

Soil Conditions and Milling Quality of Wheat.

To the Editor FARMER'S ADVOCATE:

The FARMER'S ADVOCATE of August 1st has very wisely taken up the question of improving the milling qualities of Ontario wheat. To anyone who has studied that problem, it might well be asked, Is the introduction of a new variety of wheat the chief condition necessary to improve the milling qualities? Notwithstanding the emphasis placed upon change to seed of improved milling quality, it is a very far-off step towards the complete solution of the difficulties facing the Canadian farmer. The same difficulties are being observed in live stock as in plants, so far as the lessening of quality goes.

Within the observation of the writer, based upon a large number of specific investigations over Canada (and particularly Ontario), it is being increasingly recognized that a closer study of the soil from a chemical and physical standpoint is the foundation-point of improving the quality and quantity in plant production. Certainly, in accordance with natural laws, no improved quality of plant in any respect can be maintained where the soil is in an unbalanced state. For the same reason, the best quality of food may prove of no great value to an animal body where the blood is out of balance. A temporary effect is produced, lasting possibly for two or three years; but the conscience of nature will ultimately level production down to the original unbalanced state.

Nature, on a virgin forest soil, even manures the ground once every year, providing through the falling leaves a top-dressing of mineral plant food in an organized form (humus, or vegetable matter). How near does the average farmer on 100 acres of land come to this ideal? He manures approximately about eight to ten acres a year, which means ten to twelve years in covering his farm. In addition to this, he may be generous enough to plow under a second crop of clover, or more often of clover stubble, every five years.

The total amount of mineral matter added to the soil in farmyard manure (20 tons per acre), according to average analysis, would not be over 200 lbs. In this there is not sufficient to supply the demands of two average grain crops, and even in that event, the potash and ammonia is largely in excess for the production of straw rather than grain.

An average crop of clover (two tons per acre) is shown by analysis to require three times more mineral matter than thirty-five bushels of wheat. Clover undoubtedly must be the primary crop to plow under, in addition to manure, to keep up the soil fertility. But if the above facts are accepted, it must be recognized that clover is getting harder to raise than wheat, because of its higher mineral requirements, particularly phosphate and potash.

It is interesting to note that the wheat quality question is being investigated by the chemical departments of Ontario and Washington, and so far as investigations have gone, the conditions in the soil account for a great deal. I must not encroach further on your valuable space, but hope to be able to expand further on this important question.

Yours truly,
WM. J. THOMPSON.

Simcoe Co., Ont., August 14th, 1900.

The Fate of a Yankee Fair.

The following letter, from a correspondent of the *Country Gentleman*, describes very vividly what becomes of exhibitions run for a few years on the circus plan:

I took a trip to Guttenburg, New Jersey, to see the Tri-State Fair, and though it cost fifty cents, I would not have missed it for a dollar. To be sure, there was not a cow or a pig or a sheep on the ground, the only thing in that line being a two-headed calf, and it cost ten cents extra to see it. Of agricultural tools and implements, there was a partial outfit for a one-horse farm. There was a poultry show, such as it was—quite a number of birds, but many of them pretty ragged. However, about every coop got a 1st and 2nd premium; so the one exhibitor will probably be satisfied if he gets the cash to match. There were also a number of pigeons and some rabbits. In the big building was a very good show of fruit—apples, pears, peaches, grapes, etc. There was a small show of needlework; and the canned goods and bread, cake, etc., would make a small load for one man to carry. There was a very good exhibit of motor carriages, in use and raced as well, on the track. There were a few carriages; some pianos and furniture.

On a platform inside the track and directly in front of the grand stand was given a more or less continuous performance, by acrobats, clowns, etc. There was a big balloon on Thursday, when about 10,000 (some said 15,000) people were on the grounds. There was a boxing exhibition; and after two rounds of the "real thing," a fake performance in which the men knocked each other out several times. I had never been at a prize-fight before, so was much interested in seeing how it was done. I don't think I care much for it.

There was most ample provision for the serving of beer and other wet goods, and a big business was done.

There was considerable racing; in fact, it was the feature of the whole show—no, I won't say that, it would do injustice to the "Midway." There were two merry-go-rounds, photo galleries, moon shows, fortune-tellers, wheels of fortune,

and shows whose rottenness was plainly told by signs, to which the "barkers" added. There was a good band in front of the grand stand, and music was furnished in the club house free for dancing. The police had plenty to do, and gathered in a number of crooks. Since my visit, I have been trying to decide whether I went to a fair or a revival of the old Guttenburg races of years ago.

F. M. C.

Prepare for Storing Ice.

There is no doubt whatever but that during the continued heated period of the past summer many people resolved to put in a supply of ice the coming winter. Every farmhouse should have a supply of ice for preserving milk, cream, butter, meat, etc., in the summer time. That there is a demand for information on the question of ice-house construction, we have no doubt, because we have already received inquiries bearing upon that subject. Fortunately, an ice storage need not be a costly building; in fact, the real cost, compared with the convenience and profit derived, would justify any farmer in putting up a suitable building. Any farmer can construct one if he is at all handy with tools. In choosing a location for the building, drainage should be taken into consideration. The slope should carry off the water in every direction, and in no case toward it. A protected nook may be an advantage, but it is by no means a necessity. Wind and sun will not affect a properly constructed house.

The size of the building should be limited to the supply of ice needed, allowance being made for a foot of packing between the ice stored and the sides of the building. The studding in the walls should be of eight-inch timber; the siding upon the outside should be of matched lumber, care being taken to make it as tight as possible.

The roof must be such that there will be no danger of leakage. Some provision for the free circulation of air should be made through the gables. The entrance to the house should be in the north side. There should be a door 6x3 feet in the ice chamber and one in the gable just above this 3x3 feet. The lower door should be made in two sections, each 3x3 feet. The doors are arranged in this way so that there will be only a section open at a time when packing and removing the ice. The bottom of the house will need no floor if on high ground. A layer of cinders, sawdust or some other porous matter that will readily take in and lead off the moisture, should be filled in the bottom to pack the ice upon. This should be from eight inches to a foot in thickness.

The ice house in connection with one of the cheese factories of the Thames Dairy Company, erected two years ago, under the direction of the manager, Mr. T. B. Millar, is built of inch lumber nailed tottudding, and without battens or sheathing. Its dimensions are 12 by 14 feet, and it has 10 foot walls. It has a well-shingled roof, and provision for ventilation in the gables near the top. It has a high, narrow door, in sections, at the north end, and as the ice and packing are being put in, boards are placed across the studding, inside the door, as the house is filled. Mr. Millar puts one foot of sawdust on the ground and 14 inches of sawdust packing between the ice and the walls. This is well packed in as the filling progresses. It is also necessary to pack it down thoroughly several times after the warm weather commences in the spring, and during the summer. As a covering, sawdust is good, but straw is just as good and some like it better. Mr. Millar uses six inches of sawdust, which he has found answers better than more, as a greater thickness is liable to heat and melt the ice. There should be several feet of space between the top of the ice and the roof.

We recently visited one of the large ice houses at the City of London, and observed that straw is used exclusively for covering. About two feet is thrown evenly over the ice when the house is filled, and it is much in favor, since it leaves the ice much clearer when taken out than would sawdust. On Sept. 20th, the covering of straw, which was wet and had been handled ever since spring, was not more than six inches thick, but the ice was coming out as clear and solid as when it went in; in fact, some of the blocks were still firmly frozen together. The ice was taken out layer after layer, beginning at the top next the door. The walls of this ice house were of two thicknesses of inch lumber, with eight-inch studding, and sawdust between, and the ice was built right out against them, with no packing between.

In packing the ice, begin by a layer of cakes, filling in all the chinks and spaces with pounded ice, packing as close as possible. As the layers are added, one above the other, without packing between, continued care should be taken to fill all space with ice. The big ice companies do not recommend this for their work, as they claim it renders the ice more difficult to take out, as the whole mass is liable to remain frozen together. This, however, is no objection in a small ice house such as a farmer requires; in fact, the better frozen the ice keeps, the more satisfactory is it. The important considerations in keeping ice are perfect drainage and exclusion of all the air.

[We will be glad to hear the experience of farmers on the construction of ice houses, also in storing and using the ice.]

Mustard Spraying Trials.

To the Editor FARMER'S ADVOCATE:

SIR, In regard to the experiments in mustard spraying, I may say that the results have been quite satisfactory. Instructions were sent out to various experimenters in different parts of the Province. Although all reports have not as yet been received, it is quite evident that in all cases where the spraying was done thoroughly and at an early date, the results are good. I copy the following from my own notes:

June 16th.—Oat crop about 8 to 12 inches high, and mustard in abundance; mustard almost in full bloom; weather warm and dry. Sprayed 1 acre with solution of 6 lbs. of copper sulphate and 6 lbs. of iron sulphate dissolved in 50 gallons of water. To this solution was added 2 lbs. of flour. Sprayed with Spramotor pump in ordinary cart drawn by horse.

June 18th. Mustard plants dying; crop slightly browned in places; no tracks of cart and horse apparent.

June 24th.—All mustard plants dead except an odd one here and there, which apparently escaped the spray.

According to this formula, the chemicals would cost 66 cents per acre. I would advise, however, in preference, the use of 10 pounds of CuSo₄, costing 80 cents. This work is in charge of the Botanical Committee of the Ontario Experimental Union.

M. W. DOHERTY.

Ontario Agricultural College.

Not Necessary to Plow Corn Stubble—Feeding Beef Cattle Economically—Saving and Applying Manure.

Mr. John McMillan, M. P. for South Huron, Ont., during a recent visit to our office, in referring to his farming operations, mentioned that he has completely abandoned plowing his corn stubble, either in fall or the following spring. Some years ago he reasoned that it was all a mistake to turn under surface soil that had been subjected to a winter's frost and a summer's cultivation before planting another crop. The fall plowing of the corn land was not abandoned, however, until a test was made of sowing a portion of the field prepared simply by spring surface cultivation (with spring-tooth cultivator or disk harrow) as compared with an area plowed in the fall. Each lot was sown to oats and seeded down to clover and timothy. The result of the first test proved that a much better catch of clover and grass was secured on the land not plowed, and the oats yielded twelve bushels per acre more. This one test was taken rather as a pointer than as conclusive evidence, and the following year half the corn ground was plowed in fall and half left till spring, then cultivated both ways before sowing. Again a better catch of seeds was secured, as well as fifteen bushels more oats per acre on the land not plowed. This is a valuable consideration to Mr. McMillan and his sons, who grew and put into cement silos this year fifty acres of heavy corn. The corn is cut with hoes with 18-inch handles, very close to the ground, which has the double advantage of securing more feed and leaving less stubble to trouble the cultivator.

Mr. McMillan was one of the first to use ensilage in Canada, and was never more enthusiastic in his praises of it than at present. It is his conviction that before many years well-managed farms without silos will be the exception in Ontario. Messrs. McMillan feed off about 100 head of beef steers annually. The steers are largely wintered in loose boxes in lots of from 10 to 15 head. All would be fed loose except for the question of bedding, as tied cattle require less bedding than loose ones. The winter feed consists of about 30 to 40 pounds of ensilage, with 10 pounds of cut straw and chop, fed mornings and evenings, and some clover hay. The cattle are housed till well on in May, according to the supply of ensilage, and it is found that even fat, heavy steers going from this feed onto the richest grass do not scour and fail, but go forward from the very day they are turned out. Last spring they were turned out weighing about 1,300 pounds each, and when they were shipped in July they averaged about 1,450 pounds per head.

Messrs. McMillan have all their straw cut before being threshed, a plan found eminently satisfactory. A large ensilage cutter is used, run with an extra belt from the threshing engine. The sheaves are cut and elevated by the cutter carriers into the cylinder of the thresher. What would have taken about three days to thresh without cutting the straw, occupied four and one-half days. The straw was all taken care of by two men, so that some of the extra time was made up by the reduction of hands, and all the straw was cut ready to feed or to bed without further trouble. Mr. McMillan considers cut straw more economical for bedding than long straw, and when hauled out as manure is in fine form for application to the land.

Referring to saving and applying manure, Mr. McMillan pointed out that the manure made in the box stalls by the loose cattle is all hauled directly to the field from the pens, but all that is not taken out in that way is saved under cover, so that no loss occurs. All the stables have cement floors, which Mr. McMillan considers every farmer should have if he is to make the most out of his farm.