Feeding Out Silage.

Editor "The Farmer's Advocate":

A trip through the country, or this part of it, at least, shows that a wonderful number of silos are being erected, probably more last year than ever before; soon most people will have them. I know every farm from mine, south of Currie's, to Woodstock, and, in thinking it over, I believe there are seventeen silos along that road, where there are only twenty-two farms in the six miles, taking less than one-half a mile on each side of the road. Driving from my farm at Currie's to Tillsonburg, I see there are many silos through the great dairy district of Norwich Township. At one place on the road I could count five silos, with six farms in sight. There is no longer need here to advise building silos, but a word as to feeding the silage may help some, because it does make a difference how it is used to get the most benefit from it.

It must be always remembered that silage is preserved by the exclusion of air. It is not embalmed. If that were so, then it would not be digestible. But, it is very digestible, which also means that when the air gets to it, it will soon spoil. I have fed out a great deal of silage in the past eighteen years, and under different conditions. I have fed out silage that had been in the silo for eight years, and it was just as good as it would have been if fed the first year; but, after all that time, as soon as it was exposed to the air, it would spoil like any other.

The length of time that silage takes to spoil when opened up to air depends upon the temperature largely, though there are other things that affect it, also. In warm weather, silage will be unfit to feed in four or five days, and in two or three days it is lessened in feed value. In cold weather it is not affected nearly so quickly, but, on the other hand, frost injures it, and, if loosened up and left in a frosty place, it will freeze right through, and, like most other frosted food, will cause cattle to scour. I have heard some say they could not feed much, as it made the cattle too loose. That is likely caused by silage that has been frosted, or injured from exposure to air too long in warm weather. I have hardly ever sent a new man into a silo, but he would dig a hole a foot or more deep in some place, and loosen up a great deal more than was needed, and perhaps it would take a week to get surface of the silage in the shape it should be in.

The silage should be taken out evenly, and all that is loosened up should be put out for feeding. It is well, in warm weather, to go just deep enough so that some can be taken off the silo all over in 3 or 4 days; that is, take two or three inches deep off one side, as far as required for that day, then further along on the top for next day, and so on, to the third and fourth day; then start at the side where it was first taken off, and go over another layer. There will then be the least damaged silage to feed. In cold weather it is better to take deep enough so that all the silo will not have been gone over for 6 to 8 days, because the silage will not spoil on top in that time from mold. But, no matter how solid the silo is kept, there will be a little on top frozen. This frozen will be of less ratio to the whole being fed if we go, say, six inches deep, instead of two inches.

During very cold weather, it is a good plan to keep the silage next the walls a few inches lower than the inside; that keeps it from freezing to the wall. If it will not freeze where it is thrown out to feed, it is as well to put out enough for a day at one time during cold weather; but if it freezes where thrown out, it should not be put out until ready to feed.

Some do not start to feed silage until near spring, or when the cows freshen. This is a mistake, as the cows should be fed some silage with the straw all winter. It is an ideal feed to put dry cows into good flesh and heart. And they must be fed well whilst dry, if they are to do good work after freshening. One never gets more value for any feed than that fed whilst the cow is dry, and there is no better feed for a dry cow than silage, but it does not contain enough nutriment in itself for a cow to milk the best upon. One should have both roots and silage if, as is the greatest practice, cows are to freshen in March or April.

Feed the cows during the winter on silage and good straw when dry, and if they get some meal, it will not hurt them. If there is not enough silage to feed 30 or 35 pounds a day for, say, four months, better to feed half that for the four months daily, rather than feed no silage for two months, then feed a full feed of it for the other two months.

Silage is not a perfect feed in itself, but with other feed it is of great value.

We will say the cows freshen in March. They should be fed on silage for the four months previous, and, when they freshen, feed both silage and roots, say 25 to 30 pounds silage, as much or more of roots. I think, for a dry cow, silage is rather of more value than roots, but for a cow in milk I would rather feed 25 pounds of silage and 35 pounds roots daily than to reverse it. That is why I advise feeding the silage early, and keeping the roots until later. Cows wintered this way will give a good account of themselves, and will milk just as well through March and April as they will on grass, provided they are kept in a well-ventilated stable, and have plenty of water.

For ordinary grade cows to give 30 to 40 pounds milk daily, a good ration will be, worked up to a week or ten days after calving: 25 pounds silage, 35 pounds roots, 5 pounds hay (at noon), straw as they want after roots, fed long; 8 to 10 pounds meal daily, divided into two feeds, and placed on the silage. Bran, oat chop, and one pound oil cake, would be good for the meal, but almost any kind of meal will give good results when roots and silage are fed. But, don't forget, the cow wants to be in a well-ventilated stable, and have water when she wants it, not when you want to give it to her. GEO. RICE.

The Animal Husbandry Department at the Manitoba Agricultural College is this year feeding and butchering the beef required for the College. A slaughter-house has been fitted up, the animals to be slaughtered are carefully inspected on foot, butchered before the students, dressed and cut up by an expert. This feature has decided educational advantages, affording an opportunity to judge animals both on foot and in the carcass, as well as being instructive from the practical standpoint of the butcher.

David Coulter, Essex Co., Ont., is said to have realized during the past year $2,300 from the sale of pigs, after deducting expenses incurred in connection with caring for them, except the food consumed. Mr. Coulter stated to a correspondent of "The Farmer's Advocate" that his last shipment, for which he received $1,000, were fed largely on clover, being finished with corn.

THE FARM.

What is a Ton of Farmyard Manure Worth?

As pointed out in the editorial appearing in "The Farmer's Advocate" of December 30th, a ton of farmyard manure is a very variable quantity, being influenced in composition and manurial value by a long list of contingencies. An attempted definite answer as to its value per ton might prove about as satisfactory as a reply made by a witness in an assault case; who, after a long process of cross-questioning, stated that the stone with which the defendant struck the plaintiff, "was about the size of a lump of chalk." The value of a ton of farmyard manure is pretty nearly as variable as the size of a lump of chalk. It may be advisable, nevertheless, to show some of the possibilities represented by a ton of farmyard manure, and the extent to which these possibilities are realized will depend upon the care and intelligence used in handling this homely but useful product.

The three most important fertilizing constituents of any manure are nitrogen, phosphoric acid and potash. To illustrate the difference in composition of the excrement of different kinds of farm animals, the following table, representing the average of a large number of analyses, has been compiled by Heiden, a noted German investigator:

COMPOSITION OF MIXED EXCREMENTS.

Mixed Excrements.	Nitrogen.		Phosphoric Acid.		Potash.	
	Per cent.	Per ton.	Per cent.	Per ton.	Per cent.	Per ton.
		Lbs.		Lbs.		Lbs.
Horse	.6	12.0	.3	6.0	.5	10.0
Cow	.34 to .44	6.8 to 8.8	.1	2.0	.8	16.0
Sheep	.9	18.0	.5	10.0	1.0	20.0
Pig	.5 to .6	10.0 to 12.0	.1	2.0	.5	10.0

Nitrogen is the most expensive of fertilizing constituents, and it will be noticed that the table shows the mixed excrements (solid and liquid) of the cow to be the lowest in nitrogen, containing 6.8 to 8.8 pounds of nitrogen per ton; or omitting the fractions, we may say from 7 lbs. to 9 lbs. per ton. Sheep excrements are very rich in nitrogen, containing, according to the table, 18 lbs. of nitrogen per ton. They are also very rich in phosphoric acid and potash. Those of the horse come next to sheep in nitrogen, though swine excrements come close to those of the horse in this respect.

But the table given above is only a sort of general guide, and must be regarded as such. Individual analyses may show very wide variations from the averages given in the table. We must also remember that the composition of farmyard manure is affected not only by the kind of animal producing it, but also by the food consumed by the animal; by the use to which the animal is put (milk production, fattening, etc.); by the age of the animal; by the amount and character of bedding used; by the care exercised in saving the manure; by the degree of fermentation, if any; and probably by other conditions. A child can see, therefore, that when we attempt to value a substance of such uncertain composition, we are facing a very difficult problem.

Another difficult point to settle is the rate at which the different fertilizing constituents should be valued. The only method we can employ is to use the prices at which the different fertilizing constituents are sold in commercial fertilizers. Generally speaking, however, the fertilizing constituents in commercial fertilizers are more readily available than those in farmyard manure; but, as an offset to this advantage, farmyard manure has a more lasting effect than a commercial fertilizer, and it improves the texture of the soil. Possibly, therefore, we could not be very severely criticised if we applied to the nitrogen, phosphoric acid and potash contained in farmyard manure the same prices which these constituents bring when sold in the form of commercial fertilizers. To be on the safe side, however, we shall use the very conservative values employed by the Cornell Experiment Station, namely, 15½c. per pound for nitrogen, and 4½c. per pound for phosphoric acid and potash. Applying these values to Heiden's table, we find a ton of mixed excrements from the different kinds of animals to be as follows:

Horse, mixed excrements....$2.58 per ton.
Cow, mixed excrements.....$1.86 to $2.17 per ton.
Sheep, mixed excrements ...$4.14 per ton.
Pig, mixed excrements.....$2.09 to $2.40 per ton.

At the Cornell Experiment Station, considerable investigation has been carried on in regard to farmyard manure. According to Cornell findings, a ton of manure from different kinds of stock which had been liberally fed and given sufficient bedding, was worth as follows:

Horse manure	$2.21	per ton.
Cow "	2.02	"
Calf "	2.17	"
Sheep "	3.30	"
Pig "	3.29	"

The values given above are not quite the same as those in the preceding table; but, considering the nature of the product, the two sets of figures do not vary more than might be expected; in fact, it is rather surprising that they correspond as closely as they do.

Prof. Shutt, in Bulletin No. 31 of the Central Experimental Farm, Ottawa, gives a very interesting table, showing the composition of mixed horse and cow manure as found by different investigators. To this table we have added a column showing the value per ton of the manure, according to the same method of valuation employed in the preceding computations. The letters "C.E.F." denote results obtained at the Central Experimental Farm. Rothamsted, as everybody knows, is a famous Experimental Farm in England.

Following is the table:

COMPOSITION AND VALUE OF MIXED FARMYARD MANURE.

(Nitrogen, 15½c. per lb.; Phosphoric Acid and Potash, 4½c. per lb.)

	Pounds per Ton.			
	Nitrogen.	Phosphoric Acid.	Potash.	Value per Ton.
Manure, fresh, average, many analyses	7.8	3.6	9.0	$1.77
Manure, rotted, average, many analyses	10.0	5.6	10.6	$2.28
Manure, rotted, C.E.F.	10.3	8.5	15.9	$2.69
Manure, rotting during fermentation, C. E. F.	9.8	6.0	13.6	$2.40
Manure, well-rotted, C. E. F., one year old	17.7	14.6	29.9	$4.74
Manure from Rothamsted	12.8	4.6	10.0	$2.64

Possibly the first point which will attract the reader's attention is the fact that rotted manure shows a higher value per ton than fresh manure. In this connection, we must remember that manure shrinks in weight very materially during fermentation, and though a ton of fermented manure contains a larger amount of fertilizing material than a ton of fresh manure, the practice of fermenting manure gives fewer tons, and generally results in a loss of more or less of the valuable constituents. For example, a ton of the well-rotted manure at the Central Experimental Farm shows the very high value of $4.74. This sample of manure, when fresh, weighed 8,000 lbs., but after fermentation it weighed only 2,659 lbs., and, had there been no loss of fertilizing material, it