Farm Crop Queries

Henry G. Bell

Conducted by Professor Henry G. Bell

The object of this department is to place at the service of our farm readers the advice of an acknowledged authority on all subjects pertaining to soils and crops.

Address all questions to Professor Henry G. Bell, in care of The Wilson Publishing Company, Limited, Toronto, and answers will appear in this column in the order in which they are received. As space is limited it is advisable where immediate reply is necessary that a stamped and addressed envelope be enclosed with the question, when the answer will be mailed direct.

A.E.P.:—We are going to sow wheat this year on a piece of muck land. It has had timothy hay cut off it for three years, a very good hay crop each year. This summer it was ploughed as soon as the hay was taken off and has been thoroughly disced and cultivated since. It is a muck with sand bottom. We had no fertilizer to put on, and would like to know if a basic slag or a phosphate would be suitable, either one or both.

Answer:—The soil on which you are planning to grow your wheat is relatively low in nitrogen and will undoubtedly give you a strong growth of straw. I would advise you to add at least 200 to 300 lbs. of fertilizer carrying 10 to 12% acid phosphate and 1% potash. You have handled the soil correctly in preparing it. I would impress upon you the importance of giving the seed-bed thorough preparation. If the soil tends to be too open and light, follow the sowing with rolling and then a light harrowing. I have advised acid phosphate since I believe you need a readily available form of phosphoric acid.

A. McE.:—I have quite a number of celery plants which began to go to seed three weeks ago; I tried cutting off the seed top as soon as it appeared but it merely grew up again. I sowed the seed of this in boxes the last of February, 1917, and set the plants out in the open ground about the middle of June in clay soil which had been an old pig yard before. We dug trenches ten inches deep putting in the bottom five inches of rotted manure mixed with a little earth and planted them in this. Now they are grown to a good height, are kept hilled and look healthy plants but would like to know the cause of it going to seed and how to prevent it.

Answer:—The cause of the celery plants going to seed is that the habit of the plant has been changed. In its wild state the celery plant tends to be an annual. The gardener grows it as a biennial, that is, he tries to get the full grown plant without the seeds. You see the same habit in wheat when you plant winter wheat seed or winter rye in the spring. Very few of the plants send up shoots the first year, but some do. If you select the seed from the plants which send up heads the first year, by the second and third generation you will have entirely changed the habit of the plant and it would be a one-season plant. The only way to prevent celery from seeding is to transplant it late, cause it to make rapid growth by balancing plantfood, and harvest it before it has an opportunity to form seed shoots.

Possibly your ground is running short of ammonia or nitrogen. This is the kind of plantfood which causes the celery stalk to grow. If the plants are small and slow in growth there is an indication of nitrogen being lacking. The addition of manure or a fertilizer high in ammonia will tend to prevent this.

E.O.P.:—Would you advise sowing both lime and acid phosphate on land that is to be sown to wheat in the spring? When would you advise sowing the lime and how much per acre? Would it be better to sow the acid phosphate shortly before sowing the wheat, and how much per acre? Could I mix the lime and acid phosphate and sow both at one operation in a lime drill?

Answer:—Lime and acid phosphate are both beneficial on land to be used for wheat in the spring. The benefit of the lime is not so directly traceable in wheat yields but is clearly shown if the grain is seeded with clover and timothy or alfalfa. Lime may be applied any time this fall or through the winter, or if the ground is to be left for spring plowing it could be applied immediately after the ground is plowed, just before it is disked and harrowed. An application of 2 to 4 tons of ground limestone or one ton per acre of air-slaked lime will give you good results.

The acid phosphate can be drilled on at the time the wheat is sown. Modern drills are provided with both the seed and fertilizer dropping attachment. Applications at the rate of 200 to 300 pounds to the acre give good results. If you have not manured your land just before the wheat, I would advise you to use a mixture of fertilizer analyzing 2 to 3% ammonia, which will provide nitrogen to start the early growth of the young crop, and 10 to 12% phosphoric acid, which will greatly hasten its ripening and the plumping of its kernels.

By no means would I advise the mixing of the lime and acid phosphate. Such a mixture would tend to turn back the soluble phosphoric acid in the acid phosphate to a form which is much more slowly available.

ECONOMIC PRODUCTION OF WHEAT IN RELATION TO FOOD PRODUCTION

By Henry G. Bell, Agronomist.

Civilization is in the balance. At no time in the world's history has so critical a period faced the peoples of the earth. The fundamental principles of democratic nations must now be successfully defended or democracy is destined to vanish from the earth. The triumph of civilization depends upon men, munitions, food and a patriotic devotion to the cause. Not one of these factors must be neglected or triumph will rest with our enemies. The farmers of this continent and of Europe have done nobly during the past year, but gigantic problems face them in the coming months.

The Canadian Commissioner of Agriculture has recently made a statement that Canada will be prepared to export at least 200,000,000 bushels of 1917 wheat. The wheat crop of the United States will probably total 668,000,000 bushels, of which at least 450,000,000 will be necessary for their own needs. Recent reports from the International Bureau of Agriculture, Rome, indicate an increase in wheat for British India, of over 16%. Favorable wheat reports came also from Italy. A year ago a vigorous campaign for larger wheat acreage in the United Kingdom was successfully carried out, but unfavorable weather has damaged the British wheat crop to so great an extent that in July it ranked 94% as against an average crop estimated at 100%. It is obvious then that the entire people of this continent must exercise every energy in conserving food; farmers, every intelligence in producing more food; bakers, every economy and device in making the food stock go as far as possible so that the needs of our own and allied people may be met.

Methods of Increasing Crop.

The question the farmer is asking to-day is, how can I economically increase my wheat yield? My answer is in five divisions; first, by drainage. Winter-killing is frequently caused by surplus water not being able to run off or percolate through the soil, and as a result, freezing about the young wheat plant.

Second: proper soil tillage. The advantages of proper seed-bed preparation are so apparent that it is unnecessary to go into a detailed discussion of the profit of good tillage in wheat production. If the soil is to catch and hold a sufficiency of moisture, it must be deeply stirred and thoroughly pulverized. Such tillage will allow for the desirable circulation of air, which is required for seed germination, and for the life of the beneficial soil bacteria at work in the area where the grain roots stretch out in quest of food. Thorough stirring of the soil allows for maximum root growth with the consequent development of a strong crown, which in itself goes a long way to providing the crop with strength to withstand the cold weather of autumn and winter.

The third method of increasing the wheat yield is by the selection of proper varieties of wheat and high-grade seed of those varieties. Soft wheat produces, as a rule, weak flour. Sound, plump, flinty wheat of either spring or winter varieties produces flour that rises well in the pans, and produces bread of fine texture and quality.

The fourth method of wheat increase is by proper soil fertilization. Men cannot work without food, neither can crops. The tiny wheat plant must be supplied with a sufficiency of suitable, well-balanced plantfood just as much as the fighting soldiers at the front must receive an abundance of well-balanced diet.

The Question of Plantfood.

What can be done then to increase crop yields through attention to plantfood?

First of all, the farmer can give the soil the most careful tillage, as already stated, which operation will of course bring as much of the soil plantfood as possible into shape for its consumption by the plant. Second, every grower of wheat should as far as possible, manure his wheat fields. Livestock manure supplies three of the important constituents of plantfood, nitrogen, which causes the wheat straw to grow; phosphoric acid, which hastens the ripening of the crop and plumps the kernels; and potash, which gives strength to the crop to resist plant diseases and hastens the filling of the kernel. A shortage in any one of these constituents of plantfood produces wheat of poor quality. In this connection it should be carefully noted that livestock manure, while it is good for most crops, it is somewhat unbalanced for the production of wheat, in that it carries a relatively large amount of available nitrogen, a medium supply of potash, but a relatively short supply of the constituent of plantfood that causes the crop to ripen, phosphoric acid. Investigations have shown, therefore, that the farmer can very profitably supplement farm manure with an addition of acid phosphate. Such an addition reduces relative straw growth and increases the production of grain.

(Concluded next week.)

Your Problems

Conducted by Mrs Helen Law

Mothers and daughters of all ages are cordially invited to write to this department. Initials only will be published with each question and its answer as a means of identification, but full name and address must be given in each letter. Write on one side of paper only. Answers will be mailed direct if stamped and addressed envelope is enclosed.

Address all correspondence for this department to Mrs. Helen Law, 233 Woodbine Ave., Toronto.

Patriot:—1. The new Trench Cap is not nearly as long or bulky as the old "Balaclava." It reaches just to the neck, and is designed for wear under the tin helmet by day, and as a sleeping cap by night. You will require about a quarter of a pound of wool—Canadian Khaki yarn at $1.75 a pound, or five-ply Beehive at 28 cents a skein would be suitable. Here are the directions: Cast on 96 stitches, 32 on each needle. Rib 2 and purl 2 for 25 rows. Knit 6 and purl 2 for 22 rows. Narrow second stitch on each end of needle until you have 4 stitches on each needle. Then thread the end of the wool with large darning needle and button-hole around the 8 left, leaving a small opening on top of cap. 2. I offer the following suggestions for the eleven-year-old brother's birthday party which you wish to make a patriotic affair. Write the invitations to the party on plain white paper, with a small flag in one corner. Have your table set with red, white and blue place cards, a white cloth and a centerpiece of red, white and blue flowers. The birthday cake may be decorated with the flags of the Allies. For one game you could have a sort of "history bee," like a spelling bee. The prize should go to the child who can tell the greatest number of historical events correctly—for instance, who were the generals at the Battle of the Plains of Abraham, who was Sir Isaac Brock, who made Ottawa the capital of Canada, what event are we celebrating this year, etc. The prize should be something that has to do with the war—a war picture or a small silk flag. The other games should all have something to do with the country or the war, and, of course, the singing of "The Maple Leaf," "Rule Britannia" and "O Canada" ought not to be omitted. Before they leave the children should sing the National Anthem, all standing at attention.

Sara:—1. Cornmeal dumplings may be made as follows: Scald a quart of milk, stir in three cupfuls of Indian meal, or enough to make a stiff dough. Cook for five minutes, stirring often from the bottom. Take from the fire, beat in one-half cupful of powdered suet with a tablespoonful of salt and let it get perfectly cold. Then add three eggs, beaten light, with two tablespoonful of sugar, and, lastly, a tablespoonful of flour sifted three times with half a tablespoonful of baking powder. Make out into balls the size of an egg, flour your hands, wrap in clean cheesecloth squares. The dumplings will double their size in boiling, so make all allowance in tying them up. Boil one hour hard. Dip into cold water for a second, turn out and serve with hard sauce. 2. An application of hydrogen peroxide will take scorch stains out of silk. Potassium permanganate followed by sulphuric acid will also remove them. I am sorry to say, however, that with the removal of the scorch stains the color of the waist is apt to be injured. If you find that this is true, it will be necessary to dye the blouse. 3. You can remove match marks from white paint by rubbing them with a piece of cut lemon.

Home-Maker: — A well-balanced dietary supplies body-building, heat-and-energy-supplying and regulating substances in the right proportion and in sufficient quantity. Simple meals can fulfil all requirements. It is wiser to spread the variety of food over many days than to provide many kinds of food in each meal every day. Following are examples of simple but well-balanced meals:—1. Fruit, oatmeal and whole milk. 2. Egg, bread, butter, fruit or vegetable. 3. Bread, cheese, tart fruit. 4. Baked beans, brown bread, apple sauce. 5. Mutton, potatoes, second vegetable, fruit batter pudding. 6. Milk soup, corn bread and syrup. 7. Whole wheat bread, whole milk, prunes. These are not ideal for all ages and conditions, but they meet the needs of healthy active adults.

Bedtime Stories

Doll Dreams

I wonder what my dolly dreams
When she is fast asleep? I s'pose
She dreams she is a princess doll
With, 'stead of her old clothes,
A golden crown and satin dress
All edged with snowy fur.
Sometimes she dreams of me, I guess—
I often dream of her!

Dilly-Dally

Once upon a time there lived a little girl named Dorothy Hart. She was a dear little girl, but she had one great failing: she never obeyed promptly. She was never in any hurry and was usually late everywhere she went.

Next door to where Dorothy lived was a little girl named Evelyn Vail. Evelyn had a large collie, but no one liked the dog except herself.

One day Dorothy's uncle bought her a little yellow chicken. It was so round, fat and fluffy that she named it Fluff. Her mother told her to keep it in the little chicken coop that her brother Jack had made for it. One day Dorothy's mother told her to run out on the lawn, because Fluff was out of the coop and was running all around. But Dilly-Dally—for this was what every one called her because she always was late—took her time and when she got there she found that Evelyn's dog had eaten her beloved chicken.

This taught Dorothy a severe lesson, and now she has lost the title f Dilly-Dally by being always on time.

When her uncle heard of this he bought her another chicken, and we may hope that Dorothy will take better care of it than she did of Fluff.

The Sunday School

INTERNATIONAL LESSON
OCTOBER 7.

Lesson I. Psalms of Deliverance—Psalms 85 and 126. Golden Text.—Psa. 126. 5.

Verses 1-3. Jehovah's loving-kindness in the past. Brought back the captivity — Better, "restored the fortunes." In themselves the words contain no reference to restoration from exile; but the psalmist may have in mind the change in fortune due to the restoration. Sin arouses the divine wrath, the divine wrath prompts the sending of calamity; hence the withdrawal of calamity proves that the divine wrath is appeased, which, in turn, proves that Jehovah has forgiven or removed the people's sin.

4-7. The transformation has been marvelous; but much remains to be done. If he only would complete his work! Turn us—Better, "turn to us," again, as in the past. The present distress shows that the divine wrath has not entirely disappeared; hence the new petitions.

8-13. The psalmist stands between his people and their God. He awaits Jehovah's reply to his plea, and then brings to the waiting people the assurance that their God has not forsaken them; the manifestation of his loving-kindness in a complete deliverance and restoration is at hand. Saints—Synonymous with "his people;" perhaps better "his favored ones;" that is, those who are objects of special consideration. Fear—Those who are truly pious. Turn to folly—The clause gives sense only if translated as above, "And to those who do not turn to folly." Glory—The glorious manifestations of Jehovah. Mercy . . . truth . . . righteousness . . . peace—When the mercy, or loving-kindness, of God and the faithfulness of the people meet, then his righteousness, that is, his fidelity to the covenant relation between himself and Israel, will become active. This will result in the well-being of the faithful among his people.

The thought expressed in the first line of verse 10 is repeated in verse 11, that of the second line in verse 12. Verse 13 is obscure. A slight change in the text makes possible the translation suggested above which gives excellent sense. Jehovah's righteousness, as defined above, prompts him to bless his people, who will enjoy peace following his glorious manifestation.

Psalm 126 closely resembles 85. Both express appreciation for past favors, both recognize the incompleteness of the deliverance, and both pray earnestly for a renewal of the divine favor. The historical situation reflected in Psalm 126 may be the same as that in Psalm 85.

Verses 1-3. Describe the joy felt by those who had a share in the earlier transformation. Brought back—See comment on Psa. 85. 1-3. Zion—Represents the Jewish community. Dream—The experience seemed too good to be true. Said they—The subject is indefinite; equivalent to "it was said." Even outside nations recognized the wonderful transformation. Verse 3 represents the community as appropriating the words of the nations and as recalling the joy of the earlier experience.

4. Disappointment has come; and there is need of a new manifestation of the divine loving-kindness. Turn again—The benefits of the former interference are exhausted. Streams in the South—The South is the arid region to the south of Judah, called Negeb or South-land. The streams there, full of water during the rainy season, become dry during the summer; following the drought the life-giving water returns, filling the people with rejoicing and hope. For a similar life-giving return of the divine favor the psalmist prays.

5, 6. These verses should be interpreted as a continuation of the prayer in verse 4 ("May reap . . . . may come back"). The beginning may be hard, but, if Jehovah responds to the psalmist's plea, the end must be glorious.

Poultry

Market Calendar

If not commenced previously, crate fattening should be started in October, and all cockerels and pullets intended for sale carefully and systematically fattened.

Market in October roasters (crate fed), last old hens, roasting young ducks, old geese, old turkeys.

In mixing a ration for crate feeding poultry, one of the first things to consider is the palatability of the feed. If the birds do not like it, they will not eat enough to put on the flesh. Next to this comes the composition of the feeds and their cost. The ration must be palatable and one that will produce flesh without costing too much.

Clean, fresh water lessens disease among poultry. Filthy drinking water is the source of much trouble.

The question of floor space for hens, like many other questions connected with poultry-house construction, cannot be answered definitely. The floor space which a hen requires depends on several things: (1) The breed of the hen; some hens require more space than others. (2) The nature of the food and how it is fed. Hens that are fed in a heavy litter during the Winter where the getting of the food entails considerable effort will obtain all the exercise necessary without too much space. (3) Ventilation.—The house poorly ventilated will not accommodate as many hens as a house properly ventilated. A few years ago when poultry houses were kept warm, instead of being ventilated, it was thought that each hen should have between 8 to 12 square feet of floor and in all probability she did, but the same breed of hen does better now in the house properly ventilated with 4 square feet than her ancestors did with 12, and where good ventilation is provided 4 to 5 square feet is enough for the average hen.

The first half of the chicks hatched in an incubator contain practically all of the best laying hens in that batch. They will grow more rapidly, lay first and prove the best layers and will be stronger than the others. The last half of the hatch will be lower in vitality and will be unprofitable to keep; the broiler or frying age is the time to dispose of these. Mark the last half of the hatch and dispose of them in time to make a profit.

A good incubator should prove profitable on any place having sufficient room to keep chickens.

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Selecting Seed Beans.

Bean growers should take steps to secure good seed for next year's planting from fields known to be free from anthracnose and blight. Seed from plants killed by front before the pods are dry should not be used.

The use of good seed—properly ripened, plump, intact, and free from disease—is essential for securing large yields. It is crop insurance for growers to lay in their seed while there is still opportunity to inspect the fields or they can pick from the cream of commercial stocks instead of having to take whatever may be available later.

Seed from carefully selected, clean pods grown in one's own seed plant are safe. Once the beans have been threshed it is difficult to detect all which have come from diseased pods. It is possible, moreover, in the seed plant by planting the seed in hills and by spraying with Bordeaux mixture to protect the plants from anthracnose, even at an expense not warranted in larger plantings. The grower should see that no one moves among the seed plants while they are wet with rain or dew, when scores of the fungus causing anthracnose most readily are spread.

After the seed is threshed the grower should pick over his seed by hand two or three times and throw out all damaged or diseased beans and those not uniform in size and color. Even commercially hand picked seed often contains many affected beans. While a few discolored beans are not objectionable for household use, every such seed when planted may spread disease to many neighboring plants. In purchasing beans for planting a germination test should be made and only seed of high quality accepted.

An automobile body made of seven flat sections, which can be taken apart for shipping flat or replaced if injured, has been invented by an Englishman in South Africa.

The Country Girl's Creed

I believe that life in the country is life at its highest, fullest and best. I believe that there I have the greatest chance to develop into the womanly woman I desire to be—fine, broad, sweet, true, wholesome. I believe that the broadness of the country, the ruggedness of the landscape, the beauty of God's growing things all around me, will mold and temper my character; will give me higher ideals, a greater depth of thought and a truer perspective of life, than I could ever gain between narrow walls in a city with its shams, pretenses and false standards. I want to try always to keep myself sunny, sweet and sane; to live up to the very best there is in me; to make the most of every opportunity to grow bigger, broader and better; to reach out always for higher and finer things. I believe in good hard work and plenty of it. I glory in the brain and the muscle with which to accomplish my task of striving and overcoming, that I may be ready for the harder things which are to come.

Bread pudding is greatly improved by the addition of raisins or currants.

A disagreeable job never becomes more attractive by sitting down and dreading it. The best thing to do it to go at it and get it out of the way quickly.

In Canada the parcels post system is restricted to 11 pounds, in the United States to 50 pounds. An extension of the parcels post system in Canada is one of the very greatest needs of the country.

The Dairy

There is this great point in favor of dairying: It brings in revenue every month of the year, and in every month the dairyman knows just what his income from that source is going to be. There is another important point: Dairying is a safe line; there are fewer ups and downs and fewer exceptional losses in it than in any other branch of farming.

What does it cost to raise a dairy heifer to one year and to two years old?

Feed alone at medium prices costs about $33 for the first year and $28 for the second. Cost accounts of raising calves by the Ohio, Massachusetts and Connecticut Experiment Stations and the U. S. Department of Agriculture were used as the basis for these figures.

Labor, interest and miscellaneous overhead expenses must be added to this feed cost. The two-year-old heifer must be credited with a calf and the manure produced during two years. The net cost at medium prices is then given in the bulletin as $44.77 for the first year and $29.08 for the second. At present high prices the net cost for two years rises above $100.

Economy in dairying and care in breeding only good stock are therefore necessary. The heifer from a low-producing dam and an inferior sire will not return the cost of her production and maintenance.

Fast milking pays. The man who can make the milk fairly boil in the pail and raise a lot of foam usually is getting the maximum flow of milk from each cow; while the slower milker, no matter how particular and faithful he may be, often fails to get all that the cow would let down to the fast-milking expert.

We may be certain that milk and its products will command relatively higher prices after the war than will grain and millfeeds, which are now at a premium.

Use of Poultry Manure

There is no natural manure produced on the farm as rich as poultry manure, according to the College of Agriculture, yet it receives from the farmer the least attention of any of the animal excrements. Average mixed horse and cattle manure carries 10 pounds of nitrogen, 5 pounds of phosphoric acid and 12 pounds of potash per ton. Poultry manure contains in comparison 32 pounds of nitrogen, 35 pounds of phosphoric acid and 18 pounds of potash. Where ordinary farm manure has a fertilizer value of $1.50 per ton, poultry manure is worth $5 per ton. Even when produced in small amounts such material is well worth careful preservation.

Poultry manure should be allowed to dry as quickly as possible and be kept dry. In this condition it will lose but small amounts of its valuable constituents. Like ordinary manure it ferments rapidly when moist and will lose thereby a large percentage of its nitrogen, worth on the market 25 or 30 cents a pound. Since much of its potash, phosphoric acid and nitrogen is soluble this manure may suffer greatly from leaching.

Caustic lime should never be mixed directly with poultry manure as it liberates nitrogen as ammonia.

Poultry manure is rich in nitrogen and low in phosphorus. These two conditions may be corrected by diluting and re-enforcing the manure as follows: To ten pounds of the manure add six pounds of sawdust (or some similar dry material) and four pounds of acid phosphate. This gives a fertilizer carrying 8 per cent. of nitrogen, 3.6 per cent. of phosphoric acid and .45 per cent. of potash, or about the same proportion of plant food elements that are found in a 3-12-2 mixture but only one-fourth as concentrated.

For fighting lumber yard fires a monitor hose nozzle has been designed to be mounted on lumber stacking machines.