Filling The Silo With Corn or Sorghum

J. E. Comfort

Silage is one of the important feeds for Missouri livestock. Corn and sorghum forage may be readily made into silage of excellent quality, and a far greater feeding value is secured when these crops are used in this manner than when they are fed as dry fodder.

Best Time for Cutting

Ordinarily the best time for cutting corn for silage is when about 90 per cent of the kernels have dented and most of the kernels have hardened so that no milk can be squeezed out. The lower leaves on the stalks will then be turning yellow or brown but the stalk will still be full of sap. This will be about a week or ten days before it is ready to be put in the shock. Corn silage is often cut too green, but if the corn is allowed to become too ripe it lacks aroma and it becomes more difficult to pack so as to exclude the air thoroughly. The moisture content of the corn should be about 70 per cent.

The sorghums or sorgos should be cut for silage when the heads are mature and when the seeds are so hard that they cannot be crushed between the thumb and finger. If harvested earlier, a silage with a high acid content is produced. A mixture of corn and sorgo has proven very satisfactory in some parts of Missouri.

If weather conditions such as hail, drouth, or frost, prevent the corn from maturing enough for good silage, it may be cut while still immature and produce a fair grade of silage. Frosted corn dries out very quickly and the leaves shatter badly in handling. Frosted corn should be cut at once, to prevent excessive drying. Water may be added if the immature corn is dry.

Making Silage from Dry Fodder

It is frequently desirable to refill the silo with corn that has been cut and shocked some time previously. It is possible to produce a fairly satisfactory silage from dry corn fodder by adding a large quantity of water. Corn fodder silage lacks the aroma of good corn
silage and is not as palatable as silage made from corn cut at the proper stage. Shock corn requires about an equal weight of water be added if it has been in the shock for as much as a month. The water may be added by running a stream of water into the blower or to the top of the jointed distributor pipe with a hose. Sprinkling the water over the chopped material as it falls into the distributor pipe is the preferable method if good water pressure is available because this will lessen the difficulty of the blower pipe clogging with wet corn. More thorough tramping and packing will be necessary for shock corn silage than for normal silage.

Cutting and Hauling

The crop can be cut by hand with a corn knife, by a one-horse two-row sled cutter or platform cutter, or by a corn binder. Cutting by hand is rather slow work and this method is recommended only when the amount of corn to cut is too small to justify the purchase of a cutter or binder. There are some years when the corn is blown down and badly tangled when the corn binder or platform cutter cannot be used to advantage. In such cases, the corn must be cut by hand.

If the ground is not soft and muddy or the corn is not down and tangled, the corn binder or harvester is the most satisfactory method due to the saving in time and labor, although the cost per acre for cutting alone will be lower when the platform cutter is used. When the corn binder is used, it is sometimes advisable to cut a few acres of the corn down before starting to fill the silo. This is to insure keeping the ensilage cutter supplied with corn if the binder develops trouble. However, the binder should not get so far ahead of the haulers that the corn will lose too much moisture before reaching the cutter. The binder should be set to make small bundles so as to facilitate loading the wagons and feeding the ensilage cutter.

Wagons equipped with ordinary flat racks or hay frames are used most in hauling corn or sorghum to the cutter at the silo. It is best to have the racks mounted on low-wheeled wagons when the loading is done by hand. The number of teams and wagons required to haul the corn to the ensilage cutter will, depend on the distance to be hauled, the size of loads and the size of the ensilage cutter. If few teams are available and the haul is long, the loads should be as large as possible. With plenty of teams and a short haul the loads should be smaller, as it will save the labor in loading and unloading.

Ensilage Cutters and Their Operation

There are a number of satisfactory ensilage cutters on the market. They should be strongly made and the newer cutters will handle all kinds of forage crops. The cutter should be kept in good repair and proper adjusted. Common faults are dull knives, rounded shear plates,
too much clearance between the knives and shear plates, worn fan plates, and improperly adjusted fan-wheel housing. There is much less wear and tear on a cutter when it is operated at a slow speed, and of course its life will be increased considerably. It has been found that a good cutter running no faster than necessary and with knives sharp and properly set will cut and elevate the silage to a height of 35 or 40 feet at the rate of 5 tons per hour with only a 5-horsepower electric motor for power. The smallest farm tractor is much more powerful than a 5-horsepower electric motor, and if a good cutter is operated at the proper speed, the small tractor can cut and elevate silage as fast as desired on a large majority of farms. But most operators recommend at least 7 ½-horsepower electric motor or a tractor with 1 ½ to 2 greater horsepower rating than that of an electric motor.

The cutter should be set in such a position that it will be accessible to the teams and wagons and should be staked down rigidly. The blower pipe should be as nearly perpendicular as possible to reduce the friction of the cut corn or sorghum on the inside of the pipe and thus lessen the danger of clogging. If the blower pipe leans to one side the silage will settle to the low side and allow the blast to go by without carrying the silage up.

Most ensilage cutters may be set to cut the corn into lengths ranging from 1/4 to 1 inch. The longer pieces do not pack closely in the silo but they do increase the rate of cutting and filling. Stock will usually eat the shorter length silage more readily. For average conditions ½ inch length is recommended for corn and sorghum.

It is important that the corn or sorghum be fed steadily to the cutter. If there is enough power available the bundles should be lapped over about half-way. The butts are usually fed in first and a good practice is to lay the bundles on the cutter table "butt to band." By steady feeding, more silage can be cut with less wear and tear on motor and cutter. One man usually feeds the cutter while one or two men unload.

**Distributing and Tramping**

The usual practice is to have at least one man in the silo to distribute and tramp the silage. With a large silo two men may be needed in the silo. A jointed, flexible distributor pipe attached to the hopper on upper elbow of the blower pipe is best for delivering the silage into the silo. The distributor pipe helps in preventing the grain and heavier parts from being blown to one side of the silo and the leaves and lighter parts to the other side. Tramping the silage excludes the air and makes it possible to get more ensilage in the silo. It is advisable to keep the silage high around the walls and low in the center until the silo is nearly full, and then keep it higher in the center. The middle settles more than the sides, and by keeping the center higher
than the sides when filling the upper part of the silo it may tend to prevent the sides from drawing away from the silo at the top.

It is important to seal the doors of the silo thoroughly as the filling progresses, so as to exclude air and prevent spoilage around the doors. Some owners of silos find it advisable to put heavy roofing or building paper behind the doors.

However, the doors of the silo above the level of the silage should be kept open to provide ventilation while filling and to allow the air which carries the silage up the blower pipe to escape.

Look Out for Carbon Dioxide

If a silo is being filled over a period of several days or is being refilled after it has settled a few days, it is well to remember that fermenting silage gives off carbon dioxide which is heavier than air and for this reason tends to displace the air in the silo for a foot or more above the surface of the silage. If there are no doors or openings near the top of the silo to permit the carbon dioxide to flow off it may collect on top of the silage. A person entering the silo may be overcome from lack of oxygen. A good precaution before going into a partly filled silo early in the morning is to run the blower or cutter a few minutes in order that a circulation of air may be started and the carbon dioxide gas be mixed with the air.

Settling and Sealing to Prevent Spoilage

Silage will gradually settle in the silo for a few days after it is filled. The amount of settling depends on the rapidity of filling, the kind of silage and the amount of tramping. It is desirable where the silage settles much, to arrange for refilling in order to have the silo store its full capacity. The refilling may be done two or three days after the first filling. The top few inches may be spoiled and should be thrown off before refilling.

Silage tends to shrink from the walls at the top of the silo. This shrinking admits air and if unchecked will lead to considerable spoilage. This spoilage can be reduced by filling in the open space and tramping around the wall of the silo thoroughly each day for several days after filling or until the silage has about stopped settling. It is a rather common practice to husk the ears off of the last few loads of corn or to chop the heads off of the last loads of sorghum that go into the silo. This chopped material of heavy green stalks packs well and helps exclude the air. Running straw through the cutter and then wetting the straw thoroughly and tramping it makes a good seal. Sometimes a heavy seeding of oats is spread over the wet material. The oats will sprout rapidly because of the heat underneath in the fermenting silage and will form a layer of intermatted roots over the surface of the silage which helps in sealing out the air. At best there will be six or eight inches or one or two tons of spoiled silage on the top which will have to be taken off before using the good silage below.