

might select as cheap an outfit as possible, as well as one that had power enough. We could not depend upon the gasoline firms to tell the truth. At the Western Fair, some firms said it would take a fourteen-horse-power engine to run the blower, while others recommended as low as a six-horse-power. I know one farmer that got a six-horse-power engine and blower. Of course, it would not give satisfaction, and he had to adopt carriers, which are heavy and wasteful when the wind is strong.

Middlesex Co., Ont.

A Farmer's Fertilizer Experiments

Editor "The Farmer's Advocate":

About a year ago I gave you the results of some experiments with artificial fertilizers, and, in commenting upon the results obtained, Mr. Emslie, of Toronto, suggested that I try them that year in a somewhat different form, thinking that perhaps they would make a different showing. I followed his advice, and, besides the experiments made with the materials distributed by the Experimental Union, I used his suggestions, and some of my own, as well. In all, I had 17 plots, each consisting of one row 72 yards long, and comprising one-eighth part of an acre. Here are the results. I planted 144 sets in each row, except 16 and 17.

No.	Fertilizer.	Plants lived.	Yield per acre bush.
1.	Nothing	137	172
2.	Nitrate of soda, all sown at planting time	132	162½
3.	Nitrate soda, ½ at planting; ½ when plants came up	130	180
4.	Twenty tons barnyard manure per acre	120	249
5.	Potato fertilizer	128	204
6.	Royal Canadian	112	160
7.	Muriate potash	70	78½
8.	Nothing	100	92
9.	Acid phosphate	140	196
10.	Mixed fertilizer	141	170½
11.	Complete fertilizer	135	192
12.	Ditto—without nitrate soda	137	182½
13.	Ditto—without potash	137	186½
14.	Ditto—without phosphate	140	117
15.	Nothing	134	122½
16.	Acid phosphate (seed grown at Guelph, hand-cut)	152	186½
17.	Acid phosphate (own seed, machine cut)	165	186½

Plots 11 to 14 were fertilized as suggested by Mr. Emslie, as follows: Acid phosphate, 320 lbs. per acre; muriate potash, 240 lbs.; nitrate soda, 160 lbs.

The nitrate in plots 11, 13 and 14 was sown one-third at planting and two-thirds when plants were nicely up. In this set of plots, it would appear that the nitrate increased the yield 9½ bushels per acre, the potash 5½ bushels, and the phosphate 75 bushels; but a comparison of No. 14 with the check row right alongside would seem to show that neither potash nor nitrate was of any use whatever. Comparing 15 with 16 and 17, where phosphate alone was used at rate of 300 pounds per acre, shows an increase of 64 bushels by its use; cost, 5 cents per bush. In rows 16 and 17, unfortunately, the sets were not counted, and more seed was used; they were weighed more with the idea of finding out whether machine-cutting gave as good per cent. of growth as hand-cutting. It would appear to be as good, or better. There seems to have been no advantage gained by change of seed, but for various reasons this test is not conclusive. In rows 2 and 3, nitrate was sown at the rate of 160 pounds per acre. In No. 7, potash, 160 pounds per acre. In No. 9, phosphate, 320 pounds. No. 10, one-third of each of the foregoing, total 213 pounds. Nos. 5 and 6, 320 pounds per acre. Nos. 13 and 17, phosphate, 300 pounds per acre.

I am quite unable to account for the very poor showing made by Nos. 7 and 8; so many of the sets did not grow, and all appeared weak and spindly.

The plots were situated on the poorest corner of a five-acre piece of land. The average yield for the whole field was 90 bushels per acre. Only two plots, Nos. 16 and 17, equalled this average. All the fertilizers were received at application of 100 lbs. per acre. We had a very heavy rain. The weather was by four weeks of hot, dry weather. We had rain in abundance.

In Swede turnips I had 4 rows:

No. 1.	Nothing.	Yield per acre 100 bushels.
No. 2.	Acid phosphate, 320 lbs.	Yield per acre, 25 tons, 800 bushels.
No. 3.	Phosphate, 480 pounds.	Yield per acre, 25 tons, 800 bushels.
No. 4.	Nitrate soda, 40 pounds.	Yield per acre, 25 tons, 800 bushels.

The fertilizer used in No. 2, giving an increase of 50 cents per ton.

In No. 3, the fertilizer cost about \$11 per acre. Increase, 11 tons 880 pounds, costing very nearly \$1 per ton.

The increase of 4 tons 400 pounds over plot 2 cost \$7.35—not far short of \$2 per ton. It is an open question whether this increase was due to the larger amount of phosphate applied or to the addition of the potash and nitrate. It was my intention to apply another lot of nitrate equal to the first one, but its application to mangels and other things was so entirely void of visible benefit that I omitted it. I had two acres of turnips in all, the whole treated with about 320 pounds superphosphate per acre. The yield was just over 22 tons per acre. The plots were on a part of the field that was a little better than the average, hence the difference. There can be no possible doubt that it is a paying proposition on our land to apply acid phosphate to turnips. In mangels, I tried phosphate and nitrate of soda. There was a slight improvement noticeable where the phosphate was applied, but the nitrate showed no effect whatever; I did not weigh. The application of a light dressing of hen manure just about doubled the yield, and on part of the patch, where I had mangels the year previous, and had treated with this manure, the effects were plainly visible in the second crop. The mangels that were grown on land that had been in the same crop the previous year were about one-half heavier than those on oat stubble, manuring and treatment the same in every respect. It is my intention to experiment with mangels on a much more extensive scale this year, in the hope that I may find something that will give as good results as does hen manure.

An application of phosphate to rape gave as marked results in the early stages of growth as it did with turnips. When plants untreated were two inches high, those on treated land, not more than three feet away, averaged 8 inches. A very large percentage of plants, where no phosphate was used, died out altogether, and those that were left, later in the season caught up with those that had its benefit. The latter were too crowded, and it was quite evident that if fertilizer was applied, less seed would have to be sown.

Last fall I treated four plots of wheat with different fertilizers: 1, 160 pounds muriate potash; 2, 160 pounds nitrate of soda; 3, 320 pounds superphosphate; 4, 80 pounds potash, 160 pounds phosphate. Phosphate was also applied in several places in the field, and part of it was lightly dressed with barnyard manure, some applied on the surface after plowing, and some plowed under. The field was one-year sod. When winter set in, that part of the field where manure was plowed down looked the best, but the plot where potash and phosphate were applied was a close second. Manure worked into the surface soil did not make quite so good a showing as where plowed under, and this was also my experience last year. However, last year, the wheat on the surface-manured land appeared to catch up to the other, and was apparently just as good at harvest time. Those portions of the field where phosphate was applied showed a decidedly better growth than where nothing was used, and the potash also had quite a beneficial effect; but nitrate of soda did absolutely nothing for the crop, so far as could be seen. This is in a line with all my experience so far. I can't get anything out of nitrate anywhere or for any crop. Even in combination with other fertilizers, it seems to have little effect on my soil.

ALFRED HUTCHINSON.

Wellington Co., Ont.

Two Kinds of Power.

Unless Hon. Adam Beck hurries up his scheme to bring power to Ontario farmers' doors, it will soon become a work of supererogation, as the country will be filled with gasoline engines. In a recent visit among four or five representative farmers in the vicinity of Ayr, this means of generating power was found in no less than three barns. J. J. Brown has an 8-horse-power engine, with which he pumps water, grinds grain, and pulps roots. The engine cost him \$315, and he did all the work of installation himself. He can grind ten or twelve bags of chop an hour, at a very moderate cost, as a gallon of gasoline is reckoned sufficient to generate 1 horse-power per day. In a test made since our visit, he ground 1,370 pounds of oats and barley (half and half) with one gallon of Gasoline. Gasoline costs 20 cents a gallon. The engine requires practically no attention, except starting and stopping. James Kyle has used a gasoline engine for three years, during which time he has never had anything wrong with it that he could not fix himself. Mr. Kyle chops grain, saws wood, pulps roots, cuts feed, and pumps water. His engine, William Manson purchased a 6-horse-power gasoline engine and chopper for \$250, and installed the engine himself, mounting it on an elevated cement foundation. The chopper is in the basement beside the engine, and is on the floor of the granary above the head of the engine. Two bins are placed with the base of the engine. Mr. Manson says he has been two

cents per cwt. to grind grain. He also cuts corn, drives fanning mill, and saws wood with his power. His cutting box is situated on the barn floor, just above the line shafting. He is also putting up an emery wheel to do his grinding. Mr. Manson does not find his 6-horse-power engine capable of running an ensilage cutter with blower, though it would run one with carriers. So much for gasoline power.

Another kind, that has them all beat for economy, is the dog wheel, which Robert Cochrane uses for pulping roots. This is merely a large, revolving cylinder (hung on gas-pipe), about 20 inches long—or wide, as you prefer to call it—and eight feet in diameter. Into this the Collie dog jumps, and commences running for dear life, turning the wheel, and running the pulper by a chain gear. The dog really seems to enjoy the fun, as the mere mention of pulping turnips sent him bounding into the wheel. He would, of course, get tired of it, if asked to continue too long. It is a good way to give a dog exercise, and the only way some dogs can be made to earn their board.

The Crop-reporting Board of the Bureau of Statistics of the United States Department of Agriculture estimates, from the reports of correspondents and agents of the Bureau, that the average condition of winter wheat on April 1st was 83.3 per cent. of a normal, against 80.8 on April 1st, 1910; 82.2 on April 1st, 1909; and 86.9 the average condition for the past ten years on April 1st. There was an advance in condition from December 1st, 1910, to April 1st, 1911, of 0.8 points, as compared with an average decline in the past ten years of 4.4 points between these dates.

The average condition of rye on April 1st was 89.3 per cent. of a normal, against 92.3 on April 1st, 1910; 87.2 on April 1st, 1909, and 90.2 the average condition for the past ten years on April 1st.

THE DAIRY.

Civilization in the Dairy Stable.

Editor "The Farmer's Advocate":

If you will allow me space in your paper, I would like to say a few words on a subject that has apparently had very little attention given to it by the majority of our farmers, if one may draw conclusions from observations made in the course of a number of visits paid to different farms in the Province.

The condition of the stables and live stock on many farms, more especially at this time of the year, is such that no self-respecting man would care to work in them, much less sit down and milk ten or twelve cows in the shape they are so often in. Comparatively few of our farmers brush their cows, and, if they have been properly fed, the hair is hanging on them in bunches, and a considerable proportion of it usually gets into the milk pail. Then, as many farmers do not bed their cattle, the flanks and sides of the animals soon get into a condition past all description, from the manure adhering to them, and in this state they are milked, and someone usually drinks the milk, or it is manufactured into butter or cheese and put on the market for consumption by the public.

This is an intolerable condition of things, and there is absolutely no necessity for it. In fact, the farmers of our country would get good wages for the time taken to keep stock and stables clean, in the higher price they would get for their produce. The "fodder cheese" that is sold at the beginning of the season, for from two to three cents a pound less than the ruling price for a first-class article, might be of as good a quality as any if proper care was taken of milk and cows. It isn't the fact that it is "fodder cheese," but that it is stable-flavored cheese, that makes it a drug on the market.

At this time of the year stables should be cleaned twice a day, if possible. The cows should be kept well bedded, and brushed at least once a day. A cord from the ceiling should be attached to each cow's tail, to prevent the tail from becoming wet and dirty when the animal lies down. This cord can be tied securely to the hair of the cow's tail, if the cows remain in stable all the time. If they are let out daily for water or exercise, a common spring clothes-pin can be fastened to the end of said cord, and this can be unfastened from the cow's tail in a moment. It is about the only sure way of avoiding an occasional slap in the face with a dirty tail.

By a very little extra work every day, a man can keep his herd in shape to do him credit, and he will be repaid in the extra satisfaction he will feel in looking at them, to say nothing of anything else. If it is necessary for his wife or daughters to help with the milking, as is still the custom in many parts of our Province, they can do so without feeling that they are being degraded, and they certainly are being degraded when they are compelled to milk surrounded by