

HOME AND FARM.

ENSILAGE.

During the next few weeks, it is proposed to give a series of articles upon this subject, discussing its various features and placing it in such a shape that the reader will have a clear conception of it, its advantages and disadvantages and brief directions about using and making it.

PART I.—THE PRINCIPLES UNDERLYING ENSILAGE MAKING.

The object of making ensilage is the same as that of making hay: that is to preserve the food in a suitable condition for the use of stock at the least expense. A vast amount has been written on this subject. Unfortunately not all that has been written has been worth reading, but much has been mere assertion without any foundation accurately based on reliable data.

By this system it is proposed to preserve the food in as nearly its natural condition as possible. It might be compared to canning fruit, but differs in some important respects. The green fodder is placed in the silo either slowly or rapidly, and covered, either with or without pressure, depending on the method pursued.

In order to understand what takes place in the silo it will be necessary to glance briefly at the composition of the fodder. Nearly all fodders contain the same substance only in different proportions. The most valuable constituent is Protein, or albumenoid as it is sometimes called. This produces muscle or flesh, it also probably aids in the production of heat and fat as well as being used in the various secretions as milk. The next constituent is fat or oil, a varying amount of which occurs in the different plants. This is used in the animal for heat and fat. The third class of substances for want of a better name is called carb-hydrates. They consist of starch, sugar, gums, and some other similar substances. In the animal they produce heat and fat. Crude fibre, woody fibre or cellulose is the insoluble part that gives strength to the stalk, but is probably worthless to the animal for food. Besides there is the ash of the plant.

When the silo is filled, it invariably gets hot. The heat varying from over one hundred to one hundred and fifty degrees. No matter how it has been filled this always takes place. It may last from a few days to some weeks. If the silo is not water tight and the fodder very juicy or much pressure is applied, a liquor will run away from it.

What is the cause of this heat? It is due to fermentation in most cases, but in some it is due to decay as the contents rot, the same as the manure when piled in a pile will rot and get hot. This is only the case however in poorly constructed silos that have not been properly tended. In most cases it is due to the first mentioned cause. What is fermentation? It is the growth of certain fungi which feed on certain parts of vegetable substances and usually convert it into some useful product. The most abundant fungus in the silo is the yeast plant. This little plant which is so useful in the raising of bread is here quite injurious. It feeds upon the starch and sugar of the fodder and converts them into a gas—carbonic acid—and alcohol. There are a few other products produced in small quantities. The same ferment that converts cider into vinegar is also present and converts the alcohol produced by the yeast into acetic acid—the active principle of vinegar. These are the two most important ferments in the silo. As will be seen above, they feed upon the carb hydrates, sugar and starch. It is this that produces the heat. The amount that they consume varies, depending on how active they are and how long they continue to work. Its variation is from thirty to sixty-five per cent. There are ferments that cause the reduction of the proteins and the crude fibre, but not to so great an extent as is the case with the carb-hydrates. The loss in this material is from five to fifty per cent. The only substance that remains constant is the ash. If the silo leaks even this is not constant.

Putrefaction or decay should never take place in the silo. It can readily be detected by the foul odor that is produced, while properly made ensilage has a rather sweet smell as of a mingling of alcohol and vinegar together, with some strong but not unpleasant odors. Wherever putrefaction has set in the ensilage is not fit to use any more than rotten potatoes are for the table.

The object to be accomplished in the manufacture of ensilage is to completely prevent putrefaction, and limit the growth of the ferments, yeast, etc., as much as possible. In order to do this we must know what conditions favor and what retard their development. Nothing so checks their growth as cold, but it is practically out of the question to apply this sufficiently. Air hastens their growth, and a lack of it is detrimental to the germs of fermentation; therefore it should be excluded as much as possible. It is found that the products of the fermentation are as injurious to the ferments as almost any thing that can be readily added to the silo, and are as a rule less injurious to the stock when eaten. Hence if these products are retained in the silo they will soon prevent the further action of the ferments.

If the silo is properly filled, the fodder is preserved in its natural condition, except what it may be reduced and injured by these ferments. The object aimed at in filling the silo is to prevent this fermentation, and this is practically accomplished by excluding the air and not permitting anything to escape from the silo either as a gas or as a liquid. This will not entirely prevent the loss nor always insure good ensilage. There are problems connected with the subject that are not yet thoroughly understood. He who undertakes to keep ensilage must be prepared to meet some failures and do some experimenting before he can make a first class article.

THE PLAN OF THE GARDEN.

Too often the farmer's garden is a garden of weeds, even when the crops on the farm are free from them. With the best and most careful farmers, the garden is always a source of trouble, and during the busy season it is

found almost impossible to keep it clean. When the busy work of the farm is pressing, and every day means money to the farmer, he is not apt to stop his work to hoe in the garden, no matter how much he enjoys the products of those labors. He cannot afford it.

Yet if the garden is worth having, it is worthy of proper care. No garden is better than one poorly and slovenly kept. The work in the garden is capable of such an arrangement that only a minimum need be done during the busiest part of the year, and this work can be reduced to a very small amount comparatively, if it be properly planned and the garden rightly arranged. It is with the laying out of the garden that this article will deal.

The first thing to be borne in mind is that horse labor is much cheaper than manual labor. The second thing is to remember that the cultivator will remove weeds much easier than the hoe. Bearing these two facts in mind it will be seen that the garden should be planted in rows far enough apart to allow the horse cultivator to work between them. This is certainly an innovation. It is the almost universal custom throughout the country to lay the garden out in beds and sow these beds either in rows a few inches apart or broadcast.

For the larger growing plants the rows should be at least three feet apart, for smaller plants they may be as close as two feet, but it is poor economy to crowd them as they then run so much risk of injury when cultivated. Land is usually cheaper than labor in the country, so that if the garden takes up a little more room than usual it will be no serious loss. It will be readily seen that the horse cultivator can be passed up and down the rows whenever needed, and in a few moments remove all the weeds that it would take hours to remove with the hoe. But when it comes to the more delicate plants the advantage is not so evident. Here the cultivator can take only those weeds that are in the middle of the row, as it must not be brought too near the small plants or it would injure them, while a small hand cultivator should be used next to the rows.

ONE HORSE FARMING.

Last week, there was a note showing the profit and loss of using one horse to plow with. Plowing is not the only one horse operation that is often conducted on our farms. If it were we might be thankful. The one horse plowing is confined to comparatively few farmers, but there are customs equally ridiculous practised by the great majority. It is to one of these that attention is desired to be drawn in this article.

On riding through even the best farming districts in the province, there may often be seen such a sight as this: One man driving one horse to one half of a harrow. Where was the other horse and the other half of the harrow? Perhaps the farmer thought it useless to drive two horses attached to only one half of a harrow and so left the other horse in the barn. This would imply that the other half of the harrow was not to be found. Perhaps it was left "somewhere" last year and that somewhere cannot be remembered, or that when pulled from its accustomed place—the fence corner—it was found all to pieces. More likely, however, the one horse cart stands in the field and that tells the story. It was too much trouble to stop and rig up a double team to get the other horse and the extra lines so he went to work with the one horse. One man can drive two horses and thus harrow twice as much land as when working in the way described. The account stands about like this:

For harrowing a piece of land, one horse method,	
one man two days, at \$1 per day.....	\$2 00
One horse two days, at 75c. per day.....	1 50
	Total
	\$3 50
The proper method, one man one day, at \$1.00 per day.....	\$1 00
Two horses one day, at \$1.50 per day.....	1 50
	Total
	\$2 50

This shows an actual saving of one man's work. This would amount to a considerable during the season. In next week's issue will appear an article on "the cart."

NOTES.

Bulletins of the various new experiment stations in the United States, are beginning to appear quite frequently. Some of them are looking for immediate results, while others are wiser, and it is to be hoped will not be driven by popular opinion into devoting all their energies toward the purely "practical," but will try to solve some of those great and mysterious problems that lie at the very foundation of farming. They could not do better than follow the German agricultural experiment stations in this respect. Those American stations which have been in operation for some years have done good and profitable work as a rule, but they have confined themselves simply those experiments that would give results that might be published that year, and in most cases have ignored those which have required a longer time to perform.

ADVICE TO MOTHERS.—Are you disturbed at night and broken of your rest by a sick child suffering and crying with pain of Cutting Teeth? If so, send at once and get a bottle of "Mrs. Winslow's Soothing Syrup," for Children Teething. Its value is incalculable. It will relieve the poor little sufferer immediately. Depend upon it, mothers, there is no mistake about it. It cures Dysentery and Diarrhea, regulates the Stomach and Bowels, cures Wind Colic, softens the Gums, reduces Inflammation, and gives rest and energy to the whole system. "Mrs. Winslow's Soothing Syrup" for children teething is pleasant to the taste, and is the prescription of one of the oldest and best female physicians and nurses in the United States, and is for sale by all druggists throughout the world. Price, 25 cents a bottle.