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.

J. S. S.—1. If samples of soil are sent would your chemist be able to analyze it to show the kind of fertilizer needed?

2. Is lime good for clay soil that has been wet for a long time and has not been properly drained?

3. Would lime or acide phosphate be the most profitable to use?

4. Would you advise a mixture of acid phosphate and lime and when would you advise applying same, and how much would you sow to the acre?

Answer 1.—To the first part of your question I would answer yes, and to the second part no. Any reputable chemist can make an analysis of soil showing the nitrogen, phosphoric acid and potash in it. A simple analysis does not give a sufficient indication of the conditions of the soil to determine what fertilier to use. It tells you only the total amount of plantfood in the soil, but does not tell anything as to the form of plantfood, whether it is available or unavailable; that is, whether the plant can use it or whether it cannot. Phosphoric acid and potash both exist in these two forms. Moreover, from an analysis standpoint you are studying only the state of the soil, and paying no attention to the characteristic foodneeds of the crops, which is about as effective a means of approaching the subject as it would be for a livestock farmer to study only the construction of his stable and pay no attention to his livestock rations.

I herewith give the characteristic plantfood needs and general character of the typical soils:

FARM CROP REQUIREMENTS

(AVAILABLE) PLANTFOOOD

CROP	Nitrogen (Ammonia)	Phosphoric Acid	Potash
Potatoes, Mangels, Carrots, Sugar Beets	Good Supply....	Medium	Abundance
Turnips	Small Supply...	Abundance	Small Supply
Wheat, Oats, Rye, Barley.	Fair Supply....	Abundance	Small Supply
Corn (Husking)	Small Supply...	Abundance	Small Supply
Corn (Silage)...	Fair Supply....	Abundance	Small Supply.
Meadows, Pastures, and Fodder Crops	Good Supply....	Medium	Small Supply

Soil types differ in their characteristic supplies of the essential plantfoods, nitrogen, phosphoric acid and potash.

PLANTFOOD SUPPLIES IN SOILS

SOIL	PLANTFOOD Nitrogen	Phosphoric Acid	Potash
Sandy Soil.....	Low	Low	Low
Loam	Fair	Medium to Low.	Fair
Limestone Soil.....	Medium to Low.	Fair	Low
Clay	Fair to Good....	Fair—Frequently unavailable	Fair—Frequently unavailable
Muck and Peaty Soil,	High	Low	Very Short

With these two sets of information you can intelligently choose what will give you most profitable results. The theory of fertilizer use being based on soil analysis has been exploded 50 years.

2. Lime is good for clay soil whether drained or undrained, since lime tends to sweeten sour soils and tends to gather together the crumbs of clay soil so that its texture is coarser after being limed than before. However, you cannot get good results from undrained soil. Lime will not take the place of drainage.

3. Both lime and and phosphate are profitable to use. Ohio Experiment station in an experiment covering 20 years shows that by liming a soil you can increase wheat yields between 4 and 5 bushels per acre. If the soil is fertilized a considerable increase can be made, 8 to 12 bushels per acre, but if the fertilized soil is limed in addition to being fertilized, an additional increase of 4 to 5 bushels per acre can be made. Remember lime does not take the place of acid phosphate, nor does acid phosphate take the place of lime. Lime sweetens the soil, acid phosphate invigorates the root growth of farm crops and hastens their maturity.

4. I would never advise a mixture of acid phosphate and lime for the following reason; in making acid phosphate the manufacturer buys the raw insoluble phosphate rock. He grinds this up and treats it with just sufficient acid to change it from the insoluble form to a form in which 14 per cent to 16 per cent of it will dissolve in water. Now if you add lime to acid phosphate you are undoing exactly what the manufacturer has done. That is, the lime causes the soluble acid phosphate to turn back to the insoluble form. I would advise using upwards of a ton to the acre of ground limestone once in 3 or 4 years, applying it any time of the season the crops are not growing, preferably in the fall so that it can be worked into the soil, sweetening it during the fall and early spring. As to acid phosphate if you have added a considerable amount of manure, it is good practice to add 300 to 400 lbs. of acid phosphate to the acre in preparing the soil for grain crops. This balances up the manure in its weak place and causes a more vigorous growth of the roots of the grain. This should be applied at the time that the seedbed is being prepared.

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How One Rural Teacher Prepared Healthful Lunches For His Pupils.

What teacher of a rural district has not looked upon the cold lunches her pupils must eat every noon with distaste and misgiving, and wondered if anything could ever be done to improve conditions?

A young woman teaching in one of our rural schools more courageous and resourceful than the rest, has solved the problem as far as her own school is concerned. As her methods are simple and easily imitated, they are hereby set forth for the benefit of any other rural "schoolma'am," or for trustees or patrons who have become impressed with the menace of malnutrition among school children.

Miss Marvin presides over a typical one-room country school, with four grades and an attendance varying from fifteen to twenty-one pupils, all of whom live from one to two miles from the schoolhouse and must bring their lunches. As in many such schools, a number of these pupils come from large families, in which the mothers are burdened with the cares of their broods and with farm work, and have little time for preparing tempting or even appetizing lunches. A few thick slices of bread soaked in syrup formed the basis of the child's noon meal—before this teacher began her experiment. Usually the mothers are not well versed in matters of diet, so they do not realize the child's need of more nourishing food.

Miss Marvin had always nursed an ambition to try out her hot-lunch plan. So two years ago she was inspired to direct action by the haunting face of a frail, anaemic little boy in her primer class, who had to walk two miles to school. For the sake of pathetic little figures like this one, she resolved to undertake the work. She did not, however, submit her plan to the parents for approval, realizing that it would meet with a dozen objections. In fact, she talked very little about it at all, until it was successfully launched, tactfully avoiding all friction. She simply "sawed wood."

Out of the proceeds of a school entertainment she bought a three-gallon aluminum kettle for $2.25. Then she quietly asked the pupils each to bring a small quantity of vegetables to school. One child contributed two or three potatoes, another brought a few carrots, a third supplied an onion, and a fourth had a fine soup bone at home which was just the thing for soup stock.

These materials were cooked together on the big flat-topped stove that heated the schoolroom. Thus the school had its first hot stew. Each cold autumn or winter day they had a different dish—just one. Now it was macaroni stew, now rice soup, then barley soup, bean soup, hominy soup, or hot stewed corn or tomatoes, canned by the pupils themselves in connection with their autumn school work under the teacher's supervision; and occasionally, just for a change, Miss Marvin decided to have hot chocolate or chocolate pudding. On one occasion last winter one of the boys on his way to school caught a rabbit which the pupils skinned and cleaned, with the aid of the teacher, and the next day the school had a savory rabbit stew.

The children were enthusiastic. They liked the feeling of this hot dish at noontime, and almost never forgot to bring their contributions.

From the first, the parents were much interested and not at all inclined to adverse criticism. What farmer patron could object to parting with a few vegetables, a cup of rice, beans or hominy, or a package of macaroni occasionally? One mother has been so eager to help that she has several times sent the school veal stock. Miss Marvin always keeps a record of what each child brings, so that no family will be called upon to give more than its share.

At first the children were asked to bring saucers and spoons. Later on the citizens of the district formed a community club, with the schoolhouse headquarters, and the organization equipped itself with dishes, which the teacher and her pupils are free to use.

Each child is served at his own desk, which is protected by outspread newspapers or paper napkins. The service is performed in orderly fashion by Miss Marvin and a few of the older girls. Manners, you see, are not neglected. Along with his cup of soup or saucer of hot tomatoes the pupil has the cold lunch which he has brought. After the meal most of the pupils are sent out to play, while Miss Marvin and her appointed helpers clear the table. By the time the afternoon session is due all signs of cooking and dish-washing have disappeared.

Miss Marvin has always found it expedient to do all the cooking herself. "In a one-room country school," she explained, "we have so little room that it would be impracticable to have the children help. They would only get in each other's way. Then we have so little time for extras it would be hard to crowd it into school hours, and the parents might think the children were neglecting their studies.

"On the days when I plan to have soup I aim to arrive at the schoolhouse early, and put on the soup bone to cook and prepare the vegetables, to be added later in the morning. The soup cooks during school hours, and is very little trouble. A small oil stove with one or two burners is the best to use, because the large heater gets too hot for the comfort of the pupils when we fire up enough to keep the pot boiling. It would be easy for any teacher to buy an oil stove with the proceeds of a school entertainment. My patrons are now talking about getting me one.

"The ktchen equipment is simple and requires little room. We have a large cupboard for the lunch pails, one shelf of which is devoted to storing the canned goods, beans, rice, salt, sugar, and the like. In the cold weather we keep the vegetables and canned goods in a farmer's cellar near the schoolhouse, so they will not freeze."

The cost of the hot noonday luncheon need not frighten any teacher or school board. Miss Marvin has always avoided asking directly for money contributions from the parents, so the cost must be reckoned solely upon the donated material, most of which comes straight from the farm, with the expense of the middleman eliminated. She estimates that the vegetable soup may be prepared at an average ranging from two to four cents for each child. To fill the three-gallon kettle full of bean soup, she uses about two pounds of beans, a large potato, and half a pound of salt pork, all of which means an expenditure of 55 or 60 cents for raw materials. In other words, from fifteen to twenty hungry pupils on a cold winter day may have a satisfying lunch of bean soup for three or four cents apiece.

Other results of Miss Marvin's two years' experiment are greater interest of the pupils in their school work—because of their improved physical condition—and greater interest of both parents and pupils in the children's diet. The cold lunches which the youngsters now bring to school have distinctly improved, both as to quality and variety, showing an effort on the part of the mothers to provide daintier sandwiches, more fresh fruit, sauces and raisin bread, and the like.

Better yet, the district has become a fertile field for the propaganda of juvenile good health. Miss Marvin has awakened much intelligent interest by distributing various pamphlets on nutrition. These contain suggestions for the school lunch, and tell just what sort of food a child should have to keep him in the best of health and spirits.

She has also given out score cards for keeping account of a child's weight. And more than one youngster has acquired the habit of weighing himself to see if he gaining those precious pounds which he needs to keep up a high standard of health.

A Slip in Arithmetic.

Last year Old Father Time lost count,
And had nineteens a-plenty;
(Nineteen nineteen's a foolish way
To count, as any one would say.)
But now he has it straight again,
For hear him: Nineteen twenty!

Snowflake.

"Snowflakes gone; I can't find her anywhere!" cried Donald. "She didn't come up to roost last night."

He had raised Snowflake himself and tamed her. She always flew to his shoulder when he opened the corn barrel; if he were too long about it, she would peck at the buttons on his blouse and scold him in a funny little voice.

Noon came, and still no Snowflake. Donald was very unhappy. That evening he dreaded to feed the chickens; but he picked up the feed basket with a sigh and went out to the barn.

As he opened a full barrel of grain and slowly scooped up a basketful, he was startled to hear a queer little scratching, rustling sound near by.

"What's that?" he said to himself. Then he heard the sound again.

A joyful thought flashed into his mind. "Coo chicky, coo chicky!" he called in loud tones.

The sound stopped suddenly. Then all at once a shrill little voice broke the silence. "Cut-Cut-cut-a-cut!" it cried. "Cut-a-cut!"

Donald made a dash for a barrel in the corner and jerked off the top. With a flutter and a squawk Snowflake flew up into his face. She was weak from hunger, but she perched on his arm and pecked feebly at his buttons.

"You poor little thing!" said Donald.

He remembered, now, that he had left the top off the empty barrel the evening before. Snowflake must have gone back into the barn and jumped in to get more corn; then some one came along and closed the barrel without noticing her.

"You shall have an extra supper," he promised her. "Corn-meal dough, with cool clabber to quench your thirst." And so she did.

Vegetables and fruits may seem to be very high in price, but they are far better and cheaper than medicine. Do not skimp on vegetables and fruits now that winter is here.

Address all communications for this department to Mrs. Helen Law, 235 Woodbine Ave., Toronto.

Student: 1. English is spoken by more than double as many people as French. The figures are: English, 160,000,000; French 70,000,000.

2. The word "comet" means a lone star. It is derived from the comet's star-like body, and the hazy fog that surrounds it.

3. If you will write to the Canadian Seed Growers' Association, Ottawa, they will send you (free) a "Guide [illegible] Study and Improvement of [illegible] Seeds," specially prepared for boys and girls. It is a very interesting booklet and will help you in your laudable desire to work scientifically in your school garden. There is a section specially prepared for teachers as well. Nothing like getting started right, is there?

High School Girl: Please suggest a unique way in which to tell fortunes at a Valentine party; also a new way in which to match partners.

Fill a dish with "hearts of lettuce" made of pale-green crepe paper, with a "fortune" written on a slip of paper secured to each leaf. Pass this dish while refreshments are being served, and have each guests take a leaf. The following fortunes are offered as suggestions; others hitting off the characteristics of your guests may be added:

You will never be in danger of starvation if you carefully follow the rule of eating three full meals a day.

Never wish for rain unless you own a canoe. Remember Noah!

There is this about you that causes you to have a great knack in winning children—knick-knacks.

You will shortly take a great distaste for fish, while at the same time your next door neighbor will spend three hours a day at the piano over nothing but scales.

Ten years hence you will own sufficient money to purchase China—at $12.50 a set.

You have always been noted for your good taste in dressing—mayonnaise being your special forte.

Your passage has been secured on the largest ship in the world—friendship.

Your name will soon appear in all the daily papers—in the want ads.

Within a short time you will be wearing on your left hand a diamond ring, but honesty will compel you to return the lost jewel to its owner and thereby get the reward.

A man whom you do not know will soon bring you a letter of great importance. Rumor hints that this man will probably be the postman.

Cupid's Quest is suggested as a new way in which to match partners. Each boy is handed a red heart on which is written one of the letters (capital) in the word V-A-L-E-N-T-I-N-E. Similarly each girl is given a white heart with a corresponding letter (small). They match up for partners with their eyes open. Then they are blindfolded and separated and when the signal is given they are told to find their partners. The only words that are allowed to be spoken by the boys in this quest are, "Where are you?" and by the girls, "Come find me." These must be spoken in whispers. As soon as any of the boys find their partners the bandages are removed from their eyes and they are allowed to withdraw from the quest. The first couple "out" lead to the dining-room and the last couple "out" must walk in the rear of the line. About four persons are needed to assist in blindfolding the participants and to keep them out of danger. There should be ample floor space, the furniture being pushed back against the walls, out of the way.

Worried: The affections of the young man to whom I am engaged have been won by another girl. Please advise me what to do.

There is very little to do in such a case as yours except to be thankful that the man's fickleness developed before and not after marriage, when your plight would be far more serious. Forget the unhappy circumstance, find new interests, and real happiness will come and stay with you.

INTERNATIONAL LESSON.

Peter Stands up for Truth and Honesty—Acts 5: 1-11.

1-2. At the Apostles' Feet. The money thus given for the common need was placed at the disposal of the prophets as the trusted leaders of the Christians. In chap. 6 the story is told of difficulties and inequalities which arose in the distribution of the money, and how an organization was effected and special officers was appointed to relieve the apostles of a task which they much preferred to have done by others.

Ananias and Sapphira "kept back part of the price." They had a perfect right to do this, for the money was their own. But they pretended they were giving all, that they might have the credit and the recognition due to such a generous gift. They lied both to men and to God. Whether it was the shame and humiliation of the exposure of their falsehood or fear, excited by Peter's words, that divine vengeance might fall upon them, that caused the death of both, or whether we must think of a direct act of divine judgment, the terrible tragedy of disgrace and death must have profoundly impressed the whole community. Peter had taken his stand against falsehood, and for absolute truth and honor in all the transactions of the church. He had spoken in terms of the most extreme abhorrence and condemnation of the lie that had been told. The fate of Ananias and Sapphira stood, and continues to stand, as a most solemn and terrible warning to the liar, and especially to everyone who seeks by hypocritical falsehood to obtain a reputation for piety or a standing in the church of God.

3-6. To Lie to the Holy Ghost. The passage might be rendered "to try to cheat the Holy Spirit." This is the sin of the hypocrite. He fancies that he can deceive high heaven, or rather he deludes himself into believing that his fair show of piety is the real thing and is acceptable to God. There is no more dangerous or debasing form of living. Peter said, "Thou hast not lied unto men but unto God." It is no wonder that at such an exposure and rebuke the heart of the guilty man sank and despair seized upon him. "It is a fearful thing to fall into the hands of the living God."

Falsehood takes many forms, but it is always and everywhere a sin against God. It was thus that Joseph regarded the sin of infidelity and dishonor to which he was tempted (Gen. 39: 9). David, in his prayer of penitence, says, "Against thee, thee only, have I sinned, and done this evil in thy sight." And Paul, in a well known exhortation (I Cor. 8), reminds those to whom he is writing that to sin against their brethren, and to wound the conscience of their brethren is to sin against Christ.

A man, to be true and sincere, should be not less but more than his profession. His life must be filled with reality; not shams nor hypocrisies. Such a man was Jesus Christ, absolutely real, sincere, open and clear as the sunlight, making the actions of His daily life everywhere correspond to His words. He taught well and he lived well. His life was truth as His words were truth. Of the devil He said that he "stood not in the truth, because there is no truth in him." "When he speaketh a lie, he speaketh of his own; for he is a liar and the father thereof." The Christlike character is one of simplicity and purity, without affectation or pretence, without false pride or boasting. The gifts which the Christian offers, the service which he renders, are in his thought and intention offered to God. They are prompted by a heart of love, and at their best and greatest are esteemed by him to be but a small return for the exceeding greatness of the love and the sacrifice of his Lord.

The ideal and the goal of all Christian labor, and indeed of the labor of all good men and women, is the building of the city of God, into which no darkness and no sorrow shall enter, nor anything unclean, nor "he that maketh an abomination and a lie." The story of Ananias and Sapphira, however harsh and cruel it may seem, represents that passion for reality and truth which already possessed the apostles and their followers. When the church loses that passion it will lose its very life. For truth is life, life eternal. John in one of his epistles, says, "Greater joy have I none than this, to hear of my children walking in the truth." Again he says, "We know that the Son of God is come, and hath given us an understanding, that we know him that is true, and we are in him that is true, even in his son Jesus Christ." And he speaks of truth as that "which abideth in us, and it shall be with us for ever." It is by steadfast truth and unfailing love that the city of God, the city of redeemed humanity, will yet be built—the city whose walls are salvation and whose gates are praise.

Rust spots on clothes are often caused by the bluing, which contains a compound of iron. When this is brought in contact with soap it produces rust spots. Hence it is well to thoroughly rinse all the soap out of the clothes before bluing them.

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