

Potato Culture.

Small Potatoes and Few in the Hill for 1890. The Cause and Prevention Discussed.

J. A. S. MOTT, BEFORE THE ST. JOHN AGRICULTURAL SOCIETY, JAN. 29TH, 1891.

It is known that in many sections of our province during the past year, the potato crop was almost entirely a failure, and it is also known that a few farmers in various parts of the province during the same year, under similar circumstances in many respects, produced excellent crops.

In order to get at the cause of the failure or success if possible, and to lay before this board the mode in which potato culture is carried on, early in December I addressed letters to a large number of our best farmers in which I asked them the following questions:

1. Upon what kind of soil did you plant?
2. Did you spread manure broadcast, or plant in hills?
3. Did you use chemical fertilizer. If so whose make. How did you apply it, and how much to the hill, or acre?
4. Did you cut the seed or plant whole?
5. Did the potatoes planted with chemical fertilizer rot equally with those planted with manure, and were both equally troubled with bugs?
6. What varieties did you plant, and which do you consider most profitable?
7. Do you know of any variety which the bugs will not trouble?
8. What in your opinion caused the rot, and how can it be avoided?
9. How many bushels to the acre did you average?
10. Please give me any other information on this subject which may be of interest to farmers?

These questions were answered very carefully and intelligently by many farmers, and where no objection was expressed, the letters in reply form a part of this paper and are worthy of consideration. A few, however, did not care to appear before the public, and only the substance of what they wrote is given.

I am compelled to say that until farmers know something of the teachings of agricultural chemistry, until they know a little more of the nature and composition of the soil upon which they plant, and the fertilizer necessary to produce a required crop, a large portion of their labor will be spent in vain.

There are a few striking exceptions, but with many of our farmers, it is simply a convenient plot of ground, a few loads of stable manure and a few barrels of such potatoes as happen to remain in the cellar after winter use, put together in the spring, and from a half to one third of a crop in the fall.

A farmer of this province informed me a few days ago, that he planted an acre of potatoes last year on the first plot of ground he could find dry enough to work, used plenty of green stable manure, planted in hills with whole seed, cultivated in the usual way, and in the fall did not get more than one bushel in five of sound potatoes, the balance being scabby or rotten, while another plot of ground upon the same farm planted later, and manured with what he called the scraping of the barn yard, gave him fair results with less rot. He could not account for the failure.

The trouble doubtless was that his land was not evenly balanced in the qualities required to produce potatoes, the manure applied though adequate in quantity did not supply what was lacking in the soil, the seed was weak and being planted whole, all the eyes on each tuber started and produced a bundle of feeble stalks, which, when the wet season struck them fell an easy victim to disease and consequently the crop was lost.

Last summer while on my vacation I saw a plot of ground upon which potatoes were growing, and this plot was so easily divided into two distinct parts by the difference in appearance that I was induced to seek a reason for this difference. One side of the field was of slender and puny growth and almost stripped of leaves by potato bugs; the other side was healthy and vigorous taking on rapid growth and was entirely free from bugs. On inquiry the farmer informed me that the first part of the field was planted with ordinary stable manure, the other part with potato phosphate manufactured by the Provincial Chemical Fertilizer Company of this city. The same farmer informed me later that he thinks he knows how to raise a good crop of potatoes all round for next year.

This led to inquiries among other farmers as to what measure of success had attended their use of this fertilizer, and established the fact that wherever it was used the results were highly satisfactory, and indeed I could scarcely find a farmer who had anything like a fair crop except where chemical fertilizer had been used either alone or with stable manure.

When we consider the important place occupied by the potato as an article of food for our own people, as well as for exportation, the importance of carrying on

its culture so that the highest results may be obtained from the smallest outlay, are easily apparent.

First then it is of the highest importance that new, clean, rich, evenly balanced soil should be selected if possible. By evenly balanced soil is meant soil which contains in proper proportions elements necessary to the perfect growth of the potato and this can only be tested with any degree of accuracy by chemical analysis. The ground should be properly ploughed in the fall, thus securing surface draining. This makes the soil dry out earlier in the spring and brings it in condition for planting a week or two earlier than if not ploughed in the fall. In the spring if stable manure is to be used it should be spread broadcast and ploughed under. Then if the soil is inclined to be wet or the land is not underdrained two slight furrows should be turned together and the seed planted on the ridge thus formed, if otherwise the rows may be marked in the usual way and the seed placed in position. Even though the ground has been fairly well manured, good results will follow if a tablespoonful of potato phosphate is placed in each hill with a little earth between it and the seed. This will help to give the young plant an early and vigorous start and tend to render it so strong that it will be better able to resist disease which may come later. Much depends upon giving the young plants a good start and experience has proved that this can be done by the use of potato phosphate.

I now come to the question of seed and this deserves far more consideration than it generally receives. There was a time when frequent attempts were made to produce new varieties of potato from the true seed as found in potato balls, but this required several years to develop and the results were so doubtful that the practice has gone almost entirely into disuse. That potatoes will lose their vitality and ultimately run out if we persist in dwarfing them by planting inferior seed year after year there can be no doubt, and by some it is believed that this tendency to run out is promoted by planting cut seed, but our best potato growers are willing to incur this risk so long as they can secure carefully selected sound seed. A few years ago an idea was prevalent that to prevent any variety from running out only the small potatoes should be planted, but this idea has exploded.

Strong, healthy, perfectly formed seed should be selected in all cases, and if cut, not more than two eyes allowed upon each piece. If planted whole, only two eyes should be allowed to remain in each tuber, the balance to be removed before planting. If this is not done half a dozen or more of weak stalks will appear in each hill very close together, which will never become so hardy and vigorous as if there were but two, and consequently be less able to resist the power of disease or the ravages of potato bug should either or both occur. Besides this where seed is planted whole, and all the eyes allowed to grow, each stalk will attempt the production of potatoes with the result that the entire product will be small in size.

It is now known that a new variety of potato can be produced by grafting two kinds together. This is done by carefully removing the eye from one kind of potato and placing it in a well fitting space in another potato from which all its own eyes have previously been removed. The result from this will be a new variety partaking of the nature of both the others with possibly some desirable qualities possessed by neither alone. Any farmer can try this experiment on a small scale and note the result for himself.

Then as to the manner of cultivating after the plants appear above the ground; the weeds should be kept down, and the oftener the earth is worked about them up to the time the buds appear, the better for the crop, after the buds appear the plants should be left alone.

If when the plants are say three inches high, a teaspoonful of potato phosphate is dusted around each hill, more rapid growth will be secured and the bugs will give the plant a wide berth.

Very little is known of any method to prevent or arrest disease other than that given above, which consists in having a proper plot of ground prepared with great care, fertilized intelligently, planted with good, healthy, well formed seed, and so stimulated and encouraged by cultivation as to be better able to ward off disease, just as a robust animal is less susceptible of disease than a puny one.

Wherever potatoes are grown there has always been what has been called good and bad seasons, in the latter of which the seed, the labor and the products have been almost a total loss, and although this loss is largely attributed to the weather which is beyond the control of man, still it is within man's power to so provide for and assist the plant as to enable it to reach maturity unharmed or in a paying condition at least.

There seems no room for doubt that the Potato Phosphate above referred to

if intelligently used with stable manure, or alone in sufficient quantity, will secure to our farmers almost a certain crop of potatoes where previously they have been in a great measure trusting to chance. This opinion is amply backed up by the following letters to which reference was made in the beginning of this article.

My thanks are due and are hereby tendered to the several farmers throughout the province who so cheerfully and fully answered my inquiries which materially assisted me in the preparation of this paper.

Respectfully Yours.

J. A. S. MOTT.

[Ed. Accompanying this paper were a number of letters on the subject, from our best farmers in reply to questions asked them by Mr. Mott. We have not space to produce the letters but give the following from Mr. Amasa Kennedy of Sussex as a sample.]

Mr. Amasa Kennedy of Sussex, King's Co., writes:—This season I put in one acre of early rose variety for the early market, spread about 40 double horse loads of manure to the acre and ploughed thoroughly. Selected my seed carefully and planted early in May. In consequence of cold wet weather not more than one in ten of the seed showed above ground and these being feeble became an easy prey to the bugs and the few which reached maturity were badly affected with rot. This was my failure, but now comes my success.

I planted one acre of Silver Dollars on the 24th May with $\frac{1}{2}$ ton of the Prov. Chemical Fertilizer Company's Potato Phosphate without any other manure, the fertilizer being placed in the hills and mixed with earth. The rows were 32 inches apart, hills in the rows 24 inches apart, seed carefully selected and cut to not more than two eyes in a seed, rejecting the seed end because eyes are too numerous and feeble. During the summer the bugs troubled them but little, not enough to do any injury. Our yield was greater than any we had ever grown before being 403 bushels and 59 bbls to the acre, of very fine quality, good size and form and excellent flavor.

Alongside this successful acre with same kind of seed, same quality of soil we planted a few rows with stable manure in the hills, had a yield of about 2-3 of those planted with Potato Phosphate, those on stable manure showing more signs of decay.

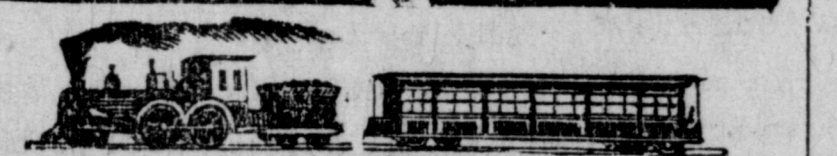
Plant if you can where the field is sheltered from south winds.

FREDERICTON MARKET PRICES

CORRECTED WEEKLY FOR THE REPORTER.

BY MR. JOHN B. PERKS, MARKET CLERK.

Fork, per lb	\$0 06	to \$0 06 $\frac{1}{2}$
Beef, " "	03	" 05
Mutton, " "	04	" 05
Lamb, " "	06	" 07
Veal, " "	00	" 05
Hams, " "	00	" 12
Sausages, " "	00	" 00
Butter, " "	16	" 19
Cheese, " "		" "
Lard, " "	13	" 15
Turkeys, " "	12	" 13
Chickens, per pair	30	" 50
Ducks, " "	50	" 70
Geese each	75	" 80
Eggs, per doz	23	" 25
Potatoes, 1 er bbl	1 50	" 0 00
Turnips, " "	0	" 50
Carrots, " "	00	" 00
Hay, per ton	7 00	" 10 00
Straw, " "	5 00	" 5 50
Oats, per bush	00	" 50
Socks and Mitts per pair		" 50



Canada Eastern Railway.

WINTER ARRANGEMENT.

In Effect Dec. 1st, 1890.

Trains run on Eastern Standard Time.

An express will leave Fredericton daily, (Sunday excepted) for Chatham.

Leave Fredericton

7.10 a. m.; Gibson, 7.20; Marysville, 7.30; Durham, 8.10; Cross Creek, 8.50; Boiestown, 10.10; Doaktown, 11.25; Upper Blackville, 12.30, p. m.; Blackville, 1.10; Upper Nelson Boom 2.10; Chatham Junction, 3.12; arrive at Chatham, 3.40.

Returning Leave Chatham

7.15 a. m.; Chatham Junction, 8.00; Upper Nelson Boom, 8.15; Blackville, 9.05; Upper Blackville, 9.40; Doaktown, 11.00; Boiestown, 11.50; Cross Creek, 1.05 p. m.; Durham, 1.45; Marysville 2.22; Gibson, 2.32; arriving at Fredericton 2.35.

Connections are made at Chatham Junction with I. C. Railway for all points East and West and at Gibson with the U. P. Railway for all Western points and St. John, and at Cross Creek with Stage for Stanley.

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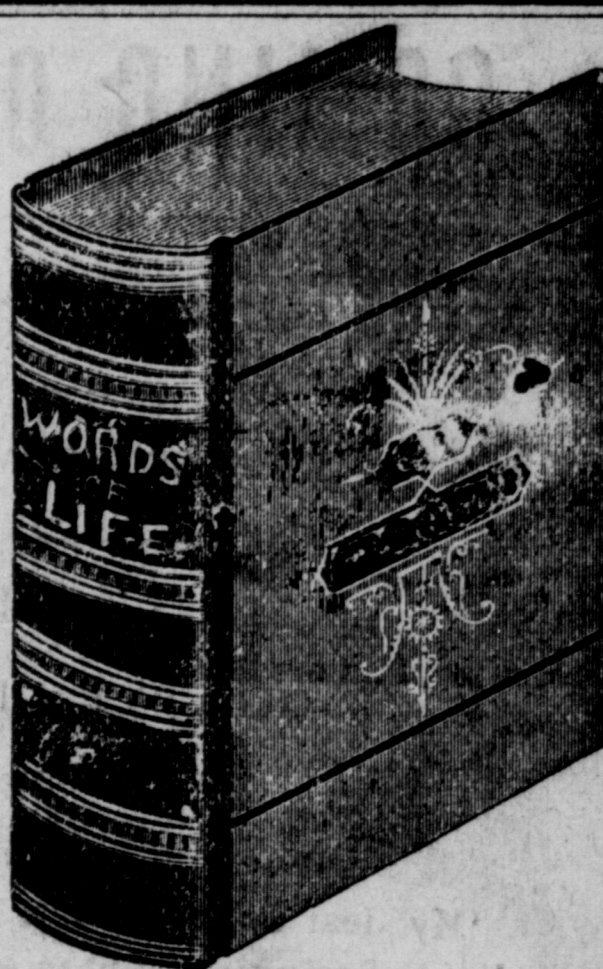
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What the Press says of WORDS OF LIFE.

The St. John Sun says:—

The Sun has received from H. H. Pitts, proprietor of the Reporter Steam Printing Office, Fredericton, a copy of "Words of Life," being a volume of sermons delivered by Rev. A. J. Mowatt, pastor of St. Paul's Presbyterian church in that city. The work, from the standpoint of binder and printer, is most creditable to Mr. Pitts, every page being printed from stereotype plates prepared in the Reporter office, while the binding was done under his own personal supervision.

Rev. Mr. Mowatt is one of the pulpit forces of the provincial capital and his sermons are for all time rather than for a day. "Words of Life" is a volume intended to help, cheer and comfort all classes of sinners within the church fold as well as those without.

The St. John Telegraph says of the book:—

WORDS OF LIFE, is the title of a volume of 32 sermons by Rev. A. J. Mowatt, pastor of St. Paul's Presbyterian church, Fredericton. The author is widely and favorably known as a preacher of some originality and learning and more than ordinary earnestness and power. His sermons will, no doubt, have many readers in the attractive form in which they are here presented. Mr. Mowatt modestly says of them: "For years my sermons have been published from week to week in the local press, and this volume is but an extension of that work. The sermons make no claim to literary merit. I send them forth as I have been giving them to my people from Sabbath to Sabbath. I have no time to elaborate—no time for fine writing, finished literary work. They have been words of life to some souls. They have helped, cheered, comforted others. They have been a message from Heaven to many."

The frontispiece of the book bears a life-like portrait of the reverend author. The mechanical work of the volume is highly creditable to the Reporter publishing office Fredericton, whence it is issued