

comes packed so hard that by the time it is dry enough to plow the land turns up in large lumps that are almost impossible to work down, and later in the summer it cannot retain moisture as readily as if it had been handled properly; while on well-tiled fields work can commence soon after the raining ceases, and the soil will work up very easily into a good mellow condition, that is not easily affected by dry weather when it comes.

Tile will pay for itself in most crops in three years, and will frequently do so in a single season. The greatest results can be noticed in hoe crops, and on clay loam or sand loam soils.

The cost of tile draining differs very much with the soil to be dealt with, but in ordinary soil, when the depth of trench would not exceed three feet, tile should be laid at a cost of about \$12.00 per acre, about half of which would be the cost of tile. Tile can be successfully laid on very flat land. I know of fields where the tile drains are 60 rods long, and laid on a water level. But in case of land as flat as this, nothing smaller than four-inch tile should be used; while three-inch tile would be large enough for 60-rod drains if there was 10 or 12 inches fall.

The winter season seems to be the best time to do the work. Help is easily obtained, and there is usually a little water in the soil, which is very necessary when tiling by hand.

In using a tile-laying machine, the early fall is the best time, as the soil is firm and will bear up the machine.

Essex Co., Ont.

J. O. DUKE.

The Round Stave Silo.

Editor "The Farmer's Advocate":

The farmer who thinks of building a silo this season should equip himself with all the information he can get before commencing it. Too many rush up any style or size of a silo without thought, only to find later that they have made a very bad mistake.

About the first thing to decide is what kind of a silo to build, and, in answer to this, I would advocate the round, stave silo, as I consider it has several important advantages over its next competitor, the round, concrete silo; that is, at the present time, anyway.

First, is the consideration of frost penetrating the walls of concrete, and thus causing considerable more loss than has yet been found to take place in the wooden stave wall. This is due to the wood being a very poor conductor of heat. In our district it is quite noticeable that the few concrete silos we have do not protect the contents from the "frost king" nearly so well as the stave silo does. But, even if we do not consider the question of frost, the difference in the cost of the two is so much in favor of the stave silo that it is almost possible to build two for the price of one concrete silo, and some of our oldest stave ones are yet in use, and, to all appearances, are as good as new. Of course, in order to have a long-lived one, we must use good wood, and I do not think that any of us can dispute the lasting qualities of our native tamarack, or even good clean, firm hemlock is not to be passed as uncertain to use in silo-construction.

As regards the preserving qualities, no person can find fault with a properly-built and well-hooped silo, for practically no air can penetrate the walls.

There are several varieties of stave silos, and of these none give better satisfaction than the common tongued and grooved 2-inch plank stave, with iron feathers at ends, or joints of planks. Some years ago, a few had plank walls built round, with plain-edged staves, and, as long as the hoops were tight, all was well, but just as soon as the wood became thoroughly dried, the whole structure became loose, and stood in danger of collapsing with the first wind storm which struck it. A remedy for this was to tighten up every hoop—all the rods would stand—and then paint the outside, thus, to a certain extent, overcoming the swelling and shrinking that accompanies the filling and emptying each year.

Of late years a double tongue and groove has been used, but this, too, has disadvantages, owing to its tendency to hold the dampness between the tongues.

The ordinary tongue-and-groove plank stave presents the happy medium between these two extremes, and, although it does not seem true, it is indeed the cheapest of all to build, as will be explained when I come to the erecting.

Having decided on the kind that is best to build, next it is necessary to determine the size required, and this, too, is of great importance from several standpoints—width, height, etc.

The width should be such as will furnish a good feed for the stock by removing 4 to 6 inches clear across each time it is used. By this method, good juicy, fresh silage is provided at all times for the stock, whereas, if the silo was too large, and only part of the surface was removed part way across for one feed, and the remainder for the next, that surface uncovered by the first removal has become dry, and very apt to be

moulded before it is fed out; thus, poor, unhealthful food is continually supplied. Then, if only a very thin surface is removed all over, that immediately under it has, to some extent, been reached by air, and, upon being further exposed, at once begins to deteriorate. But if a silo is built of a diameter that will furnish a good feed, and allow of removing from 4 to 6 or 7 inches each time, we have arranged to supply our stock with a good, cheap, wholesome food, and can rest assured that the silo will prove an investment of great value.

In order to arrive at a proper size a silo should be, to feed a given number of cattle, for a given time, I wish to submit the following carefully-prepared table.

The following is based on a feeding period of six months, but, if intended to store fodder for a longer period of feeding, these figures will give data on which to base any further calculation:

1. A silo 24 feet high, 12 feet in diameter, will feed 16 grown cattle six months, and will house five acres of good corn.

2. A silo 24 feet high, 14 feet diameter, will feed 18 grown cattle six months, and will house seven acres of corn.

3. A silo 30 feet high, 16 feet diameter, will feed 30 cattle six months, and will house 10 acres of corn.

If possible, do not set any silo in a place where the cold, northerly winds will get a sweep at it, as it is these winds which freeze silage far more than a steady frost.

Huntingdon Co., Que. ALF. A. GILMORE.

[Note.—While fully harmonizing with Mr. Gilmore's advice to build of such a size that a fair layer can be taken off each day, we would like to ask how he could feed six months from a 24-foot silo, and yet remove a depth of six, or even four, inches at a feed? Making allowance for a certain sponginess of the mass, which causes the successive layers to spring up somewhat when the super-imposed layer is removed, we think he will find, nevertheless, a grave discrepancy in calculation. The fact is, if one removes two inches a day with a shovel, in such a way as not to disturb the layer beneath, he can have first-class feed all the way down. The point about the silage not freezing so readily in a wooden as in a concrete silo is admittedly of considerable importance to stockmen in the colder districts of Canada, though, in Western Ontario, serious difficulty from freezing is seldom experienced by those who have concrete silos.—Editor.]

How the Largest Cuts of Hay May be Obtained.

Huntingdon, Que., has been the home for many years of a number of first-class farmers. The canny Scot settled in large numbers, knowing a good proposition when he saw it, even in the rough.

The other day I met a gentleman I will call J. T., who had farmed there some years ago, but, owing to ill-health, the result of overwork, he had drifted into another line of occupation, and was making a success of it, too. Although some twenty-one years had passed since he was personally engaged in farming, Mr. T. has never lost his love for the old farm or farm life. In this he exemplifies the feeling of hundreds of men who, by force of circumstances, have changed their vocation from farm life to some other calling, perhaps less arduous in a way, but certainly less independent.

Our conversation at the hotel table, where we chanced to meet for the first time, drifted along the line of weeds and seed selection, and Mr. T. gave me some of his experience. He is one of those men who couldn't sleep if he knew there was a wild-mustard plant anywhere on the farm, or any other noxious weed, for that matter. He was so impressed with the value of selecting his seed well that he said he used, in threshing with the old open-cylinder machine, to make four gradings of his oats. The largest, plumpest oats which came out at one place he would invariably keep for seed, and, during winter evenings he would pick it over by hand, to be sure it was pure, and the very best. Mr. T. always had good oat crops.

It was, however, along the line of getting a big cut of grass that he excelled. A neighbor used to say to him, "T—y, how is it that you get so much more hay to the acre than we do?" One morning the neighbor was greatly surprised to find a large field of hay, which was getting past its prime, owing to pressure of work, and which he had seen standing when he went in the house for the night, all in the swath next morning, when he got up. The fact was disclosed that Mr. T. had run the mower all night, rather than let that field of good hay get too ripe.

Mr. T. never pastured his meadows which he intended for a good cut of hay. Any aftermath he left as a protection to the crown of the grass plants, and so he always got an early, vigorous growth. This is how he discovered the secret. Mr. Spencer, a farmer from across the line, was

passing through Huntingdon one day, and he was attracted by the fine appearance of Mr. T.'s orchard, which got its annual wash with unleached wood ashes in the spring. As they were chatting about different lines of farming, Mr. Spencer, remarked, "Have you ever noticed how the grass starts up so quickly and more vigorously along a few feet out from the fences? I have often wondered how it was, and why it didn't grow as well in the center of the field." "Yes," said Mr. T., "I have noticed it, and your own observation has, in my opinion, given the clue to the whole situation. You see, the snow-banks along the fences protect the clovers and grasses until late in the spring, and they begin to grow even before all the snow is gone." "That gave me," says Mr. T., "an idea, and I said to myself, I will try to protect the plants in the center of the field by leaving the aftermath, and, instead of using that to pasture my cows, I will grow more corn and supplementary feeds. I did so, and that is how my meadows cut more hay than my neighbors', until they adopted a similar practice."

It is a noteworthy fact that many Middlesex farmers who pasture steers in large numbers never overstock their meadows, so that there is always a good math for the protection of the plants in winter.

T. G. RAYNOR.

Ontario Crop Report, May, 1909.

The following information regarding agricultural conditions in the Province about the middle of May, has been issued by the Ontario Department of Agriculture:

Vegetation.—In the opinion of many correspondents of the Ontario Department of Agriculture, the growing season of 1909 is the latest for at least a score of years, it being placed at from one to two weeks later than the average. The exceedingly wet and cool weather prevailing during April and the early part of May is the cause. Returns were made to the Department as to the conditions about the middle of May, and at that date more favorable weather conditions had given a fresh impulse to growth in both field and forest. Up to that time, only the earliest varieties of trees were coming into leaf, and in most localities pastures were only beginning to permit of live stock being turned upon them.

Fall Wheat.—Reports concerning the prospects of fall wheat vary greatly, even in the same localities, some describing the crop as looking well, though late, while others state that the fields are not only backward in growth, but are thin, and much "spotted." Owing to the dry period prevailing when most of the seeding was done, much of the new fall wheat did not start until the rains of late September came, and the young plants entered the winter with very little top. Winter conditions, however, were not unfavorable to the crop, except where ice formed, and an early spring growth would have brought the fields along nicely; but the cold and very wet weather of April retarded growth, and, on poorly-drained or low land, almost drowned out the crop. Much better growth was made on sandy and gravelly soils than on clays, owing to the excessive moisture. While there are many patchy spots, plowing up of the crop will not be generally resorted to, owing to the grass being seeded with the wheat, but barley or other spring grains will be drilled into the bare spots. The latest reports are the most favorable, showing that the crop is rapidly recuperating with the growing weather. There is less injury than usual reported from insects.

Winter Rye.—The acreage of this crop is comparatively small, it being raised chiefly for pasturing, soiling, or for plowing under. It has done better than fall wheat, and is looking very well.

Clover.—Old meadows poor, new meadows promising, is a fair summary of the returns received regarding this crop. Early reports spoke of considerable heaving, but later returns state that much of the loose sod is returning to place. Clover was injured by the long dry spell covering the latter part of last summer and the early part of the fall, and in many instances it was pastured too closely, owing to the scarcity of fodder. The unusually cold spring, with frequent rains, also hurt the crop, particularly on low or badly-drained land. Like fall wheat, clover looks best on high land and on light soils. While many correspondents predict a good yield of hay, others are looking for a comparatively light cut.

Spring Sowing.—The small portion of the spring crops that were put in early found an excellent seed-bed, but heavy rains immediately followed, and the land got too soft to work on, making further sowing almost an impossibility for weeks except in a few cases, where, to use the expressive language of some correspondents, the seed was "puddled" in. While those on high, light, or well-drained land have made fair headway with their spring seeding, the bulk of farmers were not more than half way through with that work in the second week of May—a most unusual record for Ontario. However, farmers were ready and eager to get on the land with the first appearance of dry weather, and while some cor-