


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, 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

The Fertilizer Industry and the Potato Situation.

Conditions surrounding the production of the fundamental article of Canadian diet and the source of its greatest staple food supply are so intimately related that they deserve special consideration.

The productive fields of France, Italy, Great Britain and Belgium, which normally produce cereals to the extent that those countries need import from America only 380,804,000 bushels of cereals, have been so laid waste that in order to keep up the normal consumption, the total import required this year will be 577,709,000 bushels.

Canada has but little in excess of 150,000,000 bushels of wheat to export this year. Now, if we are to maintain our position in the gigantic task we have undertaken, we must substitute other materials for our own food so that what may go abroad to the extent that is absolutely necessary to sustain the armies in the field and the populace in the countries that are ravaged by actual combat. Recent reports from Paris show that France alone will need 122,000,000 bushels of cereals in 1918. What is more natural than that we should substitute a larger per cent. of potatoes in our diet.

Previous to last planting season, strenuous efforts were made to increase the potato acreages and to improve the methods of potato production to the end that much larger crops be realized. That these efforts bore fruits is evident. It is now becoming more and more evident that a similar campaign will have its place in the spring of 1918. To my mind such a campaign should lay emphasis more than ever upon intensive methods in the production of potatoes. The potato grower is faced with the great scarcity of farm labor and with an increasing cost of same. To increase his potato area is simply to multiply several of the important items in the

Cost per bushel depends on yield per acre

Cost Per Acre	Yield Per Acre (Bushels)													
	70	80	90	100	110	120	130	140	150	175	200			
\$20.00	.285	.25	.222	.20	.18	.16	.14	.12	.11	.10	.09	.08	.07	.06
30.00	.428	.375	.333	.30	.27	.25	.23	.21	.20	.18	.17	.16	.15	.14
40.00	.571	.50	.444	.40	.36	.33	.30	.28	.26	.24	.23	.22	.21	.20
50.00	.714	.625	.555	.50	.45	.41	.38	.35	.33	.31	.30	.29	.28	.27
60.00	.857	.75	.666	.60	.54	.50	.46	.42	.40	.38	.37	.36	.35	.34
70.00	1.00	.875	.777	.70	.63	.58	.54	.50	.46	.44	.43	.42	.41	.40
80.00	1.142	1.00	.900	.80	.72	.66	.61	.57	.53	.51	.50	.49	.48	.47
90.00	1.285	1.125	1.000	.90	.81	.75	.69	.64	.60	.58	.57	.56	.55	.54
100.00	1.428	1.250	1.111	1.00	.90	.83	.76	.71	.66	.64	.63	.62	.61	.60
110.00	1.571	1.375	1.222	1.10	1.00	.91	.84	.78	.73	.71	.70	.69	.68	.67
120.00	1.714	1.50	1.333	1.20	1.09	1.00	.92	.85	.80	.78	.77	.76	.75	.74
130.00	1.857	1.625	1.444	1.30	1.18	1.08	1.00	.92	.86	.74	.72	.71	.70	.69

cost of production of potatoes. To prepare his potato seed-bed better and to supply the potato crop with a larger quantity of available plant food will necessarily increase the cost per acre to some extent, but will at the same time increase the yield per acre to an extent that will mean the ultimate production of the crop at a considerably reduced cost per bushel. The following table is more or less an empirical statement concerning the cost per bushel at varying rates of yield and acre costs; but this statement can be of considerable benefit to the potato-grower if he studies it carefully. To illustrate its use, let me point out that if the potato-grower spends but \$40.00 per acre in the preparation of his field and the handling of the crop throughout, and obtains approximately 80 bushels per acre, his potatoes cost him 50c a bushel. If by careful fertilization of potatoes, and a little more careful culture at an aggregate cost of \$60 per acre, he can increase the yield from 80 bushels to 150 bushels per acre, he can reduce his cost per bushel 10c, and has 70 more bushels per acre to sell.

Some have claimed that potatoes this year cost over \$100 per acre, due to the high price of seed and increased cost of fertilizer and labor. At such a cost, if potatoes yield 200 bushels to the acre, the cost is 50c a bushel; still if that yield can be increased to 250 bushels per acre, the cost will be 10c less per bushel. There are two points for the 1918 potato-grower to keep in mind; first, that there is bound to be a tremendous call for food; second, that liberal fertilization, even at considerable increased cost, will, if intelligently applied, greatly increase the average yield per acre.

In view of these facts, potato-growers will be especially interested in the prospect for fertilizers for the spring of 1918. It is not my purpose to relate the story of the difficulties which now face the fertilizer industry only insofar as it has a bearing upon the supply and necessarily upon the cost of fertilizers next spring. Let me call your attention first to the condition of the supply of the basis of acid phosphate. As you know, the supply of phosphate rock comes from Florida, Tennessee and Carolina. These

allied European governments are competing more and more for the American supply in order to keep meat fresh for the men on the firing line of Europe. Tankage and blood and other by-products of the packing and other industry have usually been used to the extent of a million and a half tons per annum. High-priced crops always mean high-priced meat animals. It is impossible for the farmer to feed high-priced corn and sell his livestock at a low price. Now, in order to hasten the maturing of the livestock, farmers are watching their rations closer and closer. They are feeding more concentrates, and concentrates of higher quality at the critical period. As a result the demand for stock feed has increased enormously.

Potash

The one constituent that the potato-grower is especially interested in has undergone most severe competition within the period of the packing and the German embargo and the activity of the submarines have absolutely cut off the European supply of potash, so that what formerly sold for \$40 a ton now is quoted at over \$350 a ton. This material, too, has an important place in the manufacture of gunpowder and other explosives.

The shutting off of the European supply created great incentive for a search for home supplies. This has been rewarded more or less in the development of the kelp industry, which is nothing more than the cutting and drying of the seaweeds at the ocean edge, plants which are high in potash. Recently it has been discovered that the dust from the marl and cement mills contains approximately 1.95 pounds of potash per barrel of cement manufactured. Altogether these home sources of potash are producing approximately 80,000 tons of K2O versus the normal need of 250,000 tons of K2O.

When you add to these difficulties in obtaining nitrogen carriers, phosphoric acid and potash, the fact that burlap bags have increased from \$65 to \$240 a thousand, and labor has increased in cost from 50 to 75%, you will see the logic and necessity of the increase in cost of fertilizers for the crop of 1918.

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Stanley Lightfoot, Patent Attorney, 142 Dundas Street West, Toronto.

The figures I have presented are not guesses or mere estimates. They are figures that have been deduced by extensive surveys of the fertilizer industry and figures that have been taken from special investigation of disinterested parties. The outlook for the foregoing facts, seems to look rather foreboding, yet the increased cost of average analyses used on potatoes, analyses that carry approximately half or less the potash that was supplied in potato fertilizers previous to the war, has increased but a moderate amount in view of the much increased prices being obtained for the produce. It is doubtful if the 1918 selling price of the average potato fertilizer would be found to exceed prices obtaining under normal conditions by more than 40%. Looking at the question in another way: An application of 1500 pounds per acre of 5-8-4, which would formerly cost approximately \$40 per acre, will not like a cost of more than \$60 an acre this coming spring. You as potato-growers are going to be faced with the question "Will it pay me to fertilize my potato crop in view of present high costs?" The government has not guaranteed a minimum price for this important food product, but conditions would seem to warrant the farmer's expectation for an increased instead of less demand during the summer and fall of 1918.

Consistent effort is being made to improve the grading and marketing of this important crop. Now, the basis of good grading is high quality material. No one factor is more important in standardizing the quality of Canadian potatoes than the judicious feeding of the growing crop with available plant food. All of the older and prominent potato-growing sections of this continent have demonstrated that no one factor is more important in standardizing the quality of potatoes on this continent than the judicious feeding of the growing crop with available plant food.

The eggs from flocks maintained

POULTRY

There is a tendency for poultry raisers to consider green food more in the light of an accessory to the regular bill of fare than as a staple and necessity. This is a mistake. Succulent feeds, which is another term for green-stuffs, are just as important as animal feeds or grains, without which no experienced poultryman would think of trying to produce eggs, especially in cold weather.

Frequently poultry keepers go to great pains to provide their flocks with beef scrap, fish meal, green-cut bone and other sources of animal protein, which are essential to a well-balanced ration, to be sure, and then pay little or no attention to the green supply, sometimes ignoring it entirely. The result of this management, or rather mismanagement, is really a loss, because fowls are not capable of getting the full benefit from animal protein, which is the most expensive food element, without the aid of the mineral salts contained in the succulent feeds. A flock may appear to thrive without green food, but what- ever productivity the hens show is not normal, nor permanent, nor healthful.

Succulent feeds correspond to "roughage," the bulky feeds, such as hay, alfalfa and corn fodder, which are so essential in the dairy, horse stable and, in fact, in raising all forms of livestock. Besides furnishing valuable nutrients, for most green stuffs contain protein and carbohydrates in fair quantities, the succulent feeds serve to counteract the evil effects of the highly concentrated foods and aid in their assimilation.

The Sunday School

INTERNATIONAL LESSON DECEMBER 16.

Lesson XI. Nehemiah Enforces the Law of the Sabbath—Neh. 13. 15-22. Golden Text, Exod. 20. 8.

Verses 15, 16 give illustrations of violations of the Sabbath laws, (1) by labor; (2) by carrying on traffic. In those days—An indefinite note of time. After his return Nehemiah may have made a tour of inspection, in the course of which he made the discovery. Winepresses—The grapes were placed in a receptacle and then trodden with bare feet; from the press the juice flowed into a receptacle below or down. Sheaves—Better with margin, "heaps of grain;" these were collected to take them to the city for sale. It would seem that work and business flourished on the Sabbath as on the other days of the week. Burdens—Better, "produce." To do these things on the Sabbath was a violation of oft-repeated exhortations by prophets and priests (for example Exod. 20. 8-11; Deut. 5. 12-15; Isa. 56. 2, 58. 13; Jer. 17. 21; Ezek. 20. 16; 22. 29). Testified—Better, as translated above, "I protested against their selling provisions on that day." Men of Tyre—People who had come from the Phoenician city of Tyre. It is not known when they settled in Jerusalem; they may have gone there to carry on traffic in fish, which could be caught in abundance along the coast. As foreigners they might have had any scruples on the subject of trading on the Sabbath; but in a Jewish community they should have been restrained. The closing words of verse 16 should be translated "the Jews (children of Judah) in Jerusalem."

Verses 17, 18 narrate Nehemiah's protest to the authorities that had allowed the abuses to spring up. Contended—or, "expostulated." Nobles—Whose business it was to enforce the law. Profane—Secularize it by treating it as an ordinary day. If they would only study their past history they would soon discover that it was a similar disregard of the law of Jehovah that brought such bitter sufferings to the people. This evil—Subjection to a foreign power, poverty, attacks by surrounding nations, etc. Bring more wrath—Existence in the present practice can mean only further manifestations of the divine wrath.

Verses 19-22 describe the steps taken by Nehemiah to guard the sanctity of the Sabbath. Began to be dark—More literally, "as soon as the gates began to have shadows on them;" that is, the order to close the gates was given at the beginning of the Sabbath day, at sunset or as soon as the darkness came, on the day before the Sabbath; and they were to remain shut until the close of the Sabbath day. Servants—Personal attendants on whose fidelity he could rely: this was done to prevent a porter from being induced by bribery to open the gates. Burden—See on verse 15. Without Jerusalem—A temptation to go outside of the city wall for purchases, simply another way of desecrating the Sabbath. Once or twice—The traffic went on for a Sabbath or two before Nehemiah took notice of it; when he did so he proceeded with all energy.

Your Problems

Conducted by Mrs. Helen Law

Mother 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.

Miss Flo.—Borated vaseline is probably the best remedy for chapped hands. One should be careful to dry the hands thoroughly after washing. Apply the vaseline at night. Another good remedy is glycerine with a few drops of lemon juice. Rubbing a piece of cut lemon on the hands will remove stains and whiten them beautifully.

Maid Marion.—To stiffen a crochet basket, dissolve one part of gelatine in six parts hot water. Dip the basket, shape and dry in the air—not in the oven. This gives a pure white piece a very slight creamy tint; on an arc piece it has no apparent effect. The happy recipient of your basket will appreciate it, I am sure, Maid Marion.

Rosalind.—A popular little play for children's acting is "Ye Village Skewl of Long Ago," in one act, taking an hour's time, for seven boys and ten girls. A two act play, for one boy and nine girls is entitled "The Con- valescence of Robbie."

Country Woman.—Sharing indignation with your city sisters over the price of potatoes, aren't you? Well, the price of potatoes has not been fixed because it is impossible to fix them for this year. The average crop of potatoes in Canada is a hundred bushels to the acre. The seed alone costs the Ontario farmer \$42 an acre without taking into account the cost of

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Was It Injustice?

Marian's color was high and her eyes were dark with excitement. Clearly something had happened.

"What's up, sis?" Roger asked, looking at her curiously.

"Up? Injustice, prejudice, favoritism and everything else that's unfair and dishonest is up. I've been in that office three years, and Letitia Banks has been there less than two. I no more doubted I'd get Miss Roberts' place than I doubted I'd come home to dinner—and then if Letitia Banks didn't walk off with it without a word! Oh, I'd like never to put my foot in that office again. What's the use of doing good work when this is what you get for it—a little, pink-cheeked baby walking off with a promotion under your very nose! It's the injustice of it that makes me blaze!"

There was a moment of uncomfortable silence. Mother was all sympathy, Virginia was all indignation; only Roger looked at his sister gravely.

"But there must have been some reason—business men don't usually promote against their own interests." "They promote the one that flatters them—that's what they do!" Marian retorted bitterly. "That's what Letitia Banks has done from the first. You'd think to hear her gush over it that there wasn't a firm in the universe like Pembroke & Easton! Well, if they're her ideal, she's welcome to them. I'm going to look for another place, that's all."

There was no use in saying anything when Marian felt like that. The family went in to dinner, but in spite of Roger's efforts it was not a cheerful meal. Even mother—though she would not have confessed it even to herself—drew a breath of relief when Marian started for her boys' club. That at least roused Marian's enthusiasm.

A block below the club a small figure was lying in wait for her; under the street light he lifted a glowing, freckled face.

"Hello, Miss Marian! Say, did you know I'm in business?"

Marian's tense face relaxed. She never could resist her boys.

"Why, no, Billy," she replied. "What are you doing?"

"Office boy—Parker & Cone's. Say, we're some firm all right! Did you know we got a five-thousand-dollar contract yesterday? And sent out seven new bids, and I bet we'll pull down some, too! Mr. Parker, he's a hustler, and Mr. Cone—say, Miss Marian, you'd just better hear him! I bet there ain't anything about buildings he don't know. I learned the different sizes of freproofing tile to-day. Ted Bailey taught me. He was office boy but got promoted. He says I'll get my chance all right because I'm interested. He says they care more for that than most anything. You bet your life I'm interested! Say, what's the matter, Miss Marian?"

Marian had stopped short and was looking down at him as if she were seeing something for the first time in her life. Perhaps she was.


Children and Table Manners.

Sitting beside us the other day in a restaurant was a small child, who had the very worst table manners and bad temper we have witnessed in any child. The way this child was being brought up or not brought up was disturbing.

He handled everything on the table, helped himself to sugar and audibly crowded the lump into his mouth despite his mother's protest. He then persisted in arguing about it, the sugar making his remarks rather indistinct. He asked for the food on our plate, and stopped the waitresses to ask what their trays held. Although he had been allowed to order what he wished, he demanded a full share of his mother's luncheon. Now, being somewhat of a philosopher, we made the best of a bad situation. Mother assured us that "Harold never did this at home, etc." Well, if Harold did not do such things at home he would not do them in public. "Darling" was urged to eat what was on his plate, but mother finally fed darling the whipped cream off her iced coffee, and fed darling a few sips of coffee as well. She also gave him tomato salad from her own plate, and finally, O tempora, O mores, slipped a piece of apple pie into the child's cup and let him eat it with a spoon!

Now, it is not necessary for a child to have poor table manners because his age is written in one digit. The fault rests with the one who looks after the wants of the child at meal times. Possibly that person thinks the getting of food into the child's stomach via his hands and mouth is the end to be gained. Would that she knew the method is quite as important an end as the ultimate satisfying of the appetite.

We also decided that the rule of our own childhood about "children being seen and not heard" has still much in its favor.



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