn Growers Marketing Board have made noteworthy contributions, Mr. Garner for the first year, followed by J. D. Brien in 1941, Hazel Clark in the interim 1947 until W. J. W. Lennox came in 1948, and N. D. MacKenzie in 1952.

When Mr. MacKenzie retired in 1968, he was succeeded by M. C. "Mac" Campbell, who had been secretary-manager of the Ontario Burley Tobacco Growers Marketing Board. The two boards decided to share office space (in the Duff Building, Chatham) and secretary-managers. Mr. Campbell had come into the Burley Board position in 1961, following Roy O'Neill, who had succeeded Charles Gladman. The tobacco board had shared office and management with the Ontario Sugar Beet Growers Marketing Board, and 1967 was the last year beets were grown, effecting the demise of the board.

Mr. Campbell's term with the Seed Corn Board saw the change-over to three-way and single-cross hybrid seed corn and the revision and negotiating of changes in contracts with dealers that ensued. He retired in 1981, the positions being taken by Brad Caughy, who had this to say:

"I was employed by the Board on June 1, 1981, under the chairmanship of Tom Johnston. Our secretary, Helen Scott, was responsible for teaching me the office procedures. Over a period of a few years, the office became more and more updated, to the point where the Board purchased a computer to file growers' records and generate various reports.

"In October of 1985, the Board office moved to its present location at 785 St. Clair (Chatham Township Building). In itself, the computer capabilities are quite amazing, not to mention the advancing technology and the required constant updating of the additional standard office equipment (eg. telephone, typewriter, photocopier, etc.)"

Much of the credit for the day-to-day successful carrying on of the board's business must be given to the office secretaries who served during the years since 1941. A good start was given by Mr. Garner's secretary, Miss Nellie Johnston, during the first year after receiving the charter. Hazel Clark came in 1942 and when the Soya Bean Growers Marketing Board was formed she became it's first secretary. Meantime, she had served as interim secretary-manager of the Seed Corn Board upon the death of Mr. Brien and until Mr. Lennox "took over." Others who served with the Seed Corn Board were Marjorie Sleightholme, Helen Pinsonneault, and for some twenty years, Helen Scott.

I Was A Director of the Seed Corn Board

1969 - 1988

by John Cumming

When it was decided a history of seed corn in Ontario should be compiled, I agreed to assist the author, Leonard Pegg, and act on behalf of the Ontario Seed Corn Growers Marketing Board. Leonard asked me to tell my story as a director — how one carries on as a farmer — seed grower and represents growers in the orderly production and marketing of the product.

So I will begin at the beginning. When Ruth McGregor and I embarked on the sea of matrimony (on the Cumming family farm) after World War II, in 1946 (we had both served in the R.C.A.F. and I had had a few years working with my father, Herb Cumming, prior to the war. Ruth was a city girl from Chatham,) we both had a lot to learn.

At this time hybrid seed corn had been produced in our Guilds (Kent County) area for some six years, hybrids replacing such open pollinated varieties as Golden Glow, Bailey, Longfellow, etc. The seed planted was of the best ears from the corn crib, and it "just grew."

Farmers were seeing the merits of hybrids — it was "catching on." We contracted to grow some hybrid acreage for the Warwick Company, of Blenheim. Dave Nicholson was the seed corn manager for the company and worked with us on our production. We certainly "got our feet wet" with detasseling and all the related problems. But we never looked back — hybrid seed corn was here to stay.

My interest increased as years passed. I attended all the annual meetings of the Ontario Seed Corn Growers Marketing Board, which had been representing the producers of hybrid seed corn as well as open pollinated varieties since December, 1940, under the umbrella of the Ontario Farm Products Marketing Act.

I learned that there were individual degrees of aggressiveness on the part of representatives of both growers and seed companies. In the early years, the board had been comprised of three members representing open pollinated producers and four for hybrids. Eventually, no open pollinated seed was handled by the companies

and all members produced hybrids. Also, originally, three members were elected from Essex, three from Kent and one from Lambton, Elgin and Middlesex. Eventually, it became five from Kent, one from Essex and one from the other counties.

These directors represent some 400 growers of 22,000 acres of seed corn. The acreage varies, having reached a peak of nearly 40,000 in 1986.

My interest and participation in the discussion at annual meetings resulted in my becoming one of the Kent directors in March, 1969, and I continued as a member of the "Local Board" until March, 1988.

The local board acts as liaison between growers and companies and negotiates for changes in the contract from year to year. The board has a growers information exchange meeting in December, a very useful event for all concerned. The contract for the ensuing year is negotiated before March 1, after which the annual meeting sees directors voted in or out for the next 12 months. The local board is then in place to carry on for another production year.

The seed corn companies have their "Dealers Association," which provides liaison between the companies, and unifies the negotiating with the growers.

When I became a director, Clarence Wilson was chairman and Norman D. "Mac" MacKenzie secretary-manager. I was very green concerning board affairs and had tremendous respect and regard for "Old Mac" as MacKenzie was known (he did tend to be a bit "gruff" at times.)

The beet sugar industry centring in Chatham and Wallaceburg was being closed down, and its secretary, "Mac" Campbell, who was also secretary of the Burley Tobacco Growers Marketing Board, became an understudy for a year with Mr. MacKenzie prior to succeeding him in the seed corn office. Mrs. Helen (Smith) Scott also came into our office in 1963 as an assistant (also from the Beet Growers Board.) At this time we were sharing office space with the Burley Board in the Duff Building on Wellington Street, Chatham.

The type of hybrid seed has changed from the 4-ways through 3-ways and now 2-ways or single crosses, and finding satisfactory contracting systems to accommodate the changes was one of the challenges during the time of Clarence Wilson's chairmanship, 1969-1977. Single cross seed corn varieties have a wide range of yield capabilities and the contract covering them in 1964 was amended eventually to the "Norm" method, in the early 70's.

In 1976 we were asked to take part in a corn display at the Royal Winter Fair. We provided a large exhibit dealing with a thousand uses of corn and included a theatre presentation. Some of the board members spent the entire week at the Royal helping with this very successful promotion.

During 1973 and 1974, Chairman Wilson, Director Wilfred Roy and I worked as a committee to introduce crop insurance coverage into the contract. The companies could see insurance as an advantage, and when we changed to the "Norm" system we soon had a contract that embodied crop insurance. This resulted in the board being condemned by some and praised by others. However, in the ensuing years it has proved to be beneficial to both growers and companies.

The board is always on the lookout for ways to improve the contract. One of these involved trips to various seed corn producing areas in United States, meeting one-on-one with grower counterparts.

In 1969, my first year as director, Secretary-manager Mac Campbell and I took part in the inauguration of the Commodity Council, at the Board Room of the Ontario Flu Tobacco Board in Tillsonburg. There were a dozen or more Commodity Boards represented and they showed a great deal of interest in such an organization. Since the Council was formed, it has divided into two sections, one being a "Non-Supply Marketing Board Committee," of which our board is a member, and a "Supply Marketing Board Committee," for "quota" type boards. Our board agrees this is a very important committee and has supported it over the years. It is important for liaison between boards, helps with related board problems and in lobbying governments, etc.

The corn mural at the International Plowing Match, 1979. In 1978 our board was asked by the Committee chairman, Frank Vercouteren, to purchase a mural made from corn. Measuring 60 feet long by 8 feet high, this work of art is made of ears of corn showing the evolution of corn in Canada. It was designed and put together by local artists with many helpers, who spent hundreds of hours on the project.

When asked, our board welcomed the opportunity and erected the mural on the Kent County Building in the "tented city" at the match (on the Ian Maynard farm near Chatham — appropriate in that Ian was a seed corn pioneer.) Thousands viewed the masterpiece and then it was an attraction at the Museum of Science and Technology, in Ottawa, for one year before returning to Kent to the Convention Centre at the Wheels Inn, Chatham, where it is a fitting tribute to the corn industry of Ontario.

Director Tom Johnston, chairman 1980-87, designed a logo-emblem for caps and pens we had for the Plowing Match and it is still in use, representing Ontario seed corn all over North America.

Contract negotiations in 1979 reached a stand-off situation over a premium difference of 15 cents and as a result we entered into arbitration procedure. Arbitrators were Tom Johnston for the board, Bill Leask for the dealers, and Earl Mighton appointed by the Ministry of Agriculture and Food. Mr. Mighton found in favor of the growers and the 15-cent premium held.

The board had a very active year in 1979, including moving the office to the Executive House, corner of Keil and Richmond Sts., Chatham, where it remained until its move to the Chatham Township office, St. Clair St., in 1985, still sharing with the Burley Board. Among social events were picnics and dinners for all seed corn growers, hosted by the board.

A highlight of 1984 was our "Audience With The Queen." Chairman Tom Johnston and I with our wives were invited to see Queen Elizabeth and Philip at a "picnic" put on by the Ministry of Agriculture and Food near Kingston. We arrived early morning and endured a long cool wait. However, we were rewarded when Her Majesty and the Duke (of Edinburgh) singled us out for conversation. We were practically speechless, but what a wonderful experience.

Head smut was a problem in 1980 and we made a special effort to meet with Agriculture Canada and company representatives at the Canadian Seed Growers Annual Meeting in St. Andrews, New Brunswick. After much discussion, rules were laid down. We came home and constantly checked our fields since that year. We have been fortunate as the smut hasn't been detected. Our board met with crop insurance authorities to make sure such a peril would be covered. The coverage was

obtained.

Our board also gave active support to the formation of the Ontario Corn Producers Association. Dennis Trimbell, Minister of Agriculture and Food, recognized the importance of O.C.P.A. and authorized a check-off as a means of financing it. The founding convention took place in 1981. We have high regard for the leadership of Prof. Terry Daynard, managing director of O.C.P.A., in bringing the Association into being and for its successes to date.

The Seed Corn Board has always supported the attendance of representatives to the C.S.G.A. and the Canadian Seed Trade Association as well as other meetings relating to the well-being of Ontario Seed Corn.

In 1981, our Board and the Companies again went to arbitration in the matter of "factor selection." It was agreed to use the Corn Committee Corn Performance Trials for Kent over a period of five years as a guideline. On this basis the factor was set as 138. This method, modified later, has proven satisfactory in most cases.

When Mac Campbell retired as secretary-manager in 1981, Brad Caughy succeeded him. Both have contributed much toward the board's success.

We accepted the Chatham Board Price daily average as a new basis for premium in 1982. We discuss "Breeder's Rights," but realize the seed corn hybrids are really produced under a system of breeder's rights. We meet periodically with O.M.A.F. on any changes in legislation which might involve our contract system. Meetings with the Crop Insurance Commission to discuss problems or proposed changes are held at least once a year. We are always trying for separate coverage of varieties.

In recent years we have computerized all the records of the board, sharing the equipment with the Burley Board, and also investing in a copier, plus a new filing system.

A price selection method was negotiated in 1985. A grower may use the old averaging method or select a day to sell any time between November 15 and March 15, which is gaining in popularity in establishing the base price for a crop.

Depressed farm economic conditions resulting in decreased commercial corn acreage has resulted in reduced demand for seed corn. It is our hope that government support programs will continue as long as we have depressed prices for commercial corn.

Favorable climate and fertile soil have meant very large investments in the production of seed corn in the five Southwestern Counties of Ontario. The Seed Corn Board is constantly striving to maintain our position as second to none in North America in seed corn production.

Commercial corn growers had stabilization for several years and our board felt seed corn should be eligible. We negotiated with the federal government, were accepted into the plan in 1987 and subsequently into the Ontario plan.

My many years on the Seed Corn Board have been a great educational experience for me. I have found the people we represent, the people who represent the seed corn companies, governments and all with whom we have been associated to be real "down-to-earth." The board will continue to be made up of good directors — growers will see to that — and the seed corn business will continue to be one of Ontario's most important.

How Hybrids were Introduced - 1941 - 1948

When World War II ended in 1945, a new era in Ontario agriculture was dawning, and expansion of the corn industry was the main feature. The "wise men" in the seed corn scene of this feature picture decided they had an important role to play, and went to work on it. Records show that the Seed Corn Board secretary, J. D. Brien, co-ordinated the planning, which was devised by members of the board, Messrs. Garner, MacKenzie and all other "government" personnel who had been involved in establishing hybrid seed production in Ontario, as well as dealers.

His untimely death removed J. D. Brien from the scene in April, 1947, but the task was taken on by W. J. W. Lennox, for many years District Supervisor of the Plant Products Division, Canada Department of Agriculture, who was succeeded in the Toronto office by N. D. MacKenzie.

A letter from Mr. Lennox to Mr. Brien dated 28 February 1946:

"I am pleased to note from your letter of Feb. 20 it is your intention to prepare for a booklet all the information available regarding the development of seed corn production in Ontario. Such information in booklet form would be interesting and valuable.

"I believe that Mr. Angus McKenney of Essex and the Secretary of the Canada Seed Growers Association could supply the most complete record in regard to this matter. It is understood Mr. Wiener, with whom you have discussed the matter will, at as early a date as possible, have his files reviewed and secure as much information as possible, and I have agreed to assist him in a summary of information which may be considered suitable for inclusion in the booklet.

"Following receipt of information supplied by Messrs. McKenney and Wiener, I suggest a meeting be held of those closely connected with the work from the beginning, to study the information supplied and, as a result of discussion, add to the information already secured. This procedure, I believe, would bring forth information which might not be obtained in any other way.

"I am prepared to give whatever information I can secure but I feel my contribution would be enhanced by the perusal of all the early records available and a discussion of the matter with others with whom I have been associated in this work."

As Mr. Lennox suggested, the assembling of historical data and useful information on hybrid corn, was undertaken by the secretary of the Canadian Seed Growers Association, T. M. Stevenson, who was also chairman of the Ontario Corn Committee, and requests for papers on various subjects were sent out to those considered best qualified in their respective categories.

The material, apparently intended to be used in booklet form, was for the guidance of those called upon to enlighten Ontario growers who would be considering planting hybrids and extending their use of corn in their farming practises. The booklet was not issued, but the papers prepared were mimeographed, submitted to various authorities and to each other of the authors for critical perusal, and then were used as originally intended.

The information contained in these presentations is of such significance, and so

pertinent to the history of the development of Ontario's corn industry that we decided to include appropriate parts of it in "Pulling Tassels." It is with profound respect and gratitude for the efforts of those who prepared these papers, that we present them herein.

Mr. Lennox was assigned "History of corn growing in Ontario from the early days up to the introduction of hybrid corn, including outstanding early seed growers who made notable contributions." Considerable research by Mr. Lennox yielded a host of information, some of which we will summarize. Other data, particularly on growing corn in Essex County 100 years ago, is presented as written.

Quoting from "History of Agriculture in Ontario 1613 - 1880," Mr. Lennox:

(Page 5) Samuel de Champlain in June 1613 found the Algonkins Indians grew small plots of Indian corn. (Page 10) Corn growing on large scale by the Wyandotte Indians, these were situated on the western end of Lake Erie in 1760. LaSalle, efforts in farming between 1676 and 1679 near Fort Frontenac, both Indian and European Corn was grown. (Page 24) In 1793 4000 bushels of Indian corn was imported from Detroit to Michlimackinac and the St. Mary's Falls. In 1796 1200 bushels of hulled corn was to be imported under contract with a Detroit firm for a period of three years.

The first year in which a detailed official agricultural census was taken in Canada was in 1842 and showed that 691,359 bushels of Indian corn was grown. The Indians, due to the drudgery of hoeing the corn, did little to improve the corn situation up to the year 1825. In 1851 the census revealed that there were grown 72,047 acres of Indian corn, 1,688,805 bushels which was primarily intended for consumption on the farms; this was due to the bulk and cheapness, it being considered unprofitable to market same. Corn in Upper Canada was not considered a good crop due to the fact it could not be counted up to mature before the frost, consequently the South Western provinces, and the Thames Valley being considered the best. In the year 1850 corn was first planted by a drill instead of in hills. During the Civil War, imports of corn were noted as follows: 1860 219,000 bushels; 1861 1,013,000; 1862 1,913,000; 1863 654,000; 1864 122.000: 1865 640.000.

Seed Corn Board Personnel 1950: Seated, left to right, William Wallace and N. D. MacKenzie, Plant Products, Toronto. Standing, left to right, M. C. Dalton, G. Clarence Nichols, Ross Townsend, William Corneil and W. J. W. Lennox, secretary-manager.

Corn For Distillery — Essex County - 1880

The value of corn as a farm crop in Essex County in 1880, with emphasis on its use "by Mr. Walker in his distillery" is revealed in the submission by Mr. Lennox from the report of the Ontario Agricultural Commissioners "to the Honourable John Beverley Robinson, Lieutenant-Governor of Ontario, April 3, 1880" as follows:

Indian Corn In Kent and Essex

Although Indian Corn is cultivated in various parts of the Province, its growth on a large scale is chiefly confined to the southern portion of the southwestern peninsula, particularly the counties of Kent and Essex. Except that of late it has in some places where the land has been brought into proper condition, been superceded by fall wheat, it maintains its popularity in the two counties named as a very valuable crop. Mr. White puts the cost of raising corn at $15.00 per acre, the yield at 50 bushels, the value of the straw as fodder at $5.00, and the price at an average of 40 cents, although at the time the Commissioners were in Kent the price ranged from 50 to 60 cents per bushel. According to Mr. White, the return from a crop would be $25 against an outlay of $15. Corn, however is of a value beyond its direct profit to the farmer in money. It is a crop which can be raised in rich rank land, of which a large quantity recently reclaimed is to be found in the counties mentioned, and thus in time prepares it for other crops. The cultivation of corn, too, is a valuable preparation of any land for subsequent use. Mr. White thus refers to corn-growing in Kent. He says: —

"I think corn is a very good crop for the farmers to raise when the land is suitable. It does good to the land by necessitating its being cultivated and kept clean. Then for fodder purposes if it is cut before the frost, an acre of corn is worth almost as much as an acre of hay, for feeding cows and other cattle. Next to wheat, corn is perhaps the most profitable crop grown in this county.

"When planted in hills, the hills should be about four feet apart, with three stalks to the hill. As to the cost of the crop, the interest or rental would be about $2.50. The cost of the seed would be very small — about one bushel to six acres.

"A man can plant with a hand planter about four acres in a day or with a horse planter, ten or fifteen acres. Sowing and harvesting would be about $5.00 the total cost about $15.00 an acre. A great deal of our corn is shipped to people in the east for feeding purposes. Buckwheat is not much grown here.

"My calculation is that the cultivation we have been describing would give about 50 bushels to the acre, of shelled corn. About 40 cents per bushel is the price we get when it is brought in from the fields in the fall. If we keep it till spring we have to depend on the meal, whereas in the fall people want it for feeding. That would show a result of about $20 an acre. The fodder is worth about $2 per ton — it is better for milch cows than hay. We don't use it for cutting up to fatten stock. I put fodder at about $5 per acre.

"The ordinary price at which corn has been sold in this county during the last few years has been 40 cents. At present it is selling at 50 cents and 60 cents, and

of course we are participating in the advantage. I have heard of corn being bought for 30 cents, but of course that was not the regular market quotation of the day. I regard corn as a paying crop at 40 cents, because beside the price, it cleans and shades the land, and does it a great deal of good in that way. We grow a succession of crops of corn where the land is very rich. The preference for wheat has rather tended to diminish the growth of corn. A great deal of corn is used locally for the feeding of cattle, as our stock is all fed on corn and not on roots."

Mr. Iler, another witness from Essex, had also much to say on the subject of corn-growing. He says: —

"We grow corn largely. It is grown for the grain in ninety-nine cases out of one hundred — very little being grown for fodder. The crop is usually successful, and the average per acre about forty bushel. The varieties generally grown are the large yellow and white Gourd Seed though the yellow and white Flint are also grown. These are the eight-rowed varieties. Corn has been badly injured by the rain, but I don't think it can be said that the corn crop is subject to failure in our part of the country, though late corn in back settlements is sometimes nipped by the frost. I think that our county can produce corn successfully, and I don't know that we have any regular failures.

"We don't have any large quantities to export, but sell it to our local traders and distillers. Mr. Walker takes about all the corn we can raise for his distillery. It is not necessary for us to import corn from the United States, though very small quantities are imported.

"There is not much difference in the cost of raising corn and wheat. We have no husking machines in our county. We put it up in shocks and husk it by hand.

"We store it in cribs: a great many of them are built out of poles, but some are now building corn houses of lumber, leaving cracks for the circulation of the air. Good corn houses are generally built double, each side being about four feet wide and eight or nine feet high, with space between sufficient to allow a team to pass through.

"The larger varieties of corn are generally planted with three feet eight inches between the hills, and three stocks to the hill. That is about the right distance, though it is sometimes planted thicker. Flint corn may be planted three feet six inches between the hills, and four to the hill.

"Corn usually realizes about 50 cents per bushel, taking one year with another, and we consider it a profitable crop in our county. A great deal of it is used in feeding hogs and cattle, and it is the surplus which the distillery takes.

Mr. McCain, another Essex witness, says: —

"A great deal of corn is planted on clover sod, and we put it in without reference to rotation at all. We generally pick the best ground for corn. I have a poor corn farm, and I have grown sixty bushels of shelled corn to the acre. Fifty bushels per acre would be about average for the township.

"The straw is very good for feeding purposes. If the stalks are cut and mixed up with bran and middlings, it makes splendid food for dairy or fattening purposes, or for horses. The stalks are too rank for cattle to eat by themselves, and they are apt to dry out.

"Even when they are dried out and bleached there is still nourishment in them.

The stalks are worth from three dollars to five dollars per acre for fodder, which would make the corn crop worth about thirty dollars per acre on the average.

Mr. Elliott of the same county, gives further particulars respecting corn-growing in his district, which may be interesting to those in other places who are not familiar with such processes. He says: —

"Corn with us grows to an average height of ten or twelve, sometimes fourteen feet. I got some corn seed from Missouri which took the first prize at the State Fair in that State. It is dented at the end of the kernel, the same as the corn grown by dairy farmers for fodder. Imported corn has to be naturalized before it succeeds well. If planted this year it would be all right for next year's crop.

The first thing we do is to plough the clover ground and harrow it, and this we do in the Month of May; then we mark it out three feet eight inches, to four feet each way, and we plant three, four or five grains in each hill. Some plant with a planter, but I do it by hand, as I tried the machines but did not find them at all satisfactory, as they are apt to plant too much. Then if you set them to drop only three grains to the hill, they will very likely not drop any at all. However, a good many people in our neighbourhood use them, though our best corn raisers plant the corn by hand. I find the machine particularly unsatisfactory in planting large corn, as there seems to be no certainty of having grains drop regularly, and you are unable to ascertain until the corn grows how it has been planted.

"We commence to cultivate as soon as the corn is up, just at the time when we can see the rows from one end to the other. We cultivate it from four to six times using a double shuffle plough — one shuffle coming behind the other. We never use the hoe at all. The plow throws it up in ridges to some extent. The shuffles are very small — very little larger than those of a farm cultivator. We work the plough with one horse. We cultivate from four to six times, say three times one way and three times across. Some days of course will intervene between these times of cultivating. Some use a harrow, but I do not. We manage to keep the weeds down by our method of cultivation. Some farmers use a single shuffle plough the last time of cultivating, and throw the land up in ridges. I prefer having it on the level. Heavy winds sometimes blow the corn to one side, but it generally straightens up again. The corn seldom suffers much unless it is a tremendous storm.

"When we cut the corn we take hold of the stalks in a hill in the usual way. When we are going to put the ground into wheat, we generally carry twenty rows on each side, which leaves a space between the shocks of forty rows. That makes a wide land.

"The corn is then left until we get through the hurry of the work and then we husk it. We tie the stalks round the top with elm bark. We use the bark of the common elm, as we have no rock elm. Sometimes we try fifty trees before we can get one to peel. We notch under the bark with an axe, and then hitch a horse to the end and let them do the peeling. It would not pay to use wire because we can get the bark for nothing, and a man and a boy can peel enough in a day to tie forty acres. We have about 20,000 acres of wood in our township.

We have no process of husking by machines that we find satisfactory. We found that it was as much trouble to take the corn to the machine and to carry away the fodder, as it would be to do the work by hand. We have hand husking machines. Our corn is much easier to husk than the Flint corn. Ours is the yellow and white Dent corn. We husk the corn from the shock in the fields, and put it in piles and

draw it to the crib with a wagon. The spaces between the shocks are ploughed and put in wheat, leaving lands about ten or twelve feet wide where the corn is. When it is husked some stand the fodder on the wheat and drive along the spaces, and in the spring these spaces are ploughed up and put in oats. This accounts for the appearance of many of the fields in our part of the country — strips of oats appearing in our fields of all wheat. We seed down again with clover on the wheat.

Mr. McGregor in his report on the products of the County of Essex (Appendix S) says: —

We do not export largely of corn, but we sell about 100,000 bushels a year to the distillers in the county. The remainder is used in feeding pork, which brings us in annually, about $400,000. Corn is about the most certain crop we have.

As a grain crop corn can be grown successfully, not only in the counties of Lambton, Elgin and Norfolk, but also in the Owen Sound district, and in some of the northern and north-eastern counties. As green fodder it is very extensively cultivated elsewhere.

In his report of a recent visit to Washington. Mr. Hilborn, a member of the Commission, refers to the experiments conducted by the Bureau of Agriculture there, in regard to the sugar-yielding propertie of corn. Mr. Hilborn says: —

"Mr. Le Duc finds that sorghum can be successfully and profitably grown in the northern part of Minnesota, which is a higher latitude from Ontario; his experiments also show that sugar can be successfully made from it.

"He also exhibited to me a record of experiments in the manufacture of sugar from corn stalks, which he has carried to a sufficient length to render its success no longer a question of doubt, the record showing a yield from 900 to 1,000 pounds of sugar from the stalks of an average acre of corn gathered when the corn was ripe, so that no loss of corn was sustained, and the cost of manufacture being but three cents per pound. The sugar produced is fine in flavour and capable of producing the highest grades by being refined. Mr. Le Duc computes that the stalks from the corn grown in the state of Illinois would supply all the sugar used in the United States at a cost of three cents per pound for manufacturing. That being so, is there any good reason why the corn fields of south-western Ontario should not be made to sweeten the tea and coffee of the Canadian people?

The growth of sorghum is somewhat extensively carried on in Essex as well as the manufacture of sorghum sugar and molasses. A manufactory on a considerable scale has been recently started for the latter purpose at Tillsonburg, in the County of Oxford.

Indians and their Corn

The part that maize played in the agriculture of Canada's native people was described by Mr. Lennox, with particular emphasis on the methods of storing it. Drying was done in primitive cribs made of poles and perforated sheets of bark; it was hung up on strings and poles overhead in the houses, in which fires were kept burning; some toasted it dry. Storing was usually as shelled corn, and casks or bins made of bark would hold more than 100 bushels. Bins were built in covered houses and also served as pits dug deeply to resist freezing in sandy, well-drained earth. The pits also stored squash and pumpkins, potatoes, carrots and other vegetables.

Mr. Lennox included the following from a Central Experimental Farm, Ottawa, Bulletin, June, 1891: —

"Indian corn, where it can be successfully grown, produces probably a greater weight of crop per acre than any other fodder plant."

And from another "Dairy Bulletin", May, 1890:

Indian corn — This plant, which is now cultivated in every part of the globe is believed to have come originally from South America. Its first introduction into Europe is supposed to have been from this continent by the ships and hands of the adventurous Norseman a long time before the voyages of Columbus. From Mediterranean ports it was scattered through Europe: and as everything foreign to home civilization in these days was called "Turkish" the name "Turkish Corn" clings to it still in many of the countries there. Reference is made in the early annals of the settlement of this continent to cultivated corn fields about the mouth of the Kennebec River in Maine in 1605.

In 1535 Cartier found waving corn fields at Hochelaga under the care of the Indians, near the site of what is now Montreal. It is an agricultural product which has been of great service and value to the farmers of this continent; and its enormous yields per acre, without apparent serious exhaustion of the fertility of the soil, have made it a means whereby the districts and countries where it has been grown successfully and extensively have become enriched rapidly. Contrary to the belief of many farmers in Canada, it can be grown to advantage for fodder purposes where it has been valued for its grain producing qualities, the average yield per acre in 1888 was 78.2 bushels in the ear, against a yield of 26.3 bushels of shelled corn, as officialy stated for the corn growing States. With this crop, as with the more commonly grown cereals, the several varieties obtain their maximum of service and value in the most limits within which they can be grown to maturity. However, its main service to the farmers of Canada will arise from its value as a fodder rather than as a grain crop.

First Registration 1903

Mr. Lennox pointed out that records indicate organized effort in the improvement of the corn crop began about the year 1900. Apparently the first effort was made by the Seed Division of the Dominion Department of Agriculture and the Canadian

Seed Growers Association. The first registered crops of corn in Ontario were produced in 1903.

Organization effort on the part of the Ontario Department of Agriculture followed the appointment of the first group of agricultural representatives in 1907.

At Essex in 1909 (Feb 9-12) there was a corn convention, the first of its kind in Ontario. At this convention there were ten speakers chief among whom was Prof. L. S. Klink (Dr. Klink of British Columbia) who delivered three addresses.

In connection with the convention there was "The Essex Corn Exhibition."

During the convention and on Feb. 11 the Ontario Corn Growers Association was organized. This organization was formed for the purpose of extending the area and increasing the yield of well matured corn in Ontario. There are many who deserve credit for the success of the Corn Show and the organization of the Ontario Corn Growers Association but no doubt a vote of these would single out for special mention the Agricultural Representative, Angus McKenny. The late J. O. Duke, seed corn grower and dealer of Olinda, and T. S. Biggar at that time Manager of Walker Farms, Walkerville, in the operation of which was included the growing and selling of seed corn.

Corn exhibitions in the name of the Ontario Corn Growers Association were held continuously from 1910 to 1941. Firstly the Show was itinerant but finally it was held annually in Chatham. The record: Essex, 1910; Chatham, 1911; Tilbury, 1912; Windsor, 1913; Chatham, 1914, 1915 and 1916; Kingsville, 1917; Chatham, 1918 to 1941.

The improvement in the production of corn, including the production of corn for seed, is due to the leadership and support of the Dominion Department of Agriculture through the Seed Division and the Experimental Farm System, the C.S.G.A., the Ontario Corn Growers Association and the Ontario Department of Agriculture through the Agricultural representatives in the corn-for-husking producing areas.

Due credit should be given to many of the dealers in seed corn, particularly for interest, co-operation and advice.

The Annual corn Tour. As the seed corn industry expanded in Ontario, "those who knew the corn crop best" toured the Ontario "corn belt" and gathered information which aided in making decisions so vital to improvements and progress.

History of Hybrid Corn in Ontario (1948)

By H. F. Murwin, Superintendent, and
Dr. G. F. H. Buckley, Forage Crops,
Dominion Experimental Station, Harrow

During the past ten years there has been a complete change in Ontario's corn picture. Hybrids now hold the spotlight and have almost entirely replaced the old open pollinated varieties.

Prior to 1938 very little hybrid corn was grown except in an experimental way. Hybrids, which were outstanding in the Corn Belt of the United States generally proved too late in maturing for Southwestern Ontario with the possible exception of Pelee Island. There, a few hybrids imported from Ohio, grew quite successfully. In 1938 seed of certain hybrids which had been developed for northern Illinois and Wisconsin was planted upon about 200 acres in Essex and Kent Counties. These hybrids performed excellently that year and supported the findings of the extensive testing program being conducted by the Dominion Experimental Station at Harrow and the Provincial Experimental Farm at Ridgetown.

The hybrids clearly demonstrated their superiority over the generally grown open pollinated varieties by their higher yielding ability, denser root systems, sturdier stalks and greater tolerance to the corn borer and other pests. Corn growers began to take a keen interest in this new corn and more and more acreage was planted with hybrid seed. In 1939 about 10 percent of the husking corn acreage was planted with hybrids. This acreage was increased to 25 percent in 1940 and to approximately 50 percent by 1941. Today (1948) more than 95 percent of the husking acreage and over 60 percent of all the Ontario corn acreage, both for husking purposes and for ensilage, is planted with hybrid seed.

Up until 1941 most of the hybrid seed was imported from United States though increasing amounts were being produced by Ontario growers from crossing stocks imported from Wisconsin. In the spring of 1938 the late O. J. Wilcox of Woodslee obtained sufficient crossing stocks of the Wisconsin hybrid 625 to plant one acre for seed purpose. This acre produced 42½ bushels of seed and represents the first commercial production of hybrid seed corn in Canada. The following year three other growers besides Mr. Wilcox obtained crossing stocks from Wisconsin. These men were B. R. Cohoe, J. T. Grant and Ian Maynard. The number of Ontario seed producers of Wisconsin hybrids increased to eight in 1940.

In 1940 the Ontario hybrid seed producers were notified by the authorities in Wisconsin that no further crossing stocks would be exported from the State. In order that the Ontario producers might continue to produce seed of the Wisconsin hybrids, the Ontario Corn Committee made arrangements with the Dominion Experimental Station at Harrow and the Provincial Experimental Farm at Ridgetown to produce the necessary crossing stocks. The inbred lines were to be maintained and multiplied at Harrow while the Experimental Farm at Ridgetown had the responsibility of making and distributing the necessary single cross parent stocks. This program has proved very successful. More than fifty percent of the hybrid seed planted in Ontario during 1947 was the product of this program. The hybrids of

Wisconsin origin, which are produced under this program are designated "Canada Hybrids." They differ from the Wisconsin hybrids of the same number only in that the breeding stocks are now maintained in Canada.

From 1940 on the importation of hybrids from some of the larger commercial producers in the United States increased steadily. One by one these producers became interested in the production of their hybrid seed in Canada. In 1940 the Pioneer Hi-Bred Corn Co. of Des Moines, Iowa began producing seed through their associated grower, James Jubenville of Tilbury. This system was continued until 1946 when the parent company bought out the Jubenville interests and established an office in Chatham. The processing plant remained at Tilbury.

In 1941 the DeKalb Hybrid Corn Ltd. was organized and that year produced their first hybrid seed in Canada. This Company is controlled by the DeKalb Agricultural Association of DeKalb, Illinois.

The next large company to start seed production in Canada was Funk Bros. of Bloomington, Illinois. In 1942 this company appointed J. T. Grant, one of the pioneer Canadian hybrid seed producers, as their associate grower and began production of Funk hybrids.

The latest entry into the Canadian field was the Pfister Associated Growers Inc., of El Paso, Illinois. This company associated themselves with the Essex Hybrid Seed Company of Riverside and began production in 1946. Prior to its association with the Pfister Growers, the Essex Hybrid Seed Company was one of the largest producers of Canada hybrids. It developed from the amalgamated interest of two pioneer producers, A. B. Reid and O. J. Wilcox.

The largest producer of Canada hybrids at the present time (1948) is T. C. Warwick and Sons of Blenheim. The hybrid seed is produced by a number of contract growers who deliver the seed to the plant at Blenheim where it is dried and processed preparatory for sale.

While hybrids were developed mainly for husking or grain purposes, their value for ensilage was soon recognized. High yields of fodder and sturdier stalks demonstrated the superiority of hybrids over the open pollinated varieties.

Ensilage tests under the direction of the Ontario Corn Committee did much to advance the growing of hybrids in Central and Eastern Ontario. The knowledge gained from these tests, coupled with the active sales and advertising program of the larger commercial seed companies, produced keen interest in hybrids for ensilage.

From 1939 the Ontario Corn Committee has directed a program in which local and imported hybrids are grown in numerous tests located from Essex to Carleton Counties. Upon the basis of their performance in the tests, hybrids are added to the list of recommended hybrids for Ontario. The list is published annually and is a very popular guide to corn growers. Through the tests, better hybrids for grain or ensilage have been found and recommended to meet the needs of the corn growers all over Ontario.

Growth of Hybrid Corn in Ontario

by G. P. McRostie, Department of Field Husbandry,
Ontario Agricultural College, Guelph, Ontario

Twelve years ago the growers of hybrid corn in Ontario could have been numbered on the fingers of one hand. To-day the great majority of growers, particularly in the areas where the production of grain corn predominates, grow nothing but hybrid corn.

An attempt was made to get an exact picture of the change from open pollinated varieties to hybrid sorts. The leading producers and distributors of hybrid corn were contacted and asked for a year-by-year picture of their sales of seed corn, both hybrid and open fertilized. Only one firm of those contacted had continued to produce and sell both sorts throughout the past ten years. The other firms had begun with hybrid corn only or had dropped the distribution of the open-pollinated sorts as soon as the demand for hybrid seed warranted such a procedure.

The production and sale by the one firm handling both sorts were as follows: 1939, No hybrid corn sold; 1940, No hybrid corn sold; 1941, Ten percent of all orders were for the hybrids; 1942, Ten percent hybrids; 1943 Twenty-five percent hybrids; 1944, Thirty percent hybrids; 1945, Thirty-five percent hybrids; 1946, Forty percent hybrids; 1947, Forty percent hybrids; 1948, Fifty-five percent hybrids.

One must keep in mind that the reduction in available sources of seed of open fertilized corn varieties paralleled the increase in the offerings of the hybrid sorts. The net result was that the few remaining seedsmen who carried the seed of the open fertilized varieties secured a greater sale percent of such sorts than if all the former sources had continued to handle the open fertilized as well as hybrid seed. In spite of this the change-over as indicated, by the records of the one large handler are very striking.

A list of the licensed dealers (1948):
Belle River Grain and Feed Co., Belle River, Ont., Don Borrowman, Chatham, Ont., Ovila Brown, Dover Centre, Ont., Alfred Caron, R. R. 7 Chatham, Ont., B. R. Cohoe, Woodslee, Ont., D. F. Coughlin, Crediton, DeKalb Hybrid Corn Co. Ltd., Chatham, Essex Hybrid Corn Ltd., Riverside, Origine Faubert, R. R. 7 Chatham, Ray N. Grant, Bearline, King Grain and Seed Co. Paincourt, W. A. Jenkins Mfg. Co. London, Ont., Ian Maynard, R. R. Chatham, George Nussey, Tilbury, Pioneer Hybrid Corn Co. Ltd. Chatham, Wm. Rennie Seeds Ltd. 132 Adelaide St. E. Toronto, Wm. Rennie Seeds Ltd. Chatham, Howard Sellars, R. R. 1 Kingsville, Alex M. Stewart, Ailsa Craig, St. Clair Grain and Feed Co. Chatham, Sam. G. Vance and Co. Tillsonburg, Vaughan Seeds Ltd. Welland, T. C. Warwick and Sons Ltd. Blenheim, James Grant and Son, Cottam.

Hybrid Corn Seed Production (1948)

Dr. F. Dimmock
Division of Forage Plants,
Central Experimental Farm, Ottawa

Hybrid corn is the product of a cross between two or more inbred, true-breeding lines, which have been developed as the result of inbreeding or self-pollination. Corn is a normally cross-fertilized crop and shows a great amount of variability, because there is no control of the parental types. Any attempt to purify corn from the standpoint of heredity must be done through inbreeding, which means the placing of the pollen shed by the tassel, on the silks of the same individual plant.

Modern corn breeding involves the following procedures.

1. Inbreeding to produce inbred or true-breeding parental lines. This usually takes 4 or 5 years.
2. Testing of these inbred lines to determine their combining ability or value for crossing with other lines.
3. Crossing of the better inbred lines in hybrid combinations and testing these in performance trials to determine the best hybrids.
4. Release of superior hybrids to seed producers for commercial production.

This whole process, from the beginning of inbreeding to final production of the commercial hybrid takes on the average from 15 to 20 years.

One of the great advantages of hybrid corn is that superior hybrids can be produced indefinitely by crossing the same inbreds in the same manner. The important precaution in the entire procedure is to maintain the purity of the parent lines.

Once the inbred lines have become pure they are maintained in this condition either by continued selfing or by what is known as sib-pollination, which consists of collecting pollen from a number of plants of an inbred and placing it on the silks of a number of other plants of the same inbred. It is actually brother and sister mating. Contamination from pollen from outside sources must be avoided either by bagging the silks or by adequate isolation from other corn.

Increase or multiplication of inbred seed is accomplished by hand-pollination, using a pollen-gun, or by allowing the inbred plants to pollinate in an isolated crossing-block. Usually the seed increased blocks are small, as inbred seed is produced in relatively small amounts. Seed produced in isolated crossing blocks may be multiplied in this way for two or three generations, but it is seldom allowed to advance beyond the third generation before returning to hand-pollinated selfed seed. This precaution is taken to ensure the maintenance of purity and uniformity.

Inbreeding results in a marked reduction in size, vigor and production. The selfed lines, after 4 or 5 years of selfing, produce only about one-third as much as the parent varieties from which they originated. Obviously it would be useless to use the small unproductive inbred lines to produce a crop of commercial corn. This is the reason for hybrid corn, for when the inbreds are crossed, a tremendous restoration of vigor occurs. Some hybrid combinations greatly exceed the yields produced

by the open-pollinated varieties from which they were derived. They not only out yield them but they are stronger in the roots and stalks, more resistant to diseases, more uniform in type and maturity, and superior in many other respects.

As already mentioned, most of our commerical hybrids consist of combinations of four inbred lines. These we may designate as A, B, C and D. The first step in the hybrid seed production program is to cross the four inbreds in pairs, A and B in one pair and C and D in another. These two hybrids are called single crosses, and may be indicated as (AB) and (CD). The next step is to combine the two single crosses, AB and CD into a double-cross, designated as (ABCD). Thus, three separate crosses are necessary to produce double-cross or commercial hybrid seed, first the two single crosses, followed by the double-cross, which combines the four inbreds into one hybrid.

To produce a single cross between inbred lines, one of the two inbreds is used as the female parent, to produce the ears, while the second inbred is used as the male parent, to produce the pollen. In commercial seed production it is usual to plant 3 rows of the female inbred to 1 row of the male inbred. To ensure the production of the cross or hybrid, the tassels are entirely removed from the female rows, so that all the pollen for producing the seed crop must come from the male rows. The ears produced on the male plants, which are inbred, are discarded. All commercial single-cross hybrid seed is produced in this manner.

The production of the double-cross or commercial hybrid is the next step in the seed production program. It results from the crossing of two single hybrids in much the same manner as the single hybrids themselves were produced. The usual procedure in Canada is to plant alternately 6 rows of the female single-cross and 2 rows of the male single-cross.

The female rows are detasselled to ensure that all the pollen to produce the seed crop comes from the male rows. The ears from the male rows are harvested separately and used for feed. The hybrid ears from the female rows are then harvested and dried to storage condition, following which they are shelled and the seed graded and bagged ready for sealing.

In both the case of the single-cross and double-cross hybrid seed production, adequate isolation from other corn is necessary to prevent contamination.

Hybrid seed yields its maximum production in the first-generation. For this reason a continuous supply of fresh seed must necessarily be produced every year by the procedure that has just been outlined. The use of second generation seed results in a reduction of 15 to 20 per cent of the yield produced by first-generation seed.

The corn breeder is a highly trained specialist and no program of improvement can hope for any permanent measure of success without a specialist to plan and supervise all of the various phases of the breeding work.

In the question of inspection, it is taken for granted, that the necessary isolation and detasselling requirements as called for in the C.S.G.A. regulations are strictly enforced.

Industrial Use of Corn in Ontario (1948)

by Dr. F. Dimmock
Division of Forage Plants
Central Experimental Farm, Ottawa.

Corn is important as a raw material in industry, apart from its great value to the livestock industry as a feed, there are over 500 industrial products listed in which corn is used in one form or another. The search for new products to fill human needs goes on ceaselessly and indicates that the production of corn by the farmer has still far to go before it reaches its ultimate limit.

To understand the particular properties of corn which makes it valuable for industrial purposes, it is necessary to know something about its composition. A kernel of corn has four distinct parts, namely the starch, gluten, germ and hull. Chemically, the kernel contains on the average from 15 to 20 percent of water, while the remainder has approximately the following composition: Starch (and other carbohydrates) 80.0%, Protein 10.0%, Oil 4.5%, Fiber 3.5%, Ash (minerals) 2.0%.

Obviously the composition of the kernel is affected to some extent by season, soil, variety or hybrid, maturity, etc. All of these factors influence the quality of the corn and its ultimate value for industrial purposes.

Large quantities of corn are used annually in Ontario in the compounding of commercial feeds and the making of industrial products. Few of us realize that the starch industry alone requires about 6,000,000 bushels of corn each year to satisfy its needs. Besides producing culinary starch and various types of laundry starch, starch factories also produce corn starch in bulk for cottom mills, paper mills, baking powder, confectioners, explosives, dry battery cells, etc. and many modified starches for various other manufacturing industries. Glucose is produced for candy and preserving, corn syrup for table use, corn sugar for tanners and caramel coloring. Besides these main products there are several important by-products of the starch industry including crude corn oil, refined corn oil and corn gluten feed which is sold directly for dairy cattle, or indirectly for prepared mixed feeds. There are several hundreds of uses for the various products derived from the manufacture of starch. Even the steep water in which the corn is soaked prior to processing is not wasted as it is used as a base for the growing of molds from which the drug penicillin is extracted. Steep-water is also used in the production of yeasts. These represent only a few of the great many industrial corn products, produced by what is known as the "wet millers process." A bushel of corn weighing 56 pounds containing 16 percent moisture is said to yield by the wet process about 35 pounds of pearl starch, 1.6 pounds of oil and about 15 pounds of gluten, germ and hulls. Similarly about 40 pounds of syrup or 27.5 pounds of refined sugar may be obtained from a bushel of corn.

The "dry millers" use corn to produce meal, grits, hominy, flakes, feed and oil, some of which are for human consumption. One company alone in western Ontario can mill over 4,000 bushels of corn daily and is now using 1,000,000 bushels of corn annually. This company has sponsored the production of white hybrid corn and as the result of this effort from one-half to three-quarters of a million bushels of white corn has been produced in western Ontario in each of the past two years (1946 and 1947). This may be regarded as a new industry based upon the industrial utilization

of corn of a particular type. Recent advances in the field of genetics are being employed to develop new and better corn hybrids that will be more suitable for industrial use.

In addition to the "wet" and "dry" millers there are the distilleries which consume several millions of bushels of corn each year in the production of industrial and ethyl alcohol, acetone, etc. In the dwindling of world fuel supplies, corn, because of its high starch content will undoubtedly be among the first of the agricultural crops considered for the production of alcohol for power purposes.

Corn is used in large quantities in the feed industry in the compounding of various feeds for livestock and poultry, and it constitutes one of the most satisfactory and important ingredients in such products.

All of the commercial and industrial users of corn in Ontario are agreed upon the great importance of the use of corn as a basis product in industry. They are unanimous in stating that the production of corn in Ontario should be greatly increased above the average of about 10,000,000 bushels now being grown annually. Some suggest as high as 25 to 30 million bushels a year or even higher. They are all agreed that Ontario-grown corn of good quality is satisfactory for industrial purposes and that at suitable price levels the trend will be to use greater quantities in the future.

During the war years especially, the consumption of corn was greatly influenced by its availability.

Representing various branches of the Dominion Department of Agriculture, Seeds Division, these men made sure Ontario seed corn was the best. Left to right: William Weiner, N. D. MacKenzie, Robert Sanderson, W. J. W. Lennox, Herb Murwin and George Gilbert.

The Ontario Corn Committee

Credit for the achievements of the Ontario Seed Corn Growers Marketing Board has to be shared with the Ontario Corn Committee. Since the Corn Committee is really the Ontario Corn Growers Association with name changes, having been contrived in 1908 and constituted in 1909. It carried on with an objective of assisting the producer of corn continually until hybrids came on the scene.

In 1948, a paper entitled "The Ontario Corn Committee, Its Origin and Functions," was prepared by the committee's secretary, Dr. T. S. Stevenson, Dominion Agrostologist, Central Experimental Farm, Ottawa, and it is as follows:

An "Ontario Hybrid Corn Committee" was established on November 25, 1938, at a meeting held in the office of W. R. Reek, Deputy Minister of Agriculture for Ontario. That meeting was called at the request of Dr. E. S. Archibald, Director, Dominion Experimental Farms Service, for the purpose of discussing ways and means of developing a co-ordinated program of corn breeding, testing and research in the Province of Ontario and involving both Federal and Provincial institutions and personnel.

The original Committee held its first meeting at the Ontario Agricultural College, Guelph, Ontario, November 30, 1938. Since that time meetings have been held regularly at least once a year. On recommendations of the Committee members and with approval of the Deputy Minister of Agriculture for Ontario, and the Director, Dominion Experimental Farms Service, the Committee was reconstituted in December 1941 under the present name, "The Ontario Corn Committee." In addition to Federal and Provincial Agricultural officials the reconstituted Committee includes representatives of the Canadian Seed Growers Association and the Ontario Seed Corn Growers Marketing Board. In addition, provision was made for holding joint meetings with corn growers, representatives of growers organizations and seed dealers when there are matters of mutual interest to discuss. In practice, the Committee has set aside one-half day, at the time of the annual meeting each year, for such joint discussions.

The Committee concerns itself chiefly with matters relating to corn breeding, seed production, comparative testing, classification of hybrids with respect to maturity and the preparation and publishing annually of a list of hybrids recommended for production in Ontario together with information regarding zones of adaption.

Corn Breeding

The corn breeding program remains the responsibility of the Dominion Department of Agriculture. The breeding projects which were begun at the Dominion Experimental Station, Harrow, Ontario in 1923 and at the Division of Forage Plants, Central Experimental Farm, Ottawa, Ontario during 1928 have been continued and expanded to meet current needs. At the same time the Committee, recognizing the rapidly growing interest of Ontario growers in hybrid corn, the scarcity of seed of approved and adapted hybrids, the fact that Canadian bred hybrids would not be available commercially for some time, took immediate steps to have produced in Ontario seed of approved hybrids of United States origin in sufficient quantity to meet Canadian demands until such time as seed of superior hybrids of Canadian origin, or seed produced by private companies could be made available. In planning and implementing this seed production program the Committee was most fortunate in securing the helpful co-operation of Dr. N. P. Neal, Department of

Agronomy, University of Wisconsin. The early-maturing Wisconsin corn hybrids developed by Dr. Neal had been tested in Ontario and shown to be well adapted to our conditions. The inbred lines necessary to the production of the Wisconsin hybrids were released to corn breeders in Ontario on the understanding that they would remain under the control of the plant breeding institutions. These facts are recorded here because of their importance in relation to the developments of a hybrid seed corn production program in Ontario. Not only did the use of the Wisconsin inbreds save time in getting hybrid seed corn production established in Ontario, but in addition it made possible a rapid expansion in hybrid corn acreage for grain and silage, at a time when it was badly needed, an expansion which would otherwise have been delayed several years.

The work in maintaining the purity and of multiplying these inbreds is the responsibility of the Dominion Experimental Farm at Harrow, Ontario and the Central Experimental Farm, Ottawa, while the production of single-cross hybrid seed was assigned to the Western Ontario Experimental Station, Ridgetown, Ontario.

At the request of Wisconsin officials the name Wisconsin was replaced by the designation "Ontario" but later this was changed to "Canada" on all seed of these hybrids produced from inbred lines maintained in Canada. The original numbers, however, were retained. Thus hybrids of any number bearing the name "Canada" are identical with Wisconsin hybrids bearing the same number.

Maintenance and Multiplication of Seed of Inbreds

At the present time, 1947, the Dominion Experimental Station at Harrow, maintains and multiplies seed stocks of 16 inbreds, while the Division of Forage Plants, Central Experimental Farm, Ottawa, is responsible for 8 inbreds, all of which are used in the production of Canada hybrids.

The work involved in the maintenance and multiplication of seed of these inbred lines is considerable. While the number of hand pollinations required to produce a pound of inbred seed varies with the season and the inbreds concerned, the average is about 8 pollinations per pound of inbred seed. All inbred material is carefully rogued prior to tasselling and as soon as ear shoots appear the multiplication blocks are inspected daily and ear shoots covered with glassine bags well ahead of silking. Tassell bags are put on 24 hours before pollen is to be used, the number being determined by the amount of pollen needed. Each ear is pollinated by hand and after pollination is completed any unused plants are removed so that the ears on these will not be mixed with the "selfed" material. The mature ears from each inbred are harvested separately, dried and shelled and shipped to Ridgetown Station for the production of single-cross parental stocks.

Production of Single-Cross Seed

Single-cross parental stocks for fifteen double-cross hybrids are now being produced by the Western Ontario Experimental Farm at Ridgetown, Ontario. The single crosses are produced under space-isolated conditions, a separate isolated block being required for each single cross except in a few cases where the crosses include a common male. Here again the work is considerable and much care and labour is required in securing proper isolation, seeding, roguing, harvesting, etc. of the stocks in the crossing blocks.

The following figures showing the acreage for which single-cross seed of Canada hybrids has been supplied to Canadian hybrid corn seed growers each year since

the project was begun, indicate an increasing demand for these hybrids by Ontario hybrid seed corn growers.

1941 - 929 acres	
1942 - 2353 acres	1945 - 4550 acres
1943 - 5490 acres	1946 - 4950 acres
1944 - 4737 acres	1947 - 5306 acres

Sufficient single-cross seed of Canada hybrids has been ordered for seeding 8000 acres for the production of double-cross hybrid seed in 1948.

Statistics on actual field inspections of hybrid seed corn production in Ontario during 1947 show that 69.5 percent of the acreage was devoted to the production of seed of "Canada" hybrids.

Comparative Tests

In order that Ontario growers might have up-to-date information on the relative values of new hybrids for Ontario conditions the Committee recommended that a series of official comparative tests be conducted annually in which American (United States) and Canadian companies and agricultural institutions would be invited to have their new corn hybrids tested. In implementing this recommendation the Dominion Experimental Station, Harrow, was asked to undertake the work of securing the seed for those tests and of distributing it to the various institutions responsible for conducting the tests.

The following is a list of locations at which official comparative tests are conducted annually.

1. The Dominion Experimental Station, Harrow, Ontario, three tests.
   (a) at the Harrow Station
   (b) at Malden
   (c) at Woodslee
2. The Western Ontario Experimental Station, Ridgetown, two tests.
   (a) at the Ridgetown Station
   (b) at Rodney
3. The Ontario Agricultural College, Guelph, Ontario, two tests.
   (a) at Guelph
   (b) at Brantford
4. The Division of Forage Plants, Central Experimental Farm, Ottawa, two tests.
   (a) at the Central Experimental Farm, Ottawa
   (b) at Spencerville

On the basis of the combined results from all of these tests the Committee prepares annually a recommended list of hybrids for production in Ontario. This recommended list includes both yellow and white hybrids.

In order to further assist the grower in selecting hybrids suited to his particular area the Committee, with the aid of meteorological data supplied by the Ontario Research Foundation, publishes a climatic zone map for Ontario and indicates the particular zone on this map to which each of the recommended hybrids is adapted for grain and for silage purposes.

While the Committee acts entirely in an advisory capacity, it has been a potent influence in shaping the hybrid corn improvement program and in promoting the

production of superior corn hybrids in Ontario.

This article by Dr. Stevenson cites the importance of the Corn Committee during the early years of the "hybrid" era in Ontario's "corn history." United States seed corn companies came into Canada and brought their own hybrids, which had to be tested and evaluated by the committee before being admitted to the recommended lists, which were revised annually. Ontario was divided into zones based on heat units and hybrids listed according to the results of testing in these zones.

Dr. F. Dimmock, of the Division of Forage Plants, Central Experimental Farm, Ottawa, succeeded Dr. Stevenson as secretary of the "Corn Committee," and he in turn was succeeded by George Jones, of the O.A.C., Guelph.

Archie D. McLaren, M.S.A., now head of the Farm Crops Section, Ridgetown College of Agricultural Technology, became the committee's secretary in 1971 after having been an advisor since 1957.

We are indebted to Mr. McLaren for preparing the following resume of the committee's work and those who served on it so diligently during its forty years:

Committee Structure and Memberships

By A. D. McLaren

The initial committee appointed in 1938 was chaired by W. J. W. Lennox, District Supervisor of the Plant Production Division, Canada Department of Agriculture, Toronto, with J. A. Garner as secretary. Mr. Garner, who had a leading role in getting the Committee started, was Agricultural Representative for Kent County as well as secretary of the Ontario Corn Growers Association. When the Committee was reorganized in 1941, Dr. T. M. Stevenson, the Dominion agrostologist, was elected chairman with Dr. F. Dimmock, Agricultural Scientist, Ottawa, as secretary, but was not a member of the Committee. These two men both served until December 1957 when Dr. D. N. Huntley, Head of the Field Husbandry Department at O.A.C., was elected chairman and Mr. G. E. Jones, also of the Field Husbandry Department, was elected secretary. Dr. Huntley asked to be relieved from this position in 1962 due to the pressure of other work, and W. W. Snow was elected chairman and continued until the Committee was restructured in 1970.

Under the new structure an Executive Committee was appointed, representing various segments of the industry. Dr. G. C. Russell, Director of the Research Station at Harrow, was elected chairman and A. D. McLaren of R.C.A.T. was elected Secretary-Treasurer. Subcommittees were also appointed to deal with 1) Varieties — responsible for considering hybrids for addition to the Recommended List, 2) Deletions — to suggest hybrids which should be removed from the Recommended List, 3) Publications — responsible for arranging for the publication and distribution of the Recommended List and the Performance Trial Report, 4) Production — to coordinate research on production of corn and to recommend shifts in research emphasis where required. Many people have been involved in these committees as

representatives of the various segments of the industry.

The chairmen of the Executive Committee were initally elected for a 2-year term and beginning in 1980 they were given 3-year terms.

1971-72 Dr. G. C. Russell - Director, Research Station, Harrow
1973-74 Mr. J. D. Curtis - Soils and Crops Branch, Toronto
1975-76 Dr. L. W. Kannenberg - Crop Science Dept., University of Guelph
1977-78 Dr. J. M. Fulton - Director, Research Station, Harrow
1979-80 Mr. L. M. Weber - Agricultural Representative, Essex
1980-83 Dr. R. B. Hunter - Crop Science Dept., University of Guelph
1984-86 Mr. D. T. Morris - Plant Industry Branch, Alliston
1987- Dr. R. I. Hamilton - Plant Research Center, Ottawa.

The members of the Committee appointed in 1941 were:

Provincial Nomination
J. A. Garner, Agr. Rep., Kent
A. M. McKenney, Agr. Rep., Essex
G. P. McRostie, Field Husbandry, O.A.C.

Federal Nominations
N. D. MacKenzie, Plant Products Div. Chatham
H. F. Murwin, Supt., Research Station, Harrow
T. M. Stevenson, Dominion Agrostologist Ottawa

C.S.G.A.
W.T.G. Weiner, Sec. Treas., C.S.G.A.

New Committee Nominated 1954

Provincial Nominations
J. A. Garner, Dir. of Ext., Dept. of Ag., Toronto
A. Burrell, Agr. Rep, Essex
D. N. Huntley, Head, Field Husb'y. O.A.C.
K. E. Lantz, Agr. Rep., Kent
A. H. Martin, Dir., Soils and Crops Br., Toronto
D. L. Parks, Kemptville School
J. C. Steckley, Ridgetown Exp. Farm

C.S.G.A.
W.T.G. Weiner, Sec.-Treas., C.S.G.A.

Ontario Seed Corn Marketing Board
N. D. MacKenzie, Sec.
W. Wallace, Pres.

In 1960 Dr. Lorne Donovan, corn breeder at Ottawa, replaced Dr. T. M. Stevenson who had retired. Herb Murwin retired in 1964 and was replaced on the Committee by Dr. L. W. Koch. Dr. Buckley, and later Glen Mortimore, corn breeders at Harrow, were never actually members of the Committee but were both very active participants in Committee business. Mr. Mortimore served as chairman of the Plant Breeders Committee and the Variety Subcommittee until his retirement at the end of 1974.

Added Members
W. Wallace (1945), Pres. Ont. Seed Corn Growers Board, F. Campbell (1947) Agr. Rep., Kent
A. H. Martin (1948), Dir., Soils and Crops Toronto

Added Members
A. Dumais (1948), Plant Products Div. Ottawa
S. White (1953), Plant Products Div. Toronto

Federal Nominations
A. Dumais, Plant Products Div., Ottawa
H. F. Murwin, Supt., Res. St'n. Harrow
S. White, P.P.D., Toronto
T. M. Stevenson, Dom. Agrostologist

Changes in Hybrid Seed Production

By A. D. McLaren

By the late 1940's and early 1950's an increasing number of hybrids were being produced and marketed by private companies and the use of Canada hybrids was mainly by one company. In 1950 hybrids developed by Ottawa and Harrow were being turned over to private producers provided they were able to meet the requirements of C.S.G.A. By 1951 it was decided that all production of single-cross foundation stock at the Ridgetown Station and inbred maintenance for them at Harrow and Ottawa (as described in Stevenson's paper) would be discontinued by 1953. This had taken an increasing amount of time and it was felt that private companies should perform this function themselves thus freeing staff for other work.

In 1953 a delegation of seed producers sought agreement for the use of male sterile lines in seed production and in 1955 a full half-day discussion was held with Company representatives regarding male sterility in seed fields. This discussion included concern of the inspectors over the difficulty of identifying anthers which might be shedding viable pollen. This was further discussed in 1956. Discussion with C.S.G.A. over the need for regulation for single-cross production took place in 1947.

In 1962 there was discussion over the possible use of single-cross hybrids as a competitive item in seed sales. It was agreed that single cross was covered under the definition of a hybrid and that it was quite acceptable to market them. Grower representatives requested that single-cross hybrids should be so identified by the producing company. By 1965 N. D. MacKenzie, secretary of the Seed Corn Growers Marketing board, reported that over one-third of the seed acreage was devoted to single-cross production. In 1968 there was 60% of the seed acreage devoted to single-cross and three-way hybrid production. The Committee agreed, in response to grower requests, to identify the hybrid type on the recommended list.

The outbreak of Southern Corn Leaf Blight in 1970, which was worse on hybrids produced by the use of the "Texas" type of male sterility, caused a combined effort by companies and the Committee to identify the hybrids for sale in 1971 with tags identifying the type of foundation stock used. Fortunately S.C.L.B. was not a factor in 1971 but most of the hybrids had been rapidly converted to normal fertile parents anyway. Ninety-five percent of the seed acreage in 1971 was reported to be on fertile parents compared to 40% in 1970. Since 1971 other forms of male sterility have been investigated but have never been widely used in seed production programs.

In 1971 and 1972 concern was expressed from some growers that double-cross hybrids which are somewhat lower in price were no longer being recommended. The Committee's position was that hybrids should be judged on their own merits, and this is still the position. The trend to single-cross hybrid production has continued so that in 1987, 76% of the seed acreage inspected was single cross, 4% was three-way, and 4% other crosses. The majority of the seed production is for hybrids rated at 2500-2800 heat units, 40-50% of the total, while 2800-3100 heat unit hybrids comprise 20-30% of the total. Some of the seed acreage in Ontario (10-26%) is of hybrids not registered in Canada which presumably are for export. Male sterile seed parents are used on only about 1-3% of the acreage.

The Recommended List

By A. D. McLaren

Over the years there has been repeated criticism within the Committee (as well as from others!) over the length and usefulness of the Recommended List of Hybrids. In spite of the criticism a list has been published every year, except for 1954 (and that was published by the Extension Service) since 1940. The 1940 list contained 3 early, 4 medium and 4 late hybrids and by 1946 it had grown to 13 very early, 9 early, 16 medium and 16 late, which was considered by some to be too long. Little was known about corn outside of Southwestern Ontario, and the Committee in 1947 and 1948 meetings discussed various methods of getting information on growing and using corn to growers.

At the meeting in December of 1950 it was agreed to adopt the American system of relative maturity, but also discussed the possibility of adopting a uniform numbering system to indicate maturity. This proposal was used on the Recommended List to recommend hybrids within various zones.

The Committee agreed to publish the 1957 Recommended List in a new publication called "Field Crop Recommendation for Ontario" (O.M.A.F. publication 296). This list contained 71 hybrids. Various methods of improving the recommendations were again discussed, including a limit of 1 or 2 hybrids per zone per company, and a retest of all hybrids on the list for more than 5 years. In 1958 it was decided to limit each company to 8 hybrids on the list for 1959. The retesting program was agreed to at the urging of W. W. Snow and others, and began in 1958 and has continued with some modification ever since. The limit of 8 hybrids per Company on the Recommended List was removed in 1962. By 1962 the Performance testing program was well established and included all hybrids eligible for the Recommended List. This information was published and was used as a source of data to remove hybrids that were not suitable.

A meeting in Chatham in December, 1962, heard a proposal by Drs. Brown and Chapman concerning the zoning of Ontario using accumulated heat units during a prescribed period to replace the old map based on frost-free period and July temperatures. It was agreed to accept the new map for use in 1964. This provided a method whereby hybrids could be matched to farm locations by heat unit rating.

A large increase in the number of hybrids under test in the early 1960's prompted the Committee to begin the use of computer at Guelph to assist in analyzing and summarizing data for both the licensing trials as well as the Performance data. And after some problems during the first few years it became fully functional by 1968. It was used until 1986 when all research stations conducting trials began to do the statistical analysis of each test themselves, and only sent the analyzed data for summarization. Arrangements have been made to rewrite the summarization program for use on personal computer in order to avoid some of the problems encountered when using the main computer.

The number of hybrids on the Recommended List during the period 1983-88 has varied from 201-227 but covers a range of less than 2400 to just over 3400 heat units. On average, there has been nearly 25% turnover of hybrids on the list, which means that the average life of a hybrid is just over 4 years. The list of recommended hybrids

is divided into 8 groups based on relative maturity and each group is evaluated on at least 2 sites within each maturity range. Twenty-one locations are involved across Ontario. The data are summarized and approximately 100,000 copies are distributed each year. The report contains information on percent stalk breakage, grain moisture at harvest and yield index. Prior to 1977 actual yields in bushels per acre were given, but yield index has been well accepted.

Excerpt from the 1960 Ontario Corn Committee Minutes

By A. D. McLaren

F. Dimmock of the Genetics and Plant Breeding Research Institute, C.E.F., Ottawa, presented a paper entitled "The Past, Present and Future of the Ontario Corn Committee." Dr. Dimmock was one of the originals in the formation of this Committee and served as Secretary for 17 years.

The following are a few of the highlights of his remarks:
(a) The Past

—First correspondence on the subject of Committee formation. H. Murwin, October 4, 1938.

—First meeting November 30, 1938.

—Duties and responsibilities of the O.C.C. as envisaged by the founders:
(a) Co-ordination of corn research
(b) Recommendation of seed regulations
(c) Recommendation of varieties and hybrids
(d) Zoning of the province
(e) Publicity in regard to corn

—Members of the O.C.C. to include
(a) Representative of the Ontario Department of Agriculture
(b) Representative of the Canada Department of Agriculture
(c) Representative of the Canadian Seed Growers' Association
(d) Representative of the Ontario Seed Corn Growers' Marketing Board
(e) Representative of the Growers Consumer group
(f) Secretary not a member

—Early testing indicated the superiority of the Wisconsin hybrids.

—Initially all the seed of the Wisconsin hybrids was imported. Later the inbreds were imported and maintained at Ottawa and Harrow with Ridgetown producing single-cross seed for grower distribution.

—1958 - 8000 acres of double-cross seed produced in Ontario

(b) The Present

Dr. Dimmock noted the decline of the Wisconsin hybrids and the current impact of 9 or more corn companies. He mentioned specifically the criticism of the Recommended List that it is too long. For example, he showed that at present 31 hybrids

are recommended for Zone 1, of which 6 are classed as early, 16 are classed as medium, and 8 are classed as late. With ten corn companies operating, he asked if the list were too long in light of this breakdown of recommendations.

(c) The Future

Dr. Dimmock remarked that in the future the O.C.C. might be dissolved, but it was his opinion that if it was, it would soon be reconstituted. He thought that it was the duty of the O.C.C. to publish the results of corn testing. He noted, too, the current position of the Federal and Provincial plant breeding programs. Initially it was their duty to develop new and better hybrids. He asked the question that in light of private enterprise breeding whether the plant breeding programs of the past are not outmoded and suggested that perhaps their current and future efforts should be directed towards development of genetic stocks of particular value in disease resistance, cold tolerance, etc.

He concluded his remarks by saying the O.C.C. needs a good publication on corn which would serve the purpose of emphasizing the importance of the crop to the farmers.

Inspection Service Key to System

The seed corn growers and their marketing board, the dealers who process and sell the product, and the farmer who plants it in full confidence that the seed is as represented, all depend on the inspection service provided by the Canada Department of Agriculture, Seed Branch. Essential components of the system, such as the corn committee, would be useless without the certification provided by the federal government's branch previously known as "Plants Products."

Mindful of this, we asked Ken McMorine, of Chatham, Senior Program Officer, London District, Agriculture Inspection Directorate, Agriculture Canada, if he could submit a brief review of the service performed and those who have been engaged in it through its many active years. Ken had succeeded R. A. "Bob" Sanderson in the Chatham office in 1969. Mr. Sanderson and the long-time secretary in the office, Mrs. Jack Holmes (Nellie), also retired, helped Ken in naming the people who had made the service possible since the early 1940's.

The inspection service story, contributed by Ken McMorine:

During the early 1930's, farmers growing corn for livestock feeds in the Kent-Essex areas were incurring large crop losses due to European Corn Borer infestations.

It was noted that 14 or 15 out of 100 or more varieties[lines of open-pollinated corn being sold at that time, were resistant or semi-resistant to the insect. An appeal was made to the Seed Branch, Toronto and Ottawa, to assist with developing some sort of program under the Seeds Act and Regulations to control and promote these few desirable varieties.

Arthur Bartlett and later N. D. MacKenzie were sent from Toronto to work with Ontario Dept. of Agriculture Officials, seed producer-farmers and seed merchants to develop a control system.

The desirable varieties were licensed under the Seeds Act and Regulations. The names of these varieties are listed elsewhere in this book. A pedigreed seed system

for open-pollinated corn was established under the Canadian Seed Growers' Association involving production by "Select" growers with annual field and crib inspections to be done by Seed Branch. Seed grades and labelling requirements were developed under the Seeds Act as well.

By 1937-38 demand for hybrid seed was starting to develop. The first hybrids used in the Essex-Kent areas were based on inbred lines from the University of Wisconsin as indicated elsewhere in this book.

The pedigreed seed system for open-pollinated varieties, with the addition of standards for detasseling and some other changes, was used to promote and control hybrid varieties. This system is still in use today. Seed corn grades and labelling regulations have been amended over the years as required.

Sealing the pedigreed seed (applying official tags and seals after grading a sample) was done by Inspectors until 1958-59. The volume of seed corn production had increased so much and the Department could not approve more staff or overtime hours so the system of "Authorized Seed Establishments" was developed for the seed corn industry and is in use today across Canada for most seed crops. Processors meeting specified requirements are authorized to seal Certified status seed and must report all lots sealed and official tags used to Agriculture Canada. At the same time, inspectors monitor the grading, labelling and reporting at each establishment.

In 1937-38 the Seed Branch (re-named the Plant Products Division) opened an office in Chatham with N. D. MacKenzie as the Inspector-In-Charge. W. J. Lennox was the District Supervisor for Western Ontario, based in Toronto. Staff for the Chatham office consisted of several "casual" or part-time inspectors in Kent and Essex Counties working mainly out of their own homes. In 1941 a full time secretarial postion was made available and Mrs. Jack Holmes, Blenheim, was hired. A number of the secretarial duties were somewhat typical, e.g. assisting seed growers in completing their annual applications for crop inspection, checking many field reports for errors before forwarding to the C.S.G.A., printing great numbers of official tags for open-pollinated seed corn producers and inspectors. By 1958-59 Authorized Establishments were sealing most, if not all, of the corn which made the secretary's job a bit easier.

In 1943 the Department Authorized a full time inspector position and Robert A. Sanderson was hired. At this time the area served by the Chatham office included Essex, Kent, Lambton and parts of Elgin and Middlesex Counties. The work involved inspection of feeds, fertilizers and pesticides as well as seed. N. D. MacKenzie was transferred to Toronto in 1948 and Bob Sanderson became the Inspector-In-Charge.

Occasionally, staff members from the London office assisted with work in the Chatham area. These included Keith Hillier, Wm. Molland, Reg Dodson and Arthur Erskine.

Much credit for pedigreed seed inspection work must go to the casual inspectors. Without their dedication, reliable judgement and availability on short notice, the pedigreed seed system for corn and other crops could not have functioned in this area.

The first group of inspectors included Blake McLean, Harrow (Colchester South Twp.); Gabe McFarlane, Essex (Maidstone Twp.); Jim Chittim, Chatham (Raleigh Twp.); Bruce Cumming, Dresden (Chatham Twp.); Duncan Houston, Chatham (Harwich Twp.); and Ellis Jones, Glenwood (Tilbury East Twp.). These inspectors all worked on open pollinated corn in the late 1930's and early 1940's. By about

1943 Blake McLean had been killed in a farm accident, Jim Chittim and Gabe McFarlane no longer worked for the Division. The remaining three — Cumming, Houston and Jones continued until 1958-60 and were the first casual inspectors to work on hybrid seed corn. Other people who worked at various times on corn and/or other seed crops included Archie Shanks and Bill Shanks, Wheatley; Harold McGregor, Wallaceburg; Clarence Hodgson, Forest; John Hubbard, Blenheim; Douglas Spence, Dresden; Archie McLaren, Ridgetown; Alan Fisher, Blenheim; Leo Marian, Chatham; Keith Drury, Charing Cross, and Frank Marks, Chatham.

During the 1960's and 1970's as well as the early 1980's casual staff numbers had to be increased seasonally to take care of the increased acres of hybrid corn and other crops for inspection in the tri-county area. Regrettably, space prohibits listing all of the names of these people.

Ontario Seed Corn Companies 1988

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Now It's 207 Years Ago....

Ontario Agriculture Founded 150 Years Ago

(By ERNEST GREEN, F.R. Hist. S.)

Clipping taken from Globe - October 29, 1931

Agriculture is, as it has always been, the most important industry of Ontario, yet there seems to have been general overlooking of the fact that 1931 marks the sesquicentennial of the first sowing and harvesting in this Province.

Just one hundred and fifty years ago this autumn a little group of farmers garnered from the cleared ground surrounding the barracks of Butler's Rangers at Niagara the first crops sown and cultivated by white men in the area that was to be set apart eleven years later as Upper Canada, now called Ontario. Doubtless the Indians had planted corn, pumpkins and tobacco in prehistoric times, but there is no connection between their primitive efforts and modern agriculture.

As early as 1779 there was correspondence between General Haldimand, Governor of Canada, and Lieut.-Col. Mason Bolton, then Commandant at Fort Niagara, over the suggestion that land near the fort should be put under cultivation to raise food products to supply, in part, the great demands upon the commissariat at that post. The garrison, supplemented by Butler's Corps of Rangers and other Provincial units, many hundreds of women, children, and other non-combatants driven from their homes in the old colonies by the successes of the revolutionists, and hordes of Indians, also fugitives from their ancestral homes and hunting grounds, consumed a volume of rations that taxed the transport facilities on the St. Lawrence and Lake Ontario to supply, and cost the British Government enormous sums.

A Hesitant Start.

General Halidmand thought that some grain could be grown near the fort. Colonel Bolton regarded the possibility of successful farming as very remote, and expressed fears that the Indians would resent the commencement of agriculture in the heart of their country, and might help themselves to the produce. Major (later Colonel) John Butler, Commandant of the Rangers, thought the scheme practicable. He had many experienced farmers in his corps, some of them unfit for arduous campaigning, who could be placed upon the land with advantage to all.

A range of barracks to accommodate the Rangers and their dependents had been built on the west side of the Niagara River late in 1778. The soil there appeared to be more suitable for tillage than that on the east side, and, besides, that side of the river was regarded as the territory of the Mississaugas, who were less likely to cause trouble than the Senecas, who were landlords of the east side.

From these considerations it was decided, in 1780, that some land should be placed under tillage on the west side of the river, where the cutting of timber for the Rangers' barracks had enlarged the ancient open ground or "plain." It was intended to sow wheat in the fall of 1780, but the seed from Montreal arrived too late, so the first planting did not take place until the spring of 1781. Then it was that agriculture in Ontario was founded.

Seed for First Year.

Ten bushels of spring wheat, four bushels of buckwheat, four bushels of oats, four bushels of pease and small seed, and a barrel of Indian corn constituted the allowance of seed for that first sowing. The volume of the crop harvested is not recorded, but the tone of the letters concerning it, exchanged among the military authorities, shows that the result was highly satisfactory. Arrangements were immediately made for placing a greater number of men upon the land, and for largely increasing the acreage for the next season.

While 1934 is, by common consent, the year in which the sesquicentennial of the coming of the Loyalists is to be celebrated in Ontario and other Provinces, it is worth while to note that, while 1784 was the year in which a great influx of "U.E.'s" to various parts of this Province seemed to bring it into being, there was already a settlement of consequence at Niagara, and that agriculture was a well-established industry.

The year 1931 is the real sesquicentennial anniversary of agriculture in Ontario.

Corn History In 1911 - 1912 Prize Lists

The papers written in 1947-48 by leading authorities to introduce hybrid corn to Ontario farmers, which we have presented in "Pulling Tassels" were not the only gems contained in the files kept by W. J. W. Lennox, and which we obtained through the co-operation of Ken McMorine, Bob Sanderson and other people of the Seeds Division of Agriculture Canada.

There were two Prize Lists for the Corn Shows sponsored by the Ontario Corn Growers Association — the third annual, 1911, in the Chatham Armouries, and 1912, in the Tilbury Skating Rink.

The competition classes were designed to reward those who were already interested in improving the various types of corn, and to build interest in corn by junior farmers.

There was the "Senior Department," for all types of corn, including Sweet Corn (Golden Bantam and Black Mexican), and white and red pop corn. Maximum prizes were $5.00, minimum 50 cents. The rewards for Junior Department ranged from 25 cents to $2.50. In the County classes, much of the prize money was put up by councils of Kent and Essex, ranging from $1.00 to $4.00. Prize money for the Township Classes, put up by the townships of the two counties ranged from 50 cents to $4.00. "Semi-Provincial" Classes were open to "Province of Ontario, Essex and Kent excepted." There were prizes of $2, $3 and $5 for an "Essay on Corn" open to "young men of the County of Lambton."

Of particular interest in the Chorn Show booklets were the pages of information and advertising, which are historically representative of Pre World War I agriculture in Kent and Essex. Many of the most interesting of these pages ar ephotographically reproduced in the following pages of Pulling Tassels:

PRIZE LIST FOR 1911

THE THIRD ANNUAL

ONTARIO
CORN EXHIBITION

Armouries, Chatham, Ont.

Jan. 31st, Feb. 1st, 2nd, 3rd
1911

THE PLANET PUBLISHINC HOUSE
CHATHAM, ONT.

ONTARIO CORN EXHIBITION

Under the Management of the

Ontario Corn Growers' Association

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President - - - - - J. O. DUKE, Olinda
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Superintendent Junior Department - - - J. H. Smith
Judge - - - - - - - - - Prof. L. S. Klinck

How to Prepare and Ship You Corn.

After selecting the ears for the different classes in which you choose to enter, carefully wrap each ear separately, using ordinary newspaper for this purpose. Having done this, pack them in a light, strong box; separate and carefully label each sample with your name and address and the number of the class for which the sample is intended.

The shipper's name should be placed inside as well as on the outside of the box. Exhibitors should apply to the Secretary for shipping tags.

All exhibits brought in personally by the exhibitor should be carefully wrapped to prevent shelling, and carefully labeled in the manner suggested above.

All samples will be taken charge of by the Exhibition Superintendent as soon as they reach the building.

Programme

A programme will be held during the Exhibition in a portion of the building set apart for this purpose. Nearly all subjects in connection with the different phases of growing corn will be discussed by Prof. L. S. Klinck, McDonald College; Prof. R. A. Moore, Madison, Wisconsin; Prof. G. E. Day, O. A. C., Guelph; C. C. James, Deputy Minister Agriculture, Toronto;; Dr. G. C. Creelman, O. A. C., Guelph; Prof. C. A. Zavitz, O. A. C., Guelph; W. H. Day, O. A. C., Guelph, and others.

Railroad Rates and Hotel Accommodation

Chatham can be reached over the Michigan Central, Grand Trunk, Canadian Pacific, Wabash, Pere Marquette and Chatham, Wallaceburg & Lake Erie Electric Railway.

"1. TERRITORY—From points in Canada where the lowest one-way first-class fare to Chatham does not exceed $2.50.

2. Fare—Lowest one-way first-class fare minimum 25 cents for adults and children.

3. GOING DATES AND LIMITS—Tickets good going by P.M. trains January 30, and all trains January 31, February 1, 2 and 3.

4. RETURN LIMIT—All tickets valid for return until February 4, 1911."

Chatham, Wallaceburg and Lake Erie Electric Railway will issue return fare during the four days of the show for lowest one-way fare.

Hotel Garner, $2 to $3; Hotel Sanita, $2 to $2.50; Glassford House, $1.50; Rankin House, $1.50; C. P. R. Hotel, $1.50; Merrill House, $1.50; Algonquin Hotel, $1.50; Grand Central Hotel, $1.00; Aberdeen Hotel, $1.00; Miles Hotel, $1.00; Idlewild Hotel, $1.00; Park View Hotel, $1.00; Tecumseh Horse, $1.00.

DONATIONS

The Association desires to thank the following corporations and individuals for their liberal support, which has made this exhibition and excellent Premium List possible:

City of Chatham	$250 00
Essex County Council	200 00
Kent County Council	200 00
Hiram Walker & Sons	100 00
J. A. Campbell	25 00
Imperial Bank	50 00
D. A. Gordon, Silver Trophy	50 00
Union Bank	30 00
J. A. Fletcher, Silver Cup	50 00
Tilbury East Farmers' Club	25 00
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McCoig Silver Shield	15 00
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J. O. Duke, $10.00; Chatham Wagon Co., $10.00; T. M. Taylor, $10.00; A. B. McCoig, M.P., $10.00; G. W. Sulman, M.L.A., Medal $7.00, Cash $3.00; Jas. D. Suitor, $5.00; John T. Dunlop, $5.00; Robert Gray, $5.00; Uuquhart Bros., $5.00; W. J. Hannon, $5.00; Hogan & Hoy, $5.00: Eberts & Barclay, $5.00; Edward McKerrall, $5.00; John Huston, Sr., $5.00; Dominion Bank, $5.00; Albert P. Stephens, $5.00; Chas. Austin & Co., $5.00; J. H. Glassford, $5.00; Robert Smith, $5.00; Blonde Lumber Co., $5.00; H. Malcolmson, $5.00; F. B. Stephens & Co., $10.00; Manson Campbell Co., $5.00; Hadley Lumber Co., $5.00; Geo. Stephens & Douglas, $5.00; Daily News, $5.00; Bank of Commerce, $5.00; W. S. Richards, Garner House, $10.00; Bank of Montreal, $5.00; Standard Bank, $5.00; J. C. Wanless, $5.00; Neil Watson, $5.00; A Friend, $5.00; F. Suitor, $5.00; S. Stephenson, $5.00; Samuel Glenn & Son, $5.00; Merchants Bank, $5.00; J. McCoig, $2.00; E. Mounteer, $2.00; Joseph Yott, $1.00; Thompson's Restaurant, $1.00; H. G. Glover, $1.00; G. Cowan, $1.00; D. Jordan, Tile, $5.00; J. Cornhill, tile, $5.00; West Kent Farmers' Institute, $5.00; Ed. Massey, $5.00; Wm. Drader, $5.00; Wm. Boyer, $5.00.

FARM HELP FOR ONTARIO

The continued drain of men from the agricultural districts of Older Ontario to the cities and towns and also the Western Provinces of Canada has so handicapped the Ontario farmer that he is not able to take advantage of improved conditions as a result of the increase in the price of farm produce to the extent that he otherwise would do.

That immigrants from Great Britain, who have arrived in this Province during the past twenty years, are acquiring the possession of the farms and replacing the decendants of the original pioneer settler is quite evident. That they are chiefly those who have been accustomed to farm work in the Old Land is borne out by reliable information. That a very large proportion of the young immigrants, who are annually placed on Ontario farms, do not stay there but are attracted by the allurements of the West and the cheap excursions to those Provinces, which have become an annual feature of the Canadian Railways, emphasises the importance of Ontario farmers providing houses for their farm help thus ensuring a more permanent class than can otherwise be obtained.

Farmers, who can accommodate men with families, should make early application to The Ontario Government Bureau of Colonization so that arrangements can be made for securing the class of help desired and have them here early next Spring.

The Department of Agriculture are making special efforts to secure desirable farm help from the agricultural districts of England, Ireland and Scotland for the coming year and hope to be able to supply the demand here. Applications for single men will also be promptly filled, in so far as possible, in the order in which applications are received.

Information, literature, etc., regarding Northern Ontario will be forwarded to all applying for same. Also Certificates, which will secure for the holder a special colonization rate of one and two-third cents per mile and a proportionate rate for settlers' effects from points in Old Ontario to points in Northern Ontario on all the leading Railways, will be supplied to those giving satisfactory evidence of their intention to secure land for agricultural purposes in Northern Ontario. Address all communications to

The Director of Colonization,
Parliament Buildings, Toronto.

HON. JAS. S. DUFF, Minister of Agriculture.

The Ontario Agricultural College

Guelph, - Canada

THE BOYS' RESIDENCE AND MAIN BUILING.

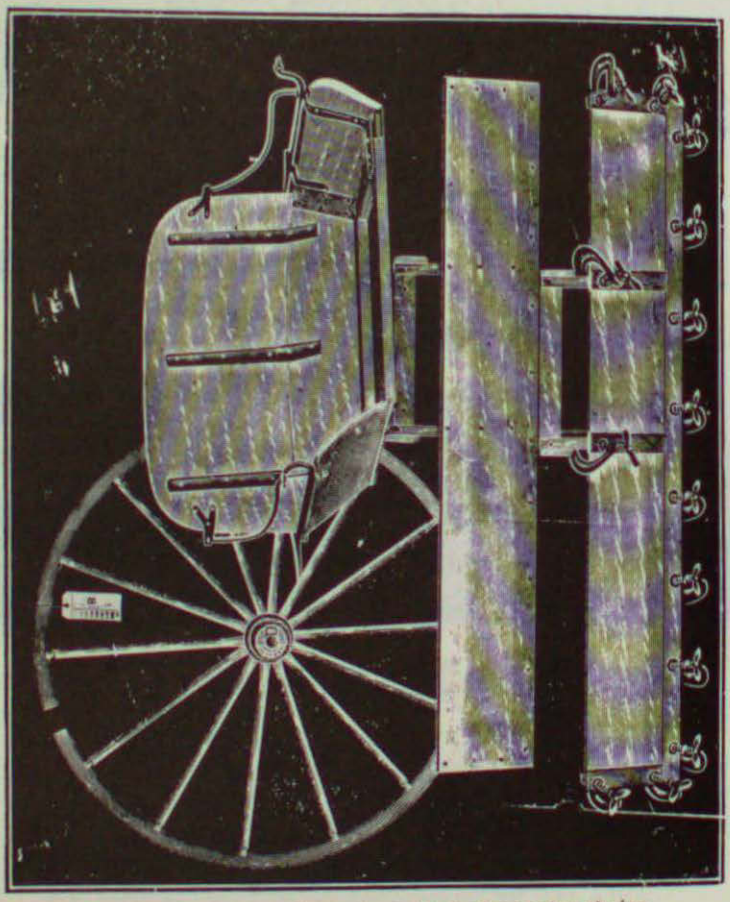
Admits as students only those who have had practical farm experience. There are two courses for young men: one of two years, leading to an Associate Diploma, and covering the practical details of the best methods of farm practice; and the second, a four years' course, leading to a degree of a B.S.A. from Toronto University.

and remain in attendance until the 15th of April. *SEND TO-DAY FOR A CALENDAR.* It will be mailed free on application to

C. C. CREELMAN,

President

R. MARTIN & SON'S CARRIAGE WORKS



Shows the way our pannels are clamped to the frame when glueing

WHY OUR BUGGIES ARE THE BEST ON THE MARKET

They are properly made and of A-1 stock only.
No piece work. "Day work only."
Panels, white ash, with steel corners.
Frames, white ash
Gears, hickory
Wheels, B grade with a screw on each side of every spoke.
Top, 36 oz. rubber duck with white ash bows.
Painting, oil and lead.
All wheels soaked in boiling hot linseed oil before putting the tires on thereby making them impervious to water, they will not require tires reset for years.

We will take pleasure in demonstrating to any of the members of the Corn Association our methods, and would invite them to call at our shop

SHOP
CORNER WELLINGTON AND ADELAIDE STS.
CHATHAM

POTASH MEANS PROFIT

To the Progressive Farmer, Market Gardener and Orchardist

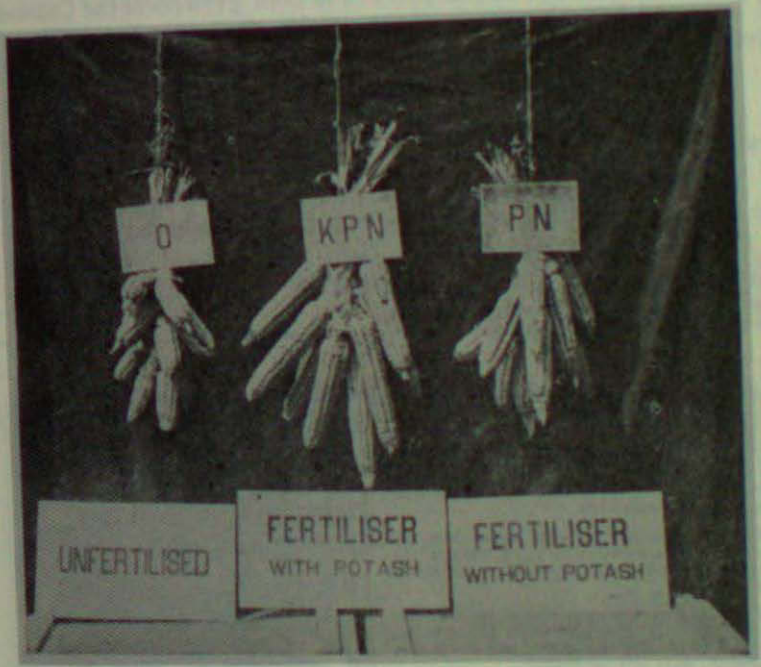
EXPERIMENT CONDUCTED ON "SWEET CORN" IN 1906 BY

W. W. HILLBORN, Leamington, Ontario

Plot I.
Unfertilized

Plot II.
Complete Fertilizer—
Nitrogen, Phosphoric Acid
and POTASH

Plot III.
Incomplete Fertilizer
Nitrogen and Phosphoric
Acid only



This photo shows 10 average cobs from each plot. In Mr. Hillborn's estimation one of the most important features of this experiment was that the corn on plot No. 2, which received a complete fertilizer containing POTASH, matured much earlier than that on the other plots. From Plot No. 1 (unfertilized), none of the cobs were marketable.

Write us on all matters pertaining to the cultivation of the soil and get copies of our free bulletins, including: "FARMERS COMPANION," "ARTIFICIAL FERTILIZERS," "RECORDS OF FERTILIZER EXPERIMENTS," etc., etc."

Dominion Agricultural Offices of the Potash Syndicate

1102-1105 Temple Building, Toronto

A Most Important Resolution

TO BE CONSIDERED BY THE CONVENTION

Let no corn grower fail to make the matter a personal one.

The resolution should be carried unanimously.

WHEREAS this convention of the corn growers of the Counties of Kent and Essex are fairly of the opinion that none but fertile and productive ears should be selected for seed corn.

AND WHEREAS it takes 11000 grains of corn to plant an acre.

AND WHEREAS a Drop Planter will not deposit over 8000 grains in an acre if uneven kernels are used.

RESOLVED that irregular shaped kernels are as detrimental to the successful planting of a field of corn as infertile seed.

AND FURTHER, that we heartily endorse the Manson Campbell Corn Grader as the best mechanical means of sorting seed corn to get over 99½ per cent perfect planting.

At Ames, Iowa, Experimental farm, previous to 1907, fifteen girls were engaged to hand pick the seed corn. Since then the Chatham Corn Grader does the work better and faster than they ever dreamed it could be done.

Four tests were made, each with 4000 grains, enough to plant 1000 hills.

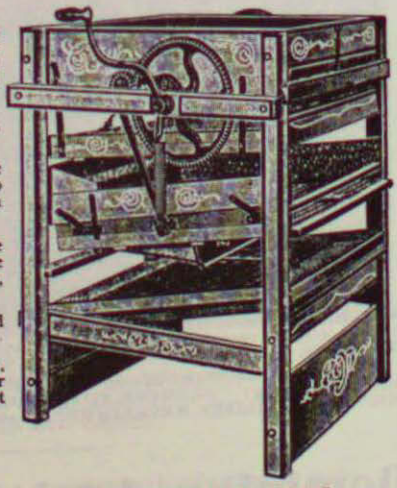
The first 4000 grains were taken from the whole ear. When 1000 hills were tripped, 1400 grains—35 per cent., over one-third, remained in the machine.

The next 4000 grains were taken from the centre of the cob, tips and butts rejected, the machine was tripped 1000 times, and 800 grains, 20 per cent., were left unplanted.

The hand-picked seed was taken next, and 200 grains—5 per cent., were left unplanted.

The Chatham Graded corn was taken last, and 15 grains, or less than one-half of one per cent., has not been dropped by the machine. It scored 99½ per cent. perfect.

When at the Convention see this Corn Grader, or write for particulars



THE CHATHAM CORN GRADER

The Manson Campbell Co. Limited

CHATHAM, ONT.

A view in one of our warehouses showing fencing ready for the Corn Growers of Ontario in the season of 1911.

PRIZE LIST FOR 1912

FOURTH ANNUAL

ONTARIO
CORN EXHIBITION

UNDER THE AUSPICIES OF THE

Ontario Corn Grower's Association

Skating Rink, Tilbury, Ont.

Jan. 30 and 31, Feb 1 and 2

1912

THE PLANET PUBLISHING HOUSE
CHATHAM, ONT.

Ontario Corn Exhibition

Under the Management of the

Ontario Corn Growers' Association

OFFICERS

Honorary President	J. O. Duke, Ruthven
President	J. H. Williams, Fletcher
1st Vice-President	Byron Robinson, Wheatley
2nd Vice-President	J. B. Rhodes, Chatham
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John Arner, Arner.
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Ed. Smith, Ridgetown.
Alex. St. Louis, Walkerville.
L. D. Hankenson, Grovesend.
K. J. Wilson, Essex.
Jose Marentette, Jackson's Corners.

Exhibition Superintendent	H. Smith
Chairman Membership Committee	J. H. Williams
Superintendent Junior Department	J. H. Smith
Judge	Prof. L. S. Klinck

Rules Governing Exhibition

1. Exhibitors in Senior Classes must be paid up members of the Ontario Corn Growers' Association. Membership fee is 50 cents per annum, the year beginning February, 1911, and ending February 1st, 1912.

2. Exhibitors in Junior Classes are not required to become members of the Ontario Corn Growers' Association. Any boy or girl sixteen years of age or under is eligible for entry in Classes in Junior Department.

3. No exhibitor can make more than one entry in any class, but he may enter in each class open to him.

4. A separate sample must be provided for each entry.

5. No special entry is required for Sweepstakes.

6. The Exhibitor is not required to atend the Exhibition.

7. All Exhibits must be at the Exhibition Building not later than 6 p. m. January 30th, 1912. Entries sent in should be addressed to Ontario Corn Exhibition, Tilbury.

8. Transportation charges to Tilbury on all Exhibits will be paid by the Ontario Corn Growers' Association. Arrangements will be made whenever possible, however, to have the exhibits brought to some central point, and shipped to Tilburp in bulk.

9. Entries close Saturday, January 27th. All entries must be made on printed forms accompanying the Prize List. The forms are to be signed and filled out by the Exhibitor, and sent to W. E. J. Edwards, Secretary, Dept, of Agriculture, Essex, before January 27th. Put express office on entry sheet.

10. In cases where the intending Exhibitor is not a member of the Ontario Corn Growers' Association, the membership fee (50 cents) must be forwarded with entry.

11. All corn exhibited must have been grown by the Exhibitor during 1911. A statutory declaration to this effect may be required from each exhibitor.

12. The Executive Committee of the Exhibition, through the Exhibition Committee, reserves the right to reject any entry, and shall control the arrangement and removal of all exhibits.

13. All exhibits of corn must be made in the ear.

14. Awards will not be made in cases where the exhibit, in the opinion of the judges, is not of sufficient quality to merit a prize.

15. Protests made in writing will be received by the Association Secretary up till noon, February 2nd, and will be considered by the Executive Committee, their decisions to be final.

16. Premiums will be paid by the Treasurer by check, money order or otherwise, as soon as possible after the Show is over.

17. Any person receiving prizes to the amount of 50 cents or upwards shall leave 50 cents with the Treasurer as membership fee for the year 1912-1913, unless the exhibitor produces a satisfactory receipt showing that he has paid his membership for that year.

18. The Association will not be responsible for loss or damage to any exhibit.

19. All corn exhibited becomes the property of the Ontario Corn Growers' Association, to be used for advertising purposes, unless the Exhibitor states on his entry form that he wishes his corn returned, when it will be returned by freight at his expense. Extra care will be taken to return this corn.

20. The Association will not be responsible for special or Municipal prizes donated which have not been paid over to the Treasurer by January 31, 1912.

21. In case the finances will not warrant the payment of the prizes in full, the Association reserves the right to pay them on a percentage basis.

DONATIONS.

The Association desire to thank the following corporations and individuals for their liberal support, which has made this exhibition and excellent Premium List possible.

Essex County Council	$200 00
Kent County Council	$200 00
Hiram Walker & Sons	100 00
Imperial Bank	50 00
D. A. Gordon, M. P., Silver Trophy	50 00
Union Bank	30 00
J. A. Fletcher,Silver Cup	50 00
Tilbury East Farmer's Club	25 00
Tilbury East Farmers' Club Trophy	40 00
Chatham Township	40 00
Raleigh Township	25 00
Tilbury East Township	50 00
Romney Township	25 00
Harwich Township	25 00
Dover Township	25 00
Maidstone Township	25 00
Sandwich East Township	25 00
Tilbury North Township	25 00
Tilbury West Township	25 00
Rochester Township	25 00
Mersea Township	25 00
Sandwich South Township	25 00
Colchester North Township	25 00
Gosfield South Township	25 00
Orford Township	20 00
Malden Township	20 00
Colchester South Township	20 00
Sandwich West Township	15 00
Gosfield North Township	15 00
A. B. McCoig, M. P., Silver Shield	15 00
oVonGunten Silver Shield	10 00
G. W. Sulman, M. P. P.	10 00
J. H. Duke	10 00
J. H. Williams	7 50
Canadian Gates Co., Guelph	5 00
C. J. Wilcox, M. P.	5 00
Canadian Ingot & Iron Culvert Co., Guelph	5 00
Enos McCausland	5 00
Dr. Anderson, M. P.P.	5 00
F. W. Charteris	5 00
A. H. Clark, M. P.	5 00
J. A. Campbell	5 00
J.ohn Miller	4 00
Tilbury Times	2 00
C. E. Naylor	5 00
A. B. McCoig, M. P.	5 00
Hon. J. O. Reaume	5 00
West Kent Farmers' Institute	

YOUNG MAN

Before deciding to leave Ontario consider well the opportunities which she offers on every hand. Consider the various types of soils capable of producing all the products between No. 1 hard spring wheat and the tender fruits such as peaches, apricots and also early vegetables and melons. Consider the equable climate possessed by the more southerly portions, while that of the northerly parts is to be preferred before many others in Canada. Consider carefully the transportation facilities offered for the marketing of these various products, both by rail and by water, and remember that Ontario is centrally situated in North America, practically surrounded by the greatest inland waterways of the world. Remember that suburban lines are being projected into various districts and every day surveys are being made for other new ones. Also remember that competition between various transportation companies is keener here than in some places. The greatest home market in Canada is in Ontario; the great manufacturing centres are aither in the Province or just on the border. New Ontario offers one of the best growing home markets on the continent. Ontario offers the greatest inducements to the upbuilding of large centres—cheap power.

She is a complete and self-sustaining Province. The southerly parts can supply the tender products in abundance; the more northerly districts can furnish the grains, meats, dairy products, horses, and the rough fodders. Internal trade is bound to be the outcome—the north will be bound to the south by an independence impossible in other parts of our Dominion. The south will also demand the lumber of the north, besides claiming a share in the development of the rich mineral lands.

Ontario's soils cannot be outclassed elsewhere in America. They are easily cultivated, easily fertilized, easily drained and easily obtained. Production per acre is higher in Ontario than in other parts. Intensive agriculture is the dominant note. Increased returns are the result. Thossands of acres are still undeveloped—these offer greater opportunities than do the majority of the far away lands.

Agricultural organiation ic finding its greatest development in Ontario. Remember, this means larger prices and a better reputation. Don't leave when the boom is on, when the people are just awakening. Remember, you count ONE in the development of these untold resources.

Remember that wealth is only part—Ontario offers the greatest social advantages: Telephones, Rural Mail, Good Roads and Public Libraries. Remember, Ontario's possibilities—do not procrastinate, but consider and

For further information write

Director of Colonization,
Parliament Buildings.

HON. JAS. S. DUFF, Minister of Agriculture

ARGUMENTS IN FAVOR OF HOME MIXING OF FERTILISERS

From "Artificial Fertilizers, Their Nature and Use."
By B. Leslie Emslie, P.A.S.I., F.C.S., C.D.A.

1. ECONOMY: Usually at least 25% is saved in purchasing the separate ingredients. There is no useless "Filler" to add to the freight charges; there is no duty on the separate ingredients, whereas the farmer must bear the cost of the duty imposed on the ready-mixed fertilizers when these are imported from the United States.
2. ASSURANCE: The farmer who purchases the separate ingredients, especially if he insists on getting the goods in the original sacks, knows exactly what he is getting for his money; whereas the purchase of a ready-mixed brand is more often like buying a "pig in a sack."
3. ADAPTATION. With a stock of the separate ingredients on hand, the farmer is enabled to make up his mixtures according to prescriptions which he has prepared to suit the varying requirements of the different crops and soil.

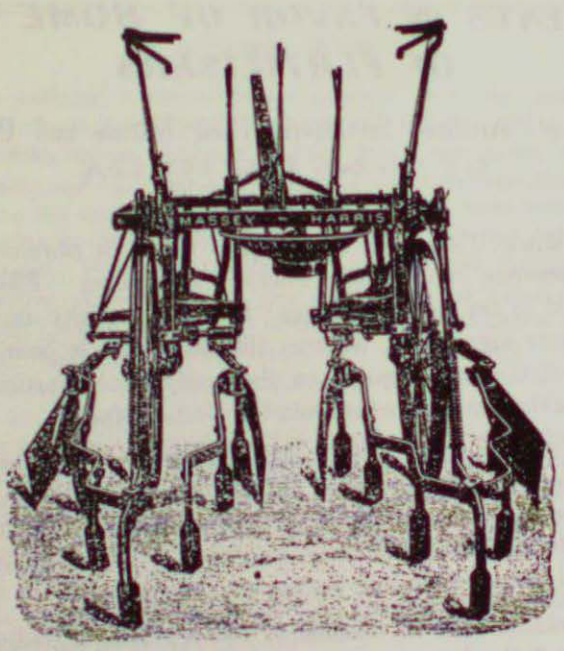
From this short resumé each farmer may judge whether, in his case, it will pay him to purchase the separate ingredients in preference to the ready-mixed goods.

Copies of this and other pamphlets may be obtained on application to

THE DOMINION AGRICULTURAL OFFICES OF

THE POTASH SYNDICATE

1102-5-6 Temple Building, TORONTO



CULTIVATE YOUR CORN WITH A

Massey-Harris Two-Row Cultivator

IT DOES THE WORK ECONOMICALLY AND SATISFACTORILY AND IS EASILY OPERATED. SUCCESSFULLY CULTIVATES CROOKED ROWS AND ROWS OF VARYING WIDTHS

SEE THE

MASSEY - HARRIS AGENT

ANNUAL REPORT

OF THE

ONTARIO

Corn Growers' Association

1908.

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
Printed by L. K. CAMERON, Printer to the King's Most Excellent Majesty
1909

To the Honourable JOHN MORISON GIBSON, K.C., LL.D., etc., etc., etc.,

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the honour to present the Annual Report of the Ontario Corn Growers' Association.

Respectfully submitted,

JAMES S. DUFF,

Minister of Agriculture.

DEPARTMENT OF AGRICULTURE,
TORONTO, 1909.

OFFICERS 1909-1910.

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1st Vice-President.....H. SMITH, Ruthven.
2nd Vice-President.....P. MARENTETTE, Windsor.
Secretary and Editor.....A. McKENNEY, Essex.
Treasurer.....J. H. COATSWORTH, Ruthven.

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Allan, Leonard	Kingsville.
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Arner, John.	Arner.
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Batten, Thos.	Essex.
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Bjorck, M. A. F. W.	Ruthven.
Black, Horris.	Chatham.
Bolton, P. G.	Ruthven.
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Brown, A. T.	Chatham.
Brown, B.	Comber.
Brown, F. C.	Amherstburg.
Brown, Jos.	Valetta.
Brown, Norman	Valetta.
Bruner, Amon.	Kingsville.
Brush, Chas.	Amherstburg.
Brush, F. G.	Amherstburg.
Brush, Ross	Amherstburg.
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Chalmers, David.	Leamington.
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Chinnick, Jas. P.	Chatham.
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Clarke, Thos.	Kingsville.
Clements, John H.	Chatham.
Coatsworth, A.	Ruthven.
Coatsworth, G. W.	Kingsville.
Coatsworth, Harry	Ruthven.
Coatsworth, Hugh	Kingsville.
Coghill, George.	Kingsville.
Cook, Morley.	Blytheswood.
Cooper, J.	Fletcher.
Copeland, Wm.	Kingsville.
Corlett, Elgin.	Olinda.

Name.	P. O. Address.
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Coutts, W.	Tilbury.
Cowan, W.	Essex.
Coyle, Patrick	Vereker.
Crawford, W. C.	Tilbury.
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Crozier, Wm.	Puce.
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Dalton, Wm.	Kingsville.
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Dolson, F. A.	Chatham.
Dolson, W. J.	Chatham.
Douglas, R. D.	Blytheswood.
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Elford, Wm	Elford.
Elli-, Henry.	Essex.
Ellis, Henry.	Leamington.
Ellis, Robt.	Edgar's Mills.
Ellis, Roy.	Essex.
Ellis, S. J.	Essex.
Ellis, Thos.	Essex.
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Fletcher, David.	Fletcher.
Fletcher, J. A.	Valetta.
Fletcher, J. E.	Valetta.
Fletcher, Robt.	Valetta.
Fox, Adolphus.	Ruthven.
Fox, Geo.	Ruthven.
Fox, Gordon.	Ruthven.
Fox, Philip.	Leamington.
Fox, W. J.	Blytheswood.
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Grant, Robt.	Valetta.
Grenier, Hormidas.	Stoney Point.
Gunning, A.	Ruthven.
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Hankinson, Leonard.	Grovesend.
Harris, Ellis	Amherstburg.
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Hedrick, Wm.	South Woodslee.
Hicks, J. A.	Essex.
Hill, W. W.	Ruscomb.

LIST OF MEMBERS.—*Continued*

Name.	P. O. Address.
Hillman, Manson	Leamington.
Hillman, Warden K.	Leamington.
Holmes, Geo.	Fletcher.
Hope, Jas.	Blytheswood.
Hope, Wm.	Blytheswood.
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Keown, Wm.	Essex.
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Knister, J. W.	Ruscomb.
Knister, R. W.	Ruscomb.
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Laidlaw, Jas.	Fletcher.
Laing, Wm.	Essex.
Laithwaite, A.	Ruthven.
Langlois, Dolphis	Tecumseh.
Leak, J. T.	Essex.
Little, W. A.	Chatham.
Longmore, J. R.	Chatham.
Longmore, Wm.	Chatham.
Lonsbury, Geo.	North Ridge.
Loops, Thos.	Fletcher.
Loucks, G. F.	Essex.
McBeth, John	Elford.
McCausland, Enos	Essex.
McCreery, John	Essex.
McGee, F. F.	Gesto.
McGee, Franklin	Amherstburg.
McGeachy, E. C.	Thamesville.
McGeachy, N. A. & Sons.	Chatham.
McGorman, W. B.	Kingsville.
McGregor, J.	Windsor.
McGregor, Jas.	Tilbury.
McGregor, W. C.	Tilbury.
McHardy, John	Merlin.
McHugh, Frank	Essex.
McKenney, A.	Essex.
McKinlay, M. A.	Tilbury.
McMullin, Willis	Blytheswood.
McNeillage, Wm.	Eberts.
McPharlin, Ed. & Son	Essex.
Mailloux, Henry	St. Joachim.
Malenfurt, Alfred	Edgar's Mills.
Malott, Gordon	Quinn.
Malott, Leonard	Kingsville.
Mancell, Geo.	Fletcher.
Mancell, W. H.	Fletcher.
Marentette, P.	Windsor.
Market, Wm. A.	Woodslee.
Marks, E.	Cottam.
Martin, Jas.	Amherstburg.
Martin, John E.	North Malden.
Masse, Joseph	Stoney Point.
Mather, Ralph	Dearbrook.
Matthew, Harry	Kingsville.
Maynard, William	Edgar's Mills.
Mickle, Chas.	Amherstburg.
Mickle, Elee A.	Amherstburg.
Mickle, Frederick	Amherstburg.
Miner, John	Kingsville.
Moffatt, Wm.	Valetta.
Naylor, C. E.	Essex.
Nesbitt, W. J.	Essex.
Neville, Colin	Ruthven.
Newman, J. E.	Fletcher.
Niece, Harold	Edgar's Mills.
Noble, Howard	Leamington.
Oakley, S. K.	Edgar's Mills.
O'Neil, E. J.	Paquette.
O'Neil, F.	Oldcastle.
Ong, LeRoy A.	Amherstburg.
Orton, Geo. R.	Olinda.
Ouellette, Alvin	Walkerville.
Oxley, Jas.	Kingsville.
Palmer, L. C.	Kingsville.
Park, E. L.	Essex.
Parry, Robt.	Chatham.
Passinault, Denis	St. Joachim.
Peterson, Josiah	Ruthven.
Peterson, Nelson	Ruthven.
Phibbs, K.	Blytheswood.
Phillips, Thos.	Essex.
Pierce, John	Essex.
Pierce, John	Kingsville.
Pierce, John P.	Staples.
Pinkerton, Ralph	Essex.
Plant, Ed.	Woodslee.
Quenneville, Eli	St. Joachim.
Quick, C.	Pelee Island.
Quick, C.	Scudder.
Reaume, Chas.	Fletcher.
Reed, Wesley	Blytheswood.
Reid, Robt. H.	Blytheswood.
Rhodes, C.	Chatham.
Rhodes, J. B.	Chatham.
Roadhouse, John	Gesto.
Robinson, Jos.	Essex.
Rogers, R.	Kingsville.
Ross, J. C.	Leamington.
St. Louis, Aug.	Pillette Corners.
St. Louis, Wm. A.	Walkerville.
Sales, Sam.	Merlin.
Sanford, Wm.	Kingsville.
Scratch, Sam.	Kingsville.

LIST OF MEMBERS.— *Concluded.*

Name.	P.O. Address.
Scratch, Walter C.	Kingsville.
Shadd, Wm.	Fletcher.
Sheppard, Jas.	Cottam.
Shreve, A. S.	Chatham.
Shreve, W. J.	Chatham.
Simmons, M. D.	Ruthven.
Sinclair, John.	Fletcher.
Slote, T. S.	Essex.
Smart, J. H.	Kingsville.
Smith, B. A.	Ruthven.
Smith, Harry.	Ruthven.
Smith, J. W.	Stewart.
Soles, J. T.	Tilbury.
Souter, Frank.	Chatham.
Spencer, J.	Kingsville.
Stacey, Jas.	Valetta.
Stevenson, Peter.	Fletcher.
Suitor, Bruce.	Chatham.
Suitor, Samuel.	Chatham.
Sunderland, Wm.	North Malden.
Sylvestre, Steven.	St. Joachim.
Taylor, A. D.	Kingsville.
Taylor, Archie.	Essex.
Taylor, R. J.	Essex.
Thomas, J. C.	Blytheswood.
Thomas, Newton.	Essex.
Tisdelle, Alphonse	Tilbury.
Trudell, W. A.	Tilbury.
Tyhurst, E.	Leamington.
Tyhurst, John	Leamington.
Tyhurst, Murray.	Leamington.
Tyhurst, R.	Leamington.
Ulch, Gordon.	Arner.
Upcott, Wm.	Leamington.
Ure, David.	North Pelton.
Ure, David E.	North Pelton.
Ure, W. D.	Fair Play.
Ure, Wm.	North Pelton.
Wallace, John	Ruscomb.
Waters, Thos.	Amherstburg.
White, Jesse.	Cottam.
Whitney, Joel.	Cottam.
Wigle, Burwell.	Ruthven.
Wigle, Herbert.	Essex.
Wigle, Hugh.	Essex.
Wigle, Leonard.	Ruthven.
Wigle, Marcellus.	Kingsville.
Wigle, P. J.	Kingsville.
Wigle, Thorfin.	Kingsville.
Wigle, Z.	Ruthven.
Willey, Jas.	Ruthven.
Williams, J. H	Fletcher.
Williams, Lewis.	Cottam.
Wilson, Arthur.	Essex.
Wilson, J. H.	Essex.
Wilson, John.	Essex.
Wilson, K. J.	Essex.
Wilcox, John.	South Woodslee.
Wismer, A. E.	Essex.
Wismer, Enos E.	Essex.
Wolfe, Sam.	Albuna.
Woodbridge, Wm.	Kingsville.
Woods, Amos.	Amherstburg.
Young, G. A.	London, 58 Edward St.

CONSTITUTION.

I. This organization shall be known as the Ontario Corn Growers' Association. The term Corn may take the Continental interpretation meaning, "all grains," by a two-thirds vote at any annual meeting.

II. The objects of this Association shall be:

1. To advance the interests of Corn Growers in securing better methods of selecting and caring for Seed Corn.
2. The improvement and development of varieties of Seed Corn.
3. To encourage better and more thorough methods of cultivation.
4. To hold an Annual Convention and Exhibition, for instruction in corn growing and judging.
5. To issue certificates of qualification to expert judges of corn.
6. To publish for the benefit of its members all matters of interest pertaining to corn.
7. To aid in the organization of local clubs for the study and improvement of corn.

III. The membership of this Association is open to anyone interested in corn.

IV. The membership fee shall be 50 cents annually.

V. The officers of this Association shall consist of a President, 1st Vice-President, 2nd Vice-President, a Secretary and Treasurer, and a Director may also be elected from each municipality in the counties where corn is grown. The President, Vice-President, Secretary and Treasurer shall constitute the Executive Committee.

VI. The annual meeting for the election of officers and transaction of other business shall be held during the Annual Convention and Exhibition.

VII. A quorum for the transaction of business shall not be less than twenty members.

VIII. This Constitution may be amended at any regular meeting by two-thirds vote of the members present.

IX. At the annual meeting of the Association three judges shall be appointed by the President, whose duty it shall be to instruct the Secretary to issue certificates to any members of this Association who may pass the required examination as expert judges of corn.

X. The arrangement, installation, and judging of all exhibits made through this Association shall be conducted by Committees, appointed by the President, and approved by the Executive Committee.

BY-LAWS

1. It shall be the duty of the President to preside at all meetings of the Association, to countersign all orders on the Treasurer, and to appoint all Committees, unless otherwise provided for.

2. The Vice-President shall preside at all meetings in the absence of the President.

3. The Secretary shall keep a record of all proceedings at the meetings, conduct correspondence, issue orders for payment of expenses, when so directed by the Executive Committee of the Association.

4. He shall receive all moneys due the Association, and he shall make a full report at the annual meeting of all moneys collected or expended.

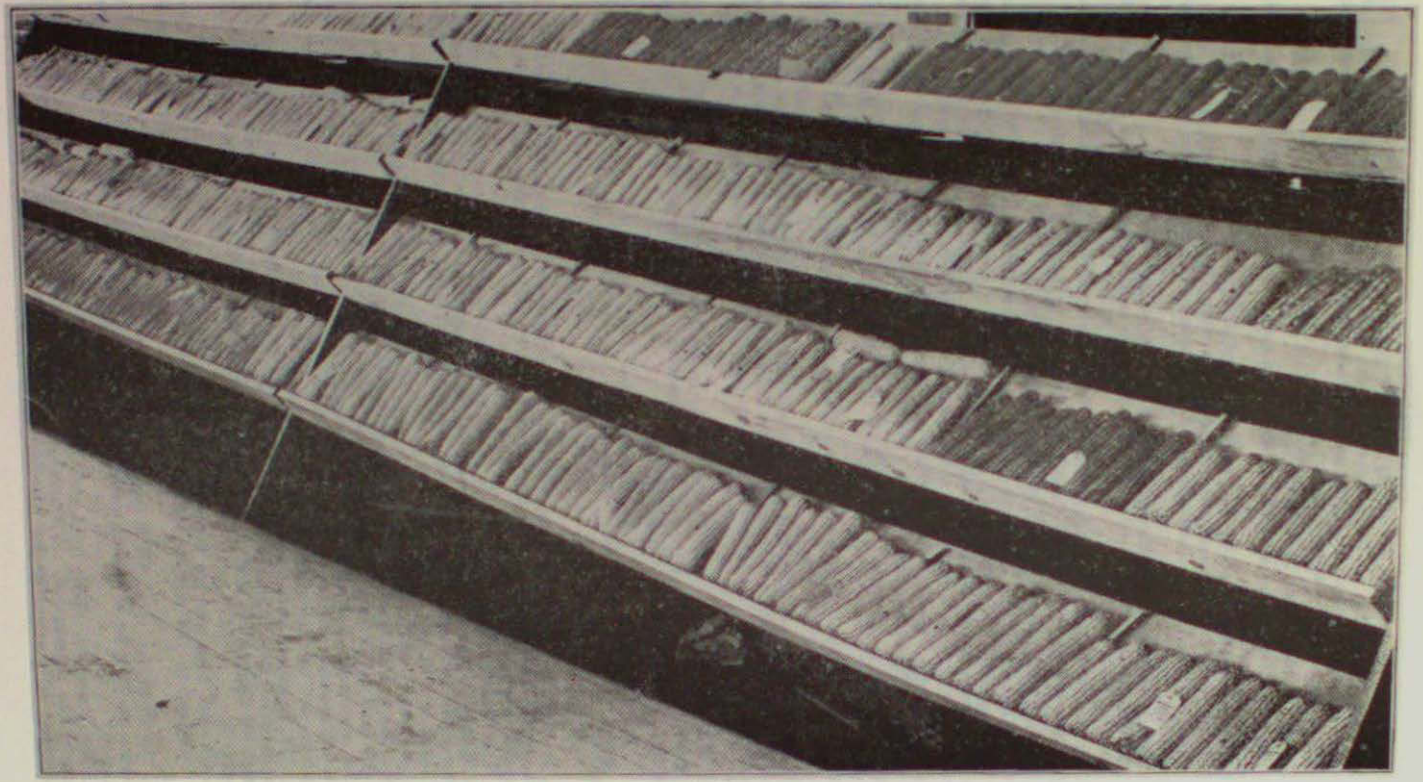
5. He shall notify in writing, all members of the time, place and object or regular or called meetings, at least two weeks before the time of meeting. He shall turn over to his successor all books, papers, or money, or other property belonging to the Association, and he shall make a full report at the annual meeting.

6. The Treasurer shall receive all money from the Secretary, and shall pay all orders countersigned by the President, and Secretary, or order of the Association, or Executive Committee, and he shall make a full report of all money received and expended.

7. He shall turn over to his successor all books, papers, moneys, and other property belonging to the Association, and he shall make a full report at the annual meeting.

8. The President may call a meeting at any time, by giving proper notice, and shall call a meeting on a written request signed by not less than ten members of the Association.

9. The Executive shall have full power to fill all vacancies, shall audit the accounts of the Association, shall arrange the program for the annual meeting, and shall transact all business of the Association.



Method of displaying Corn at the Essex Corn Show, 1909.

Ontario Corn Growers' Association.

INTRODUCTION.

The Ontario Corn Growers' Association is an organization of farmers, interested in the development and study of corn. The organization was effected for the purpose of extending the area and increasing the yield of well matured corn in the Province of Ontario. With this object in view we are considering the following:

1. Soil Conditions. Want of fertility in many sections is the cause of low yields of both mature corn and fodder. Lack of drainage, however, plays a more important part in corn production than even lack of fertility. An investigation of soil conditions in Western Ontario brings out the fact that a very small percentage of the corn land is underdrained. Early maturity is one of the most essential features of corn growing in Ontario. This is influenced largely by proper drainage. It is the intention of the Association to institute a vigorous drainage campaign.

2. In order to have good corn, it is necessary to have good seed. It will be the aim of the Association by means of Corn Exhibitions, Corn Judging Classes, and, by organizing Corn Clubs in different sections of the country, to stimulate a greater interest in the necessity for better seed corn.

3. Cultivation is one of the most important phases in the production of a good yield of corn. Cultivation is necessary to keep down weeds, and to conserve soil moisture during a dry season. Deep cultivation at the time the ears are setting has done much damage to the corn crop. Therefore the kinds of implements used, and the methods of cultivation, will be given consideration by the Association.

4. Methods of harvesting, and storing seed corn is another side of the question worth considering. The method of selecting seed corn from the crib in the spring is a prevalent one, and has been responsible for many poor stands of corn.

5. Too many varieties of corn are grown. In every section there are one or two outstanding varieties. All others should be discarded, and only those grown which give the best results. An effort will be made to encourage the growth of suitable varieties.

6. The exhibition of corn at all fall fairs and exhibitions will be encouraged in order to acquaint the masses with the leading varieties and types of corn.

We firmly believe that corn is the most important cereal grown upon the farm, and that, if it received the same amount of systematic energy and enterprise given to the other industries, equally good results would be obtained.

We have organized to make a thorough systematic study of the corn industry in Ontario, and earnestly solicit the assistance of everyone interested in this great cereal.

Essex, July, 1909.

A. McKENNEY,
Secretary.

ADDRESS AT ESSEX.

By T. S. Biggar, Walkerville.

The subject assigned me, "What have the Corn Growers' Associations done elsewhere?" is one which should be of great interest to the corn growers in Ontario. Certainly if no good has been derived from these organizations where they have been tried for some time, then there is not much use in trying one here.

Ten years ago organizations to promote more and better corn growing were unheard of among corn growers. But to-day we find that we have the national, the state, the county, and the township organizations all over the corn belt, and in states that we do not usually count as corn states. What have they done? Rather what have they not done? I hardly know where to begin.

Last winter I was down in Lasalle County, Illinois, visiting a cousin. The second night I was there he wanted me to go to a neighbor's to a little meeting. I asked him what it was to be. He went on to tell how they met at different homes every week and had little programs treating on farming. The mothers and daughters had papers and discussions on domestic science. The fathers and sons took up the soil, crops, and farm work.

I remember one of the ladies read a paper telling of some of the changes these discussions had brought about in her home. She used to bring the water from the well, "ten thousand pails or more" each day. Now they had a water system whereby they had hot and cold water in the house. Not only in the house but at the barn, now the stock could be watered in the winter without turning them out doors and driving them to a tank or a hole in the ground where a place had been chopped through the ice big enough for one animal to drink at a time.

Another thing they had proven was that you could not get meals on time with wood that was so green and dozy that it would not burn in—well, "a county where they will never have horse races on the ice." Again, it was a pretty poor farm that could not support a horse and rig for the mothers and daughters to use whenever they wanted it, not just when it could not be used on the farm.

The same night they also had a seed judging contest. It was done by the boys and girls with the latest and most improved score card—boys whose father and grandfathers had grown corn on the Illinois river bottom lands.

Boys and girls, back in the time when their fathers and grandfathers used to leave their work to go and hear the great Lincoln and Douglas debates, could have grown better corn than Illinois grows to-day. Her soil still had its virgin richness, but to-day because of soil-robbing more attention has to be paid to crop rotation and seed selection. That is what they are doing. They are obliged to and so are we. Their soil was far better perhaps by nature than ours, but because they have grown bigger crops they have robbed it faster.

The boys and girls are growing up better farmers and farmers' wives than were their ancestors. If a boy cannot truthfully say that he is a better farmer than his father was at the same age, then there is something wrong. Either the boy has not improved his opportunities, or else his parents have not done the fair thing by him. The boys and girls of to-day are the men and women of to-morrow.

When I see how little chance some farmers are giving their children, I often wonder if they do not do it to keep the children ignorant of the parents' faults in getting poor crops, and robbing the farm of their heritage for the little they get.

If the little local corn organizations help educate the children, help make farming more interesting, make the homes more pleasant for Illinois farmers, why will it not for Canadian farmers? It will if taken hold of in the right way.

Last December, the greatest corn show ever known was held in Omaha, Nebraska. Over $75,000 in prizes were put up for the best that could be found in the way of corn. $75,000 in prizes for corn at one show! Twenty years ago no one would have dreamed that such a thing was possible.

What has made it possible to-day? Corn Growers' Associations. First, the experimental stations have shown the farmers where they were making mistakes. Then the farmers commenced to organize so as to better co-operate in order to get better seed, and till the soil more efficiently. This brought about greater yields. Furthermore, they studied the markets so as to get higher prices for their product.

Local organizations began to spring up. Then the state and national associations. The railroads, elevator men, live stock dealers, manufacturers, real estate men, and the financial world in general were not slow to see what the movement meant. They were not slow to see which side their bread was buttered on. They knew that more corn meant more money. So they have co-operated with the farmer to help build up these shows.

Now, gentlemen, I want to bring something to you in closing, that I know of personally, as it happened in my own home state, Wisconsin.

Southern Wisconsin, as you know, is in about the same latitude as we are here in Essex and Kent counties. So I take it that if good results could be obtained there, they can here, and therefore they are of interest to us.

In days gone by the farmers in southern Wisconsin had been accustomed to purchasing their seed corn according to the scoop shovel method, and had no difficulty in finding parties ready to furnish most any variety of corn under the so-called scoop shovel system. The effects were plainly noticeable. The ear marks were in every field. Hundreds of scrub varieties were sent into the state to lower the yield per acre.

There came an awakening. Wisconsin caught the inspiration from her sister states, Illinois, Iowa, and Indiana, and a remedy was looked for. It became evident that if Wisconsin wished to rank or compete with corn growing states it would be necessary to establish Wisconsin bred corn, true Wisconsin corn within its limits, and throw the energy of the farmers upon three or four pure-bred varieties, these to become the standard varieties of the state.

The method of procedure was to secure the best corn in the state or elsewhere, having similar conditions, and that which had been grown for a long series of years. This was to be used as foundation stock. Hundreds of samples were obtained, but few were retained as foundation stock proper. Three of the best samples were taken over by the experimental station, and an association of young farmers, who improved these three varieties by growth, and selection in accordance with the ear to the row method.

The improvement of corn in accordance with the ear to the row method is one of the most successful methods now in use. It gives the grower an opportunity to test the projected efficiency and the individuality of ears within the breed under improvement.

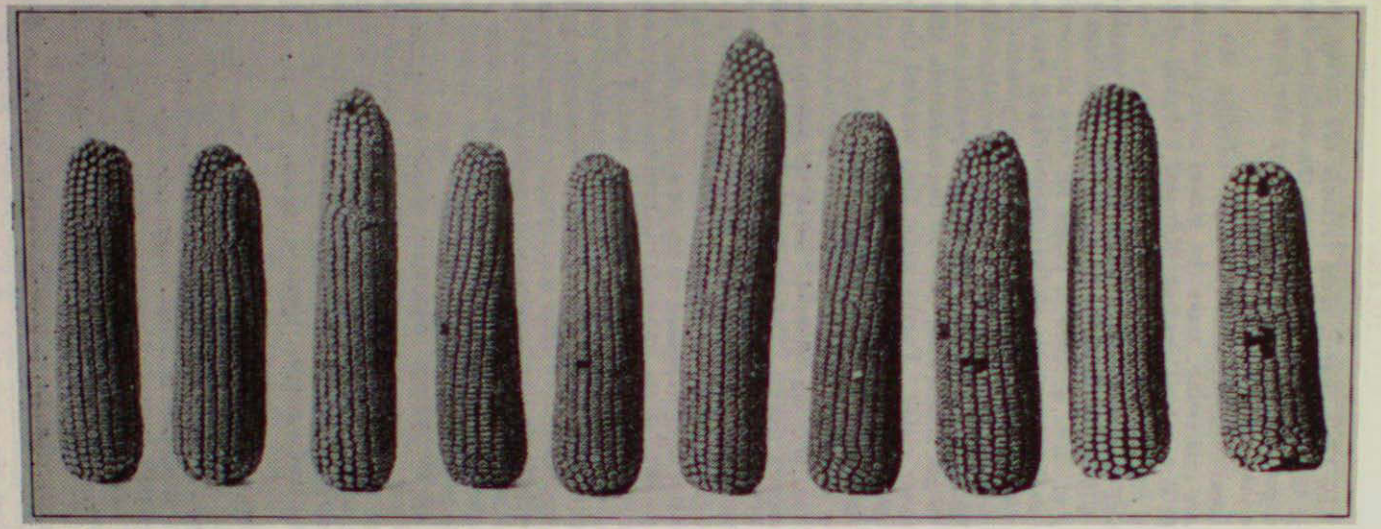


Exhibit showing several good ears, but which was thrown out by the judge on account of lack of uniformity.

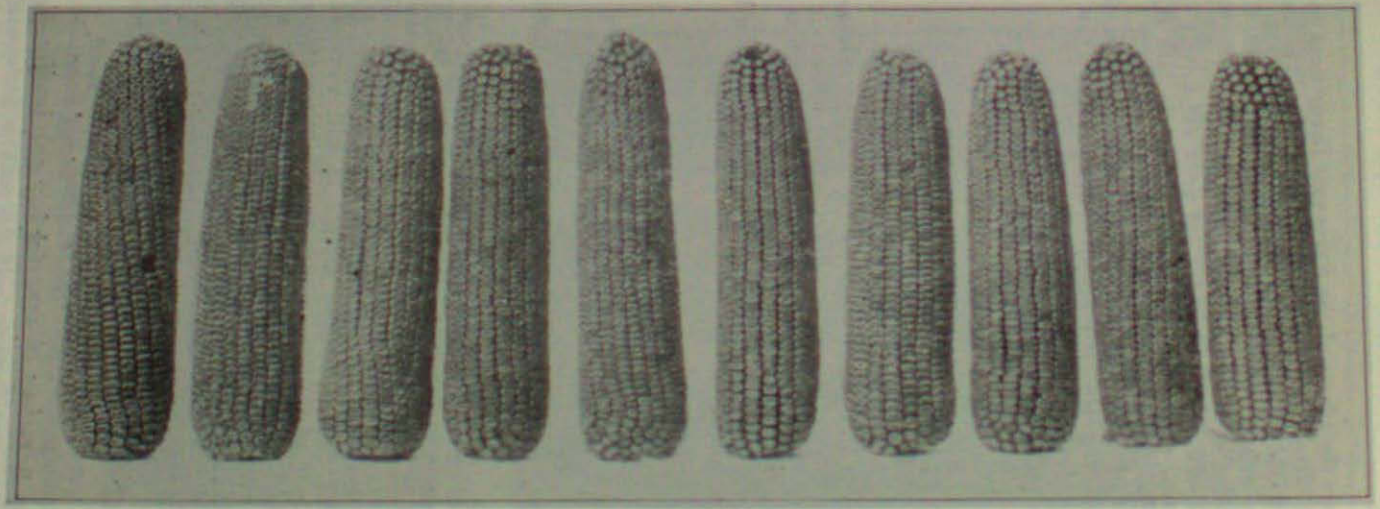


Exhibit of ten ears of Reid's Yellow Dent Corn, showing uniformity throughout.

For six years the efforts of the Agronomy Department and one thousand members of the Wisconsin Experimental Association have been thrown upon the fixation of stable characteristics, and improvement in yield of stalk and corn of these varieties.

These varieties have now become standardized and are known as Wisconsin Nos. 2, 7 and 8. Nos. 2 and 7 are grow extensively in the southern half of Wisconsin, while No. 8 is grown along the lake shore and in the northern counties.

These types of seed were used to a great extent in their respective localities, and to convince you that there was merit in this system, let us look for a moment at this Wisconsin corn record.

In 1901 she produced	27	bushels	to	the acre.
" 1902 "	28.2	"	"	
" 1903 "	29.3	"	"	
" 1904 "	29.7	"	"	
" 1905 "	37.6	"	"	
" 1906 "	41.2	"	"	
" 1907 "	41.5	"	"	

Next to Ohio, Wisconsin produces the highest average yield of any state in America. In other words Wisconsin produced in 1907 twenty million bushels of shelled corn more than she did in 1901 on approximately the same corn acreage.

Gentlemen, does this appeal to you? Does it seem worth while to try something of that sort here?

CORN GROWING IN ONTARIO.

By C. A. Zavitz, Professor of Field Husbandry, Agricultural College, Guelph.

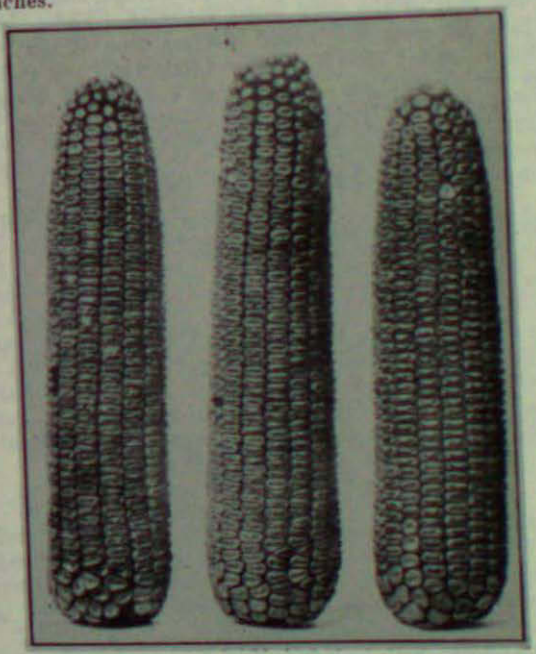
According to the last report of the Ontario Bureau of Industries, we learn that no less than 533,433 acres were devoted to the growing of corn in the Province in 1908. Those counties having the greatest area devoted to corn during the past year were as follows: Essex, 80,587 acres; Kent, 70,594 acres; Middlesex, 31,361 acres; Elgin, 31,088 acres; Lambton, 27,803 acres; and Oxford, 23,556 acres. It will therefore be seen that practically one-half of the corn which is now being grown in Ontario is confined to these six counties in the South Western part of the Province. Those counties producing the greatest quantities of corn for husking are Essex, and Kent, and those producing the greatest amounts for the silo are Oxford and Middlesex.

The market value of the corn crop of Essex and Kent in 1907 amounted to $3,200,556, and that of the year previous $4,682,845. It will therefore be seen that the corn crop is of special importance to the counties of Essex and Kent.

Varieties of Corn.

In selecting a variety of corn for any one locality, there are many things to take into consideration. If the corn is to be used for the silo, it is important to secure a variety that will combine a large total yield per acre, a good yield of grain insuring high quality, and a variety that

will reach a sufficient stage of maturity in the locality where it is grown before being injured by the nipping frosts in the autumn. If the corn, however, is to be ripened for husking purposes, more stress should be placed on early maturity, a large yield of grain and comparatively small cobs, so as to insure a thorough drying out of the ears before the cold winter weather approaches.



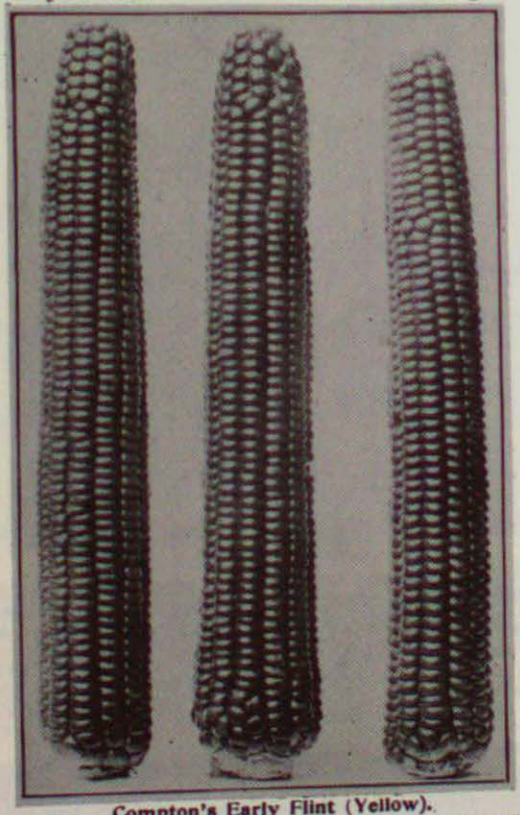
Coatsworth Hybrid Yellow Dent.

Originated by J. H. Coatsworth, Essex Co., who crossed an early yellow dent of merit grown in the neighborhood, but shorter in grain, on the Reid's Yellow Dent, in 1906; three or four good ears selected for seed first season; second year about quarter of an acre was planted; in 1908, seven acres. The cob is red, and last year there were no soft ears in the crop. It was planted on June 2nd, 1908, and was hard in grain and ready to cut on September 15th; lower leaves turning brown; cut on 18th, overripe. The fodder stands well, and is fully equal in height to large White Cap, and is leafy. Mr. Coatsworth does not consider it yet sufficiently well established in type to put out as a variety.

Grand Champion Ear Essex Corn Show, 1909.
Coatsworth Hybrid Yellow Dent. (See foregoing notes.)

In our experimental work at the Agricultural College at Guelph, where we have tested upwards of two hundred varieties of corn, studying carefully the various characteristics of each variety, we have found certain kinds to be very promising for the purposes of the silo for the South

Western part of Ontario. When these have been sent out through the medium of the Ontario Agricultural and Experimental Union, some of them have made very satisfactory records in the experiments on individual farms. Amongst some of the most promising I would name the White Cap Yellow Dent, the Mammoth Cuban Yellow Dent, the Leaming and the Reid's Yellow Dent. The Henderson's Eureka and the Mastadon Dent are amongst the best of the very large varieties. These, however, are apt to be rather late for even the South Western part of the Province, except on the early warm soils. The Wisconsin Little Dent and the Sterling White Dent are very early varieties of dent corn and can be grown for the pro-



Compton's Early Flint (Yellow).

A well-known variety over large area of Canada: 12-rowed yellow flint; a favorite ear corn, also used by some for ensilage purposes.

duction of silage much farther North than it was formerly considered that corn, and especially the dent varieties, could be grown satisfactorily. The last named varieties, however, produce a much lighter yield of crop per acre.

For grain production at Guelph, in the average of five years' experiments, the greatest yields per acre were produced by the King Philip, 61.3 bushels, and the Genesee Valley, 58.1 bushels per acre. Under similar conditions, the Canada Yellow produced 51.5 bushels and the Compton's Early, 49.8 bushels per acre. These are all early flint varieties. Some of the dent varieties may be grown for husking with a good deal of satis-

faction in the South Western part of the Province. The White Cap Yellow Dent corn can usually be counted upon to mature its seed fairly well on the warmer soils of Essex, Kent and Elgin, and in some instances in Lambton, Middlesex and Oxford.

Some farmers have been growing the same variety for a number of years, and have been selecting their seed with a considerable amount of care. Different growers having different ideals in their selection gradually change the variety to better meet their own requirements. The fact of these changes being made is ascertained through comparative tests which have been made at Guelph with different strains of the White Cap Yellow Dent Corn, obtained from different farmers who have selected their seed on their own farms continuously for a number of years, as for instance: In the average of two years' experiments, we find that seed obtained from C. Wigle in Essex county produced corn 119 inches tall, which gave 16.5 tons of total crop and 36.6 bushels of shelled grain per acre; while that obtained from E. M. Zavitz, Middlesex county, grew to a height of 116 inches, produced only 14.8 tons of total crop, but gave a yield of 51.8 bushels of shelled grain per acre. The corn obtained from Zavitz was in full tassel in 76 days after it was planted, while that obtained from Wigle did not reach its full tassel until it had been planted for 81 days. In a similar way the seed obtained from some six or eight different corn growers has been tested and the results have shown certain variations throughout. This indicates the importance of corn growers taking special pains in breeding up improved strains, in order to secure seed of high quality.

Testing the Germination.

It is wise for each individual, who intends to plant corn, to thoroughly test his seed whether it has been produced on his own farm or bought from an outside source. Great loss can often be avoided by carefully testing the germination of seed corn before it is planted. This can be done in various ways. The writer prefers to germinate the corn in small boxes about 10 inches square and 3 inches in height, which are filled with either sand or loam. If a lid is made for the box and marked off with 10 lines in each direction, the lines being an inch apart, a nail can be driven in the lid at each place where the lines cross, and thus an excellent marker is prepared. By placing this on the soil, 100 impressions are made and 100 grains of corn, taken either from the loose bulk or from various ears, can be planted according to the markings in the soil. If the grains are placed about one inch below the surface and kept moistened and in a comparatively warm room, the vitality of the corn can be ascertained in a few days. Not only does this method show the exact percentage of germination, but it also shows the evenness of the plants produced. If the plants are uniform throughout, it shows uniformity in vitality. If, however, they are uneven in growth, it shows that part of the corn may be weak in vitality although plants are produced. It is important not only to have a full germination but also to have plants uniform and vigorous, if the most satisfactory results are to be obtained. A simple test of this kind will often prevent a great loss from planting corn of poor vitality.

Corn from Different Parts of the Ear.

It is a frequent custom to discard the corn from the small end of the ear when securing seed for planting. If a person wishes to obtain the best results, it is often wise to remove not only the kernels at the small end,

but also those at the large end of the ear, as in both cases these grains are apt to be rather weaker in germinating power than those produced in the central part of the cobs. The kernels produced at the ends of the ears are also more uneven in shape and in size than the rest of the corn in the ear. If a corn planter is used, there is a danger of getting an uneven distribution of the seed if the irregular kernels are used for seed purposes.

Hills *vs.* Rows.

In each of six years, co-operative experiments were conducted throughout Ontario in comparing the results of planting corn in hills or in squares, as compared with that planted in rows or drills, the same amount of seed being used in both cases. In the first method the rows were 40 inches apart each way and would permit of cultivating the land in two directions, while in the latter method the rows or drills were 40 inches apart and permitted the land being cultivated only in the one direction. Four plants were allowed in each hill in the one case, and a distance of ten inches between the plants in the rows in the other. In the results of these experiments conducted on many farms throughout the Province during the six years, it was found that the hills or the squares produced seven-eighths of a ton of total crop per acre more than the rows, of which amount fully one-quarter of a ton was in the form of freshly husked ears. As the same amount of cultivation was given to each of these two methods, the hills or the squares gave rather the best all round satisfaction.

Methods of Cultivating Corn.

In the spring of 1902, an experiment was commenced to determine the relative value of different methods of cultivating the corn crop during the season of its growth. This experiment was carried on for five years and was conducted in duplicate each season. Four plots were used for each individual test. The one which produced the highest yield of green fodder in the average of five years was given deep cultivation between the rows in the early part of the season, gradually getting shallower at each successive cultivation as the season advanced. This method resulted in an average yield of 20.7 tons per acre. Another plot, which was given shallow cultivation throughout the season, produced 20.3 tons per acre. A third plot, which was given shallow cultivation at first gradually getting deeper, produced 20 tons per acre, and the fourth, which was given deep cultivation throughout the season, produced 19.9 tons per acre. It will be seen, therefore, that there was less than one ton of difference in the yield resulting from the various methods mentioned above. When this experiment was commenced, it was expected that the plan of cultivating deeply at first and a lesser depth as the season advanced would result in the greatest yield, since that method would avoid interfering with the growth of the corn roots after they had begun to extend through the soil between the rows. It may be said, however, that the difference in yield was not so great as we anticipated. There is probably no crop grown on the farm more responsive to good cultivation than corn.

ADDRESS.

By J. O. Duke, Olinda.

Practically every portion of the earth's surface upon which corn can be grown has been plowed.

Unlike wheat growing, there are no large areas yet undeveloped where corn may be grown. The only way that we can increase the yield is to

improve our methods of cultivation, and produce more on the same land than we are now doing. I am satisfied that this can be done. In fact I have proved by my own experience, that we in the counties of Essex and Kent can increase our yield per acre at least 30 per cent.

This figure is startling, but my experience bears me out. When I first began improving corn under the direction of the Canadian Seed Growers' Association, the inspector, Mr. Newman, who is now Secretary-Treasurer of the Association, called my attention to the barren stalks. By actual count we found 38 per cent. of the stalks had no ears. Now by culling out these barren stocks, and not allowing them to bear any pollen and thus perpetuate themselves, I have reduced the number of barren stocks to less than 10 per cent.

Too much stress cannot be placed on the value of good seed. To get good seed it must be carefully selected. But we must be educated in the selection of the seed. This exhibition represents the best that is produced in Ontario. Still there are some samples that are not particularly good seed corn, and many corn growers who have not availed themselves of the educational feature of the Convention will still continue to select seed corn that is entirely unfit for this purpose.

I know that another year if we have a Corn Convention, that more people will have a better idea of what good seed corn should be, and that we will have a much better exhibition than you see here to day.

Corn growing in Ontario has become of more and more importance each year. Prof. Zavitz has told you of the great amount of land in the Province that is devoted to grass and pasture—about one-half the cleared areas—still this is not enough to support our vast herds.

Canada stands high among the countries of the world in the production of butter and cheese, but to make this branch of agriculture profitable, we must have an abundance of succulent food, which is obtained in no plant more readily than in corn. So dairymen are coming to depend more and more on the silo.

We in this portion of Ontario can never hope to be successful dairymen, but we can be an auxiliary to the great industry by producing a superior seed corn; and I am pleased to say that we are growing much better corn than we were a few years ago, and the growth of the demand for our seed corn can be realized to some extent, by the statement made to me this winter by one of our leading seedsmen. He said: "Last year we alone handled more seed corn than all the dealers in Canada used two years before." Now it is very probable that the whole seed trade experienced a similar increase of sales.

One has to talk to dairymen to realize the great loss that is sustained annually by the planting of poor seed corn. There are a few among you that are really growing good corn, and your influence is being felt in the neighborhood in which you live.

There will be more of you undertake to grow good corn, for it is profitable. I know of no crop that will bring as much to the farmer, as a good crop of seed corn. I know of one man, who this year sold nearly eleven hundred dollars' worth from twenty-three acres. Compare this with your average yield, or with the average of the whole country. I have not the average yield of farms in Ontario, but at the Canadian Seed Growers' Convention in Ottawa the other day Dr. Robertson gave the average return from Quebec farms as $600.

I am confident that if the farmers of the corn producing country would devote their attention to better corn, and more of it, they could make the average income in this part of the Providence at least three times that of Quebec.

The Canadian Seed Growers' Association has, in a great measure, been the cause that has made this grand display of corn possible, and one can easily pick out the corn that has been grown by them, as it is exhibited on the benches, and one does not have to be a prophet to say that most of the prizes will be carried off by members of this Association, or their immediate neighbors. For I find that wherever there is a member of this Association working on the improvement of corn, everyone in that neighborhood has better corn than in districts where no improvement is attempted.

SCORE CARD FOR SEED CORN

Scale of Points.	Possible Score	Ear 1	Ear 2	Ear 3	Ear 4	Ear 5	Ear 6	Ear 7	Ear 8	Ear 9	Ear 10
Trueness of type	10										
Shape of ear	10										
Color of kernels	5										
Color of cob	5										
Vitality or seed condition	15										
Tips of ears	5										
Butts of ears	5										
Uniformity and shape of kernels	15										
Length of ear	5										
Circumference of ear	5										
Furrows between rows	5										
Space between tip of kernels at cob	5										
Proportion of corn to cob	10										
Total	100										

Varieties of corn scored .....

Name of scorer .....

EXPLANATORY NOTES ON SCORE CARD.

Trueness to Type.—10 points.

The ten ears in the sample should possess similar or like characteristics and should be true to the variety they represent.

Shape of Ear.—10 points.

The shape of the ear should conform to the variety type. The ear should be full and strong in the central portion and not taper too rapidly towards the tip. A full strong ear indicates strong constitution and good yield.

Color of Kernels.—5 points.

The color of the grain should be true to the variety and free from mixture. Differences in shade of color such as light or dark red, white or cream color, must be scored according to the variety characteristics.

Color of Cob.—5 points.

An ear with a white cob in yellow corn, or red cob in a white corn, should be disqualified, or marked zero, except in the case of White Cap Yellow Dent which may have either a white or red cob. This mixture reduces the value of the corn for seed purposes. It indicates lack of purity and tends towards a too wide variation in time of maturity, size and shape of kernels, etc.

Vitality, or Seed Condition.—15 points.

Seed corn should present a healthy, vigorous appearance and give evidence of being capable of producing strong vigorous growth and high yield. Starchy, immature or pointed kernels are objectionable, as are also kernels with chaff or cob adhering to the tip, or kernels from which the tip cap has been removed, exposing the black covering of the germ. Blistered germs and shrunken blistered backs are the strongest evidences of impaired vitality.

Tips of Ears.—5 points.

In form the tip should be regular and the kernels uniform in shape and size. The proportion of tip covered or filled must be considerable. Long, pointed tips as well as blunt, flattened or double tips are objectionable.

Butts of Ears.—5 points.

The rows of kernels should extend in regular order over the butt, leaving a deep depression when the shank is removed. Open and swelled butts, depressed and flat butts with flattened glazed kernels are not desirable.

Uniformity and Shape of Kernels.—15 points.

The kernels should be uniform in size and shape, making it possible to secure uniformity in dropping with the planter. The kernels should be not only uniform on the individual ear but also uniform with each ear in the sample. They should also be uniform in color and true to variety type. The kernels should be so shaped as to touch from tip to crown. The tip portion of the kernel is rich in protein and oil, and hence of high feeding value. Kernels with a large germ insure a strong vigorous growth as well as richness in quality of the kernel.

Length of Ear.—5 points.

The length of ear varies according to variety type, and the characteristics sought for by the individual breeders. Uniformity in length is to be sought for in a sample, and a sample giving even length of ears should score higher than one that varies, even if it be within the limits. Very long ears are undesirable because they usually have poor butts and tips, broad shallow kernels, and hence a low proportion of corn to the cob.

Circumference of Ear.—5 points.

The circumference of the ear should be in symmetry with its length. An ear too great in circumference to its length is generally slow in maturing, and too frequently results in soft corn. Measure the circumference at one-third the distance from the butt to tip of the ear.

Furrows Between Rows.—5 points.

The furrows between rows of kernels should be of sufficient size to permit the corn to dry out readily, but not so large as to lose in proportion of corn to cob.

Space Between Tips of Kernels at Cob.—5 points.

This is very objectionable as it indicates immaturity, weak constitution and poor feeding value.

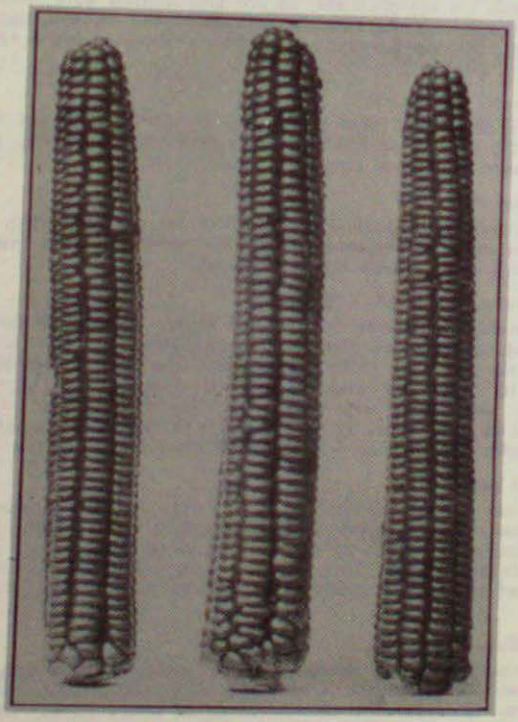
Proportion of Corn to Cob.—10 points.

The proportion of corn is determined by weight. Depth of kernels, size of cob, maturity, furrows and space at cob all effect the proportion. In determining the proportion of corn to cob weigh and shell every alternate ear in the exhibit. Weigh the cobs and subtract from the weight of ears which will give weight of corn. Divide the weight of corn by the total weight of ears which will give the percentage of corn. The percentage of corn should be from 85 to 86. For each per cent. short of standard a cut of one to one and a half points should be made.

SOME FUNDAMENTAL POINTS TO BE CONSIDERED IN SELECTING A GOOD SEED EAR.

By Prof. L. S. Klinck, Macdonald College, Que.

Consciously and unconsciously corn has been practically selected in a crude way for centuries. The very fact that in harvesting the crop it was necessary to handle each ear separately made the selection of the largest and most symmetrical ears a comparatively easy matter. It is true that by this method performance and real efficiency were often sacrificed to good appearance, as is too often the case at the present time. An ear pos-



Dakota Flint (White).

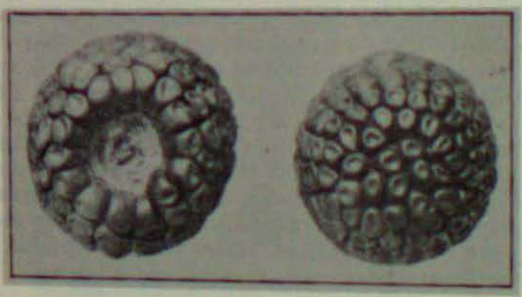
An eight-rowed white flint; resembles Longfellow, but slightly more tapering ear; leafy, and used for ensilage; grain excellent, and used for hominy.

sessing outward character and strength and approaching perfection so far as conformation goes need not necesarily be a productive or a desirable ear to plant. If in addition to good external appearance the individual kernels are of the desired conformation, we can more readily determine the true efficiency of the ear so far as feeding value is concerned; but it is only by a comparative field test of different ears that we are able to determine the prepotency, or projected efficiency of any ear.

Realizing the wide range of varieties and types of corn grown in these counties, I shall not specialize too closely, but hope to direct your attention to some fundamental points to be considered in selecting a good seed ear.

Conformity to Breed Type. All ears intended for seed purposes should conform to the desired standard in shape of ear and kernel, in color of grain and cob, in purity, size, uniformity, filling of butts and tips, indentation of crown (in the case of dents), depth of kernel, space between rows, straightness of rows, and proportion of corn to cob. Conformity to a desirable type should be insisted on as it has been repeatedly demonstrated that pure-bred varieties give not only higher yields, but corn of better quality than that produced by nondescript breeding.

While this is true, broadly speaking, it must ever be borne in mind that it is unwise to pay such close attention to detailed evidence of good breeding that real efficiency is neglected or overlooked. Again, no variety of corn, no matter how productive it may be, can ever hope to win public favor, and become widely known, if it attempts to justify its existence on the grounds of productiveness alone. However prone we may be to overlook the aesthetic side of grain production, and lay emphasis on the financial results, somehow we all insist that an ear of corn have these evidence of breeding which give such added interest and satisfaction in growing and handling the crop. Efficiency and conformity to a fixed type are not antagonistic.



Ideal Butt and Tip of Dent Corn.

The ideal butt and tip illustrated shows the perfection which may be attained in the development of the ends of an ear of corn, the latter reminding one of the well-woolled face of a Shropshire sheep.

Shape of Ear. The shape of ear will vary from the cylindrical to long pointed forms according to variety and the conditions under which they have been grown. Ears full and strong in the central portion are most deirable, as they indicate a high per cent. of corn to cob, and corn of superior feeding qualities. An ear properly proportioned in the centre is indicative of strong constitution and high yield, as a correlation exists between ears and the kernels of which they are composed.

Shape of Kernel. A good kernel, especially in the dent corn, should be broadly wedged-shaped, strong and plump at the tip and should carry its sides well up to the crown, giving a strong full shoulder. The germ or chit should not only have a large surface, but should be carried well down to the back of the grain. The germ is high in oil; the hard horny part of the kernel is rich in protein. In selecting an ear of corn for seed always remove two or three kernels, and study them in connection with the ear. If the kernels are undesirable, reject the entire ear even if to outward appearances the ear is good. Many a poor ear is used for seed or show purposes which would never have been considered had the owner removed a few of the kernels, and made a careful study of them before making his final selection.

BUTT. The butt should be symmetrical, full and strong, and made up of straight rows composed of kernels conforming as closely as possible to those in the centre of the ear. A full rounded butt is indicative of strength and adds the element of character to an ear, but it is not desirable to have it round out too fully and become too constricted as there is a danger of its weakening the shank to such an extent that the ears break off prematurely. Open or swelled butts are always objectionable.

TIP. The tip should be in proportion with the body of the ear, and round out symmetrically and naturally. The rows should be straight and kernels retain as nearly as possible the size, shape, and indentation of those in the centre of the ear. Too much attention should not be paid to the complete covering of the tip, as the kernels here are not so valuable for seed or for feed as those in the centre of the ear. In addition to this, when undue attention is directed to securing ears well filled out at the tip, there is danger of doing so at the expense of shortening the ear in the most valuable part.

PURITY OF COLOR IN GRAIN AND COB. Strict adherence to a uniform color is essential in maintaining purity or freedom from mixture in any variety. The degree or depth of color in kernels or cob is of minor importance when compared with the question of mixture. Corn intended for seed should not be planted within a quarter of a mile of another variety of corn. Even if all the kernels not true to color are removed from an ear, there is a strong probability that many kernels of the same ear, although apparently pure, are in reality of a different origin. Xenia, or the direct effect of pollen, is not always shown in the color of the endosperm, but may be confined to the embryo. This being the case, it is not good practice to plant for seed any ear having mixed kernels, even if all the kernels not true to color have been removed, as the influence of the previous cross pollination may at any time manifest itself in subsequent generations. White corn should have white cobs; yellow corn should have red cobs.

UNIFORMITY OF KERNELS. Under this heading is considered not only the uniformity of the kernels on the ear, but also the conformity of the ear and its kernels to the rest of the sample. As the kernels on the butt and tip of an ear cannot conform closely to those in the centre, they are shelled off when a uniform sample is desired for seed. Blocky or irregular kernels in the central portion of an ear are considered much more objectionable than if they were found at the ends, as it is much more difficult to remove them. Uniformity in size and shape of kernels is very important, especially when a planter is used, as a lack of uniformity renders it impossible for any planter to drop the required number of kernels to the hill.

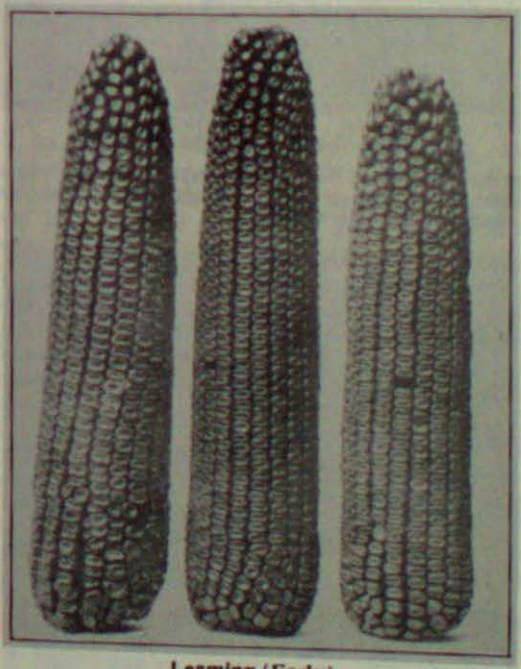
VITALITY. As used in this address the word vitality is not restricted to a kernel's ability or lack of ability to germinate, but is used in the wider sense, to indicate its strength and probable reproducing power when it does grow. A kernel full and plump in the tip, and having a bright vigorous germ is most desirable. Kernels weak and pointed at the tip do not have a sufficient store of reserve food to give the tiny plant a strong start in life. All such kernels should be discarded.

No point in seed selection requires greater care, and the exercise of more accurate, painstaking judgment, than that of rightly estimating the relative discount that should be made for different evidences of immaturity, or for signs of injurious effects resulting from improper storage. In many cases, the only way to make even an approximate estimation of the germinating power of any sample, is to make an actual germination test.

In order to determine the relative value of the different types of immature kernels so frequently found in selecting seed corn, germination tests were conducted by the writer in the field and in the greenhouse. Five classes were experimented with, and the conclusions drawn from the results form the basis for the statements regarding each class.

Chaff or Cob Adhering to Tip of Kernel. It was found that chaff adhering to kernel, as it often does in immature ears, was not sufficiently detrimental to warrant discarding such kernels, providing this was the only evidence of immaturity, as the growth of these kernels both in the field, and in the greenhouse was satisfactory.

Black Tips. Kernels with the tip cap removed, exposing the black covering of the embryo, grew well when planted in the green house, and under field conditions gave a good stand. The tip cap is intended as a

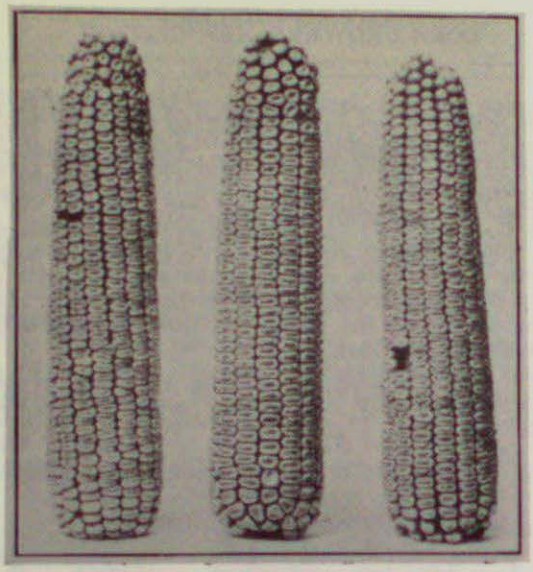


Leaming (Early).

Large, yellow dent corn, of early, medium and late maturing strains; heavy yielder both of ear and stalk; matured crop highly prized for ensilage; leafy and strong in stalk; matures best in Essex district.

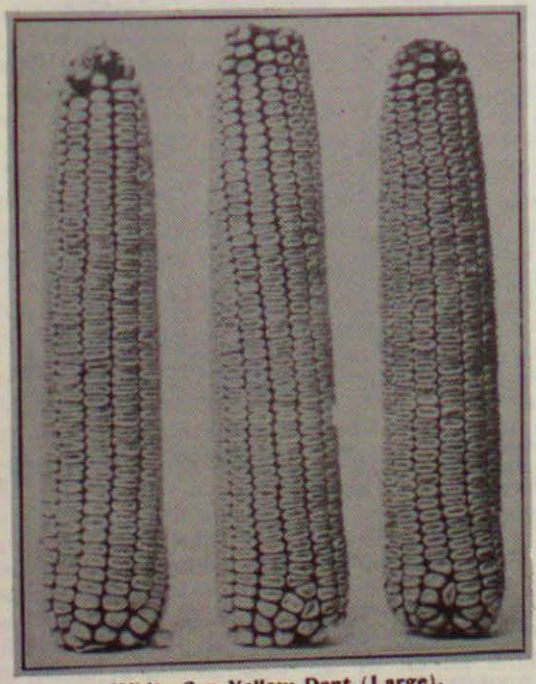
protection for the young plant, and when removed, the water enters readily. If planted in a cold wet time, such kernels frequently rot, but when planted under favorable soil and climatic conditions give but little indication of impaired vitality. These statements apply only to those kernels in which the tip cap remained in the cob on shelling. The black skin-like covering immediately under the tip cap is natural to every kernel. Objection can be taken to its appearance only when it is exposed through removal of the tip cap in the process of shelling.

Wrinkled, Blistered or Shrunken Germs. Kernels showing these evidences of immaturity are arranged in the order in which objection should be taken to them. Corn stored in a very warm place will shrivel and be-



White Cap Yellow Dent (Small).

Matures earlier than large strain (less than 90 days); extensively grown and well liked for grain and fodder, stalks being rather fine; rougher tip and deeper kernel than large strain; does not stand so well as Leaming.



White Cap Yellow Dent (Large).

Very popular in northern and central Essex. Smaller in stock than Leaming, but earlier; not so early as the small White Cap Yellow Dent; yields well in grain; some strains have white cob, others red.

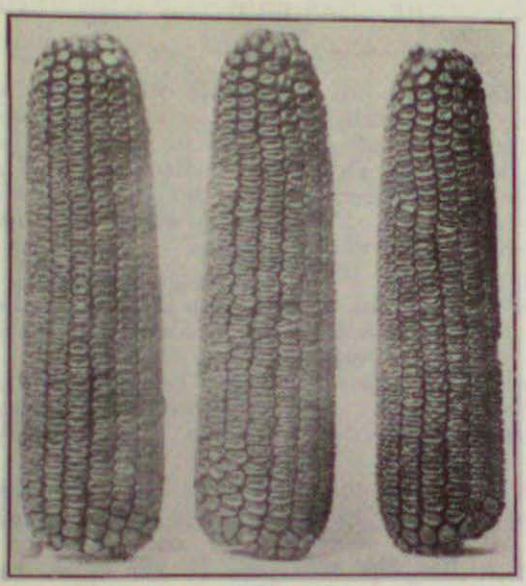
come uneven on the surface, just as an apple, when left in a warm room, shrinks irregularly from its outer covering, leaving ridges and depressions. Uneveness on the surface of germs due to this cause should not be regarded as objectionable, but a shrunken or blistered germ is a very serious matter if the covering of the germ is raised to any considerable extent as a result of exposure or freezing. The vitality of such germs is almost invariably greatly impaired, if not wholly destroyed.

Starchy, Shrunken or Blistered Backs. Whenever exposure or freezing has been severe enough to blister the back of a kernel its chances for germination are poor. This is one of the strongest indications of injury resulting from imperfect ripening. When the back of a tip shows a decided depression, it is strong evidence that the kernel has not had sufficient time to develop properly. A kernel depressed on the back is usually deficient in the hard horny glutenous material, and is therefore composed largely of starch.

Condition of Germ as Indicated by its Cutting Qualities. A properly developed and carefully dried germ cuts readily, and presents an oily appearance. It is light cream in color, and can be cut in very thin layers, which roll up like fine shavings. If kiln dried, less oil will be apparent, and in cutting the layers will break up readily. A frozen germ, on the other hand, lacks this healthy, oily appearance. It is tough and elastic, and unless the knife is sharp, the germ is sure to shove or roll. When cut it presents a dark, glistening, soggy appearance.

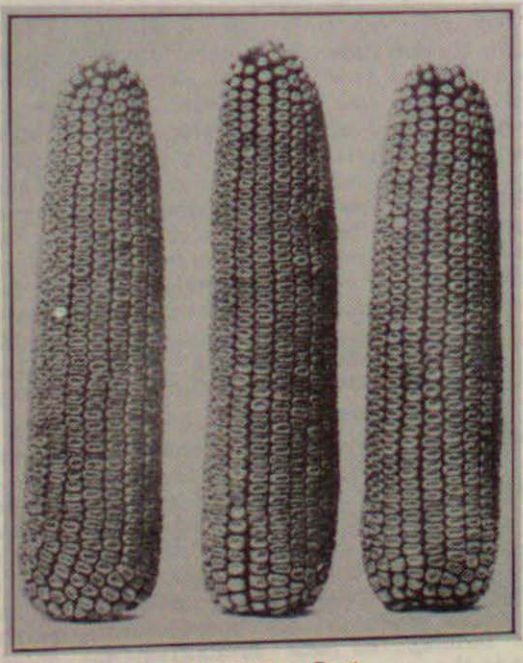
Size of Ear. The length and circumference of the ear chosen must be governed by the locality in which the corn is grown. The tendency has been, and still is, in the direction of growing varieties too large to mature properly. This is a mistake. It will prove more profitable to grow a smaller corn which will mature every year, than to grow a larger corn which seldom, if ever, ripens properly. In dent corn the proportion of length to circumference should be as four is to three, i.e., an ear ten inches long should measure seven inches in circumference, about three and one-half inches from butt. Short thick-set ears are inclined to have long deep kernels, which makes it impossible for the ears to dry out readily in the fall, unless the variety has been carefully selected for years to combine early maturity with depth of kernel. It is, of course, advisable to grow as large and deep grained a variety as can be safely depended upon to mature in any given locality. In flint varieties the length of the ear differs so widely that it is a difficult matter to establish a fair proportion. As a general rule, the production of long pointed ears should be discouraged, as they are almost invariably poorly covered at the tip.

Space Between Rows. Wide space is undesirable in any but deep-grained varieties. It is generally caused by rounding of the crowns. As there is no good reason why the kernel should not carry its sides squarely up to the shoulder, and thus fill practically all the space with corn, wide spaces are severely cut. In addition to the serious loss occasioned by this conformation, chief ground for objection to them is, that they are an indication of degeneracy or reversion to a more primitive type. In some varieties, like Reid's Yellow Dent, the rows are frequently paired, the inner sides of the rows forming the pairs dovetailing, the outer sides being carried up straight to the crown, giving a square, blocky shoulder. In the deeper grained varieties the rows are seldom paired, and the furrows are much wider. This is a wise provision of nature, making it possible for the deep-grained corn to dry out more readily. Flint varieties are grown where



Bailey's Yellow Dent.

Early variety; large, short ears, yielding well. An old sort, fairly large in fodder, but stands well, and is well liked for ensilage in central Ontario, and northward to Teeswater.



Reid's Yellow Dent.

Rank grower; popular along Lake Erie shore; late for matured corn or ensilage in most districts; heavy yielder of grain; high percentage of grain to cob.

the season is short. Naturally the amount of space between the rows is great, and the kernels flinty and rounding on the crown. While open rows are objectionable, rows having too little space are fully as undesirable. A certain amount of space is necessary for maturing the kernels. If the space is too limited the kernels almost invariably show wide space between the kernels at the cob, and as the tip is the most valuable part, the importance of having it full and well developed is apparent. The presence of these wide spaces between the kernels accounts for the fact that so many close rowed ears are so light in weight, and shell out such a low percentage of corn.

Proportion of Corn to Cob. It is practically impossible to lay down a standard on this point which will apply to any considerable section. Dent varieties will range from 78 to 85 per cent. shelled corn; flint varieties will range from 74 to 81 per cent. A good average for the former would be 82 per cent.; for the latter, 79 per cent. As it does not necessarily follow that a large ear will shell out more corn than a much smaller one, in selecting seed corn, close attention should be paid to the points just mentioned which go to make up a solid ear.

To ascertain the proportion of corn to cob weigh the entire ear: shell the ear and find the weight of the grain: divide the weight of grain by the weight of grain and cob, and the result will be the percentage of corn. A large proportion of corn grown averages considerably less than the average given: a number of varieties, as the result of years of careful breeding, exceed the average percentage. While it is desirable to grow corn giving a low per cent. of cob, there is a point beyond which it is not safe to go. There seems to be a proper proportion or relation existing between the corn and the cob bearing it, and beyond this point the breeder cannot go without seriously endangering the vigor and constitution of his corn.

ADDRESS.

Dr. J. W. Brien, Essex.

I can assure you that I appreciate the honor of having the privilege of saying a few words to this intelligent audience on this eventful occasion. I appreciate the honor of being connected in any way with the educational institutions of our country.

I cannot conceive of anything more demonstrative, or more prophetic of the great possibilities, and great future of this fertile portion of our fair Province, than the presence of so many intelligent and inquiring farmers at this Convention and Exhibition.

This is certainly an important epoch in the history of this district. No one could listen to the addresses and demonstrations of Prof. Klinck, Prof. Zavitz, and Mr. Biggar, without being impressed with the importance to the farmers of a more thorough knowledge of the science of agriculture. I cannot conceive of any better sign of the times, any better omen of the future of this country, than the fact that men of thought are turning their attention towards more thorough and practical teaching of this important subject, and also the fact that the farmers themselves are becoming more and more impressed with the belief that their turn in the great evolution of things has at last come.

The industry of agriculture is the oldest in history. It can be traced back to the time when Adam evacuated the Garden of Eden, and began tilling the soil, earning his bread by the sweat of his brow—from the time that Cain and Abel began the raising of stock and the growing of grain. If we could trace it from that time on through the fossilized ages of the past to the present, we would find that whatever improvements it enjoys to-day have been brought about during the last century, and yet agriculture as a science is still in its infancy.

When we consider that about one-fifth of the human race is engaged in this occupation, and that the other four-fifths are depending upon it directly or indirectly for their sustenance, should it not command universal attention and special educational advantages. But just as the rivulet trickling down the mountain side through the valley to join the mighty river, seeks the course of least resistance, so it is with nature in general. Man's tendency is to follow in the old beaten paths of his forefathers who succeeded without an agricultural education, whose virgin soil abounded with all the natural fertility that nature could bestow, void of noxious weeds, insect pests, and parasitic diseases. With an even soil moisture and humid temperature, all that was necessary for them to do was to sow a crop and reap a bountiful harvest, or as one has said: "Tickle the face of Mother Nature and she would laugh herself into a crop."

But times have changed. The soil, in many instances, has been robbed of its virgin fertility; weeds, insects, and parasites have apparently come to stay. Seasons of unequal rainfall often give us drouths and floods. So that the farmer is by no means sure of a bountiful harvest were he content to tickle the face of Mother Earth as he had done heretofore she would weep bitter tears of disappointment in a fruitless harvest of shrunken grain and foul weeds.

At the same time the cost of living is gradually growing higher. There are greater attractions, more public institutions to support, the improved methods of transportation, both by land and water, bring the products of the farm into keen competition in the markets of the world.

With these facts staring them in the face, leading educationists have set themselves to work to find remedial measures, with the result that for the last forty or fifty years the idea of teaching agriculture in the schools has come up from time to time, and on two or three occasions the necessary machinery was put in operation, and it looked as though Ontario would lead the world in this branch of education. But unfortunately the class attendance fell off, the enthusiasm of the teachers waned, the specially prepared text books were thrown on the shelf, and the whole attempt finally dwindled down to occasional spasms of Nature Study.

The scheme, however, was not the vision or passing fancy of some educational faddist. But having passed through this evolutionary stage, it became apparent to those who were studying the matter with a view of profiting by past failures that the weakness lay in the incompetence of the teachers to handle a subject in which they had not received special training, and for which they were not specially qualified.

This suggested the experiment of utilizing the services of some of the graduates of the Ontario Agricultural College in a few of the High Schools of the Province, thus instilling an agricultural tendency in those students who were preparing for future Public School teachers. The result was that on the recommendation of a committee composed of C. C. James, Deputy Minister of Agriculture, G. C. Creelman, President of the O. A. C., and Dr. Seath, Superintendent of Education of Ontario, the Ontario Gov-

ernment selected six High Schools in the Province, of which the Essex High School was one. To each was appointed a Specialist in Agricultural Science, and an appropriation was made for his salary and expenses. An office of the Ontario Agricultural Department was established in connection with each school. Through this medium it was expected to reach the farmers, and interest them not only in special work on the farm, but also in the course given in the High School. For the purpose of making the work in the school more practical, an experimental plot was established in connection with each school.

This is a brief history of the methods which the Agricultural Department and the Educational Department of Ontario have put into practice. So far as we are capable of judging, after a year and a half's experiment, it bids fair to become successful, and has passed the visionary stage.

Now as far as the work in this district is concerned, everyone wondered what course Mr. McKenney was going to pursue when he came, for he had no well defined plan of his own nor had he anything of the past except failures and an indifferent public to guide him. The Department simply sent him here to work out his own salvation and theirs, and at the same time to put into practice the scientific knowledge which he acquired during his course at College, and to use his own judgment in the matter.

He was expected to conduct the special work in the High School, expected to be in the office of the Department, looking after their interests as well as the farmers! At the same time to be here and there throughout the District attending the various agricultural organizations and giving special work on the farms. He performed these triple duties for a time, but found that if he was going to have the results he hoped for, he would have to devote his whole time to the outside work, and have an assistant for the school course. The result was that the Department sent him an assistant, a Mr. Taylor, last year, who did good work, and Mr. Lewis this year, who by the way is a university graduate and also a graduate of the Ontario Agricultural College, and is doing excellent work in the High School.

Mr. McKenney has been untiring in his efforts, and I am sure that you will agree with me that he has shown exceptionally good judgment in the way he has planned and managed this scheme from the beginning, and this Corn Convention and Exhibition is positive, tangible proof of his success. During the year that has passed, besides supervising the General School Course, and conducting the Short Course of six weeks, of which this is the climax, he has been on the *qui vive* throughout the district attending Farmers' Institutes, where he conducted several judging contests both in grain and stock, besides going from place to place giving special demonstrations in orchard spraying for San Jose Scale, etc., short courses in fruit and vegetable growing, organizing Farmers' Clubs, and Poultry and Stock Associations, also conducting experiments in tobacco and fertilizers.

The young men who are taking this six weeks short course should, on their return to their homes, work in conjunction with Mr. McKenney throughout the district, in the formation and organizing of Farmers' Clubs, Literary Societies, or Debating Societies, where papers should be read and discussed on leading subjects, not only relating to the farm, but on important questions of the day.

I believe that there should be such an Organization at least in every municipality, or even in every school section. Then have one or two Union Associations, centrally located, where leading educationists and experts from a distance might be procured at intervals to give addresses on important subjects.

Every farmer should take at least one weekly paper in order to keep posted on current events, and in order to have a knowledge of what is going on in the outside world. He should also take a journal or periodical which deals with questions relating to the farm. He should also be a member of some public library, where he and his family might have access to books on any subject they may choose.

In these days of inter-urban cars, and as we hope, in the near future, rural mail delivery, these matters are not impossibilities as they might have been considered years ago, and they will tend most effectually to improve the social conditions in the farming community, which are of very great importance in inducing the boys and girls to remain on the farm.

When the opportunities for getting such a training as is necessary both on the theoretical and practical side for the proper management of the soil, are so numerous, it will be a serious reflection on the intelligence of our farmers if they do not avail themselves of these opportunities, more especially in the case of the boys and young men. When we reflect that there is a growing demand not only in this country, but in others, for skilled agriculturists to manage the estates of rich individuals or corporations, and the development of special crops for special industries.

The demand for men of this description is even greater than the supply. Those who have the proper training and qualifications can command salaries ranging from $1,500 to $5,000 per annum, and in exceptional cases, much more. There is one case on record where an expert received $11,000 per anum along with a fine house and grounds.

The possibilities along this line are far beyond the most sanguine anticipation of a few years ago, and I venture to say that in a short time there will be a greater demand for graduates in agriculture than for any other profession, and the remuneration will be proportionately greater.

Success in life should be the aim and goal of every ambitious man. The question then is: What constitutes success? One has said: "It is getting what you want, and being satisfied." Another has said: "It is the realization of the estimate we place on ourselves." But I believe that success is more than this. It is nothing short of bringing out the best that is in us, no matter what our walk in life may be, of cultivating and developing those faculties with which we have been endowed to the best of our ability.

I would therefore strongly advise the parents to give their children as broad and liberal an education as possible and I would advise the boys and girls of to-day to leave no stone unturned in order to get as thorough an education as is possible for them to acquire.

SELECTING AND TESTING SEED CORN.

By Prof. L. S. Klinck, Macdonald College, Que.

The first selection of seed corn should be made in the field, never in the crib. Ears selected from the crib have frequently been subjected to influences in the field and during the time of storing that have greatly lessened, if not entirely destroyed, their germinability. A sample of low germinating power requires more seed and invariably results in an uneven stand. As an even stand is one of the essential factors in the production of a good crop of corn we should see that the vitality of the seed ears is the best.

Ears intended for seed should be harvested in the fall before the weather becomes cold enough to injure them by freezing. In selecting seed corn, as careful atention should be given to the character of the stalk as to the ear produced. The best type of ear and stalk will depend on the use to which the crop is to be put. For silage purposes we require a plant with abundant foliage, a well-developed stalk which tapers slightly from the base, and with nodes fairly close together. This type of stalk will possess more strength than one closely approximating the cylindrical, and will stand up better in districts where frequent rains and high winds lodge the corn and make cutting difficult. The ears should be borne at a convenient height for husking. If borne very low on the stalk they will generally ripen early but tend to produce short fine stalks; if carried high up they are inclined to be late and are usually objectionable because, if large, they overbalance the stalk and cause it to lodge.

The practice of depending on the ordinary crib corn is to be severely condemned. No marked improvement in the quality and productiveness of our silage corns can reasonably be expected until corn growers realize the importance of selecting their seed ears in the fall from none but desirable stalks.

When the seed corn has been carefully selected in the field with reference to the type of ear and stalk best suited to the grower's purpose, and when it has been stored under the most favorable conditions at his command, the breeder comes next to the spring selection where he will decide finally on the ears to be used for planting. As many more ears were selected in the fall than will be required in this spring's planting he can afford to discard all inferior ones. In the field it is impossible to make as careful a selection as can be made after the ears have dried out thoroughly.

The first step is to lay out the seed ears side by side in a row on a table or on a plank placed on a couple of barrels. Then select the best ear, and with this in hand, or a more perfect ear in mind, go over the ears and discard all those that do not conform to the standard in size, shape, color and uniformity of kernels. When the faulty ears, as judged from outward appearances, have been discarded, two or three kernels should be taken out of each remaining ear and laid, germ side up, in front of the ear from which they were taken. Then with a desirable kernel in mind, or better, with one in the hand, the ears should be gone over again and those having kernels which do not conform to the standard should be discarded. In yellow corn any mixed kernels should be taken out before shelling as they are more easily seen on the ear. In white corn they should be left until the ear is shelled as they are more readily seen then.

This process of selection will greatly reduce the number of ears. For this reason the grower should gather two or three times as much seed in the fall as he has any intention of using.

Testing Seed Corn.

After the seed ears have been carefully selected as to character of both ear and kernel each ear should be tested for germination. Testing each ear separately seems at first too big a task to undertake, but experience shows it to be practicable. The following plan has proven very satisfactory: The ears are first laid out on a table or floor. By driving nails after each tenth ear it will only be necessary to number the first of each set of ten ears. When this has been done remove one kernel from near the butt, one from the middle, and one from near the tip of the ear. Turn the ear

over and remove three kernels in a like manner from the opposite side, making six kernels in all, thus securing a sample from the entire ear. Place the six kernels at the end of the ear from which they were taken. Be careful that the kernels do not get mixed with the kernels from the ear lying next to it. Take a shallow box about two by three feet in size, put several inches of moist sand, dirt or sawdust in the bottom, place over this a cloth which has been ruled off into squares one and one-half inches each way, numbered one, two, three and so on. Place the kernels from ear No. 1 in square No. 1, from ear No. 2 in square No. 2 and so on with all the ears. Always place the kernels germ side up and tip towards you as this makes it easier to see just how strong the germination of each kernel really is. Now place over this a cloth considerably larger than the box, cover with one and one-half to two inches of sand, earth or sawdust, moisten well, keep in a warm place, and the kernels will germinate in from three to five days. When sufficient time has been allowed for the kernels to germinate, remove the cover carefully to avoid misplacing the kernels. (A piece of light cheese cloth placed on the kernels before the top covering is put on will prevent the kernels from sticking to the cloth.) Examine the kernels in the first row of the germination box. For example, if the kernels in the squares Nos. 4, 8, 13, and 20 have failed to grow or show weak germination, ears Nos. 4, 8, 13 and 20 on the floor should be rejected. Do not fail to remove the ears showing weak germination. If the ground is cold and the weather unfavorable in the spring these kernels will rot, or if they grow at all, will produce weak plants.

Where round-hole planter plates are used, or where corn is planted by hand, it is not necessary to pay close attention to the grading of the kernels after the butt and tip grains have been discarded, but where the more modern edge-drop planter is used a much more uniform stand can always be secured by grading the seed.

When the different grades have been made up they should be placed in sacks containing about a bushel each and hung up in a dry airy place. As perfectly dried corn will gather moisture and become weakened in vitality after shelling if stored in bulk in a poorly ventilated room, it should never be shelled long before planting.

TILE DRAINAGE AND CORN-GROWING.

By William Thompson, London.

To extend the area and increase the yield per acre of well-matured corn, is an achievement of first-rate importance to the Canadian farmer. To this end, the Ontario Corn-growers' Association will devote all its energies and all the resources at its command. These objects it will aim to accomplish directly by the improvement of seed of the best-adapted varieties, and by improved methods of cultivation. But the more the subject is considered, the more clearly does it become apparent that President J. O. Duke was getting down to fundamentals in classing drainage as a foremost prerequisite in the process of highly -successful corn-growing. Early maturity is the problem of problems which it is confidently believed that drainage will help to solve. Climatic reasons frequently restrict the length of our corn-maturing season, but the advent of the tile, wherever sufficient fall can be secured, will lengthen it, and reduce the labor consequent upon any system

of surface drainage. To the busy corn-grower, time means money. It is probably well within the mark to say that land well underdrained can be worked satisfactorily from a week to ten days earlier than fields not thus relieved of their saturation of water. That length of time added to the corn season frequently means easily the difference between failure and success in securing a properly-matured crop of ears and fodder. An underdrained field, too, can be sooner cultivated after heavy summer rains, and does not suffer to the same extent from the incidental filling of furrows and water-courses in the process of intertillage. As a rule, the early-planted crop is the best crop. More frequent tillage, earlier cultivation and more effective weed-killing are made possible, and it is probable that, in a well-drained district, the effects of occasional early frost will be very greatly reduced. Trouble from flooding by heavy summer rains is also avoided in large measure. Through the aeration and warming of the well-drained soil, the more rapid growth of the corn plant will be promoted, and this means more speedy growth, ahead of autumn frosts, and readiness for the harvester, the silo and the corn crib. Corn will not stand cold, wet feet, and, by planting even good seed of an early-maturing variety under such conditions, is to defeat the objects which the grower has in view. The splendid and necessary educational campaign of the Corn Association, with its judging schools, exhibitions, and corn clubs or institutes, will doubtless include drainage as one of its main doctrines.

CULTIVATION OF CORN.

By T. S. Biggar, Walkerville.

After getting the best seed possible for the conditions under which it is to be grown, the next thing in getting a 100 per cent. corn crop is to plant early in a fertile, well-tilled soil where it can have all the food and water it can use. Given these conditions without any accidents a 100 per cent. crop can be produced for that given locality. How to get the food and water and keep them in an available form for the plant's use is the problem in the proper cultivation of corn.

The three elements, nitrogen, phosphoric acid, and potash most lacking in soil are best maintained by barnyard manure and a proper rotation of crops. So much has been said and written about rotation of crops that farmers ought to know it by heart. The main point now is to impress upon them that they must rotate and use clover or other legumes in their rotation. Whether it will be a three or a four year rotation can best be determined by the farmer according to the conditions under which he labors.

For every ton of dry matter grown in a field of corn 270 tons of water are necessary for its production, or about 24 inches of water over an acre producing 10 tons of dry matter. Clover requires about double the amount of water per ton for dry matter but the tonnage per acre is not nearly so great in the case of clover. Again this crop shades the ground to a greater extent. So how to conserve the soil moisture is one of the great things in getting the 100 per cent. crop.

In this country no field will produce a maximum crop of corn without adopting some means of saving the soil moisture. There are fields, it is true, where, at times the soil moisture is too great and drainage is necessary, but even under these conditions means must be used to conserve the moisture not removed. The mode, time, and frequency of tillage, and the increasing of the water capacity of the soil, are the great things to study.

When ground is plowed late in the fall it acts as a mulch which helps to hold the moisture, and also lets the water penetrate deeper into the subsoil; besides the frost action on the exposed soil makes it work up more easily. Where it is impossible to plow in the fall we should plow early in the spring, and keep the soil worked up on the surface. Two pieces of land plowed seven days apart will often show a difference of 1 and 3-4 inches of water in the surface 4 feet or 1-8 of the average rainfall for the growing season of corn. Not only that, but the later plowed land gets hard and lumpy and this condition greatly increases the cost of fitting up for planting. Not only is the moisture conserved by early working of the soil before the seed is planted but the nitrates are developed in the soil.

Since corn does not shade the ground for a long time after it is planted it is necessary to establish a mulch or blanket of soil to counteract the effect of the sun and wind. Oats and other small grains shade the ground and also protect it from the winds; furthermore, they mature earlier and so do not get so much hot dry weather.

As the richest soil is usually near or at the surface, mulches should be as light as possible and yet on the other hand the soil before and after planting should be well stirred or aired.

When corn is 30 inches high the soil is well filled with roots, these even going down two feet for food and water at that stage. From that time on, shallow cultivation must be practised, because now the corn begins to shade the ground and the roots naturally come closer to the surface as the ground does not dry down so deep. Then again, roots are in a position to benefit from the light rains and dews that do not penetrate the soil deeply.

If we have only six inches of surface soil and we keep four inches of this stirred up all the time as a mulch, this leaves only two inches of the good soil for the roots to work in. If a mulch of two inches is as good as a mulch of four inches, we will have twice as much unstirred soil for the roots to feed on. On the light and coarser soils the mulch may be shallower than on soil of a clayey type. Small shovels are much better to produce a shallow even mulch than are large ones as the former do not ridge the soil so much.

After a heavy rain the soil particles become packed together and the mulch becomes united with the soil below. This must be stirred up as long as it can be done without too much root pruning, but in the early part of the season there is little danger.

One cannot lay down any fast and fixed rules for the depth and frequency of cultivation. It must vary with the season and the crop. But to sum it all up, we are safe in cultivating deep and often in the early part of the season, when the soil temperature is low and when the weed seeds are germinating. A drag or a weeder is very useful in corn after it is planted and before it is up, also after it is up and still small. There is some danger in harrowing corn just as it is coming through the ground, especially should a hard rain follow immediately. If the corn gets a little large and begins to break, harrow in the middle of the day when it is not so brittle.

Later in the season there is not much to be gained in the development of nitrates by tillage; the roots are closer to the surface, the only object is to keep a mulch, to prevent evaporation. Cultivation should be less deep and less frequent, the deeper being in the center of the row where the roots do not come so near the surface. This may be accomplished by letting down the outside teeth on the double cultivator.

Most machine men claim that they have the only tried and true cultivator for corn; but in general an eight tooth sulky with easy adjustments will fill the bill. Those cultivators having large shovels and few in number are waste-

ful of moisture and fertility and likely to prune too many roots. The two shovel plow has done more damage to corn throughout Ontario than has any other one thing. Many farmers have done good intelligent work in their corn fields up to the time they should stop cultivating; when they spoil it all by ripping up the soil twice in the row with the shovel plow.

By J. O. Duke, Olinda.

More intelligence is required to grow corn—good corn—than any other field crop the farmer can plant.

With the small grains, with a good season and a good soil, it is simply a matter of sowing and reaping. But with corn it is different. No matter how good the soil, or how favorable the season, if the corn crop is neglected for more than ten days during the growing season the best results cannot be hoped for. From the time the corn is planted, even before the tender plants are starting through the soil, cultivation should begin. A good harrowing at this period means extra bushels in the cribs when fall comes.

But to begin at the beginning, there is little use of trying to grow good corn without first having the land well tiled. The best corn lands in Essex and Kent are the black loam lands that were formerly covered with black ash and elm—swamp lands that have been reclaimed by large drainage systems—so there is very little land in these two counties that has not a good outlet for tile drains, and I firmly believe that one year with another tile drained land will yield 20 per cent. more than will untiled land in these districts.

On my soil I prefer spring plowing. We do not begin to plow for corn until the small grains have been sown, usually about the 15th or 20th of April, and continue plowing till planting time.

Some years corn may be planted quite early in May, but as a rule from the 20th to the 24th is early enough. Corn requires warm weather, and there is not much use planting till the warm weather is assured.

In the rotation of crops corn does best after clover. Being a heavy feeder the corn plant requires a great deal of what is left in the soil by the clover, and the thorough cultivation that should be given the corn crop leaves the land in a fine condition for small grains.

After the corn is well up, say two or three inches high, it should be again harrowed or cultivated with a weeder, which in a few days should be followed by a cultivator.

The hills should be three and a half to four feet apart each way, and rowed both ways, so that it may be readily cultivated each way by horse power. Cultivate as close to the plant as possible early in the season to prevent the foxtail and other weeds getting a start, and no hand labor will be required throughout the season.

Cultivation should be continued every week until the corn begins to break down with the horses turning at the ends of the rows; cultivation should then cease.

It is a good plan to sow red clover seed just before cultivating the last time. This is one of the surest ways of getting a good stand of red clover, and if plowed up the following spring corn may be again planted on the same land and a good crop assured.

By L. Hankinson, Grovesend.

The soil that is best adapted to corn growing in my locality is a moderate heavy clay loam. The sandy soils are generally too light and porous, and low-lying soils, cold and sour, but in cases where a good well drained sandy loam is available we can obtain equal results as on the heavy soil.

My exerpience has been that the best results can be obtained from fall plowing. In fact I believe that other things being equal, I can obtain as large a yield on fall plowed land without manure as on spring plowing with manure plowed under. My ideal condition is fall plowing, top dressed with manure fresh from the stables in the winter, well incorporated with the soil in the spring with disc harrow cultivator or gang.

We have obtained very good results, nevertheless, from spring plowing, where the ploughing can be done the first thing in the spring, but if plowing is left untill just before planting, it takes so long for the decomposition of the sod and manure, that the crop is standing still in the early part of the season when it should be making the most progress.

Corn with us generally follows clover. We follow a three year rotation, the rotation being hay and pasture, principally clover. Corn, roots and potatoes follow in the three years with oats, barley, and other cereals with which we always seed down to clover.

There is no crop that so thoroughly shows the benefits of thorough drainage as does corn. The young corn planted in water soaked soil, and allowed to remain in that state will lose seventy-five per cent of its vitality. To insure a bumper crop three things are essential, heat, moisture and air, and with thorough drainage more of these are available in their proper proportions.

In regard to cultivation, I am an advocate of persistent cultivation, starting before the planting is done, and continuing until the ears begin to form. I believe that one extra cultivating before planting is worth two later. In many cases too little work is done in preparation of corn land.

The planter is followed by a light harrow about the time the corn begins to appear, and again when the plants are about three or four inches in height. After this the two-horse cultivator and scufflers are brought into use. I do not believe in too deep cultivating for corn; three or four inches are sufficient to make a surface mulch and destroy weeds, and as the season advances cultivation should become shallower. We always endeavor to give our corn one cultivation a week until it gets too large. I am still a a believer in hand hoeing. I have always found that one good hoeing about the time the plants are five or six inches high a paying proposition.

Duncan Carmichael, West Lorne.

Corn is grown to quite a large extent in the township of Aldborough. The farmers in the vicinity of West Lorne grow a considerable acreage for our local canning factory, but generally speaking corn is grown for feeding purposes.

As regards our own farm and our method of cultivation I would say that our farm, comprising one hundred acres, is made up of choice loamy clay, with a few sand knolls which are not detrimental, as the soil is rich.

Our land is practically level, and requires to be tile-drained to get best results.

That you may more easily understand our rotation of crops I will give you a brief outline: Let us start with the corn-field, after the crop has been harvested and removed. I am a firm believer in fall plowing for corn, and in fact for all spring crops, although you may not all agree with me in this respect.

This field, then is fall plowed (sometimes we seed it to fall wheat without plowing it), and seeded to oats and barley with the requisite amount of clover seed sown also. The following season after the hay-crop has been removed this field is given a liberal top-dressing and kept one more season for pasture. In the fall, after having pastured it we plow it, and in the spring it is prepared for the corn-crop.

Immediately after we finish work in connection with sowing barley and oats, we start to work up our corn field, using peg-tooth harrow, disc harrow, spring-tooth cultivator, and roller until we have the ground thoroughly well worked up. I consider a day's work before the corn is planted as valuable as two or three after.

The last act before planting is to roll the ground. There is a difference of opinion as regards the best method of planting, but we prefer to plant with the drill in drills 42 inches apart and grain 8 to 10 inches apart in the drill. We usually roll the ground after planting. In a few days after planting, when the corn is beginning to peep through the ground, we harrow the field with a light harrow across the rows. This has a tendency to stop any growth of weeds, etc., and gives the corn a better chance to start.

Whenever we are able to distinguish the rows we start the two-horse cultivator at work, not cultivating too deeply or very closely to the drills the first time or two. I am of the opinion that the ground should be worked up about three inches deep between the rows. We always hoe the corn when it gets to be about a foot high, and thus destroy the weeds which the cultivator cannot reach.

Generally on account of rush of other work we cannot get time to hoe it again but believe it would be advantageous to do so.

We cultivate once a week or oftener with two-horse cultivator until corn gets too high, when we use scufflers until there is danger of knocking off the ears. By this time the ground is practically free of weeds.

When corn is ready for harvesting we cut it with the corn-binder, and allow it to lie on the ground for two or three days, which makes the sheaves a great deal lighter to handle. We put about twenty sheaves in a stook when ready to husk, it is husked by hand as we do not favor husking and shredding by machinery.

By this method of rotation and cultivation the ground is kept free from weeds and is always in a high state of cultivation.

BY J. B. RHODES, CHATHAM.

Tile drainage is at the base of successful corn growing in most sections of Kent County, though water is very essential to the growth of corn, there is no crop which is affected more quickly through having wet feet than corn. By having our land properly tiled we can work it at almost any season of the year, and are generally able to get it in the ground much earlier than farmers upon untiled land, which in this country of early fall frosts means the difference between a crop of marketable corn and no corn at all.

We use a four year rotation composed of clover, fall wheat, spring grain, and corn. Manure is applied in the spring and plowed under, the soil is rolled, then thoroughly worked up and the corn planted as early as possible, provided the soil and weather conditions are favorable.

We like to run over our cornfield with a weeder as soon as the corn begins to break through. This is kept up going both ways until the corn is big enough to cultivate. From this time on we try to get through our corn at least once a week, until the plants begin to break down when turning.

We then attach the mouldboards to the outside teeth and mould the soil up to the corn. This tends to develop the brace roots, and prevents the corn from blowing over after the ears are formed.

METHODS OF STORING SEED CORN.

By Prof. L. S. Klinck, Macdonald College, Que.

The problem of obtaining an adequate supply of acclimated seed corn in this country is a pressing one. With the increasing acreage devoted to corn growing there comes an increasingly urgent demand for seed corn of strong vitality. The problem of obtaining this supply has not yet been satisfactorily solved, but its economic importance demands careful study on the part of those interested in the production of this cereal.

At the present time the greater part of the seed corn planted in this country is imported from the United States. Much of this corn is of good quality, much of it is poor. Much that is good in itself and which would give excellent results in the locality where grown proves entirely unsuited to our conditions of soil and climate. The wide variations in time of ripening of corn bearing the same name have confused many, while the desire to grow something larger than their neighbors has led others to attempt to grow southern corns, wholly unsuited to our northern conditions

Since we cannot hope for any marked improvement in the quality of imported seed corn until such time as the farmers of this country insist on buying seed corn in the ear, and until the American exporters exercise greater discrimination in selecting seed corn better adapted to the requirements of the Canadian trade, we are justified in endeavoring to create at home a supply and demand for Canadian grown seed corn.

The objection has been raised that Canada cannot produce her own seed corn. This exhibition, however, demonstrates beyond a doubt that Southwestern Ontario can produce seed corn of exceptional merit. In the number and quality of exhibits it compares very favorably with similar shows in the corn growing states of Illinois and Iowa. Judging from the quality of this exhibition and from the interest manifested by the corn growers of this section in the study of this important crop the time is not far distant when the Canadian farmer will find in Southwestern Ontario a source from which he can obtain reliable acclimated seed corn.

For the past four years we have depended almost wholly upon Canadian grown seed in our corn work at Macdonald College. During this time we have tested the most promising varieties commonly grown in Southwestern Ontario, and so far have met with every success. These tests prove that seed corn, both dent and flint, of high percentage of germinability is being successfully grown in the Lake Erie counties.

Much carefully grown and harvested seed corn is rendered almost worthless as seed through improper storage. As the crop's early growth and subsequent yield depend very largely on the vitality of the seed planted, the essentials of proper storage must be understood and observed.

The first essential in storing corn is thorough ventilation. All varieties, excepting the very earliest, contain a very high water content at husking time. Few, if any, corns are sufficiently matured to shell readily when harvested. An ear may feel dry when husked, and yet may contain over 20 per cent. of moisture. If two or three good drying days have preceded the husking, corn that appears comparatively dry may contain over 30 per cent. of moisture. If this moisture were the result of outside influences, as dew or rain, it would not be so difficult to get rid of, but since it is contained within the cell walls themselves, considerably more time is required for this moisture to exude and be carried off. This accounts for the fact that fairly well matured corn, when stored in a poorly ventilated room, "gathers moisture," as we say. This moisture, in reality, has not been gathered, but has exuded from the corn itself, and as the currents of air have not been sufficient to carry off this moisture it has gathered in little beads or drops on the kernels. We have all noticed how a well filled ear of corn becomes loose and open on drying, and that later the kernels come together again and become so firm on the cob that to insert the point of a pocket knife forces out two or three kernels to relieve the pressure. This contraction has, of course, been due to the drying out and consequent shrinkage of the cob.

To show the importance of properly storing seed corn as soon as harvested, the writer collected a large number of ears in different stages of ripening—in the mature stage, in the denting stage, and in the advanced milk stage. Each group was placed by itself on a table in the laboratory. The windows were kept open all day and the temperature kept at from 60 to 75 degrees F. The ears were not allowed to touch each other, and yet with such apparently favorable conditions every ear in the denting and the advanced milk stages moulded on the under side within three days after storing. The ears husked in the denting stage moulded chiefly at the butts, because of the large amount of moisture contained in the large blocky kernels. The ears in the advanced milk stage were moulded throughout their entire length, and many of the kernels germinated on the ear. In all three samples the moisture was given off on calm days more rapidly than it could be evaporated, with the result that little beads or drops of moisture gathered on the kernels.

At the same time this experiment was being carried on, corn in the advanced stage and fully ten days too far advanced for best silage purposes was husked, placed in loose gunny sacks and left standing in the open field. In thirty-six hours many of the ears had heated and moulded, and in two days some of them had germinated. A duplicate sample of this corn when properly stored lost over 21 per cent. of moisture within a month of husking.

These simple experiments show the necessity of paying the most careful attention to the seed corn as soon as husked, as the most critical time in the life of a seed ear is the first ten days after it is harvested.

Time to Harvest Seed Corn. The time to harvest seed corn is determined wholly by the nature of the variety and by seasonal conditions. If the variety be sufficiently early to mature before danger from freezing, it should, by all means, be left to mature on the stalk. Seed corn husked in the dough or denting stage always shrivels up badly when dried, because it has not been given time to store up within its seedcoats all the nutriment the stalk and leaves have manufactured for it. It follows from this that the vigor of the resulting stalk must be impaired, because the vitality of the seed which produced it was below the normal. If, however, the corn is so late as to be liable to be injured by freezing in the field, it should be gathered and stored in some place where it will not freeze, and where, at the same time, currents of air can carry off the moisture.

Corn which will mature on the stalk before freezing has the advantage of all the nutriment the stalk and leaves have elaborated for its use, and at the same time has all the additional advantages of a perfect system of early fall storage.

As the ears approach full development, especially in the dent varieties, they gradually bend over until the tip of the ear points downward. Soon the husks open and allow a free circulation of air around the entire ear. The husks protect it from the rain and from the direct rays of the sun. As each ear hangs by itself, the danger of heating and moulding through coming in contact with other ears or objects, as is generally the case in artificial storing, is reduced to a minimum.

From this is is seen that for a sufficiently early variety of corn, nature provides the exact conditions which man has found most favorable for properly preserving seed corn.

Methods of Storing Seed Corn. The methods of storing seed corn are many, but the principle in all successful ones is the same, a good circulation of air to carry off the moisture before freezing weather. On the Funk Bros. seed farm, at Bloomington, Illinois, where the choicest ears from 8,000 acres of corn are annually stored, they have fifteen immense seedhouses devoted exclusively to the storing of seed corn. These houses are three stories in height and have a basement and furnace. In addition to a thorough system of ventilation for cold weather these houses are built with numerous large windows hung on hinges from the upper end so as to swing out and admit of a ready access of air. On the first floor, long doors about two feet wide, hung from the top, similar to the windows, extend around the entire house. When the windows and doors are open a strong draft is created even on the calmest days.

Even with such a thorough system of ventilation the ears are not closely ricked. They are thrown losely into bushel crates so that the ears are left crossed in every direction like a pile of "jack straws." The crates are in turn ricked up with plenty of room between them. Should the corn not be sufficiently dried by the time freezing weather comes the doors and windows are closed and a gentle fire started in the furnace. By means of hot air pipes and slatted floors the heat is evenly distributed, and the moisture is carried out through the numerous ventilators in the roofs. Artificial heat is used only in case of necessity, as there is danger of causing germination since all the essential conditions for growth are present.

In some districts much of the corn intended for seed is cut by hand just as the husks begin to open. The stalks are not bound in bundles, but are put up in small shocks and left standing for a month or six weeks, depending on the season. The corn is then husked and stored in an ordinary crib. This is undoubtedly a good practice where the grain is grown for feeding purposes, as the ears will keep when cribbed, and the stalks will furnish much good feed, but the practice is not to be commended, except in the case of the very earliest varieties, as repeated experiments have proven that corn harvested in this way generally gives a lower germination than corn properly stored. In the production of seed corn of high quality, the ears, not the stalks and ears, must have first consideration.

Where this method is followed, a decided improvement in the keeping quality of the cribbed corn could be made by piling the best matured ears by themselves when husking from the shock, and placing all immature ears and nubbins in a pile by themselves. These late and imperfectly developed ears contain a great deal of moisture, and when stored with the good ears tend to keep the entire crib damp.

Cribs used for storing seed ears should be raised several feet off the ground and made as open as possible. To secure best results they should be lined with wire screening to exclude mice and rats, and should in no case exceed four feet in width at the bottom and five feet at the top if flint varieties are to be stored. As dent corns pack less closely, the cribs for storing dent varieties may safely be made five feet at the bottom and seven at the top. While this system is not to be recommended, this hint, to those who follow it may not be out of place. In case the corn is not thoroughly dried when damaging frosts come, do not expect to find the most vital corn in the centre of the crib. From what has been said previously regarding the necessity of adequate ventilation the reason for this will be evident.

And, right in this connection, let me emphasize the fact that you cannot freeze corn that is not thoroughly dry without seriously impairing its germinating power. A large seed corn grower told me recently that he was not afraid of slightly frozen seed corn as long as it was gradually thawed out at a low temperature. This doctrine, if practised, will do more injury to the building up of a successful trade in Canadian seed corn than any other one thing could do. In some quarters it has already prejudiced large corn growers against Canadian grown seed.

Since our natural advantages are such as will enable us to produce a high quality of seed corn let us see to it that our methods of storing are such as will give us seed of good quality and strong vitality.

When seed is not grown on a commercial scale no special seedhouse need be provided for storing the choice ears. Every farmer has a number of places where these ears may be stored. Some husk the best ears in the field before danger of freezing, braid the husks of the ears together and hang the bunches to dry under the verandah, on the branch of a tree, in the barn loft, over the crib, or in the back kitchen. Others take a stout cord which they tie around each ear separately, and suspend the ears in long rows from the ceiling. These methods admit of a free circulation around each ear and are favorable to rapid drying. Those methods which prevent the rain and the direct rays of the sun from falling on the ears are the most satisfactory.

As soon as there is danger of severe freezing it is good practice to store the seed ears in the attic or over the kitchen. If the kitchen stove-pipe passes through this room so much the better, providing the steam cannot enter. Perfectly dry corn absorbs moisture readily, and in such a case is apt to freeze, even if at one time it was perfectly dry. Frost will not injure corn as long as it is dry and is kept dry, but it will tend to decrease the vitality from the time the seed begins to absorb moisture.

In furnace heated houses seed corn is often stored in the basement. This is a very satisfactory method, providing the corn has lost the major part of its moisture before being brought in. Unless it has become fairly well dried before it is put into a cellar having no artificial heat, or where that artificial heat is not produced until some time after the corn has been stored, it is almost sure to mould, owing to natural dampness. On the other hand, if placed in a furnace heated room there is danger of germination being induced by the heat from the furnace and the moisture in the corn. Corn dried by artificial heat is sometimes slower in germinating than corn dried naturally, but in field tests it has the best record for vigor and yield.

Seed corn should always be stored in the ear. If shelled in early spring the seed should be placed in sacks containing not more than one-

half bushel, and hung up in a dry place where there is an active circulation of air. A difference of two per cent. in the moisture content of shelled corn will materially influence its keeping quality.

Never hang seed corn in the granary over other grain. Unless the grain is very dry it will continue to give off moisture for some months after storing, and this evaporated moisture will prove detrimental to the vitality of the corn. Seed corn stored over stock is rarely satisfactory as the animal's breath tends to keep the corn damp.

A convenient and satisfactory method for storing seed corn where a considerable quantity is required is the rack method. These racks are strong, light, and inexpensive, and render it easily possible to make a careful study of the ears at any time. The corn rests on inch slats so as to admit air freely from below. Best results will be secured by placing but one row of corn at a time, as otherwise too many ears would be together, and moulding and possibly germination would result.

Sweet corn is, as a rule, much more difficult to cure than dent or flint corns. It is also more difficult to tell by inspection when an ear has been frosted, and as a result the percentage of germinable kernels is often very low. In the improvement of sweet corns, as in the case of dents and flints, we must learn to deny ourselves the earliest and best ears for boiling and roasting as corn shows very readily the kind of selection most practised.

In some sections the top of the stalk is removed at the close of the growing season; the husks are stripped back without severing the ear from the stalk, and the ear is left to dry. This is good practice where the fall season is dry, but in damp climates the ears are apt to become badly discolored as they dry slowly. Where birds are troublesome this method cannot be followed successfully.

Some growers husk and store sweet corn as soon as ripe. On a bright drying morning they husk it and leave it in the field in small piles until the middle of the afternoon, when they haul it to the seedhouse and store it the same as dent corn. Artificial heat is rarely used in curing sweet corn as the cob is very liable to mould before it becomes dry. When fermentation sets in the grain is quickly discolored, and its germinating power is seriously impaired. Sweet corn, if left for sometime in the shock before husking, is rarely good enough for planting, and if left untouched to mature on the stalk will rarely give satisfactory results.

Mr. T. S. Hunt, of Ames, Iowa, after making a thorough comparative test of the most common methods of storing seed corn as practised by farmers, in which he tested mature, medium and immature corn, stored in fourteen different ways, and continued his investigations the following spring by conducting germination tests in the greenhouse, and in the field, concluded:

"When corn is mature the problem of storing it is comparatively easy.

"All places of storing which had a lack of ventilation show it distinctly in the results.

"In immature and medium mature corn the dryness of the sample bears a close relation to the percentage germination.

"Immature corn cannot be made to give a high enough test for planting under any of the methods tried.

"Frost will not injure perfectly dry corn, but it will tend to decrease the vitality from the time the seed begins to absorb moisture.

"The first essential in successfully storing seed corn is thorough ventilation."

ESSEX CORN EXHIBITION, FEBRUARY, 1909.

PRIZE LIST.

1. Best 10 ears Bailey. Butler and Howey—1st, R. Rogers Kingsville; 2nd, Geo. Orton, Olinda; 3rd, James Marten, Amherstburg.

2. Best 10 ears Leaming, Pride of the North, King of the West, Yellow Gourd Seed.— 1st, A. L. Arner, Arner; 2nd, James Marten, Amherstburg; 3rd, P. J. Wigle, Kingsville.

3. Best 10 ears Reed's Yellow Dent, Iowa Gold Mine.—1st, A. H. Woodbridge, Kingsville; 2nd, Wm. Woodbridge, Kingsville; 3rd, Prideau Wigle, Kingsville.

4. Best 10 ears any other distinct variety, Yellow or Red Dent, not mentioned in this list.—1st, J. H. Coatsworth, Ruthven; 2nd, P. J. Wigle, Kingsville; 3rd, Isidore Gouin, Tecumseh.

5. Best 10 ears White Cap Yellow Dent (large).—1st, Geo. Coghill, Kingsville; 2nd, E. E. Wismer, Essex; 3rd, A. E. Wismer, Essex.

6. Best 10 ears White Cap Yellow Dent (small).—1st, A. E. Wismer, Essex; 2nd, E. E. Wismer, Essex; 3rd, Philip Fox, Leamington.

7. Best 10 ears White Gourd Seed, Silver Mine, any other distinct variety of White Dent.—1st, C. J. Neville, Ruthven; 2nd, J. O. Duke, Olinda; 3rd, Blake Cohoe, South Woodslee.

8. Best 10 ears Eight-rowed Flint, white, yellow or red.—1st, John Jones, Leamington; 2nd, M. G. Bruner, Olinda; 3rd, Walter Thompson, Dresden.

9. Best 10 ears Twelve-rowed Flint, yellow or white.—1st, Edward Smith, Ridgetown; 2nd, Wm. Copeland, Kingsville; 3rd, Harry Matthew, Kingsville.

10. Best single ear of corn in the show, any Dent variety.—1st, J. H. Coatsworth, Kingsville.

11. Corn judging competition, open to farmers and farmers' sons.—1st, Alvin Bunn, Ruthven: 2nd, Fred Ure, N. Pelton; 3rd, J. H. Coatsworth, Ruthven.

Judge.—L. S. Klinck, St. Ann's Agricultural College, Que.

In all cases prizes were $5, $3, and $2.

WARWICK BRO'S & RUTTER, Limited, Printers
TORONTO.

The Famous Corn Mural

The Ontario Seed Corn Growers' contribution to the 1979 International Plowing Match, held in Kent County. It is 60 feet long and 8 feet high — made of ears of corn, designed and created in the county. It is now located at the Wheels Hotel, Chatham after being viewed by thousands in Ottawa for one year following the match.

"Pulling Tassels" is the result of combined effort by numerous contributors, who, like the author, believe the Story of Seed Corn in Ontario should be made available to present and future generations. It is dedicated to those who took the lead when diligence and clear-thinking were needed. It issues a challenge to those now in leadership positions.