

ROUND CEMENT SILO A COMPLETE SUCCESS.

To the Editor "Farmer's Advocate":

We had a cement silo built in May, 1901, and it has given splendid satisfaction in every respect. It is round, and is eleven feet in diameter, inside measurement, and thirty feet high. The walls are ten inches thick at the bottom, and six inches at the top. The cement used was Beaver brand Portland, twelve parts of gravel to one of cement, and about two loads of good-sized stone built in the wall. There is also a quarter-inch iron rod built in the wall above and below each door, of which there are five. About thirty loads of gravel and twenty barrels of cement were used in building. It took four men and a boy five days and a half to build, and two men one half day to plaster the inside, and cost, when complete, about \$110.

I think a cement silo far ahead of a wooden one, and cheaper in the end. A wood silo may last eight or ten years, but I see no reason why a cement silo properly built should not last a hundred years or more. There is no danger of it being blown down or destroyed by fire. One in this neighborhood filled with corn withstood the heat of the burning barn and came through without a crack, only the doors being burned out. Other doors were put in, and the silage fed with very little waste.

We have had no trouble with wall cracking or ensilage spoiling. It is just as good around the sides as in the center. The only place where any spoilt was about the doors; if they do not fit tight there will be a few forkfuls spoil there.

I may say here that I have found ensilage to be a very good and cheap food when fed with cut straw and a little meal or shorts, and I could not farm any more if I could not have a silo.

As to building, ours was built with two sets of rings made with boiler iron two feet deep and as large around as you wish to build your silo. While one set is filled and drying, the other set can be filled, and so on, until you reach the desired height.

The foundation for the silo was made by digging a trench 2 feet deep, or until we reached a good hard bottom; then fill in with cement and large stones. This wall is 18 inches wide and 2 feet high. The wall received one coat of plaster composed of three parts fine sand to one part cement. It took three barrels cement and one load sand. As far as a roof is concerned, I laid a few planks over to keep snow out; that is all that is necessary. Alex. A. Watt.

Huron Co., Ont.

COST OF A LARGE CEMENT SILO.

I built a cement concrete silo in July, 1901, and I must say that it has given me perfect satisfaction, it being round and 14 ft. inside (clear) by 30 ft. high; walls 16 inches at bottom, tapered from outside to the top, which is 8 inches, and in top course are placed ten bolts $\frac{1}{2}$ in. x 10, set 4 inches up, to which the rafters of roof are bolted, nuts up. The material used in building was cement—28 barrels of "Beaver" brand cement, this doing plastering and flooring complete, for which I paid \$2.90 per barrel off the car; gravel, 42 yards, and 2 loads of sand for plastering. Having the gravel and sand myself, I count it 10 cents per yard; and about 2 yards nice-sized field stone, and \$3 of $\frac{1}{4}$ -inch round iron, to be built in with cement. No. 9 wire would do, but the hardware men had none on hand, and the $\frac{1}{4}$ -inch round iron seemed to be easier to work with. I do not know the value of a wooden silo, but when I was building I thought the first expense would be the only one with cement. I have a complete silo, there being no cracks, and, I think, one of the first principles is to have a good foundation and a good drain, so there will be no water lie around to soften foundation. The silage in places seemed to be a little dry, but this is almost universal with every person the first year on account of the cement drinking in the sap from corn. I think the round silo the best, if a competent man puts them up. The reasons are, you have not so much material lying around when completed in the shape of plank braces, etc., and these, as every person knows, when done building, are almost useless. I will give a correct account of all the items of expense:

28 barrels cement.....	\$ 81 20
42 yards gravel.....	4 20
2 yards sand.....	25
$\frac{1}{4}$ -inch iron.....	3 00
Rent of rings.....	6 00
Contractor, 8 $\frac{1}{2}$ days at \$2.....	17 00
Contractor's man, 8 $\frac{1}{2}$ days at \$1.25.....	10 65
Myself and hired man, \$1.....	17 00
Extra help.....	3 00
Scaffolding.....	5 00
Roof.....	15 00
Total.....	\$162 30

I have not counted in teaming material or digging foundation or board of men, which in all would bring the total cost close to \$175.

Huron Co.

Wm. Lockhart.

CEMENT SILOS REPLACING WOODEN ONES.

I have had a concrete silo for only one season, but thus far it has given good satisfaction. The silo is round, 12 feet in diameter, 30 feet high; wall 12 inches thick at base and 7 inches at top. The silo was built with the intention of making it 5 feet higher, if it was needed, and 5 inches is quite sufficient for thickness at top. It is built with a slight batter on the outside. Thirty good loads of gravel and 23 barrels of Portland cement were used in the wall. Flooring and plastering inside and out required about three barrels more of cement. It cost about \$100, but the cost will vary with situation as regards gravel pits, etc. I have never had a wooden silo, but several farmers in this locality have replaced wooden silos by cement. The cement silos are considered more durable, but as regards the preservation of the ensilage one is about as good as the other, as far as I know. I have had no trouble with the walls cracking, and the only places where the silage dried out and spoiled was immediately around the doors. I consider this to be caused by imperfectly air-tight doors, and think that it could be overcome by perfecting them. I think the best way to build one is by means of curbs on the inside and out. In mine I placed 5-16 iron rods about two feet apart and about two inches from the outside and hooked the ends of each together so as to form a solid band around the silo. I have three openings in mine, but if I were going to build again I would have four.

Perth Co., Ont.

Isaac W. Johns.



MR. R. ROBINSON.

For some 35 years a reader of the "Farmer's Advocate," at Niagara Falls South, Ont.

EXPERIENCE WITH STONE SILO.

As to the best and cheapest kind of silo, it all depends upon what material is most convenient for a person to build with. I would prefer a square silo to a round one, as it is easier built and equally as good. I would also prefer stone or cement. I built mine seven years ago with stone, 12 ft. by 18 ft. inside, 26 ft. deep; 6 inches narrower and shorter at top than bottom, which is most important to keep the pressure off the walls. I plastered it; first coat with mortar, second coat with half water lime and Portland cement. The walls are 18 inches at the bottom and 10 inches thick at the top. There is no need for corner stones, as one can build them round with any kind of stone. The ensilage keeps perfectly good close to the walls built in this way. If the foundation is good, there is no better. Will write again, "Does it pay to build a silo?" Wellington Co., Ont. John Jones.

Double Cement Silo.

Mr. Jas. A. James (Middlesex Co., Ont.) has had in use for some six years a pair of cement concrete silos, 20 ft. x 9 ft. 3 in. each and 22 ft. deep, which have never shown a crack or a flaw. The outside walls are 18 inches thick at bottom and 12 inches at top, the partition wall being slightly heavier, though less would have done. The corners are rounded inside. The concrete was made of Queenston cement, 1 part to 6 parts sharp, coarse sand or gravel.

Growing and Selection of Seed Grain.

[Address given at Fredericton, N. B., by G. H. Clark, Chief of Seed Division, Department of Agriculture, Ottawa.]

The success or failure in the growing of profitable farm crops depends on several influences. When I speak of the importance of good seeds, I do not wish to be understood to say that good seed is the one and only essential to success. A great deal depends on climatic conditions, over which we have no control; perhaps more depends on soil and the cultivation given to it; but much depends on the productive capacity of the seed itself.

PRODUCTIVENESS OF SEED.—Perhaps the first quality to be sought after in securing seed is productiveness. Variations in the yield of our common farm crops are usually ascribed to the productiveness of varieties and to the productive capacity of the soil. That the productiveness of two strains of seed of the same variety may vary quite as much as varieties themselves is not fully recognized.

It is very important that such varieties of farm crops be selected as will fit into our particular conditions of soil and climate. But with the best variety and the best soil much can be done to increase the yield of grain. In a favorable season a soil may be capable of producing sixty bushels per acre of Banner oats, while the seed of that variety used may not be capable of producing a greater yield than fifty bushels per acre. By examining a sample of seed, we can only judge as to its purity and vitality. To be able to judge as to its productiveness we must have some knowledge of its previous history.

HOW VARIETIES ARE BROUGHT OUT.—Each year quite a list of new varieties are introduced. Each year we find in the catalogues of seed firms glowing accounts of new varieties of farm crops. Some of those varieties prove to be of real worth and are adapted to a wide range of conditions of soil and climate, but a very large percentage of them have a short history. The testing of these new varieties is too expensive an undertaking for the average farmer. Much better results would be obtained if our people would turn their attention a little more to improving the old standard varieties which they have found to be well suited to their farms. If they were to put into practice on their own farms some of the simple methods that are used in bringing out new varieties, the results would surprise them.

New and improved varieties are brought out largely by selection. By artificial cross-fertilization the desirable characteristics of two varieties may be combined, but such characteristics can be fixed only by constant and careful selection after cross-fertilization has been accomplished. This method of improving our varieties of farm crops may safely be left in the hands of specialists. It is too complicated a process to be undertaken by the average farmer.

But a great many of our new and improved varieties are brought out by simple methods of selection, by taking old standard varieties which have proved to be valuable, and raising them from a low to a high degree of productiveness.

For instance, at the Minnesota Experiment Station new and productive strains of the Fife wheat are brought out by selecting seed from vigorous plants which possess certain desirable characteristics, and planting a small plot of good land with five hundred seeds. From these five hundred plants ten or more of the most vigorous are selected as mother plants from which to get large, well-developed heads to produce seed for a similar plant for the succeeding year. This system of selection is repeated for a number of years or until the desirable improvement has been made.

Now, in bringing out these new or improved varieties, the chief object is to get pure seed that will produce vigorous plants and give large yields of grain of good quality. These results are obtained by forcing a vigorous growth in the plants and selecting to an ideal type. Those are, to a great extent, the same principles which are applied in the improvement of live stock.

CAUSES FOR DECREASE IN PRODUCTIVENESS.—Now let us consider how this seed, which has been raised from a low to a high state of productiveness, is used when it reaches our average farms. It is sown on impoverished fields, and at the rate of, in many cases, as much as three and one-half bushels per acre. The seed for the next crop will be taken from the grain that is harvested and threshed from that field without any selection except what can be made with a fanning-mill. The seed will be taken from a crop which is grown under conditions quite opposite to those made use of in improving the vigor and productiveness of the seed. By thick seeding we do not allow the plants room to stool. An impoverished soil will not produce vigorous plants. Such weaknesses are transmitted through seed to the succeeding crops.

HOW TO PREVENT SEED FROM RUNNING OUT.—If the farmers of Canada would make a practice of growing their seed grain on special plots of ground—on those portions of their fields