

days, ate, besides roughness, an average of 7 lbs. of meal a day, made an average gain of 80 lbs. each, or 2.85 lbs. per day, and at a cost of 5.26 cents per pound gain during period. These are good gains at a minimum cost, and there is encouragement in the statement of them.

Most interest attaches probably to a discussion of the feeding of market bullocks. It were better that a more intense interest be stimulated in the feeding of younger cattle. An animal can never be fed so cheaply as during the growing period. A growing calf will gain more per day than a fattening steer, and during the first year of his life will make a pound of gain at one-third the cost of a pound increase during his third year. Moreover, the less time it takes to make a steer reach market weight the less will be the cost of his keep, and the greater the profit in his sale. It costs so much every day simply to sustain life, and the fewer days we have to feed a steer to make him reach his weight limit, the greater will be the saving in the cost of his total maintenance. If we can feed a steer up to 1,400 lbs. at two years, as contrasted with another taking three years to reach that weight, we have saved the cost of his maintenance for a full year, an amount unquestionably equal to about \$12 or \$15. As we are arguing for intensive methods in agriculture, so we must advocate intensive methods in beef production. The farmer cannot afford to feed a maintenance ration to his calves and young cattle. He cannot afford to take three years to fatten and finish a bullock when he might do it in two. He cannot afford to let another man reap the profit of finishing a steer that he himself has raised. There is a profit in the intelligent feeding of growing cattle; there is profit in the finishing of carefully-selected feeders; there is double profit to him who raises and finishes his own cattle. There are problems arising out of this proposition of baby-beef production, but space prohibits a discussion of them now. It is the hope that this article may be suggestive of thought as touching the logic of the situation of the cattle industry in Canada. H. S. ARKELL.

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THE FARM.

A New Brunswick Agricultural Society's Experience in Purchase and Home-mixing of Fertilizers.

Editor "The Farmer's Advocate":

Some twenty years ago my father, D. P. Wetmore, then secretary of our Agricultural Society, started the idea of getting fertilizers in raw state and mixing at home, on the recommendation of a prominent farmer near New York, who had been using them in that manner, and had found them something cheaper, and invariably to give satisfaction. Our Agricultural Society at that time got only a few tons, but the demand gradually increased, until we now handle over 100 tons each season. The farms are small here, and the members who use fertilizers vary in their purchases from about 500 pounds for the smallest, to 7 tons for the largest purchaser. We found that the potash salts and nitrates and phosphates were uniformly of same quality, and gave best of satisfaction every year. It was very rare, indeed, that a complaint came from any member.

We obtain the nitrogen in the form of nitrate of soda, and sulphate ammonia and potash in the form of muriate of potash and sulphate potash, and phosphoric acid in the form of bone black. We have had acid-rock phosphate, but it did not give so good satisfaction as the dissolved bone black.

In making up our composition, we knew the percentage of nitrogen, potash, phosphoric acid, we had as below:

Nitrate soda, 15 per cent. nitrogen.
Sulphate of ammonia, 25 per cent. ammonia, equal to 19 to 20 per cent. nitrogen.
Muriate of potash, 60 per cent. pure potash.
Sulphate of potash, 60 per cent. pure potash.
Dissolved bone black, 15 to 18 per cent. soluble phosphoric acid.

For potatoes, we would make a mixture fairly strong in potash, and also fairly strong in nitrogen. For strawberries and small fruits, we would use a mixture quite strong in potash and rather weak in nitrogen, and containing a fair supply of phosphoric acid. As an illustration:

No. 1, for Berries—

50 lbs. bone black, containing 15 to 18 per cent. phosphoric acid, making 8 to 9 per cent. phosphoric acid in the mixed fertilizer.
12 lbs. nitrate soda, containing 15 per cent. nitrogen, making 2 per cent. nitrogen.
20 lbs. muriate or sulphate of potash, containing 60 per cent. potash, making 12 per cent. potash.
18 lbs. land plaster, to make mixture more easily handled.

100

No. 2, for Grass, Cabbages and Oats—

45 lbs. bone black, containing 15 to 18 per cent. phosphoric acid, making 7 to 8 per cent. phosphoric acid in the mixed fertilizer.
24 lbs. nitrate soda, containing 15 per cent. nitrogen, making 3 to 4 per cent. nitrogen.
12 lbs. muriate of potash, containing 60 per cent. potash, making 6 to 7 per cent. potash.
19 lbs. plaster.

100

No. 3, for Potatoes, Turnips, and General Vegetables—

50 lbs. bone black, containing 15 to 18 per cent. phosphoric acid, making 8 to 9 per cent. phosphoric acid in the mixed fertilizer.
15 lbs. sulphate of ammonia, containing 20 per cent. nitrogen, making 3 to 4 per cent. nitrogen.
12 lbs. sulphate of potash, containing 60 per cent. potash, making 6 to 7 per cent. potash.
23 lbs. land plaster.

100

We have found the above to give general satisfaction. Of course, the proportions are changed sometimes to suit condition of land. For potatoes, about 1,200 lbs., as above, will give an excellent crop of potatoes, without any manure whatever. Of course, a great many of our members use the fertilizer in connection with the barn manure. In my own case, I have used fertilizers alone on mostly all kinds of crops. On strawberries I use about 1,500 pounds to the acre, applied in the spring as soon as uncovered, and have had excellent returns, without any barn manure whatever. The past season I raised sugar beets (feeding) at the rate of 950 bushels to the acre, with an application of fertilizer same as we use for potatoes, with 19 pounds nitrate of soda substituted for 15 pounds sulphate ammonia. I raised cabbages the past season to weigh nearly twenty pounds to the trimmed head, with nothing but the fertilizer (No. 2 mixture, as above), at about 1,400 lbs. to the acre. Have had the best grade of winter cabbages for some years on the St. John, N. B., market, and have never grown on anything except these fertilizers. I have found no difficulty in growing any crop with the fertilizers. Of course, one has to be a little cautious with tender seeds, such as peas and beans, and not get too close to seed when sprouting. There is no trouble whatever getting 200 bushels of potatoes or more in a fair season from an application of 1,200 pounds to the acre. In good seasons it will do much better. After properly cultivating and using fertilizers, there is no trouble getting a catch of clover in seeding, and the clover supplies the humus in case no barn manure is available. There is no difficulty with a proper rotation in keeping a place improving each year without barn manure. Some parties may say that it is impossible to mix at home thoroughly, but we find no trouble whatever. We riddle the potash salts and nitrates through a wire riddle with about a quarter-inch mesh, and crush the lumps with wooden mallet; or, if one has a good stiff, solid shoe on, it can be done about as easily that way. We then spread the bone black thinly upon the floor, and spread the nitrates and potash salts evenly over it, and then thoroughly shovel over and finish with a steel garden rake, and, if thought necessary, the whole might be put through a riddle, but generally the raking twice over will be satisfactory. It will not cost more than from 50c. to \$1.00 per ton to mix, and we never see any difference in the different parts of the field, so it must be pretty evenly distributed. Of course, the ingredients could be put on the land separately, but some of the quantities would be so small that it would be hard to distribute. It is not necessary to put the land plaster in the mixtures, but it makes rather more bulk to sow, and keeps the fertilizer from baking after mixing. If mixed and used right away, there is no need of it.

Our reasons for getting fertilizers in this way are, that the fertilizer firms do not sell in small quantities, and we think by so doing we get the best that can be had, and each member knows just what he is getting. We weigh the ingredients, and each member mixes for himself at home. We also find that they give the best of satisfaction all the time, and will give a third to a half more yield than ready-mixed fertilizers supposed to be about same grade, and in some cases will nearly double. Price at present is not very much less than ready-mixed fertilizer, as nitrates are so very high, but at times we have been able to sell to members of Society at \$5 to \$6 a ton less than goods with the same analysis ready-mixed.

Personally, I have tried these fertilizers on almost every crop without barn manure, and where it is difficult to get enough barn manure there is no trouble raising excellent crops, and where proper rotation is followed the land will improve.

We often see it written that sulphate of potash is better to use for potatoes and berries than the muriate, as the chlorine in the muriate would give a little off flavor, but we have never noticed any marked difference, although the sulphate appears to have the advantage. The cost to mem-

bers is a little over \$30.00 per ton, and varies a little, according to the grade. We have at times sold as low as \$26. Will say again that there need be no fear of not getting a satisfactory crop if properly cultivated with the fertilizers, and they can be successfully used on almost any soil. Generally, I think, they do better in the heavier soils. For beets, mangels, sugar beets, turnips, cabbage, potatoes, peas, beans, strawberries, oats and other grain, I have not used any barn manure for fifteen years, and always do first-rate. I cite my own case, as probably I have tested on all crops alone more than anyone else in our vicinity. Perhaps in another article I might explain method of using for different crops. What barn manure I have I use on rhubarb and squash, and sometimes in setting strawberries. O. W. WETMORE.

King's Co., N. B. Sec. Agr. Society No. 23.

The Work of the Seed-selection Special

During January and February of this year an important experiment was tried in the Prairie Provinces, the results of which must surely bring great benefit to the farmers of the West. For many years it has been known that smut was causing considerable loss among the small-grain crops in that part of Canada, and although some of the more advanced farmers every year treated their grain to protect themselves against this loss, many others did not. As the crop of 1905 came under inspection in Winnipeg, on its way to the lake front for shipment, it was found that an alarming amount of the wheat was contaminated with smut, or with the seeds of weeds. In 1903 the percentage of dockage and rejection was only 3%; in 1904 this had run up to 5½%, or nearly double; but in the crop of 1905 a far worse state of affairs was manifested, and it is probable that upwards of 20% of the enormous crop for the year, of nearly 90 million bushels of wheat, will be graded as "rejected" by the official inspectors. It was thought that something could and should at once be done to improve this state of affairs. The Canadian Pacific Railway and the Dominion Department of Agriculture consulted together, and invited other influential bodies to join them in a special campaign, the aim of which was to remind farmers before the spring work began that more care was necessary than had evidently been shown in preparing their seed grain and caring for the resulting crop. Mr. W. B. Lanigan, of the Canadian Pacific Railway, and Mr. G. H. Clark, of the Dominion Seed Branch of the Department of Agriculture, were the two leading spirits in this work. The Canadian Pacific Railway provided the train, in which the speakers lived entirely during the two months of the campaign, and hauled it over all their lines. The Canadian Northern co-operated with the Canadian Pacific, and all the chief places along both of these railways in the West were visited.

The lecturers were for the most part officials of the Dominion Department of Agriculture, and all were under the direction of Mr. Clark, the energetic Chief of the Seed Division at Ottawa. Mr. Angus Mackay and Mr. S. A. Bedford, of Brandon, the well-known and highly-esteemed Superintendents of the Western Experimental Farms, gave most valuable assistance, as also did Mr. T. N. Willing, the Chief Weed Inspector for the Province of Saskatchewan, who probably has a wider and more exact knowledge of the weeds of the West than anyone else. Messrs. James Murray, W. C. McKillican and the writer, all members of the Dominion Department of Agriculture, also took part in this important work.

The Grain-growers' Associations of Manitoba and the Northwest Territories were represented by their head officials. Mr. Motherwell, the Minister of Agriculture for Saskatchewan, who is also President of the Northwest Grain-growers' Association, and Messrs. McCuaig, Henders and McKenzie, of the Manitoba Grain-growers' Association, showed their sympathy with the movement, by accompanying the train for the greater part of the time, and delivered many valuable addresses. Mr. John Mooney, of Valley River, Man., a practical farmer and an expert breeder of pure grain, and Mr. Mitchell, Weed Inspector for the Province of Alberta, spoke on seed selection and seed testing.

The campaign lasted for two months, in which time 206 meetings were held, which were attended in all by 28,910 people. A noticeable feature of this campaign was that the railways did their work well, arriving at the advertised points promptly in almost every instance. The speakers showed that they knew thoroughly the subjects they were dealing with, and the audiences were invariably appreciative and sympathetic, listening patiently and asking many useful questions concerning those subjects of the greatest local interest. Notwithstanding the low temperatures which prevailed during part of January, the lecture cars were always well filled, many farmers driving in to the meetings from ten to twenty miles. The audiences frequently expressed their satisfaction with what they had heard, and the only regrets voiced were that the meetings could not be longer, and that more places could not be visited. For the most part there were two lecturers in each car, and the subjects dealt with were practically the same at each place visited, except that prominence was given to the subjects or the weeds which were known to be of greatest interest in each place. At the close of each meeting the visitors were handed some specially-prepared pamphlets, in which the subjects dealt with by the lecturers were also treated of in a concise way, and they