

lishers of agricultural papers should submit petitions to be signed by agriculturists all over the country, and present the same to the proper authorities. I think the agriculturists of Canada have sufficient influence in the Legislative halls to make themselves felt there; and if not, they certainly have at the polls, which will soon come on.

I would willingly circulate such a petition in my neighborhood, and no doubt others would do the same.

I am, dear sir, yours, &c.,

MATTHEW FULLERTON.

Lyons, April 9, 1870.

Editor Farmer's Advocate.

Staggers in Pigs.

Observing that one of your correspondents asks information regarding the cause and management of pigs suffering from staggers; and pork being this year as good to the farmer as gold, I feel it my duty to give information to the public of a very simple, but I believe certain cure, for the disease. It is simply to open the skin on the forehead of the pig, cutting downward between the eyes with a sharp knife about three or four inches, and then filling on both sides the cut, under the skin, with common salt. I have tried this several times, and always found it a most effectual remedy.

I wish for information concerning blindness in sheep. Is there a remedy for the disease after the animal becomes affected?

Perhaps some one will reply to this question.

Yours truly,

L. MORDEN.

London, April 5, 1870.

For the Farmer's Advocate.

St. Thomas, April 4, 1869.

Mr. WELD,—As you are continually asking your subscribers to write for your paper, and as I do not feel myself confident of doing so—still wishing to aid your paper, as every person should do, because you are doing a good service to us—I now send you an account about manures, which I take from the New York Tribune. I think it will be worth the full price of your paper to every one of your subscribers. Perhaps my judgment may be in error; if so, you can send it back to me.

Yours respectfully,

E. H. WELLING.

MANURES.

BY THE HON. GEO. GEDDES.

How to keep up the fertility of a good soil; how to increase it; and how to make land now unproductive so that two, three or four blades of grass shall grow where but one grew before: are the ever-recurring questions that vex the minds of thinking farmers everywhere. If there are any farmers free from these thoughts, they are situated on bottom lands that are periodically overflowed by rivers and streams that bring to them the necessary manure, without cost, that enables the fortunate owners to annually carry off redundant crops—or they are engaged in wearing out new lands, upon whose surface the vegetable matter is yet unexhausted. New soils by-and-by become old worn-out lands, and then these men who once drew the contents of their barn yards to the ice of a convenient river to see it well out of their way at the next freshet, themselves are forced to ask these questions, and answer them too, or move away to some new country and scourge it by repeating their old errors.

The wise farmer aims at not merely large crops, but cheap crops. It is not enough to inform him that by paying out large sums he may purchase manure that will add several bushels per acre to his crops of grain. He must make that addition at very much less than they cost in manure, or he has not added to his profits. To assist in forming a safe estimate of the value of certain manures is the object of the following article.

In writing on "Salt and the way to use it," something was said as to its value as a manure,

but the great length to which that article had grown forced us to leave unsaid some things that the "second sober thought" lead us to say now, in connection with what we have to say of the value of some other fertilizers that are cheap in most places, and of whose purity farmers are sufficient judges to protect themselves from impositions.

The Agricultural College of the State of Michigan, in the year 1864, reported the results obtained from some very carefully conducted, though not entirely perfect, experiments made by a committee appointed by the Faculty of the College. Again in 1865 and in 1866 reports were made. From all these papers a valuable lesson may be learned. If any other experiments, embracing the same points, have been made on this continent, and conducted with anything like the care and ability that mark these of the Michigan Agricultural College, they have escaped our notice. Individuals, unless of great wealth, cannot afford to make such careful experiments; and few men have sufficient knowledge to enable them to so conduct them as to make them of real value. Agricultural Colleges possess every advantage and requisite to make experiments that prove something; and, by the aid of such institutions, we farmers who have so long been groping and feeling our way amid darkness, may reasonably hope to have most important facts determined so positively that we may safely act on them. An Agricultural College, having an experimental farm, is the place where scientific knowledge shall join hands with practical knowledge, each helping the other; great good must be the result. We accept these experiments, and the reports upon them, as the first installment of the many good things to be expected in the immediate future.

In 1863 a field of oats 24 rods square, containing just 3 6-10 acres, having no manure applied to it, was seeded with Timothy (*Phleum Pratense*) and Clover. The ground was to all appearances "of even fertility, and the growth of grass and clover prior to the application of any top-dressing was very uniform." The soil is a light sandy loam, and was not considered to be in a high state of cultivation at the commencement of the experiments. It was divided into eight equal parts:

- No. 1 had no top-dressing, serving as a basis of comparison.
- No. 2 received a dressing of gypsum (Plaster of Paris) at the rate of two bushels per acre.
- No. 3 received five bushels of wood-ashes per acre.
- No. 4 received 20 loads of pulverized muck.
- No. 5 received 20 loads of pulverized muck and three bushels of common salt per acre.
- No. 6 received three bushels of common salt per acre.
- No. 7 received 20 loads of horse manure per acre.
- No. 8 received 20 loads of cow manure per acre.

On the 10th day of May, 1864, these several pieces of land had received the manure; the work of distributing having been commenced on the 15th. On the 20th and 21st days of the next month, June, an average of 44 days from the time the manure was applied, the crop was cut.

Here is an important fact shown: The clover, which then greatly exceeded the timothy, must have been considerably grown, and presented a very full covering to the ground. So the manure must have been put on the clover, rather than on the soil. Had the manures been applied early in the Spring, before the clover had commenced growing, the whole experiment might have given a very different result. When to apply the manure is an important question, and at some convenient time may demand further consideration. The hay was cured in small cocks, and was drawn into the barn in good condition on the 27th day of June, each load being carefully weighed.

The yield per acre of each piece was as follows:—

- No. 1, having had no manure, gave at the rate of.....2,856 pounds.
- No. 2, having had at the rate of 2 bushels of plaster.....3,917 pounds.
- No. 3, having had at the rate of 5 bush. wood-ashes.....4,515 pounds.
- No. 4, having had 20 loads of pulverized muck.....4,566 pounds.
- No. 5, having had 20 loads muck, and 3 bush. salt.....4,696 pounds.
- No. 6, having had 3 bushels salt.....3,813 pounds.
- No. 7, having had 20 loads horse manure.....3,708 pounds.
- No. 8, having had 20 loads cow manure.....3,931 pounds.

This table is worthy of careful study. What did these manures cost when applied? Each farmer will make his own calculation what they would cost him. What these manures did for the first crop is before the eye, and is worth reflecting upon.

On the 9th and 10th days of August following, the grass was again cut, and cocked on the 10th and 11th. The cocks were turned on the 12th, drawn into the barn on the 15th, each load being carefully weighed as before. The result was:

- No. 1, gave 1,742 pounds.
- No. 2, gave 3,056 pounds, manured with plaster.
- No. 3, gave 2,977 pounds, manured with wood-ashes.
- No. 4, gave 3,306 pounds, manured with pulverized muck.
- No. 5, gave 2,975 pounds, manured with salt and muck.
- No. 6, gave 2,467 pounds, manured with salt.
- No. 7, gave 2,678 pounds, manured with horse-manure.
- No. 8, gave 2,856 pounds, manured with cow-manure.

The year 1865 is reported as follows:—

The pieces of land numbered from 1 to 8, containing each 45-100 of an acre, remain as last year, after the removal of the crop, without any additional fertilizers having been applied. Cutting commenced, the first crop, July 7, and hauled the last of it into the barn the 13th. Rain injured this crop some, but the weighing was carefully done. The result was:

- No. 1, no manure, gave per acre.....1,860 pounds
- No. 2, plastered, gave per acre.....2,933 pounds
- No. 3, wood-ashes.....2,644 pounds
- No. 4, 20 loads of muck.....2,978 pounds
- No. 5, 20 loads muck and 3 bus. salt, 3,664 lbs
- No. 6, 3 bush. salt.....3,511 pounds
- No. 7, 20 loads horse-manure.....3,844 pounds
- No. 8, 20 loads cow-manure.....3,311 pounds

The changes that have taken place in the yield are worthy of examination.

The second crop of 1865 was cut and drawn between the 5th and 11th days of October, and gave:

- No. 1, no manure, per acre..... 889 pounds
- No. 2, plaster, per acre.....1,600 pounds
- No. 3, ashes, per acre.....1,169 pounds
- No. 4, muck, per acre.....1,187 pounds
- No. 5, muck and salt.....1,356 pounds
- No. 6, 3 bushels of salt.....1,747 pounds
- No. 7, 20 loads horse-manure.....2,156 pounds
- No. 8, 20 loads cow-manure.....2,133 pounds

In this fourth cutting the horse and cow manure show to great advantage, but the fact must not be overlooked that the unmanured piece is far behind any other piece.

No additional fertilizers were applied, and in 1866 the clover had nearly all disappeared, the crops being in the main Timothy grass. The crop was cut on the 11th, and drawn on the 12th day of July. The result was:

- No. 1. No manure gave.....1,388 pounds
- No. 2. Plastered.....1,720 pounds
- No. 3. Wood-ashes.....1,602 pounds
- No. 4. Muck.....1,780 pounds
- No. 5. Muck and salt.....2,157 pounds
- No. 6. Salt.....2,431 pounds
- No. 7. Horse-manure.....2,600 pounds
- No. 8. Cow manure.....2,333 pounds

The Clover is now gone, and the Timothy shows that it was helped in every case by the fertilizer. The three bushels of salt does it more good at cutting of this fifth crop, than does the 20 loads of cow-manure, but not so much as 20 loads of horse-manure.

The whole five crops are summed up as follows:

No.	Tot. Yield per acre, in pounds.	Tot. Gain per acre, in pounds.	Tot. Gain, per cent.
No. 1.....	8,745	—	—
No. 2.....	13,226	4,484	51.23-2 bush. plaster.
No. 3.....	12,907	4,165	47.64 5 bush. wood ashes.
No. 4.....	13,816	5,074	58.04 20 loads pulv. muck.
No. 5.....	14,819	6,077	69.51 20 lds. m. & 3 b. salt.
No. 6.....	13,969	5,227	59.79 3 bush. salt.
No. 7.....	14,986	6,244	71.42 20 lds. horse manure.
No. 8.....	14,564	5,822	66.60 20 lds. cow manure.

The clover having gone, there was no second crop to cut in 1868, and for this reason the experiment ended with the fifth mowing.

From these statements we have the wonderful fact developed that two bushels of plaster-of-paris produced nearly two and a-half tons of hay, and that three bushels of salt produced 5,227 pounds of hay, over and above the quantity produced on the unmanured land.

It is true that 20 loads of horse and 20 loads of cow-manure each produced more hay than the plaster or salt, and they evidently were benefiting the timothy hay more at the end

of the trial than either the salt or plaster.—Many farmers suppose that plaster does no good to timothy grass, while their is no dispute as to the usefulness of barn-yard manure on this grass. These experiments go to show that plaster does greatly promote the growth of timothy. Had clover-seed been sown on this land, when the clover began to fail, applying it to only a part of each piece of land, some light would have been cast on the obscure point of the manner in which plaster performs its work.

It was sown on clover plants that live only two years! When they die, will newly-sown clover-seed be benefited by plaster sown before the second crop of clover-seed was sown? Our own experience leads us to think not.

It is worthy of being noted that this College land was not poor, for the unmanured portion gave an average annual yield of nearly a ton and a half per acre.

The wood-ashes disappoint us, proving to be of less comparative value than had been supposed; but they certainly showed that they were worth too much to be sold for any price usually paid for them.

These experiments might have resulted differently on a different soil, and it would be quite unsafe to accept the results as applicable to all soils and localities. But they must be applicable, at least in part, to a very large proportion of our country.

Let us see how the College may be benefited by the knowledge derived from this trial of manures. By using two bushels of plaster to the acre on their pastures and meadows, the cow manure made on the farm may be nearly doubled. If plaster is costly, salt is not; and it may be used. Salt combined with muck would make the fields wonderfully productive. But in view of the cost of handling and applying the muck, the salt alone may be the cheapest manure. What is true at Lansing, Mich., is true of many other places; and certainly there are few districts of country in which salt or plaster would not be found of great value in increasing the hay crop.

The grass crop is the basis of all improvement, wherever it can be made to grow well. Good crops of grass once obtained, barn-yard manure follows as its product, and improvement thenceforth becomes comparatively easy.

Before farmers purchase extensively of manures, costing from \$40 to \$60 a ton, it would be well to determine by trials, easily made with sufficient accuracy to satisfy the maker, whether he has not the means nearer home, and at much lower prices, and of undoubted purity, to make their farms more productive.

Having given the credit we have to the managers of the Michigan Agricultural College for these experiments, they must not take offence at being told the description of their soil as "a light sandy-loam" is entirely unsatisfactory. The means of making a chemical analysis and the ability to make it must be at the College. Another thing is not quite satisfactory: What is meant by a load of horse or cow manure? If the load consisted of 30 bushels of well decomposed matter that had been well cared for, 20 of them would heavily manure an acre. Some men would like to know whether this manure came from grain-fed animals, or whether from clover-hay, or straw, and how the muck was prepared. These points are suggested here much more with a view of leading to greater precision in future experiments, than in the spirit of fault finding. We cannot find fault, for more real light has been given in this matter, our criticisms to the contrary notwithstanding, than has ever been before in so satisfactory a form. So highly do we value these experiments that we have condensed them as well as we could to lay them before our readers in a way that shall help to give them the publicity they so justly deserve.

Editor Farmer's Advocate.

Potatoes.

Dear Sir,—The potatoes I got from you last spring gave good satisfaction—that is Harrison and Early Goodrich. If I had sold my seed potatoes for 40 cents a bushel, and brought from you at \$2.00 and freight—making \$2.20 per bushel—I would have made money.

I value your paper very much, but I think there is a mistake in the advertisement for Carter's Ditching Machine. I see in your last year's advertisement it digs a ditch eight inches wide. In March and April numbers, 1870, it says eighteen inches. If not a mistake it lowers the machine in my estimation very much, as it will take double the power to drive it upon our clay land.

Yours, &c., G. E. BALLARD.

Wellesley, April 4, 1870.

[It should have been eight inches.]—ED.