

# 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.



Henry G. Bell.

Question—H. C.—Would it be profitable to put a piece of land into spring wheat this spring, and would it be alright to use artificial fertilizer if no manure is used? What are the best varieties of seed? The soil is gravelly loam?

Answer—If the price of wheat remains anything near what it is at present, spring wheat should be a very profitable crop in 1917. Prof. Zavitz of Ontario Agricultural College advises using from 1 1/2 bushels of seed per acre. He recommends the Marquis wheat which has done best of its type in tests throughout the various parts of the province. Another good spring wheat is Wild Goose, which produces an exceedingly hard kernel but one not of very high quality. Early Java spring wheat is another variety which is also successfully grown.

I believe it would be advisable to apply at least 250 lbs. of fertilizer per acre in order to insure a good vigorous start of this money-crop. For a gravelly loam, I would apply a fertilizer carrying from 2 to 3% ammonia, at least 8% phosphoric acid and 1 to 2% potash. This can be broadcasted with a lime spreader, but is better applied through the fertilizer dropping attachment of the grain drill.

W. H. H.—The Maples—I have 500 acres pasture land and 700 acres meadow. Am carrying a little over 100 head of beef cattle, 100 hogs and 85 sheep at present. Am anxious to make my land carry more. What do you suggest?

Answer—If water stands on your meadows or pastures late in spring, obviously drainage is necessary. See

that surface drains are kept open, and add tile drains as you are able until all the land drains freely. Valuable pasture and meadow grasses and clovers will not thrive in water-logged soil.

If clover is scarce in the sod and sheep sorrel grows freely, it is likely your meadow or pasture land is sour. Apply two to four tons of finely ground limestone per acre, or its equivalent of burnt lime or marl. This can be spread on the land as soon as it is dry enough to drive over it in spring. A broadcast limesower is best to use in spreading the lime.

It may be the plantfood of your grass land is getting scarce or inactive. If so, spread from 5 to 10 loads of manure on your meadow next spring just as grass growth is starting.

Finally, the kinds of grasses growing in your meadow may be naturally low yielders. If so, let your next seeding be of high-grade seed of good varieties. Prof. Zavitz of Ontario Agricultural College, after 10 years' tests, recommends the following mixture:

Grasses	Lbs. per A.
Orchard	4
Meadow Fescue	4
Tall oats	3
Timothy	2
Meadow Foxtail	2
The average 10-yr. yield was 5.09 tons per acre.	
Legumes	Lbs. per A.
Alfalfa	5
Alsike Clover	2
White Clover	1
Yellow Trefoil	1
Total 24 lbs.	

## POTATOES FOR ONTARIO

The Third of a Series of Five Special Articles by Prof. Henry G. Bell.

If Ontario produced in 1917 300 bus. per acre of potatoes on the acreage devoted to potatoes last year, she could provide one pound of potatoes a day for a whole year for a population of 8,250,000 people. Can she do it? I believe she can. Such an accomplishment is but the result of applying methods which have "proven out" no further removed from Ontario than Aroostock Co., Maine. The yield per acre obtained in this county has frequently exceeded 300 bus. for areas not of 5 or 10 acres but on whole farms of 75 to 150 acres.

Ontario for the most part has a good potato soil. The range of temperature and rainfall during the growing season is usually such as favors good yields of potatoes. Labor is very scarce, and potatoes probably require more labor than most farm crops. Nevertheless, if Ontario farmers would individually or co-operatively equip themselves with modern potato machinery, a great deal of hand labor could be avoided, and large areas handled with little more labor than it now takes to work the common 3 to 5 potato patches. There are at least five great essentials in growing this crop, each of which must be carefully observed if big yields or first quality are to be harvested:

1st—Potato soil must be fairly open, friable, and must be well drained.

Potatoes will not thrive in water-logged soil. See that the open drains are clear and the tile drains are doing their work. Plant your crop on soil land that was deeply plowed. The tubers swell rapidly in July. They must not be constricted by heavy, closely packed soil. Disk and harrow the seedbed till it is mellow.

2nd—Potatoes must have an abundance of moisture, especially when the tubers are filling.

"Ah, yes!" you say, "that is just where we cannot control conditions." Are you sure you cannot control the moisture supply, at least to a considerable extent?

Is your soil deeply fall plowed, so that it can catch and retain the great amount of water that falls upon it in the shape of snow and rain during winter and early spring?

Is your soil well stocked with decaying plant material—stubble, second crop clover, straw manure—humus? It acts like a sponge, catching and holding the moisture till it is needed.

3rd—Suitable well-bred varieties always outyield mongrel stock. Seed stock, whether early or late, should be pure, otherwise there will be unequal ripening, and frequently a variation in size and quality which greatly discounts the product when it is ready for market.

4th—Potatoes require an abundance of well-balanced plant food. Remember, potatoes have to be fed just like hogs, or calves, or poultry, if you want the largest yields of best qual-

ity. Manure is the great farm plant food supply. It will supply much necessary food to potatoes as well as to other farm crops. However, in many of the large potato growing sections, the growers prefer to put the manure on land set apart for other crops such as wheat or meadow, and to give the potatoes their additional food in the form of fertilizers. Stock manure, especially if fresh, forms a splendid lodging place for the spores, or tiny seeds of the potato scab diseases. A good fertilizer for potatoes should carry from 2 to 4 per cent. of ammonia. It is the nitrogen which forms 82 per cent. of the ammonia, which greatly aids the rapid and sturdy growth of the potato vine. The potato fertilizer should also supply from 8 to 10 per cent. of available phosphoric acid. It is the phos. acid which causes the plant to ripen and form its tubers. Before the war potato growers were using from 3 to 10 per cent. of potash in their potato plant food. It is this important food which aids the starch to form and fill out the tuber. Under present conditions potato fertilizers had best carry 1 to 3 per cent. of potash.

If you have a quantity of wood ashes you will do exceedingly well to scatter it on your potato seedbed and to work it into the soil. Well-stored wood ashes carries from 2 to 3 per cent. potash.

How much shall you use?

Prof. Zavitz at the recent convention of the Ontario Experimental Union reported that as a result of 95 tests of potato fertilizers throughout the province during the last 5 years, the experimenters obtained an average yield of 122.4 bus. per acre without fertilizers, and 141.3 bus. per acre where 320 lbs. of fertilizer was applied, and 161.9 bus. per acre where 960 lbs. of fertilizer was added.

Dir. Woods of Maine Exp. Sta. began a special fertilizer experiment in 1915 testing low potato fertilizers for Maine potatoes. On one test where potatoes followed sod he applied 1500 lbs. of fertilizer to the acre, and harvested the following:

Per A.	Plot Treatment	Yield
1500	lbs. fertilizer supplying nitrogen and available phosphoric acid, but no potash	286
1500	lbs. fertilizer analyzing 8% Ammonia	424
	8% Available Phos. Acid	
	3% Potash	

In applying fertilizers, as a rule not more than 400 lbs. should be sown in the potato drill or furrow. Amounts in excess of this should be sown broadcast over the potato seedbed and carefully harrowed or disked into the soil before the potato drills are "struck" or the crop is planted. Of course the potato planter, with fertilizer dropping attachment deposits the fertilizer in the row, to best advantage.

Proper potato fertilization is undoubtedly the secret of big yields. It is the measure that British agricul-

turists are so strongly advocating at this moment. As long as they were able to obtain available phosphoric acid, potato fertilization was what made it possible for Britain's enemy to produce such quantities of potato food for man and beast.

5th—Control potato disease. This is the great requisite that together with the foregoing means largest yields and best quality potatoes. This paper is already long, hence we shall delay discussion of this large subject for a subsequent article.

Remember that well drained land, plentifully supplied with humus, enriched with suitable available fertilizer produces largest crops of best quality potatoes, if good seed is planted and care is taken to control disease and insect pests.

## Horse Sense

If a horse shows uneasiness, paws a little, looks around to the flank, has an irregular appetite, with evacuation of small quantities of dry feces, or little or no motion of the bowels, he is suffering from constipation.

Administer a moderate purgative as 7 drams aloes and 2 drams ginger. Feed on bran until bowels act freely. Give 2 drams nut vomica 3 times daily, and give rectal injections of warm, soapy water every 5 or 6 hours.

The principal object in grooming a horse should be to stimulate the surface of the body by friction.

If you have a fall coat, get it to eating ground oats in a little manger by itself as soon as possible.

Keep the colts well bedded and clean. A manure-laden colt is a re-buke to its owner.

Never close the stable at night until the mud and ice are all cleaned off the horses' legs.

I am wintering a mare and a three-year-old colt on the stubs left from the sheep and a small grain ration at noon.

A set of chains for use in an unexpected icy time or to get a smooth-shod horse to the shop, is a good investment.

The idle work horses should not be fed so much grain as when at work, but they should have a small ration.

## FIRE PREVENTION.

Modern Methods of Forest Fire Protection for Ontario.

"The announcement made by the Minister of Lands, Forests, and Mines for the Province of Ontario that his department is coming into line with those of several other Canadian provinces and adopting modern methods of fire prevention, so as to put an end to the enormous annual losses of standing timber, is a welcome piece of news," says Canada Lumberman.

"It means, we feel safe in predicting, that if the methods used in the other provinces are properly adopted and rigidly put into operation in Ontario, we have now experienced the last of our great conflagrations in the forest districts of Northern Ontario such as that which during the past summer wiped out of existence hundreds of settlers, together with their homes and effects, and caused incalculable damage to our standing timber. It means, too, that the families going into Northern Ontario to settle can depend in future upon practical protection against such calamities, and so feel encouraged to undertake the task of settling in the new country. Undoubtedly the prevention of forest fires will have the double effect of saving timber and giving a stimulus to settlement.

"A great source of difficulty in the past has been the conflict of interests between timber owners, settlers, and prospectors, together with the inability of the individual settler to protect himself against the carelessness of others. This can now be entirely done away with. The time of year at which the Minister has made his announcement is a fortunate one, because between now and the next danger season in the summer of 1917 there will be time enough to arrange details and appoint the necessary staff to put the system into effect sufficiently to reduce greatly and probably almost eliminate the fire losses that we could otherwise predict with certainty for next year."

## On His Estate.

Willie—What sort of a man is he? Gillis—Well, if he had a country estate he'd have the Katydids saying "Katy done it," before a week was up.



His Only Hope.

Sergeant (to dull recruit): "Do your folk send you any parcels down?" Recruit: "Yes." Sergeant: "Well, tell 'em to put a few bulls'-eyes in the next 'cos yer don't seem able to get any yourself!"—London Opinion.

## THE SUNDAY LESSON

INTERNATIONAL LESSON FEBRUARY 25.

Lesson VIII. Jesus At The Pool Of Bethesda—John 5:1-15. Golden Text—John 5:15.

Verses 1, 2, 3.—Some good authorities have the feast; that is, Tabernacles, clearly, in any case, the Evangelist sees no significance in the old order (hence of the Jews). It gave Jesus an opportunity of meeting great crowds in the temple of worship.

2. By the sheep pool, the [pool] which—So read, without altering the pronunciation of the Greek text. Hebrew—That is, Aramaic, as often. Bethesda—There is considerable variation among the authorities. Porches—Covered shelters to keep the sun off.

3. The interesting gloss at the end of this verse seems to have arisen early and in Palestine. It is drawn from local folklore, and its omission by the oldest copies reads us of a great difficulty: the Evangelist no longer guarantees an absolutely non-moral miracle! "Each man for himself" was the motto of the crowd, and the best legs carried off the prize. No doubt there were genuine mind cures there as at other holy wells: superstition as well as faith can influence the body—witness "Christian" "Science" today!

5. Symbolic interpreters make much of the thirty-eight; like the Israelites of old, he had lived thirty-eight years in the desert before he came into the promised land! Unless we are out for discrediting the narrative, it is better to recognize a little touch of detail such as an eye-witness loves.

6. The Lord's question seems strangely superfluous! But he asked Bartimeus one much like it. By such simple questions he drew out the man's state of mind: the very expression of the need was a preparation for meeting it.

7. Troubled—The Evangelist does not stop to explain the allusion, which does not concern him. It may have been an intermittent spring; or possibly (as Dr. Dendel Harris suggests) the world-wide notion of getting "the luck of the water" on New Year's Day. (See Expositor, December, 1906.)

8. Compare Mark 2:11. The pallet (margin) might have been a mere mat, but the word itself (one from the vulgar tongue) rather suggests a light frame, such as we see in India.

10. People who could solemnly discuss whether a man with a wooden leg might carry that burden on the Sabbath—such was the national lack of humor!—fastened on this breach of the man's law. Jesus could have told the man to fetch his property next day! But he regularly set himself to discredit a law which made the Sabbath a weariness instead of a delight.

11. One who could do such a deed must have God's authority to regulate the Sabbath. It is the same attitude as that of the blind man in John 9:33.

14. In the temple—"Returning to give glory to God." This is a key to verse 15, where the man thinks he is silenced by mentioning the name of him who had mediated God's gift. Sin no more—Not that sin had directly caused his trouble (John 9:3). But sin would bring, here and hereafter, a worse thing than even all years of helplessness.

## NEW KIND OF SHOE SOLES.

They Are Made of Scrap Leather by an English Patent.

A new and recently patented method of manufacturing soles for shoes from scrap leather is described in a report made to the U.S. Department of Commerce by Consul H. M. Byington, Leeds, England. While he does not give details concerning the process, Mr. Byington says it is claimed that the soles thus produced are nonslip, nonsplashing, and waterproof, and can be made at much lower cost than the ordinary leather sole. It is also possible to use the method in building heels.

"It is also claimed," Mr. Byington goes on, "that the novelty of the patent may be enhanced by an ingenious arrangement of strips of rubber attached to a thin layer of canvas, the rubber strips fitting into the interstices of the leather sections. This is said to give a pleasing resiliency to the step of the wearer and to do away with the aching of the feet, sometimes produced by purely rubber soles."

Think it all over when you feel like doing something to get even with a neighbor, and then don't do it. You will be glad from the bottom of your heart to-morrow that you did not. So will he.

## Your Problems

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, 75 Castle Frank Road, Toronto.

Business Girl:—1. It is impossible to mix business with pleasure successfully. All day in an office and all evening at the social game burns the candle at both ends, and spells disaster. An occasional dissipation is stimulating to all of us, and the temporary loss of sleep it entails can be made up; it is the constant drain that tells. 2. If a girl who is entertaining another girl at her home receives an invitation to a party, she may with perfect propriety ask the hostess for permission to bring her guest.

Violet:—1. A cup of hot water or cocoa taken before retiring will soothe the nerves, and induce sleep. 2. For a fallow skin, eliminate sweets, pastries, rich gravies, fried foods, fat meats, and use fruits and green vegetables as much as possible. Drink two glasses of water (hot) on rising, two more about 11 o'clock, two in the early evening and two before retiring.

Mrs. L. H.:—1. Probably lack of flavor in the meat is due to the manner of cooking. Have the oven very hot at first, then the meat will be seared on the outside, and this will keep the juices in. After twenty minutes the temperature of the oven can be considerably lowered. Steaks and chops should be put into very hot pans, and turned quickly, then temperature lowered. Meat should be seasoned just before it has finished cooking. 2. Scrambled eggs become watery when

they are allowed to cook too long. Teacher:—The "Teutonic" territory occupied by the Allies is about 748,860 square miles, including captured colonies. The "Allied" territory occupied by the Central Powers is about 125,000 square miles.

Mrs. B. K.:—An emery wheel on a sewing machine is most useful for sharpening knives and lead pencils. Get a roll of half-inch adhesive tape from the drug store, cut off a strip just long enough to reach around the small wheel of the machine and press it firmly to the metal. Next, cut a strip of fine emery cloth the same length and width and glue to the taper then wind the wheel all around with a strip of tape or muslin to hold in place until the glue is dry, which will take a day or so, when it may be removed. When worn out another strip of emery cloth can be glued over the first. When using, the emery wheel adjust as for filling a bobbin.

Miss G. L. B.:—The colors for spring are putty, navy blue, and all shades of grey, a new green called spruce green, and Copenhagen blue. Wool and silk embroidery in bright tones of gold yellow, Chinese blue, Persian pink, and jade green are used on hats and dresses. Pockets are large and appear in pairs, one at either side of the skirt or coat. Pleats and tucks are in favor. Skirts no longer flare but take an inward curve around the ankles.

## Poultry

This is the time of the year that colds is most prevalent. Keep the front of the house open, but see that there are no openings in the back or side walls to "use draughts." Everybody too busy to give the hens a fresh drink, yet there is no other little chore about the farm more important than watering the chickens.

Fix up a sheltered corner for the early broody. A newspaper in the bottom of the nest helps to keep the eggs warm.

A dry atmosphere is a pretty good insurance against canker and roup. Shun low, damp, foggy places for the poultry business.

Growing birds need mineral matter in their feed a good deal more than do those that have gained their full growth. Old birds are not making bone and muscle as much as they did once. But it stunts chicks and young hens to get short of grit and shells.

The hen never lays an egg until all the ingredients necessary for the complete development of a chick are present. Since the egg contains protein as well as carbohydrates, an amount of carbohydrates fed in the form of grain will not offset the necessity of protein. Milk given to the birds, either as a drink or in the form of wet mash, will double egg yields. Commercial meat scrap is of equal value, and may be substituted when milk cannot be obtained.

Weight for weight, a manila rope is just about as strong as a steel one.

In the United Kingdom there are almost two and a quarter million men and women engaged in making cannon and projectiles. The supply in some lines, such as the eighteen-pounder field gun, is now greater than the need, and production is slackening. If the war is not won lack of munitions will not longer be a valid excuse.

## The Dairy

If farmers were determined to raise as much of their feed as possible, perhaps dairying would not look so down in the mouth.

"Animal heat" is a term loosely used, but it means something when it comes to maintaining stock in midwinter. It will never do to let the fire go down, however hard it may be upon the feed bin.

The best way to bring cream to the right temperature for churning in cold weather is to put the pail in a tub of very warm water.

Stir the cream constantly so it will get warm evenly. If it is overheated the butter will be greasy and cheesy.

If cream is held too long it will become bitter and hard to churn.

No herd of cows can do well unless the supply of water is abundant and clean. If the herd can be watered in the stable, and help themselves so much the better.

## Sheep Notes

Certain breeds of sheep are distinctly more fertile than others.

Not a bit of the droppings of a flock should be wasted, and a flock wintered in roomy quarters under cover will give an increased profit.

The litter will absorb all the liquids, and the flock will keep the mass packed down so it will not heat. Sprinkle land-plaster over the pen frequently to keep down any odors.

Keep the pens well littered with clean bright straw, and keep them perfectly level.

Keep the ewes very thrifty by watchful, careful feeding.

Be sure that your ewes do not crowd through narrow doors. Crowding or jamming may kill an unborn lamb, and possibly the ewe.

## TRAGEDY OF A TROUBLED CONSCIENCE

The Memory Brings a Fear of Judgment and Men Dread the Day of Reckoning.

"But when Herod heard thereof, he said, It is John, whom I beheaded; he is risen from the dead."—Mark, vi, 16. Herod's mistaken opinion as to Jesus was the resultant of two factors—one the memory of a bad deed and the other a conscience "stabbed awake."

When Herod heard of the man who healed the sick and performed miracles his memory brought to his conscience the sound of a prophet's words; brought to his conscience a vision of a holy and just man; brought to his conscience the gruesome sight of a ghastly head upon a charger—and suddenly he arose from his place among his flattering courtiers and, pale and trembling, cried, "I know who it is. It is John, whom I beheaded; he is risen from the dead."

The Court of Moral Judgment.

This memory aids the conscience. It brings the guilty deed before the court of moral judgment. Sometimes the conscience disturbed will remember when there is no logical train of association. Because he was troubled by the memory of what he had done Herod thought of John when he heard of Jesus, although in the normal mind

these two men were not at all alike. As long as there is a memory the conscience will have no peace. If we could forget now or hereafter we could rob the conscience of its sting, but as long as personal identity continues through time and eternity we will remember and conscience will sting the soul and mayhap in the after world be the punishment of the unrepentant.

Past Views are Altered

In the story of Herod's disturbed conscience we see another remarkable fact—all of his past thinking was altered. As a Sadducee he did not believe in the resurrection of the dead. But when he hears of Jesus he casts aside these views and says John is risen to trouble him. From this attitude of mind we deduce the general lesson that the conscience, when smitten, brings a fear of judgment. When in its grip men tremble at the thought that if what they have denied is true there will be demanded of them a reckoning.

The conscience convicts men with the memory of their sins, but God has provided through Jesus Christ a salvation from the past—strength for the present and hope for the future. Rev. Charles Lee Reynolds, D. D.