

For More And Better Silos in the Northwest

Prepared by J. G. Haney of the Agricultural Extension Dept. of the International Harvester Co., for The Grand Forks Herald.

For More And Better Silos in the Northwest

Eighth Silo Article

The Pit Silo—The Kind That Don't Blow Down or Freeze Up

By J. G. HANEY, Agr. Ext. Dept., I. H. C.

It is coming to be realized by farmers everywhere that there is no improvement more essential on the farm than the silo. This is because live stock raising must form a part of the activities on every well regulated farm, and the use of a silo has the following advantages as secured:

- 1—More and better livestock can be kept on the farm.
- 2—Saves all the crop silage, and there is no waste in feeding the fodder.
- 3—Insures succulent feed, winter and summer.
- 4—Silo can be filled several times during the year, with corn fodder, thus avoiding all waste in feeding the fodder.
- 5—Silo is a cheap and convenient place to store feed.

While the above ground silo is generally recognized as the desirable form of silo, there nevertheless are many places where the pit silo, or underground silo, is found very acceptable. The pit silo is not new, for it has been in use in Europe for centuries. However, it is only recently that it has been put into use to any extent in the United States. In sections of moderate rainfall, where the water in wells is not nearer the surface than 20 to 30 feet, and the soil is not gravelly, the pit silo is proving very satisfactory, and has the following advantages:

- 1—First, cost of construction. The largest item of cost in the construction of the pit silo is, of course, the labor connected with excavating. If this can be done by the help on the farm at odd times, or by exchanging work with a neighbor, there need not be any cash outlay for this item. For a pit silo 12 feet in diameter and 25 feet deep, the total cost, outside of labor, varies from \$45 to \$75, depending on the cost of sand, gravel and cement. The cost of excavating the dirt would, of course, depend on the wages at which the work was figured. Estimates of this cost by those who have built them varies almost as much as the cost of cement, sand and gravel.

The second advantage is the small expense in filling. As it is not necessary to elevate the silage, a much smaller and less expensive machine is required, and also a great deal less power. The third advantage—the pit silo is easily kept air tight, which is a very essential feature of any silo. The fourth advantage is that even temperature is maintained throughout the year. Being below the ground, the silage will not freeze, nor will it over-heat if kept over the summer. The fifth advantage—the silo will not blow down. Being in the ground, the winds can have no effect on it, which gives it a great advantage, especially over the light wood silo. The sixth advantage—it is simple and easy to construct, and can be made by any farmer with a slack time of the season, without the aid of skilled labor.

Points to be Kept in Mind. There are certain points which must be kept in mind in constructing the pit silo, in order that it may give the best results:

- First—The silo must be located in well drained soil where the water does not come near the surface. The pit silo is better adapted to the semi-arid regions, but may be constructed in the humid sections where conditions are right. It is not advisable to try to construct a pit silo below the permanent water table. However, a common practice is to go down 10 to 20 feet, or until water is struck, and then put the silo 4 to 6 feet above ground. This is a very satisfactory arrangement.

Second—The silo should have a curb extending 2 or 3 feet above the ground for protection on the same distance below the surface.

Third—The walls of the silo should be plastered from three-fourths to one inch thick with good quality of cement and sand, mixed one of cement to three of sand.

Fourth—The walls should be washed with a thin coat of cement to keep them air tight and water tight.

Fifth—The walls should be made perpendicular and smooth, so the silage will settle evenly. The silo should be provided with doors, should be put on the silo, to hold the heat in and also to keep animals and dirt out.

Building of Pit Silo. The building of the pit silo is a very simple task, but it is a point to be considered is to locate it as nearly as possible to where the silage is to be fed. If the feeding is done in the barn, it might be at one side or end of the barn, or even in the barn under a drive-way. This would admit of using a common feed carrier, which could be extended out over the

silo, and the silage raised with the same apparatus that is ordinarily used in handling other feeds. A lean-to shed could be built over the silo to protect it in cold weather.

Laying Out the Curb. The actual beginning of the construction of the pit silo is the use of a 2x4 or 1x4, a little longer than one-half the diameter of the silo, one end of which should be fastened at the exact center of the silo, so it can be revolved about this point. Then out from the center 6 feet, a 30 penny spike can be driven through this board. Eight to ten inches farther out another should be put in, or holes bored and small bolts dropped in, for the purpose of making two marks, 8 to 10 inches apart. After revolving this marker about the center, a trench is dug between these marks, for the curb of concrete which is filled in the trench, the same as for the foundation of any building. This concrete for the curb may be made 1 to 8, if good sand and gravel is available, and should be put in wet.

After this concrete has set the soil is excavated inside the curb, the same as digging a well. When down about 5 feet a reamer can be installed for truing down the walls for plastering. The reamer is made of a 2x4 with a knife on one end, and is revolved about a gas pipe, held perpendicularly in the exact center of the silo. The reamer cuts away the dirt, and gives a uniformly true wall, on which to plaster. A mortar consisting of 1 of cement to 3 of sand is plastered right into the dirt wall. Two good coats of plaster should be applied, as it should be about one inch thick.

After the first section of the silo is dug and plastered, another 5 feet can be excavated and treated in the same way. Erect a Derrick. It is of course necessary to arrange some sort of derrick for hoisting the dirt, and as there is a great deal to be hoisted the arrangement should be such that a horse or engine can be used for this purpose. The figure "4" hoist, out of which is shown, has proved very satisfactory, for this purpose, and is also used later for getting the silage out.

Cement the Bottom. When the silo is completed it is generally advisable to cement the bottom, also this is not absolutely necessary. It is also of great advantage to build a 12 to 14 inch curb around the silo for the purpose of keeping out stock, and also to make it more convenient to arrange a cover with doors.

Build a Curb Above Ground. For building the curb a section of form, 6 to 12 inches wide, is built and set up on the curb. This curb need not be as thick as the foundation in the ground, though perhaps 8 inches would be as thin as it should be built. The inside of the curb above ground should be of course be just even with the inside below ground, so that there would be apparently a continuous wall. When this section of curb is built, the form can be removed and set up at one end, and another section built. Some reinforcement should be used in the curb above ground, as the curb. If a short wooden sill is to be built above ground, bolts should be set in the curb as it is built, so as to bolt the silo to the foundation. The mixture of concrete can be the same as was used in the curb below ground.

The advantage in using a sectional curb is that it requires more than 1-6 or 1-7 of the lumber to build it as it does if the curb is all built at one time. By putting a level 2x4 on the inside of the form at one end, a good strong union can be made with the next section that is built. The walls of the silo should be given a thin coat of cement and water, applied the same as whitewash. This brush coat fills up all pores in the wall, and makes it perfectly air-tight. The brush coat should be applied once a year, just before filling, to keep the walls in good shape.

Getting the Silage Out. With many, getting the silage out of a pit silo is a great "bug-a-boo." However, it can be made as simple as a piece of cake, if the silage is arranged about there is very little difference in the time required for feeding from the pit silo and from one above ground. The difference will require nearly a ton of water to put it in proper shape.

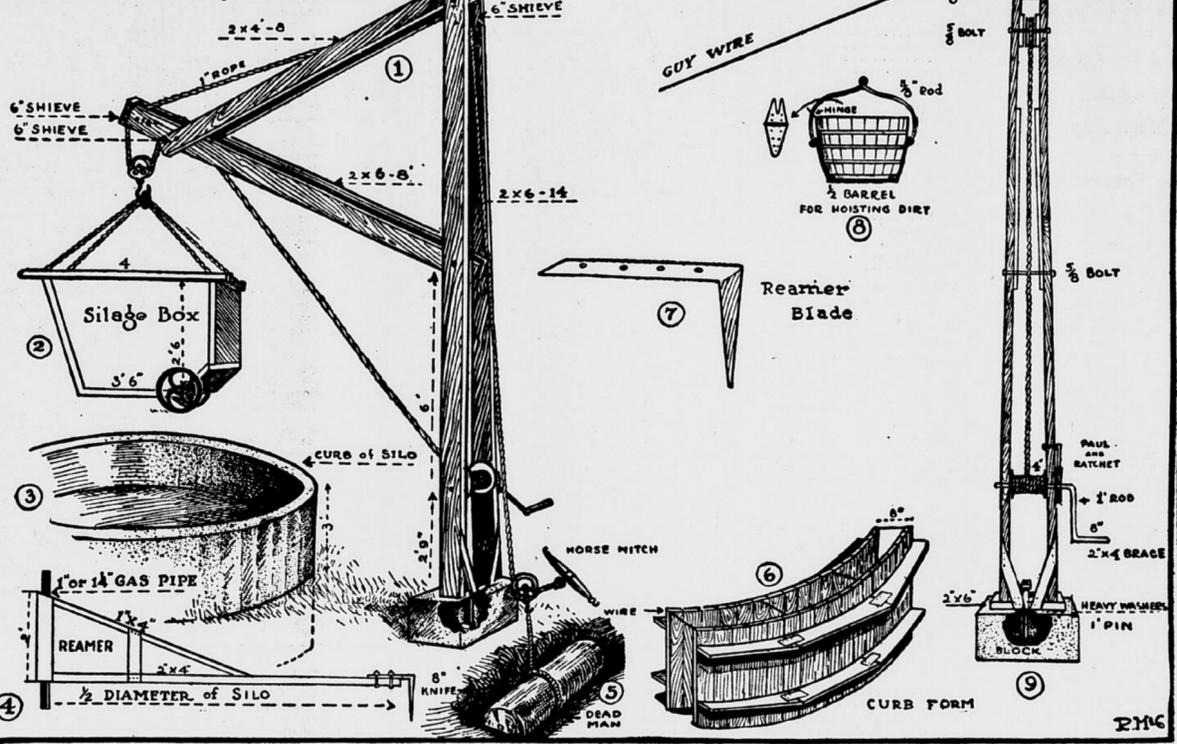
The pit silo is protected from the extreme cold, being under ground, and consequently will heat up in a short time, and give a good silage. After having used these silos for the past two years on the I. H. C. farms, and having filled them a total of eleven times, we are more enthusiastic than ever as to the advantages of this kind of silo, and can heartily recommend them to anyone having conditions suitable for the building of the pit silo.

We have also learned that corn is not the only crop that may be used in a silo. During the past summer a portion of a pit silo was filled with white sweet clover, that made a total yield of 15 tons per acre. This sweet clover was in full bloom when cut, and made excellent silage, and was relished by all kinds of stock, producing unusual gains when fed to fattening cattle. Further west, where corn does not do so well, they have had great success with filling the silos with small grains, and it is probable that they will yield as high a feeding value per acre as does corn in the pit silo.

It can be said that there is no excuse for not having a silo, or for not having a crop to put in it. A farmer who has a few acres of land will afford to build a small pit silo, which could be filled with very little expense of machinery, and which would be of incalculable value to him, especially in years of short crops.

Vance McCormick, the democratic national chairman of newspapers, and it is said he will introduce some of the newspaper methods in order to make the campaign thorough and interesting. We infer that he may accept wood and potato on subscription for the campaign fund.

DERRICK REAMER, SILAGE BOX AND CURB FORM FOR PIT SILO



The above gives full details and dimensions of all the apparatus necessary for the construction and use of the pit silo.

THE MARKET WORLD

FIRM CLEARANCE FOR FAT CATTLE

Recent Gains Retained with Small Run Which Was Estimated at 1,600.

South St. Paul, July 29.—Butcher cattle receipts were very light all around the western market circuit yesterday with only about 7,500 head at nine principal packing centers. Harvest activities and hayings have minimized loading at country points and influence of the break in prices a short time ago is also seen as countrymen have been impressed with the inadvisability of crowding the market during the hot weather period.

Prospects are for a pretty good sized run at the start of next week with more or less western stuff expected to arrive at the various packing centers in addition to seasonal consignments of native kinds. Stock on hand here yesterday was of the latter sort and very ordinary in general merits.

Clearance was firm for all grades represented with advance of 15 to 25 cents over a week ago commonly reported for butcher steers, the stock and bulls except cutter and canner grades which were not quite so much improved.

A assortment of steers was meager and included nothing of choice grade. Several lots of stuff available between \$5.50 and \$7.00 were weighed to packers early and there was more than capable of commanding more money although tippy dry-fed heaves remain eligible to \$2.00 premium or more over those figures. Best lot here was a good sized consignment of Minnesota fed steers of the 1166-pound class which reached \$8.75. Many common lots culled from the feeders and stocker crop were forced directly to the shambles. Cows and heifers were of medium to common grassy variety mostly and sales up to \$7.00 or \$7.25 were exceptional. The \$5.00 to \$5.50 spread took most lots above cutter and canner grade while from a nickel-a-pound down stock resembled kinds moved at corresponding figures a week ago closely.

Bulls which had been boosted 35 cents or more in spots Wednesday and Thursday were not in as keen request yesterday as at the best time but forfeited no appreciable strength. The \$4.75 to \$5.50 rates applied to most. Very calves held steady with top at \$11.25 and heavier classes from \$9.50 down to \$4.50, according to quality. Estimated receipts were 1,000 cattle and 600 calves against 1,071 cattle and 714 calves a week ago and 1,178 cattle and 572 calves a year ago.

IRREGULAR DEAL FOR HOG SUPPLY

Much Business in this Department Looks Steady—Estimate 3,300.

Duluth, July 29.—Reports from the fields were very pronounced in claiming serious damage to growing flaxseed, the torrid weather and hot winds affecting seriously. However, the opening in flax was very strong yesterday in spite of the serious character of crop reports. The advance, the close showed a 5-8c net advance from the night before. A large trade passed.

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There was some pretty good quality stuff among arrivals and bids as high as \$9.60 were placed on some superior lots and actual sale at \$9.55 of good kind put up early as high as that established the preceding day on packer account. It is the right good butcher sorts that are making the best actual and relative showing now and that class generally was rated as about steady yesterday.

Prices on the mixed and common droves were variously reported from a nickel to the dime and trade had uneven aspect as a result. Sales range was reported from \$8.75 to \$9.50 with bulk of the crop between \$9.10 and \$9.25 and indications that average cost would land around \$9.24 against \$9.28 for the week. Several of the better droves cleared at \$9.25 and up. On the other hand inferior packing lots ranged down from \$9 with usual discrimination against old stumpy sows and pigs, the latter still selling around \$8.50.

Overloaded and unclean cars are causing increased losses in transit and shippers are urged to spare no effort to keep as clean and cool as possible while the high temperatures last.

Estimated receipts were 2,800 against 5,087 a week ago and 5,013 a year ago.

MARKET OPINIONS. Chapin & Co. Further sharp advance in wheat, also corn with present weather condition. Bartlett Fraser: Believe in higher price for wheat though effort may be made to force market down. Not enough buying power to sustain corn prices. Clement Curtis: The worst damage reports are coming from region now near harvest in wheat. Harris Winthrop: Present advance in wheat discounts considerable damage but there probably will not be much reaction until weather changes.

Lecount wires from Crookston, Minn.: All fields examined today infected with black rust. Some early marquis will mature without serious damage but 50 per cent of crop late and I believe will suffer severely. Some fields of velvet chaff almost ruined now, very hot and sultry and unfavorable. Northwest Miller reports heavy and progressive damage from blight and rust in North Dakota. Only question is how badly the crop is hurt, very hot today. CARS RECEIVED. Duluth. Today. Year Ago. Wheat 5 7.50 5.50. Flax 5 7.50 5.50. American capitalists are loaning money to the Chinese government for internal improvement. There is nothing like having money to loan.

IRREGULAR DEAL FOR HOG SUPPLY

Much Business in this Department Looks Steady—Estimate 3,300.

South St. Paul, July 29.—Run of hogs at this and other markets was rather light yesterday as less than 50,000 porkers showed up at the nine principal western centers and the local contingent fell considerably short of the arrivals a week ago and a year ago yesterday.

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SHEEP AND LAMB MARKET BOOSTED

Strong to Quarter Higher For Killer Grades—Top Reaches \$10.

South St. Paul, July 29.—For sheep and lambs clearance was generally stronger yesterday than on recent sessions and much of the material of killer grade went to packers at a quarter advance over Thursday's terms. Break of 25 cents which lambs experienced at the start of the week was offset by the up-turn and top was restored to a \$10.00 basis while seconds which have been going at \$8.00 often landed at \$8.25 and some made even better showing.

Ewes were boosted to a \$7.00 top on packers' list but heavy kinds were held pretty close to the \$5.75 limit recently in force. Breeding ewes have been much in demand all week although yard dealers generally have refused to follow the pace set by a limited number of outsiders who have been paying \$8.00 to \$8.75 for high grade young sorts and correspondingly lofty terms for two-year-olds and full mouths.

Feeder grade has been of negligible volume but good use could be made of such material. Nominal quotations on tippy kinds are from \$8.50 to \$9.00. Traders look for western stuff to make an early appearance but outlook does not promise as heavy liquidation of such material this season as in many former years.

Estimated receipts were 400 against 289 a week ago and 173 a year ago.

CANOE TRADE. Broad is the track that the steamer takes. Over the open sea. Wide are the ways of the windy lakes. Dear are the lakes to me. And the sparkling sound is good. Bright is the river, too; But the stream that winds to the heart of the wood Is the trail of the little canoe.

Up through the fields where cattle browse, Up through the farms of awe, Under the arching hemlock houghs, Under the laughing sky, Out through the maze where the muskrat hide, Drawn like a silver clew, Clear to the buttressed mountainside

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Goes the trail of the little canoe. Stand blue flags in stately ranks. Clean where the shallows gleam; Ferns grow thick on the mossy banks. Edging the deeper stream; Tanager flash in the vaulted leaves. Where, faint-shimmering through, A drowsy pattern the sunlight weaves On the trail of the little canoe.

Dip of the paddle, gurgle and splash, Quiet, and bird-note clear, White of the birch, gray of the ash—Balm of the heart is here! Here where the boldest footpaths cease, Here where the best is true, The loveliest road to the shrines of peace Is the trail of the little canoe. —Arthur Guiterman in Life.

The Milwaukee News correctly observes that this country does not want to change the map of Mexico, but may have to change the conduct of some of Mexico's people.

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