

Farm Crop Queries

CONDUCTED BY PROF. 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. When writing kindly mention this paper. 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.



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R. W.: Will it pay a farmer to grow popcorn on a large scale, and what is the best variety for Ontario? About what should be the yield for a fair crop? It being short, could it not be harvested with a grain binder? What process of curing would be necessary before the popcorn is ready for marketing?

Answer: If you are located in the corn-growing section of Ontario you may pay to grow popcorn on a limited scale. I do not know that I would advise a deep plow into this phase of crop growing without considerable experience. Popcorn has proven a very valuable crop in sections of Michigan, Wisconsin, and New York states; in fact, in certain sections of Ontario many farmers are making considerable profit out of growing a limited area of this crop. There are two general kinds of popcorn—Rice and Pearl; each of these kinds come in at least three colors, white, yellow, and colored, the colored being frequently red or red-streaked. There are early types and late types of each. Just what the best variety for Ontario is I am unable to say but this information should be obtainable from reliable seedsmen. Sixty bushels to the acre is considered a very good crop of popcorn. I do not believe the crop could be successfully harvested with a grain binder. As a matter of fact, it is probable that the ripened ears could be plucked from the standing crop. The remainder of the corn stalks could very well be pastured down. No curing process is necessary in preparing popcorn other than placing the ripened ears in a crib where there is a good circulation of air so that the corn may dry out. The corn is sold both on the ear and shelled. It is altogether probable that fertilization of the popcorn crop may have a great influence on the early ripening of the corn. We have on file records of several incidents where field corn has been hastened to maturity from one to two weeks earlier by proper fertilization. Fertilizers that give good results on corn are: on medium loam soil an analysis of from 3 to 4 per cent. ammonia, about 8 to 10 per cent. phosphoric acid, and 2 to 4 per cent. potash, applying same at from 200 to 400 lbs. per acre. Earliness and thoroughness of maturity is an essential point in popcorn raising, also the balancing of the fer-

tility of the soil greatly increases the yield of the crop.

H. K.: I have some poor land on which I would like to sow sweet clover. How should I prepare the field and sow the seed? What kind of seed would you advise sowing to raise a crop for hay? I might say that this field hasn't had a sod for several years.

Answer: If your field has been in small grain or last year grew a cultivated crop, a medium plowing is the first thing it must receive; following plowing, broadcast from 1,000 lbs. to 2,000 lbs. per acre of lime and work it in by thorough disking and harrowing. This will form a good seedbed. When such has been accomplished, drill in sweet clover seed with a nurse crop, seeding the clover at the rate of 8 to 10 lbs. of good seed per acre. If you use barley or oats for the nurse crop, cut down the amount of this seed to about a bushel and a peck per acre, so that the young clover plants may have an opportunity of a good start. It would greatly increase the chances of a good stand of clover if you drill in about 250 lbs. per acre of a 2-8-2 fertilizer at the time the seed is sown.

A. P.: Will you please tell me what my land requires? It will grow timothy, clover, or corn fairly well but will not mature good wheat, their being plenty of straw with shrunken grain. The soil is a dark sandy loam with patches of sorrel. This sorrel comes up, no matter how often the land is plowed. What is needed to make this good soil for all crops?

Answer: From the description of your crops and soil I would conclude that lime is the first thing that you need, the presence of sorrel would indicate this. I would advise you to apply lime at the rate of 2,000 lbs. per acre, working it in immediately after the ground is plowed, following this application, if you are growing grain, with fertilizer as advised above so that the crop may get a good start. The present sourness of the soil will have retarded bacterial growth until there is very little free plantfood in the soil. The constituent of plantfood you must emphasize most is phosphoric acid since it is the special duty of phosphoric acid to invigorate root growth and ripening of grain, hence apply a fertilizer high in phosphoric acid at the rate of about 400 to 500 lbs. per acre.

Hogs on Pasture.

Cost of production plays a very important part in determining the net profit a farmer makes on what he has to sell. Manufacturers of the articles that a farmer has to buy study the question of cost of production very carefully. The farmer produces many of the things the urban worker has to buy and should do more towards lessening production costs. Take as an example the production of pork. Economical production of pork depends largely upon the cost of feeds. This may be materially reduced by the use of pasture and forage crops in conjunction with the grain ration. If the pasture is luxuriant, mature hogs may be maintained in a satisfactory condition with a very small amount of grain in addition to the pasture.

Pasture forage has a variable composition. Alfalfa, clover, vetch and

peas furnish feed much higher in protein than most other crops. Where such leguminous crops are used for hog pasture a smaller ration of concentrates is necessary than where timothy, bluegrass, or where the non-leguminous cereals are sown for pasture. Hog raisers differ in their opinion as to the quantity of grain that should supplement the pasture. Some give the hogs all they will eat, others from two to three pounds of grain per hundred pounds live weight of the animals, while some feed as low as one pound of grain per hundred weight of live animals. The amount of grain which should be fed to growing hogs or hogs being fattened must depend on the quality and abundance of the pasture, the length of time available for finishing the animals and the gains being made. Plenty of clean water, clean quarters, and succulent pasture, along with the grain ration, will certainly reduce the cost of producing pork and increase the profits.

To make a good appearance on the table, butter squares should be even and smooth. One way of insuring this is to cut the butter with a knife covered with oiled paper.

When boiling onions pour milk into the water. It gives the onions a nice flavor and takes away the rank taste.

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Bedtime Stories

The Billy Goat That Went to Church.

There was once a little boy in Bermuda who, when he was on his way to church one morning, suddenly remembered that he had forgotten to tie the billy goat before he left home. The little boy's name was Jimmy. It was his duty to be sure that all the goats were tied before the family started for church, so he felt very uncomfortable when the memory came to him, and even worse when his father asked suddenly:

"My son, did you tie the billy goat this morning?"

"No, father," Jimmy answered bravely; "I forgot him."

The bell had stopped ringing, and the organ was playing softly and sweetly as the family went into their pew in the white church.

Jimmy did not know what might happen with the billy goat loose on Sunday. He sat very still and thought about the matter. However, as time passed and nothing happened, he forgot the goat and felt easy. Then something did happen.

The minister was in the middle of his sermon when there came the sound of little feet pattering along the tiled floor of the middle aisle! "Pit-a-pat, pit-pit—pit-a-pat!" And there was the sound of a chain clanking along behind the feet.

Everyone in the congregation knew what the sounds meant: some one's goat had come to church, where it had no business to be. The church was built flat on the ground, and so it was easy for any animal to come in.

Halfway up the aisle the goat stopped and spoke right out, "Baal! Baal! Baal!" he said cheerfully. Then he went on again, his feet pattering and his chain clanking, until he reached the choir stall.

A vestryman rose and tried to put him out. He stepped on Billy's chain and was about to take him by the

collar when Billy jumped aside. He jerked the chain from under the man's feet and almost threw him to the floor. Then Billy backed off, lowered his head and was about to butt the vestryman hard, but the man got out of the way.

"Baal! Baal! Baal!" said Billy again. Jimmy wished that the floor would open and let him drop down to China. All the other children were laughing, but as for Jimmy, there was nothing to laugh about.

He was thankful when his father got up and helped several other men put the goat out of church. Billy was determined not to be put out; he bawled and bawled; he bent his head and shook his horns at the men and made a shocking disturbance. But he had to go. As the men were pulling the goat past Jimmy's pew, Jimmy raised his shamed head and looked at him. Then he threw back his head, ashamed no longer, for it was not his goat!

When at last the goat was safely outside and the door was closed, and when all the mothers had made their children stop smiling and the clergyman was getting ready to begin again, Jimmy whispered to his father, "Shall I be excused and go home and tie our own goat?"

Jimmy's father shook his head. Then he bent over and whispered, "I tied him myself before we left home."

After that no one ever had to remind Jimmy to be sure that the billy goat was tied to his post on Sunday morning.

A Sick Room Device.

To add interest to the monotonous days in a sick room, arrange a shelf that will hook over the "foot" of the bed, and on it arrange flowers in pots or vases. Then change these about with pictures and other interesting things. The same kind of shelf can be attached to the "foot" of a brass or an iron bed.

Do not put medicines on such a shelf—just pleasant things that will help pass the time and be more entertaining than the pattern of the wallpaper.

Ten Ways to Prevent Fires on Your Farm

By Harry Botsford

The average fire loss in Ontario for the last three years exceeds one million dollars a month; a per capita loss of \$5 for every man, woman and child in the province. The average annual fire loss in the principal European countries, under normal conditions, is 33 cents per capita.

Much of this enormous loss can be prevented by proper fire precautions. An analysis of the fires of the past three years will serve to bring before us some facts that are rather surprising:

Lightning is the chief cause of fires on farms. This danger may be removed by the installation of lightning rods, for the whole of a loss of \$491,910 is due to lightning striking ungrounded buildings.

The second great cause of fires in farm buildings is defective flues and chimneys.

Sparks on roofs stand third as a cause of fires.

Exposure—really a result of fire, and not a primary cause—is responsible for a heavy loss.

Matches—In 1918 there were 991 fires caused by matches, entailing a loss of \$552,404, in Ontario.

Spontaneous combustion is one of the nastiest hazards of the whole lot, and farmers lose heavily from this cause.

Poor electrical wiring and faulty insulation were responsible for a considerable loss.

During 1918 there were 836 barns burned in Ontario, causing a loss of \$1,093,931. The buildings destroyed were valued at \$677,096 and their contents at \$416,835.

Let us consider possible ways and means of preventing this huge national loss.

The lightning loss may be readily eliminated by rodning every farm building, including barns, houses, out-buildings, silos, and all structures. Even wire fences should be "grounded." Farm animals in pasture usually drift along with a storm until they come to a barrier, often a wire fence. In an electrical storm this fence will be charged with lightning, and, unless grounded, there may be a loss of valuable animals. Allowing the ground wires to project a few inches above the top of the fence will prevent strokes. If your wire fences are connected with farm buildings, a ground connection should be made at the first post from the building.

To go into detail relative to the proper methods of chimney construction is not the purpose of this article. The following, however, may be used as a proper standard of construction: Solid brick or concrete chimneys should be at least four inches in thickness, exclusive of flue lining; concrete should be reinforced vertically and horizontally to prevent cracks; stone chimneys should be at least four inches thicker than required for corresponding concrete or brick chimneys, and should have flue linings; rubblestone chimneys should be at least 12 inches thick. Chimneys should never rest on wooden beams or brackets.

Flue holes, when not in use, should be covered with tight-fitting metal covers, and never pasted over with paper. A metal collar should be used, at least 12 inches larger than the

stovepipe, at every place where the pipe goes through a floor or roof. No bare stovepipes should ever be placed within 12 inches of any wooden part of the building. A stovepipe often gets red-hot, and the fire hazard is obvious in cases of this kind. It is advisable to have all wooden surfaces near the stove protected with sheet metal or asbestos. If metal is used, there should be an air space left behind it.

Accelerating a sluggish fire with kerosene has long been a butt for humorists, and yet this form of gross carelessness is responsible for many destructive fires and much loss of life.

Dumping ashes in a wooden barrel has caused many fires. Ashes should be placed in metal containers with tight-fitting covers, a safe distance from all buildings.

Threshing time is a dangerous time on the farm from a fire-prevention standpoint. A county representative told me of a terrible fire that he had witnessed in which two men were trapped in a silo that they were helping to fill. A spark from a gasoline engine flew into the adjacent barn which was filled with grain. Within one minute the building was a mass of flames, and the two men in the silo died a terrible death. A spark arrester on the machinery would have saved this terrible loss of life and property.

Every stray spark from a chimney is whirled through the air, and at last finds a resting place. If that resting place is a shingle roof, a fire may result. With timber cheap, there was a good excuse for roofing with shingles, but at the present price of shingles there is no reason why a safe material may not be used.

The mysterious chemical action that we know of as spontaneous combustion can be practically eliminated by the use of proper precautions. Wooden beams that stand in the midst of damp grain or hay are often charred by spontaneous combustion before the hay or grain blazes. It is strongly urged that all such wooden pillars be covered by asbestos or metal covering. Keeping grain or hay in well-ventilated rooms will tend to reduce this particular hazard.

Despite every reasonable effort the farmer may take, a blaze may develop, and proper provision should be made for just such a condition. Buckets of water, properly protected against freezing, should be kept at convenient places in all buildings. A pail of water at the right time will do more good than hundreds of gallons after the fire gets under way. A small amount of bicarbonate of soda placed in each bucket will add to the extinguishing qualities of the water. The patent liquid extinguishers are excellent fire-fighting tools, and their use is urged.

Around the farm garage or tractor, where there is a possibility of an oil or gasoline fire, is an excellent place for buckets of fine sand. Sand smothered an oil or gasoline fire in short order, while water will only serve to spread the flames.

Community fire-fighting plans can be profitably laid in every farm district. Several districts have carried out plans in this direction, including the purchase of some fire-fighting apparatus. The advantages of such organizations are obvious.

The Sunday School Lesson

JUNE 5.

Making the Nation Christian, Psa. 33: 12; Prov. 14: 34; Rom. 13: 1-10. Golden Text—Prov. 14: 34.

Connecting Links—The citizen who regards his duties of citizenship in the light of the teaching and example of Jesus will find a solution of many difficult problems. He cannot be a mere partisan. He will not be governed by selfish or sectional, or class interests or hatreds. He will endeavor, with dispassionate mind, to discover, in the light of all the facts, what is best for the people and the nation, and he will give his loyal and conscientious support to that which is best. If he differs from others, he will do so intelligently and conscientiously, and he will not hesitate to break with party, or with leader, if he believes them to be wrong.

Psalm 33: 12. Blessed is the nation. The most important duty of the nation, as of the individual, is to seek God. The nation's true wealth is in finding and knowing God, just as that is the true wealth of the individual man. Our statesmen should recognize this, our judges and our magistrates. The poet of ancient Israel held Israel's chief possession to be Jehovah. So, in Psalm 16, he says:—

"I have said unto Jehovah, Thou art my Lord: I have no good beyond thee."

"Jehovah is the portion of mine inheritance."

In Psalm 18: "I love thee, O Lord my strength."

In Psalm 23: "The Lord is my shepherd."

In Psalm 27: "The Lord is my light and my salvation."

The nation is indeed blessed which finds in the God revealed in Jesus Christ its wealth, its strength, its guidance, and its safety.

Prov. 14: 34. Righteousness exalteth a nation. So said the ancient law of Israel: "That which is altogether just shalt thou follow that thou mayest live, and inherit the land which the Lord thy God giveth thee." This was also the teaching of the prophets, as, for example, in Isa. 1: 16-17; Jerem. 7: 5-7; Amos. 5: 24; Micah 7: 6-8; Zech. 8: 16-17. And this same national ideal of character is found again and again in the Psalms. See Psalm 15, 18: 20-26; 37: 5-6, 28-31, and many other passages.

Rom. 13: 1-10. The higher powers, Paul has the vision and the outlook of a Christian statesman. His ambition is to make the law of Christ the law of nations. But he knows that in his time Christ's law of love has not yet taken possession of all men. It has not even in our time. One may dream of a social order in which every man will of his own accord, and of his own will, do what is right, but that is an ideal still far from being realized. For its own safety and well-being every society must have its rulers. The primitive social unit, the family, has as its rulers the father and the mother, and the group of families which constitute the clan or tribe has its council of elders, and its head of the council who becomes chief or king. Such powers or authorities arise out of the very nature of things. The authorities elected by popular vote in a democracy are their legitimate successors, for they are the chosen representatives of the indi-

viduals and families which make up the state. No doubt, in a large and complex society, such a method of election should be sought as will ensure the fairest and widest representation of all classes, interests, and ideas, but the governing body so chosen should have the loyal support of all good citizens—a support, however, which will not exclude fair and reasonable and friendly criticism.

The higher powers of St. Paul's time were those of the Roman Empire, which in many cases had established itself by conquest and ruled without the consent of the governed people. Yet, for the most part, its rule was just. The Roman arms cleared sea and land of pirates and robbers, established and preserved peace, and made travel and commerce both possible and safe. Many people were much better off under Roman rule than they would have been if independent. The Empire provided, at least, an educative discipline, as the British Empire has done in many lands, through which subject peoples were prepared for self-government.

Paul lays down the general principle that such higher powers are of God and should be obeyed. No doubt he would not have counselled obedience to anything morally wrong, nor would he have denied the right of subject people to revolt against a tyrannical or unjust government; such revolts would be merely a transfer of allegiance to rightful authorities chosen by the people. But where the powers are established and recognized they should be obeyed. The good citizen will keep the laws of his country.

The ruler thus becomes a minister of God, to whom obedience is rendered, not by reason of fear or force, but for conscience sake.

Pay ye tribute. The injunction, in terms of to-day, would be, "Pay ye taxes." Even though they bear heavily at times, and we desire economy in administration, they are necessary for the conduct of the affairs of the nation.

Owe no man anything but to love one another. This is a great precept, a finely-conceived ideal and law of citizenship. Paul's injunction is to give tax or tribute, fear or reverence, and honor, where they are due, and love to all, and thus to discharge our debt to all.

Love worketh no ill. Love works all manner of good. Love is the one great Christian law.

Application.

The Jews were intensely patriotic and felt very keenly their sad political state. They recalled the glory of former days and writhed under foreign domination. As a result of this, rebellions were constantly breaking out, for the Jews hoped thus to attain political freedom. The message of Jesus to these men was that the real slavery was the slavery of sin. This underlying moral condition was responsible for their political servitude. To these men, hot with resentment against Roman rule, Jesus said: "Everyone that committeth sin is the bondservant of sin." Thus Jesus showed that the real bondage is when the soul is under the dominion of evil passion.

Fractures.

The word fracture comes from the Latin word frango, which means, I break; therefore, a fractured bone is a broken bone. Fractures may be either simple or compound. In a simple fracture the bone is broken inside the skin, without much laceration of the surrounding parts, and without any external wound. A compound fracture is a much more serious affair, for the skin is broken, and sometimes the fractured bone protrudes through the wound. In very bad cases the bone itself is splintered into small fragments, and the tissues all round are severely lacerated. When a fracture is "complete" the bone is broken entirely across; when it is "incomplete" the bone is broken partly through, or the tough membrane that covers the bone is not torn.

Children are much more likely to escape with incomplete, or "green stick," fractures than old people are, because their bones are much less brittle. Therefore a broken bone in a child often cracks halfway through, and then splits up lengthwise, just as a green stick breaks when you bend it. The bones of the old, on the contrary, usually snap right across, just as the old stick snaps after it has grown dry and old.

The treatment of fracture varies according to the particular bone injured, and also according to the kind of fracture—whether simple or compound, or whether complete, incomplete, or splintered. The most difficult thing is to get the broken ends of the bone exactly into place and to keep them in place after they are set. That is because the constant pulling of the muscles sometimes makes it almost impossible to keep the broken ends together.

When the break is in the middle of a long bone, like the arm bone or the thigh bone, the usual practice is to put the limb into a splint, after the fracture is set, and to fasten a weight to the lower extremity. That keeps the muscles stretched so that they are unable to pull the bones out of place. Occasionally this method is ineffectual, and then it is necessary to cut down to the bone and fasten the two ends into place by means of a metal plate, nailed right into the shaft of the bone.

The result, even with the most expert treatment, is sometimes unsatisfactory, and the surgeon in many

cases is blamed unjustly for a deformity that nothing could have prevented.

Systems of Feeding Hogs Compared.

The high cost of coarse grains that has obtained during recent years has made it necessary to give careful consideration in the feeding of hogs and to the methods of supplying the feed. Useful information on this point was brought out in a series of experiments carried on for several years at the Experimental Farm at Ottawa. Experiment was carried on to compare the following systems: (a) the use of a limited grain ration given to hogs on pasture, (b) trough feeding in an open feed lot without pasture, (c) allowing the hogs free access to grain rations placed in a self-feeder in the bare feed lot, (d) hand feeding by the trough method in pens, (e) the use of a self-feeder in pens. The results of this test with respect to cost per pound of gain was as follows:

Pasture and limited grain. 9.7 cents
Trough fed (paddock) 10.8 "
Self-fed (paddock) 9.8 "
Self-fed (inside) 9.3 "

Besides arriving at a comparison of the cost of gains made by the hogs feeding according to the different systems, certain other conclusions were reached at the conclusion of the series which was continued up to the end of March, 1920. These conclusions are as follows:

1. Pasture feeding, using a limited grain ration (trough fed), proved slightly more economical than where the self-feeder free choice system was used the year before, considering the higher cost of all feed.

2. That the self-feeding method proved slightly more expensive in cost per pound, but that the hogs so fed were ready for market from ten to fifteen days earlier.

3. That the self-feeder is a good hog fattener, but not to be recommended in the growing of young breeding stock. Trough feeding in this experiment proved more economical indoors. In outside feeding the reverse was the case.

4. That hogs fed in cool indoor quarters supplied with earth, charcoal, etc., and with a reasonable amount of green feed, make more economical gains than those similarly fed outdoors. Sun and sunburn generally is a most serious condition with the young white-skinned hog.