Soils and Crops

Address communications to Agronomist, 73 Adelaide St. West, Toronto

To Get Big Potato Crops.

Most of the potato growers of the province, in making plans for the 1922 crop, are giving special thought to the necessity, greater now, perhaps, than ever before, of producing maximum acre yields at the lowest possible cost per bushel. A certain output is required to pay the costs of producing the crop. The profits are in the surplus bushels, and the farmer who grows, say, 2,000 bushels of potatoes on from eight to ten acres of land will ordinarily make considerably greater profits than the man who grows the same crop on from fifteen to twenty acres.

The potato as it is grown to-day is a highly specialized crop and responds to proper care and cultural methods better perhaps than most other field crops. The following suggestions cover briefly the chief factors in the production of a heavy, high-quality crop and are readily applicable to prevailing Ontario conditions:

Thorough preparation of the land before planting enables the plant to develop a large root system, through which it can take from the soil sufficient nutrients to produce a desirable crop.

Plenty of organic matter in the soil insures moisture-holding capacity. Use certified seed, if possible. Never use any but the best seed obtainable.

Proper spacing is important. It has been found that rows three feet apart with the hills from 15 to 18 inches apart in the rows, gives yields from 30 per cent. greater than the "3x3" method commonly practiced.

Frequent shallow cultivation during the growing period largely prevents evaporation of the soil moisture and helps tide the crop over the summer drought.

Spraying with fungicide—insecticide solution at intervals keeps the vines green and healthy right up to maturity.

Adequate fertilization is necessary to produce a profitable crop. The potato demands large quantities of nitrogen, phosphorous and potassium. On most lands which have been cropped for some years, at least 1,000 pounds of high-analysis fertilizer per acre should be used, from one-third to one-half of which may be broadcasted before planting, the remainder being applied along the row at time of planting.

Better seed and efficient spraying materials and fertilizers may call for an outlay of some additional money, but investigations have shown them to be worth while.

Long Fight With Quack.

There are not at the present time very many farms in the older communities whose once clean and fertile fields are not infested with the dreaded quack grass. Anyone who has tried to work a field infested with quack is aware of the hardiness to which it is adept.

There was a ten-acre field on the writer's farm which was infested with quack, nearing a point which made tilling this particular plot a failure. The farm for years had been in the hands of tenants and hence the neglect. The first year we tried to cultivate the field we had all the plowing to do in the spring. This field was plowed about the last of April and worked up as best it could be. I say "as best it could be" owing to the density in places of the quack roots. We plowed this field about four inches deep, so as not to bury the roots too deep. This being done, we put in about the next six days with the disc harrow. Having disced this field four times lengthwise, crosswise and cornerways both ways, we then put the spring-tooth harrow to work in some of the lower places where the sod was heaviest. Neither the disc or the spring-tooth would take hold. The latter would turn the sod over in chunks when it did take hold.

Having done all we could do, we planted this field to corn, drilling it in one way. Everything ran along smoothly until the corn was large enough to cultivate. The corn came on good, a good stand under the conditions. But the quack was also a good stand. We kept a team and cultivator in this field every day that it was possible to do so. Although we managed to work up a mulch for a time, owing to frequent rains, our battle had only begun. The corn was a failure. We took off what fodder there was and plowed the field shallow, about two inches deep, about the first of October. Then again we plowed just before the ground froze up. Being a late fall we finished plowing the second day of December.

The following spring, after seeding was done, we kept the spring-tooth harrow on this ten-acre field about two days a week until about the first of June. We had then just begun to win. In places it still grew. We again directed our labors to the plow, plowing about two inches deep and harrowing what we plowed immediately. Thus the soil did not harden but left a nice mellow bed. We had by this last plowing and harrowng torn up the sod to a degree which brought us victory. The weather at this time began to get hot and dry. Being about the first week of June after getting the ground loosened from the roots, we kept a team and spike-tooth harrow in this field every day for about a week. The days were dry and hot, and with constant stirring and turning of the matted roots, we won a well-earned battle. We planted this field to beans June 15. On June 17, two days later, we harrowed this field again, once lengthwise and once crosswise The next morning the beans began peeping through. We used a two-row beet cultivator, taking two rows at a time. As soon as the rows were visible until the beans were beginning to set runners, we cultivated shallow about twice a week. Not only did we eradicate the quack, of which I dare venture to say, there is not a spear, but we were well repaid for the labor. The beans harvested and threshed yielded three hundred and forty-two bushels, or about thirty-four bushels per acre, and were selling at the time at $7.25 per cwt.

It is three years since we have seen a sign of quack in this field. Not only quack, but other weeds gave way to the treatment.

Poultry

Old oil drained from the crank-case of the automobile or tractor is the very best kind of hen-house spray for the eradication of vermin.

Egg production must be bred into hens before it can be fed out of them. Hens must be well bred before they will be most profitable, even though they are well cared for.

Animal food is required for the best growth in chicks, as well as for large egg yields. Where bugs and worms are scarce, it is well to feed meat scrap, fish scrap, or any form of milk products.

A fowl when cured is more of a menace than a benefit. When it is returned to the flock there is a possibility that it may be responsible for offspring inheriting weak constitutions, which render the offspring more than ordinarily susceptible to disease.

Vermin-proof nests can be made of shredded cedar bark. The bark is naturally tough and stringy, easily twisted, and has a pungent odor. It is claimed that the odor of cedar is just as destructive to lice and mites as it is to moths, and every housewife knows that a cedar chest keeps moths from whatever is put into it.

In keeping egg records, confusion sometimes results by losing count of the number of eggs eaten. This difficulty can be avoided by setting down each day the number of nests gathered on that day, and then adding these figures at the end of the month to get the total number of eggs gathered for the month. Then subtract the number of dozens sold from the number of dozens gathered, and this will give an accurate record of number used.

White diarrhea has cost us the loss of a great many chicks. One day my wife called my attention to the afflicted chicks, and I remarked jokingly: "Oh, well, rub a little vaseline on their tails, for it will do no harm, if not any good." The next day all the chicks were scratching and feeding as though nothing ever was the matter. Their little tails were clean and fluffy. Since then we apply the vaseline as soon as symptoms of the disease appear, and in most cases one application is sufficient.

Canada's Oldest Cereal.

When Christopher Columbus landed on the shores of America in 1498, or 424 years ago, he found vast fields of Indian corn or maize being cultivated by the natives of those days. He duly reported the fact to Queen Isabella of Spain. The corn, it might be mentioned, grown by the Indians, was the same types as those of to-day, namely, Flint and Dent, the former being used for hominy and similar food products and the latter for flour. Since that time the settlers and dwellers have gone on with the cultivation until there is produced annually in the United States between two and a half and three billion bushels of this grain and between 35 to 40 million tons of ensilage or forage, which is stored in half a million silos, while in Canada there is produced 15 million bushels of grain and six million tons of corn for forage which is stored in some fifty or sixty thousand silos, chiefly in Ontario. These facts are gathered from an article on the history, production and utilization of corn in the March-April number of The Agricultural Gazette of Canada, by Dr. J. H. Grisdale, Deputy Minister of Agriculture for the Dominion. According to this article, the cost of growing an acre of corn at the Central Experimental Farm, Ottawa, is estimated at $57.62, the yield at 16.40 tons per acre, the value at $91.84 per acre, and the profit at $34.21.

After telling of the many advantages of growing corn for ensilage in this country, the article refers to the ravages of the recently discovered European corn-borer. First revealed in 1920, when thirty-five townships in south-western Ontario were found to be infested, it has spread, last year, to one hundred townships, covering an area of 7,680 square miles, all in Ontario. The infested townships have been quarantined, and the United States has placed an embargo on the importation of corn from Ontario. Farmers are urged to send to the Publications Branch of the Department of Agriculture at Ottawa for Leaflet No. 16 of the Entomological Branch, entitled, "The Control of the European Corn Borer," and to help in the suppression of the pest by following the instructions there given. No charge is made for the leaflet and no postage is necessary in making application.

The Necessity for Clean Seed.

To maintain the farm in a clean condition and free from weeds it is necessary that the seed sown should be clean, whether it be grain or grass. As few people buy all of their seed, a properly equipped fanning mill on every farm is a practical necessity. While a new mill is to be preferred, this is not always necessary. At times like the present when economy has to be practiced, an old fanning mill can often be put into condition to do work with comparatively little expense. In most districts in the older settled parts of Canada there are many fanning mills that were bought fifteen or twenty years ago. They may have been originally equipped with thoroughly good sieves, in fact, the best in those days, but when wires become bent and sieves broken the mill, however good it may be in other ways, cannot be depended on to separate seeds as it should. It may be that new sieves for these particular mills cannot in all cases be procured, but there still remains a means for their renewal. The seed laboratories at Ottawa, Winnipeg and Calgary, are prepared to examine samples of seed at any time with a view to advising what sieves to use and where they may be obtained. For such examination samples of from eight to ten ounces should be submitted. The sender should state the kind of mill he has. In Pamphlet No. 4 of the Department of Agriculture at Ottawa, the Seed Commissioner recommends the sieves that should be ordered for the cleaning of clover seed, grass seed, and the various kinds of grain, and gives diagrams of same.

Work, think, read.

Says Sam: So live that folks won't whisper at your funeral.

The man who is in right relations with his neighbor is a booster for the home community.

Sheep Notes

Sheep raisers have discovered that they receive a higher price, on an average, for the docked lambs, so it really pays to give the little fellow a "tailoring." This extra money is easily made, and since the operation offers little danger, every sheep raiser should perform this operation, and that of castration. Both should be done on a mild day between the fourth and sixth week of the lamb's life.

Lay the lamb on its side, drawing the hind legs up close to the body, to remove testicles, cutting off the lower one-third of the scrotum and pull out the organs with a quick movement, using the thumb and forefinger.

The docking may be done with a sharp knife, cutting from the under side of the tail up and between joints in the tail bone, about three-quarters of an inch from the body. Apply powdered alum to check bleeding. Hot pincers are best, designed especially for this work. These are heated to a dull red, and the tail seared off, a board with a hole in it, through which the tail is passed, being used, which serves to keep the pincers from burning the body.

The castrated lamb uses its food to make flesh, while the docked lamb presents a far more attractive article for market.

Every dead ear of corn means 900 missing stalks. Test seed.

A lazy hen in April has little to commend her, save as a roasting fowl.

Problems will be solved only after we have discovered the real facts about them, so our big problem is the finding of dependable data on other problems.

IMPERIAL

MICA AXLE GREASE

The ground mica in Imperial Mica Axle Grease smooths the spindle by filling the minute crevices in the steel. Over this the grease works easily, eliminating friction, heat and wear. Eases the strain on horses and harness. It goes twice as far and lasts twice as long as other greases.

IMPERIAL

EUREKA HARNESS OIL

Fills the pores and protects the fibre of leather from the action of dust, sweat, moisture and heat. Keeps harness strong, flexible and new-looking. Doubles its life and gives it a rich, black finish that lasts. On sale everywhere in sizes from a pint to a barrel.

IMPERIAL OIL LIMITED

Canadian Company Canadian Capital

Canadian Workmen

Smoke

OLD CHUM

The Tobacco of Quality

½ LB. TINS—and in p'k'gs.

THE SUNDAY SCHOOL

APRIL 30

Isaiah's Summons and Response, Isa. 6; 1-8. Golden Text —Here am I; send me.—Isa. 6: 18.

Time—B.C. 740.

Place—The Temple at Jerusalem.

Connecting Links—Isaiah was the first great prophet of the Southern Kingdom. Before him Amos and Hosea had preached to the Northern Kingdom, and he was doubtless familiar with their teachings. He was brought up in Jerusalem, where he mingled freely with its most influential citizens and perceived clearly the trend of Judean politics and life. As a young man he witnessed the brilliant reign of Uzziah, which was marked by great material splendor and prosperity (2 Chron. 26: 5-15) as well as by folly, wickedness and social injustice. The removal of Uzziah from the throne enabled Isaiah to see a higher king and a better kingdom.

I. Isaiah's Vision, 1-4.

Isaiah's vision came while he was worshipping in the temple. He fell into a prophetic ecstacy, during which the earthly temple was transfigured into the heavenly temple where God dwells in glory, and various appurtenances in the temple became symbolic of great spiritual realities.

V. 1. **In the year . . died.** We do not know whether Uzziah was already dead or a leper isolated from his kind (2 Chron. 26: 21) when Isaiah received his call; in any case the sight of the proud, successful king humbled and punished by God would cause the young Isaiah to revise his estimates of life. **I saw . . the Lord.** The description of God is impressively brief. For other visions of God see Ex. 33: 20-23; Amos 7: 7; 9: 1; Ezek., ch. 1; Dan. 7: 9. **Sitting upon a throne.** The temple was regarded as the special dwelling place of God, and Isaiah saw His throne with its foundations in the earthly temple but rising far above it. **High and lifted up.** To the prophetic mind God is both in the world and above it. His kingly majesty, because above the world, is free from its changes and imperfections. **His train.** The lower portion of God's robes flowed down from His robe and filled the entire floor space of the temple.

V. 2. **The seraphims;** are celestial beings, not mentioned elsewhere in the Bible. They are represented as the guardian of God's throne who repel from His holy presence all things profane and sinful. The posture of their wings, as described by Isaiah, indicates reverence, humility and service.

V. 3. It is probable that the seraphim sang antiphonally, one choir chanting the first half of the verse and the other the second half. One of the functions of the seraphim thus appears to be praise. **Holy,** etc. The threefold repetition of the word "holy" gives the sense of absolutely holy. Isaiah filled the word with deeper content; it now became not only the idea of separation from sin but positive, moral perfection. "It covers the impressions which God makes on man as a sinner" (G. A. Smith). Isaiah's favorite designation of God was "the holy one of Israel." **Glory.** Usually in the Old Testament "glory" denotes the nimbus of light which is supposed to surround God's presence, Ex. 33: 22. Here it seems to be "the expression of holiness as beauty is the expression of health" (G. A. Smith).

V. 4. **Filled with smoke.** This may have been suggested by the incense from the temple service. A cloud frequently accompanied God's presence, Ex. 40: 34; 1 Kings 8: 10, 11; Ezek. 10: 4. The smoke obscured the vision; "only for a moment does Isaiah see the unveiled glory of Jehovah" (Gray).

II. The Sense of Sin, 5.

V. 5. Isaiah's attention was turned from the glorious spectacle to himself. The revelation of God's holiness was also a revelation of his own and his people's sinfulness and he was filled with dismay. Peter had a similar experience in the presence of his Lord, Luke 5: 8. **Unclean lips.** Speech is the expression of the inner life and when the inner life is corrupt, the speech shares that corruption also. "Isaiah being a prophet felt his moral weakness most upon his lips" (G. A. Smith).

III. Preparation for Service, 6-9.

V. 6. It is remarkable that Isaiah, on discovering his sin, did not seek to expiate it by sacrifice. The mode of removing his sin foreshadows the Christian idea that God and not man expiates for sin. **A live coal,** etc. It was a Hebrew domestic custom to burn fuel in a brazier or to heat stones in a hearth and then apply them, when withdrawn, to what was to be boiled or baked.

V. 7. **Laid it upon my mouth.** In the Bible fire is frequently regarded as a purifying agency. (See Mal. 3: 2; Luke 3: 16.) "Jehovah is a fire in contact with the sin of His people which must either consume them or purify them" (A. B. Davidson). Being purged of his sin Isaiah felt the sense of pardon and could then address God and man with clean lips.

V. 8. The call was not addressed directly to Isaiah; he merely overheard God questioning with his seraphim, "Whom shall I send, etc." Face to face with a holy God he realized that a prophet was needed to deal with the nation's folly and wickedness and he responded with, "Here am I."

Vs. 9-13. In the concluding verses Isaiah is warned by God not to expect an unqualified success in his prophetic ministry. He was warned that his preaching instead of raising the people above their sinful condition, might only confirm them in it, vs. 9, 10. This will continue until they are carried off to their doom, vs. 11, 12. Nevertheless a small remnant will accept his prophecy and will escape that doom, v. 13.

Application.

Decision for service. Following the vision of the Holy God and conviction of sin in God's presence Isaiah heard the call to service and replied, "Here am I; send me." At the outbreak of the Indian Mutiny, Sir Colin Campbell, when asked how long it would take him to get ready to start for India, is said to have replied: "I am ready now." When Paul had his vision of Christ he asked, "Lord, what wilt Thou have me to do?" The mission fields are calling for workers. The ministry is pleading for recruits. Every church is asking for helpers. It is a fateful decision when a young person replies, "Here am I; send me." Faith in God supplies the motive for seriousness in our life endeavor. "If this life be not a real fight, in which something is eternally gained for the universe by success, it is no better than a game of private theatricals, from which one may withdraw at will. But it feels like a real fight."

Parents as Educators

Hand Occupation With an Envelope

BY JENNY B. MERRILL, PH.D.

It will interest mothers to know how much can be done with an envelope and pair of scissors in the way of providing diversion, occupation and even instruction for children. These hints apply to different ages. The first eight may be used with many children of five or six years of age, the rest with children from six to ten.

1. Cut out the stamp neatly from the corner of an envelope, also cut out the post-mark. Explain why there is a post-mark. There may be more than one.

2. Keep stamps after cutting out, using them to make pretty borders and other designs. Mingle stamps of different colors.

3. Draw on the inside of the envelope the train that carries letters to us, or the rural delivery wagon, or the automobile.

4. Cut off one or more clean corners of the envelope in the shape of a triangle. Each triangle may be used as a book-mark by slipping it on the corner of a leaf. Decorate these triangles with simple designs. Older children may paint a flower and younger children may mount a pretty little picture on each triangle.

5. Cut an envelope into pieces using the creases as guides. Cut several and form designs with the pieces. Each piece may be colored with crayons, paint, or colored pencils.

6. Fold the envelope so as to form a basket or any other object you choose.

7. Draw a door and windows on a long envelope. Press the corners of the envelope out, so that it appears to be a house. The doors and windows may also be cut so as to open and shut. Color the house.

8. Play postman. Make a mail bag to swing over the shoulder. Make a letter box in which to mail letters. A child may deliver letters to the different members of the family. He should be made to appreciate this duty as letters are often very important. There is an ethical lesson here on responsibility.

9. Learn to open a closed envelope neatly with a paper cutter without injuring the contents. This can sometimes be done by rolling a pencil carefully under the flap.

10. Open out the whole envelope and notice its shape, then try to make one of the same size; first measure the paper to be used, place the envelope on the paper, trace it and then fold carefully.

11. Practice, if old enough, addressing an envelope to a father, a mother, to an aunt, a cousin, or a friend. Also mount a stamp in the upper right-hand corner leaving a white margin around the stamp. Explain the importance of using the correct corner.

12. Write the name of the man whose face is engraved on the stamp.

13. Write the names of the colors of these stamps under the name.

Even quite young children are attracted by the coming of the postman, and love to play postman. A little girl of three once said, "This is my letter." Then, pretending to read the address, she said, "It says 'Miss Me'."

WISDOM WITHOUT PUNISHMENT

The barefoot boy very naturally avoids the thistle patch once he has stepped upon a dried member of the thistle family, and the youthful carpenter learns the better to hit the nail on the head after pounding his thumb or finger a few times. Experience is the great teacher. With her wielding the rod we learn well her many lessons. And so it is largely as the result of penalties and punishment resulting from our experience along life's pathway that we gain wisdom.

It is possible, however, for us to experience some of the activities of life without suffering the penalties. The painter, the sculptor and the author have all given us the opportunity to feel the passions which are aroused during intense moments of hatred, love, ambition, strife, etc., without requiring that we pay the penalty which is exacted in real life. Here is opportunity for one to secure for himself a much broader view of things and people than is possible to be gained in his own personal experiences.

Farm folks as well as city folks need this wider horizon. The satisfaction and pleasure that they will get from their work and play will be multiplied by extending the scope of their understanding and feelings to new fields of life. Broader sympathies, more unselfish service, greater co-operation are certain to follow not merely a mental perception of things new, but a real heart knowledge of the experiences which other persons are called upon to suffer in life that no person or family whether in county or city can afford to overlook.

Blessed shall be the fruit of thy ground, the increase of thy cattle, and the young of thy flock.—Deut. 28, 4.