

The Silo and Ensilage—Its Value and Its Chief Objections.

BY G. C. CASTON.

"Corn and the Silo" is still a live subject at Farmers' Institute meetings, although it has been discussed more than any other subject perhaps. Though nearly all feeders and dairymen grow and feed more or less corn, there are comparatively few who have silos. You ask the opinion of many of our most successful feeders who have had experience with ensilage, and the answer is almost invariably that they would not be without the silo on any account. Most of them will tell you, dairymen especially, that they could not make their business pay without the silo. The question arises here,



FIRST-PRIZE ROADSTER PAIR, FRANK AND LUCY.
OWNED BY J. C. DEITRICH, GALT, ONT.

Why should anyone hesitate about using them? Formerly the question of expense was a formidable one, especially in localities where lumber was scarce and dear, and the building had to be quite an elaborate affair, involving a lot of studding, 2x10, several thicknesses of boards and tar paper, and dressed lumber for the inside. But the stone or hoop silo has to a great extent taken the lead as a cheap and, as it is not inaptly called, the poor man's silo, and it serves the purpose even more successfully than the more elaborate old-fashioned square structure. In fact, I believe from my own experience and that of others that there is less waste with the round silo than there is with the square. I think it is decidedly preferable to any except the concrete, which, though very expensive, is an everlasting affair.

With regard to my own experience: I only keep a small herd of cattle. I tried the fodder corn for awhile, and my experience was like that of many others. If it was left out in stooks it got so weather-beaten on the outside that a large part was wasted. The bottoms froze to the ground, and the squirrels ate the grain off the cobs. If stored away it required a vast deal of room to cure it in, as it had to stand upright and so as to get a free circulation of air, or it would mould at the joints, and the squirrels and rats ate the grain just the same. It had to be run through the cutting box as wanted. If a pile were cut ahead, even when mixed with dry cut straw, it would heat and spoil. So I resolved to build a small silo. In order to get it inside a small barn, I had to put it five feet in the ground, but I wanted to have it under cover. A round hole was dug and built around with stone up to the level of the ground. The stone wall was plastered smooth and the staves set up flush with the smooth surface of the wall, with a collar of stone around the outside of them to keep the staves in place. This serves in place of a bottom hoop. The staves are sixteen feet high, thus making the silo twenty-one feet deep. It is nine feet in diameter, having four hoops of five-eighths-inch iron. The staves are of hemlock, 2x6, and cost here \$6.50 per M.; the iron cost \$5.40, and the whole structure cost, including labor, \$26.

Now, as to the results. I grew three acres of corn (Leaming variety) in drills forty inches apart. I cut several loads for green fodder in early fall, and afterwards filled the silo, and had some left, which was fed before starting to feed the ensilage. The corn got slightly frosted before being cut. I had intended to wet it with the spray pump as I put it in the silo, but a heavy shower of rain saved the trouble, wetting the piles thoroughly, and it went into the silo wringing wet. The ensilage was first-class, only a few inches on the top spoiled. The milk cows get forty pounds a day, young animals twenty to twenty-five pounds. I have fed some to horses and sheep, and I will have some left for summer use, when the pastures fail.

There is nothing new in this experience. This producing of a large amount of cheap, succulent, bulky food off a small area of land has been done on hundreds of farms, and on a much larger scale, all over the Province. Practical men, who have had years of experience in growing and ensiling corn, have told me that they would build a silo if only for one crop. Then why should anyone hesitate about building a silo, especially those whose land is light and sandy? They of all men should have them, and more especially in view of the fact

that we are in this Province subjected to such severe drouths, which shorten the crops of fodder to a serious extent. But it is a very dry season that you cannot raise a good crop of corn by cultivating it well and regularly. And with a good crop of corn well ensiled a farmer should be able to keep fifty per cent. more cattle than he could on the same farm without it. Many successful dairymen are now using it for summer feed when the pastures fail. It is very convenient and easy to feed, and with the addition of a little bran will keep up the flow of milk, which means dollars to the dairyman.

And now, having said so much in favor of ensilage, let us consider what are the objections that are raised against it. It is said to be a very exhausting crop on the land. Well, anything that will turn out from fifteen to thirty tons of food from an acre must certainly take something from the soil. But is corn really an exhausting crop? It takes a part of its constituents from the air, and I have proved that a good crop can be grown on a good clover sod, turned under early in fall and well surface-worked, without any manure; and that after the corn you can get a good crop of grain and a catch of clover, providing you surface-work the land instead of plowing it, using a roller in spring to crush down the corn stubble. I fancy there are other crops that are more exhausting than corn that are not half as profitable.

Again, its composition shows it to contain eighty to ninety per cent. of water. So do our root crops, yet Old Country farmers fatten stock with them. So do our grasses, and yet they are the natural food of our animals. It is not a balanced ration—neither is any other cheap bulky food.

But there is yet one objection, and to my mind the only feasible or reasonable objection, to the use of ensilage, and that is that the saccharine juice of the stalk is, by the process of fermentation which it undergoes in the silo, turned to acid. Of course, there are degrees of acidity, according to the state of maturity of the corn. That is, corn cut just at the right time—the firm dough state, for instance—will have less acidity than that cut at an earlier stage. Yet in all ensilage I have seen, and I have seen hundreds of samples, the sweet juice was turned to acid. This is the reason it cannot be fed alone with perfect safety for any length of time. And just here the question arises, Can this change be prevented? I am under the impression that it can, and hope before another year rolls round to be able to test the matter. My idea is to apply live steam to destroy the germs of fermentation. If this is done no change can occur if the air is kept out. I don't see why the contents of the silo cannot be cooked and canned immediately after the filling by the application of live steam, on the same principle that fruit is canned and unfermented wine is made. The problems to be solved are the even distribution of the steam and the exclusion of air.

Some silo enthusiasts say, "It's all right; this acidity helps digestion." But I would point out that there is no acidity in the natural food of the animal. The sweetest grass is always cropped close, while the sour swamp or sedge grass is never touched, except under pressure of hunger. And if the corn plant can be kept in its natural state, or as near to it as possible, without chemical change, it would be a great step in advance, and the only reasonable objection to the use of ensilage would be removed. The ensiling of corn would be extended to northern districts where the seasons are short, for if this process can be accomplished corn can be ensiled even if not matured to the dough or glazing stage.

I have tried here to present the arguments for and against the silo, and hope that others may take it up and discuss it. In the meantime I would say: Don't hesitate to build a silo. As a bulky food or part ration ensilage is the cheapest. Plant the kind of corn that will mature best in your locality. Plant it by the 10th of May. Better to risk a frost in spring than in the fall. Cultivate it well and put it in a silo. You will not regret it.

The month of April, 1890, has made a record as being exceptionally fine and warm. We seem to have jumped from winter into summer, with the usual spring left out. In consequence, what at one time looked like a late spring has turned out to be an unusually early one, in so far as early vegetation is concerned, as the leaves of the forest trees were nearly half formed in the last days of April.

Pea Growing in Ontario.

Pea-growing appears to be somewhat of a failure with many farmers in Ontario, especially the last few years. Why this should be is not altogether apparent, but such being the case, we must look for the causes and endeavor to remedy them. We as farmers, whether stock-breeders, stock-fatteners or grain-growers, cannot afford to lose our pea crop.

In the first place, the pea plant is one of those plants having the power to gather free nitrogen from the atmosphere, not only to feed itself, but to leave the soil richer in that constituent after the crop is harvested, and especially so when the crop is taken off by our modern pea harvester, leaving the roots and lower portion of the vines with the soil. The pea crop not only adds nitrogen to the soil, which is one of the most important manurial constituents, but it has a strong tendency to leave the soil in better shape mechanically, and is because of these facts a most desirable crop to follow with fall wheat. In the second place, peas are of great value in the composition of economic feed rations.

We must look first to the plant itself, and study its peculiar needs.

First.—We find it is a nitrogenous plant, storing up much nitrogen in its seed; it will therefore need soil containing much nitrogen. But, having the power to gather free nitrogen from the atmosphere, it will not be so exhaustive on the soil.

Second.—It is a plant that needs warmth in order to develop its power to assimilate nitrogen and develop a healthy plant.

Third.—It needs moisture, being a rapid grower. And in the fourth place it needs care and prompt attention.

Knowing these needs of our plant, we must adapt ourselves and our soil to our plant, and guard off all attacking enemies as best we can. Nature will then bring forth a profitable crop.

But there are many varieties of peas, and they have not all the same habit of growth, and do not all require the same care and management. We must, therefore, select those varieties most adapted to our circumstances. Some varieties, especially the earlier and short-vined varieties, require very rich, loamy soil, well drained, and by no means swampy. Later and longer-vined varieties will do nicely on lighter soil, and not necessarily so rich.

Now we will select the variety that is most adapted to our soil and circumstances. We find we have a good piece of clover sod with plenty of after-growth; the soil is a rich clay loam and well drained, sloping a little to the south. We plow this early in the fall, and cultivate the surface well and allow it to stand thus until the following spring; we then cultivate a good seed-bed and sow our own seed as soon as the weather and soil have become dry and warm. We will put in here our early fancy varieties, and after the peas have grown nicely above ground, we will go through them with the light "Breed's weeder" or some similar weeder, which will destroy many of the young germinating weeds and will make a mulch of fine surface soil which will prevent the escape of much of the soil moisture. This process may be repeated as often as the peas will permit.

Or we may not have the clover sod just mentioned. In that case, we may take timothy sod and work it the same way in the fall, and top dress it with a light coat of barnyard manure, and work it in with a disk harrow or some suitable machine.



SWEESTAKES DRAFT PAIR.
Rose of Blanchard (2462), on near side, won the mare Clydesdale Sweepstakes award.
OWNED BY GEORGE MOORE, WATERLOO, ONT.

Oat stubble or root land may be treated in the same manner with good results. But in all cases the soil must be warm and free from a damp, cold bottom and surface water.

Great care should always be taken to select the best seed. The time of sowing may be varied somewhat, and thus evade the ravages of the pea bug.

The method of sowing does not matter so much, providing we cover all the peas and not too deep; the spout drill answers the purpose very well.

The quantity of seed per acre depends on the variety and size of the grain and method of seeding. Small peas, such as the Golden Vine, $2\frac{1}{2}$ bushels per acre, sown with a spout drill, is quite plenty; if