Farm Crop Queries

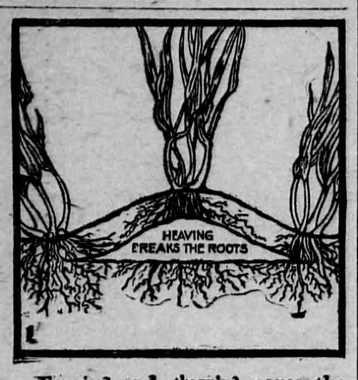
Conducted by Professor Henry G. Bell

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.

LAST OPPORTUNITY TO INCREASE FALL WHEAT YIELDS.

Early reports of fall wheat conditions in Ontario are not promising. Thaws have removed the protecting coat of snow. Frosts have done considerable damage by "heaving". Much wheat was planted late and this copuled with lack of moisture delayed germination.



Freezing and thawing cause the wheat plant to "heave" and thus break off the roots as illustrated above. Plants in this condition need a top-dressing of quickly available plantfood to promote the early growth of new roots.

The sum total of bad conditions means much weak wheat. The accompanying diagram illustrates just how heaving injures wheat. It breaks off much of the central root supply and in many cases leaves poorly attached small outlying roots only, to carry sufficient food for the growing crop. Even these roots are frequently dislodged from their firm hold, and are rendered totally inadequate to meet the usual needs of crop feeding.

Feeding Wheat Like Feeding Calves

Weak calves, colts or pigs require great attention and must have careful feeding if they are to outgrow the handicap of their inferior start. Just so with weakened wheat. When wheat is germinating, as long as the tiny kernel lasts there is not need for an outside supply of manure or fertilizers, but just as soon as the food supply inside the parent kernel is exhausted, the plant must get food from the soil. If many of the tiny roots have been broken off the plant will be starved. If the plantfood supply in the soil is short the result again will be starvation.

How To Help Wheat

What the Ontario farmer wants to know at the present time is how to heal the wheat wounds and produce as strong and vigorous a crop as possible.

HOW TO INCREASE WHEAT YIELDS

The cut illustrates how fertilizer applied as a top-dressing causes the wheat plant to "stool out" and produce more stems and heads, thus increasing the yield. There is still time to top-dress this year's crop.

top-dressing winter wheat just as soon as the ground is dry enough to work. Plantfood for top-dressing should be readily digestible, just like whole-milk for young calves.. That it, the top-dresser should contain at least 3 per cent. quickly available ammonia and 8 to 12 per cent. available phosphoric acid. Ammonia or nitrogen causes early stalk growth and phosphoric acid supplies strengthening and maturing food just where the plant sends up shoots for the bearing heads.

The ammonia or nitrogen supply of soil has to wait upon soil warming up, so that the millions of soil bacteria can change the nitrogen-carrying consituents of soil to forms that the plant can use: hence the advantage of applying available nitrogen which immediately strengthens and invigorates the young crop before the soil supply becomes available.

Manure distributed very finely makes a good top-dresser. However, the nitrogen of manure has to await bacterial action in order to make it readily available to crops, just the same as has the nitrogen of the soil. It is hard to distribute manure evenly. Manure gives better results on cultivated crops such as corn and sible. He can accomplish this by roots. There is usually a shortage of manure, and manure is not well balanced for wheat. For these reasons fertilizers are better top-dressers for wheat. Use manure to better advantage on other crops.

High Prices Warrant Helping The Wheat

Top-dressing with fertilizers is a common practice in Europe. Director Hall and many other European authorities recommend top-fertilizing. Many Ontario farmers of British extraction will remember top-dressing their wheat with sulphate of ammonia or nitrate of soda. Unfortunately the food of cannon is the food of plants. The result is that the supply of sulphate of ammonia and nitrate of soda is short. Blood, tankage and other nitrogen carrying by-products (which are rendered available in making fertilizers) are used in fertilizers with the present supply of nitrate of soda and sulphate of ammonia.

Proper Application Very Important

Proper application is the key to best results from top-dressing. Fertilizers are concentrated soluble plant food. To be of greatest service they must be distributed evenly and dissolve readily in soil moisture. Many successful wheat growers distribute fertilizers on wheat, through the wheat drill fertilizer attachment. This is done as soon as the ground is dry enough to drive over. The hoes or disks are not let down, consequently they do not injure the growing wheat. Drilling is done with the rows and not across them.

If you do not have a fertilizer drill, apply fertilizers with a lime spreader. Good results have been obtained by following an application of fertilizer, with a light harrowing. If you have an adjustable harrow, set the teeth back at an angle of about 45 degrees. This prevents dragging out the wheat. Light harrowing breaks the soil-crust and works the fertilizers into the soil. If the wheat has heaved badly, it is a good practice to roll it lightly before harrowing.

Good Results From Top-Dressing

One big advantage of top-dressing is that it practically insures a good grass and clover catch. If you have seeded your wheat with a grass mixture there is readily available plantfood for the tiny grass plants to feed upon, and a satisfactory stand is nearly always secured.

Wheat yields have been increased all the way from 14 to 18 bushels per acre by fertilizing as indicated. Ohio Experiment Station recommends broadcasting in the spring 200 to 300 pounds of fertilizer per acre. By so doing they have obtained 13.2 bushels per acre increase as an average of twenty-three years test. In co-operative tests conducted by the Ontario Agricultural College in 1916 there was a gain of 8.3 bushels per acre of wheat obtained where winter wheat was top-dressed with complete fertilizers in the spring. Such a gain on winter wheat in Ontario would net over five and a half million bushels increase.

Latest reports indicate that the price secured for wheat during the last few months will be maintained if not increased this year.

Advices from Europe tell of bad wheat conditions in Russia, with only a moderate supply available in the United Kingdom, so that prospects for a lively demand for this crop are even greater than they were last year.

This is your last opportunity to increase the yield of 1918 winter wheat. Increased crops this spring can be obtained. The way to obtain them is to top-dress winter wheat with fertilizers carrying 3 to 5 per cent. available ammonia and 8 to 12 per cent. available phosphoric acid.

FERTILIZER PAYS
Better than ever. Write for Bulletin
ONTARIO FERTILIZERS, LIMITED
WEST TORONTO - CANADA

Greater Crop Yields
In 1918

If you cannot increase the area of your fields in crop you can increase the yields by means of proper fertilization.

An increase of 8 bushels per acre in wheat yields in Ontario this spring would mean 6½ millions of bushels more food grain.

This increase was reported in 1917 by the Ontario Agricultural College as a result of top dressing wheat in the spring with suitable fertilizer.

The Canadian Fertilizer Association announces the establishment of its Soil and Crop Improvement Bureau, under the direction of Henry G. Bell, (a native of Ontario, and graduate of Ontario Agricultural College), formerly Professor of Agronomy at the University of Maine.

The purpose of the Bureau is to collect and disseminate practical information regarding soil tillage, fertility management and crop production.

The Bureau co-operates with all organizations working for the betterment of Canadian Farming.

Write for bulletin, "How to Increase Ontario Crop Yields."

Soil and Crop Improvement Bureau
OF THE
Canadian Fertilizer Association
1111 Temple Building - - Toronto

A USEFUL IMPLEMENT IN ROAD MAKING

There are many miles of roads which must be maintained by some means, more or less inexpensively. On the Dominion Experimental Farms, the split-log-drag is found to be one of the most useful implements for this purpose. It is now in use in many localities and an increasing mileage of the rural highways of this country is being kept in repair economically by the use of this simple implement.

A dry, sound red cedar log is the best material for a drag, the hard woods being usually too heavy for this purpose. The log should be from seven to eight feet long and from ten to twelve inches in diameter and carefully sawn down the middle. The heaviest and best slab should be selected for the centre, both flat sides to the front and set on edges thirty inches apart, giving the back half a set-back of sixteen to eighteen inches at the right end so that when the drag is drawn along at an angle parallel to the ditch on the right side of the road, the end of the back half will be directly behind the front half, as otherwise the ditch end of the rear slab would stick out past the ditch end of the front slab, crowding into the bank and interfering with the proper working of the drag.

Two cross-pieces are wedged in two-inch auger holes bored through the slabs and on the right hand side a piece of scantling is inserted between the ends of the slabs. This is of great value in strengthening and stiffening the end of the front slab.

In working a clay or gumbo road it is advisable to put iron on the lower edge of both flat sides. Handles may be attached to a piece of iron similar to a piece of wagon tire, the irons to be hinged to the back of each end of the front slab. By pressing the handles the drag could be raised, thus depositing a load of dirt which is desired to fill a hollow or increase the crown at some particular spot.

A platform of inch boards held together by three cleats should be placed on the stakes between the slabs. These boards should be spaced at least an inch apart to allow any earth that may heap up and fall over the front slab to sift through upon the road again. The end cleats should be placed so that they will not rest upon the cross stakes, but drop inside them. These cleats should extend about an inch beyond the finished width of the platform. An extra weight may be added if necessary but it is seldom needed.

To use the drag, attach a chain to the left cross-piece which is behind the front slab, running the other end of the chain through the hole in the front slab near the right end. It is a mistake to hook this end of the chain over the front slab as in the case of the other end for when the drag strikes a stone or snag there is great danger of toppling forward. With the right end of the chain drawn through the hole in the slab as suggested, this danger is entirely obviated.

The operation of the drag is very simple though there are many fine points that may be learned by experience. For ordinary smoothing purposes, the drag may be drawn up and down the road one or two rounds commencing at the edge and working towards the centre. Usually it is drawn at an angle of about 45 degrees. For the last stroke or two the drag may be drawn backward with the round side of the slab to the front and with comparatively little angle.

There are two stages when roads will drag and one when you cannot do a job satisfactorily. The first stage is when they are in a very sloppy condition in spring or in other seasons after a heavy rain. A road may then be shaped up wonderfully well, and after the surface has a chance to dry a little, before it is cut up with traffic, it will make a smooth, fine road. Dragging at this stage fills ruts and sends the water to the ditches. After this soft stage, comes a sticky stage when the mud will roll up under the drag and the road cannot be reduced to a satisfactory condition. After this again, when the surface approaches a crumbly texture, the drag may be used very successfully.—Experimental Farms Note.

The Sunday School

INTERNATIONAL LESSON
APRIL 7

Lesson I.—Jesus Sets Men Free—Mark 7. 1-37. Golden Text, John 8. 36.

Verse 24. The borders of Tyre and Sidon—Jesus' purpose in going so far, and into Gentile territory, seems to have been for retirement, which we may infer from the statement "He would have no man know it." The hostility of the Jewish leaders was growing in Galilee, and the multitude was increasing in enthusiasm, so for a time he would get away. These two Phoenician cities figure prominently in biblical history. They were great centres of commerce and culture, but at the time of Christ had lost much of their ancient importance. He could not be hid—The report of his great works had penetrated even to these remote parts.

25. Straightway a woman—At once, when it became known that he was in the neighborhood, the seclusion which he sought was broken in upon by a suppliant.

26. A Greek, a Syrophoenician—Matthew describes her as a Canaanitish woman. She belonged to the Phoenicians of the Roman province of Syria. Though a Phoenician, she spoke Greek. Besought him—Matthew tells us that she adjured him by the title "Son of David" to have mercy on her. Through the Jews in the vicinity she had doubtless become acquainted with their Messianic expectations and with the name "Son of David." "Her use of this title would not necessarily mean that she had accepted the Jewish Messianic hope, or that she had a religious faith in Jesus as the Messiah; but that she adopted the title bestowed upon him by his countrymen as a way of approach to him in her need."

27. Let the children first be filled—This is the principle on which his mission was to proceed. The Jew had the first claim, but his was not the only claim. The Greek also was included.

28. The dogs under the table—Dogs are seldom mentioned in Scripture except in terms of contempt but it is usually the street dog, the outcast animal which infests Oriental cities as scavengers. The Jews alluded to the Gentiles as dogs. The dog here alluded to is the little house dog, likely to be under the table at the family meal. Yea, Lord: even the dogs under the table eat of the children's crumbs.—"It is as if she said—'I grant, Lord, that the meal is for the family, and that the children must be fed. But are not the dogs also of the house, and is there not also something for them in their turn?' She does not think of contradicting Jesus, but accepts what he says as true, and turns it into an argument in favor of her appeal."

29. For this saying—Matthew mentions the greatness of her faith as the reason that Jesus granted her request. He shows how Jesus met her first by silence, then by refusal, and finally by seeming reproach (Matt. 15). Over this apparent rebuff her faith triumphed. She was willing to take the humblest position and take the slightest favor, anything, so that her little daughter might be cured.

30. Found the child laid upon the bed, and the demon gone out—Her faith had its reward. The demon was gone, though the child was not yet recovered from the exhaustion of the possession. It will be noted that it was not the faith of the sufferer but the faith of the mother which here was honored. This is one of three instances of healing at a distance. The nobleman's son (John 4. 46-54) and the centurion's servant (Luke 7. 1-10) are the two others.

31. He went out from the borders of Tyre—"Having come out of Galilee for retirement, the performance of this miracle with the inevitable gathering of the populace around him determined Jesus to leave the neighborhood of Tyre for other regions further removed from the border and therefore more likely give him the settled retirement he needed." Through Sidon unto the Sea of Galilee—This would lead him northward along the coast through the city of Sidon, then southeastward over spurs of the Lebanon mountains—a difficult journey of several days. We have nothing of the details of this journey nor of any incidents on the way. There must have been some reason for such a detour, which ended not as we would suppose, at his favorite lake home, Capernaum, but which led around to the other side of the lake through the borders of Decapolis.

32. One that was deaf, and had an impediment in his speech—This region was the one from which he had been practically expelled some time before, but now he is received quite differently, and exercises his healing power upon the deaf mute. They beseech him—This is one of the cases where the sufferer is brought by his friends to Christ. They had besought Jesus to leave their region, now they seek his gracious help.

33. Took him aside—Usually his cures were performed before the people. In thi case, for reasons not stated, a less public treatment was necessary. Instead of the cure being immediate he now uses means—the thrusting of his fingers in the ears, the spittle, and touching his tongue. These were no doubt simply visible signs to help the man's faith.

34. Looking up—As when he brake the bread in the feeding of the multitude. Sighed—Or groaned. The only time when this word is used in the Gospels. An expression of Jesus' deep sympathy. Ephphatha—Like talitha cumi, this is an original Aramaic word, treasured as having been used by Jesus.

35. Spake plain—No stammering or stuttering now. Which indicated that he could speak articulately and at once. The cure was complete.

36. The more he charged them, so much the more a great deal they published it.—"The command to silence had been earnestly and repeatedly laid upon them. In their excitement they disregarded it, and the more the charge was urged the more did it stimulate their zeal to proclaim the work." They filled the neighborhood with the good news.

37. Beyond measure.—"A very strong word of which this is the one occurrence in the New Testament. The impression produced in all cases by our Lord's mighty works was in this case, and among these half-pagan people, far greater than ever." He hath done all things well—He has everywhere distributed his works of mercy and has been successful in everything.

This cure stands out for the comparative privacy in which it was performed and for the manifestation of intense feeling on the part of Jesus.

Gunns Shur-Gain Fertilizer

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, 235 Woodbine Ave., Toronto.

Betty Brown:—What a delightful time of year for a birthday! Yes, maple bonbons would be especially appropriate at your party, and here are some excellent recipes:

Maple Bonbons.—Two cups maple syrup, one cup milk, one teaspoonful grated lemon, pinch of cream of tartar. Put these in a saucepan, bring to a boil, stirring consequently until it turns to wax, then add lemmon or nuts, if preferred, spread on buttered platter, and roll into little balls.

Maple Fig Bars.—Two cups grated maple sugar, one cup chopped figs, cup milk. Boil half an hour, slowly, cool and cut into bars. A delicious sweet meat.

Maple Raisin Drops—One cup raisins, one of shaved maple sugar, half cup sweet cream. Drop from spoon on buttered paper, brown in oven.

Maple Popcorn.—Two cups maple sugar, half cup water, teaspoonful butter. Boil hard for four or five minutes, or until it strings from the spoon. Put four quarts of freshly popped corn in a vessel, and pour the thick, hot syrup over it. Stir well, and form into balls. Many prefer to add a tablespoonful of vinegar to the syrup.

Maple Sugar Cake.—Beat half a cup of shortening to a cream, add one cup maple sugar, crushed by the rolling-pin, two eggs well beaten, two cups wheat flour, heaping, teaspoonful baking powder, small teaspoonful soda dissolved in half cup milk, teaspoonful ginger. Bake in a pan about 10½ by 7 inches for a trifle over half an hour.

This is a prime favorite with boys, being the identical dainty which made one young pessimist break into rhyme:

"I've a birthday every fall,
Nothin' special to eat at all;
Dan has a birthday every spring,
Maple sugar cake and everything."

Caroline:—Yes, the standard flour is now on the market, and 74 pounds of flour will hereafter be made from every hundred pounds of wheat. The slight increase of flour extracted will be true flour, and not bran or dust. Formerly this slight amount of flour had been allowed to go into the feeds for animal consumption, but when every grain of wheat counts as it does now, this is far too extravagant a practice. The flour is not dark in color, as you had supposed. You will scarcely notice the difference between the old and the new. It will be simply pure flour as taken from the wheat berry, purified and sifted exactly as in the past, but instead of several grades, all the flour will be blended together and only one brand will be on the market. It must not be supposed that because we have standard bread we must use it freely. That is not the intention in bringing it on the market. Bread must be saved just as scrupulously as ever—more so, in fact.

The School Marm:—Why not have competitions among the children for the best food saving posters? Here are examples of what some other kiddies did in this connection:

"Be canny with food."
"Peel thin and win."
"Spread butter thin—Help the soldiers get Berlin."
"Bread and buns will beat the Huns."
"Every spud is a bullet."
"Save bacon until Berlin is taken."
"Wise wives won't waste."
"The kitchen is your fort."
"Little savings in the preparation of meals all count for your country. Kill Kaiserism in the kitchen."

And, by the way, it is to be hoped that you are planning to have a school garden this year. Every rural school should have one and it will be an inspiration to the children as well as being a very practical way of increasing the food resources of the country.

Miss Primrose:—The boys are lining up to help you, though. This is enrolment week for the Soldiers of the Soil and you will find that by the time help is needed on your father's farm there will be plenty of youthful volunteers who are this year to take the place of the men in khaki. The farms of Canada are now the second line of defence in the Great War and it would never do to let them suffer for lack of recruits. The 1918 army of soldiers will be paid regular wages and each boy who spends three months at farm work will be presented with a bronze badge of honor. The Canada Food Board is directing the raising of this army and the farmers can count on the boys for the forthcoming season. The Duke of Devonshire has given his support to the movement and has made a direct appeal to the boys, as follows: "I confidently appeal to the boys of Canada to make the best use of their brains and muscles and to do their part in bringing victory to our cause."

Bedtime Stories

A Lively Game.

Marble time is here at last,
Merry times for you;
Even March and April clouds
Play at marbles, too.
First they take some drops of rain,
Green and red and blue,
Where the dancing sunbeams send
Sparkles through and through.
Then they hang them in the sky
Where the winds that blow
Freeze them hard and smooth and round,
And as cold as snow.
Then they roll them through the air
To the earth below;
And the little children ask,
"How do hailstones grow?"

The Puzzle of Legs.

One Leg was idle,
And doing not a thing;
Along came Two Legs
And tied him with a string.
He whirled about on Three Legs,
When in through the door
Came Four Legs a-flying,
And tipped him to the floor.

Does it seem a puzzle?
Read the tale again.
When you know the answer
It is very plain.
Just a top is One Lag.
Now, of course, you see,
A boy, a stool and Rover
Are the other three.

What Are They?

Side by side, in summer weather,
Five little mates ran out together;
Bare and free in the sunshine sweet,
Brown and strong and merry and fleet
On the greensward soft they frolicked and played,
But apart from each other they never strayed.
They were one in friendship and glad endeavor,
The five little mates who quarrelled never.

Five little mates, in wintry weather,
Side by side sat down together;
Crowded close in a tiny room,
Left to themselves in the dusky gloom,
They lived in love, no little brother
Pushing unkindly against another,
And they lived in hope, for they thought with glee,
When bedtime comes we are all set free.