



# Dairy Newsletter

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## Forage Storage- Akey to a Dairy's Success

Proper forage storage results in lower amounts of forage shrink which is a direct cost saving. Just as importantly, it will keep the dairyman from feeding poorly fermented forage that contains all sorts of compounds that will reduce performance.

Oxygen is the enemy of successful silage preservation. So, pack, pack, pack the forage to exclude air. Fill the silo rapidly and cover immediately (within hours, not days!)

Harvest the forage in a timely manner relative to maturity. For large operations, harvest continuously (there is always a chance for rain). For hay crop silages, chop at a uniform time relative to cutting to minimize variation in forage moisture. Finally, have systems of measure so you can continuously improve.

Filling the pile or bunker by using the progressive wedge helps accomplish many of the above concepts. By using the progressive wedge vs. filling layer by layer one can cover the pile as you go day by day thus never having forage exposed more than 24 hours. One will have fewer square feet to get over with the pack tractors with the wedge method also. All forage should be compressed by the pack tractor at least twice before being covered with plastic. If making a pile, it is easier to work the sides of the pile so you have a higher density on the sides of the pile by using the wedge. Also at feed-out, the forage will slowly change as you go thru the layers of the wedges thus helping with introducing forage changes gradually.

Using two pack tractors per each large self-propelled chopper with lots of weights and fluid allow you to routinely get up to the 20 lb of dry matter per cubic foot. Use one to push up the forage and one just to pack. If making a pile, the second tractor does not need a blade so the operator can easily back down the sides of the pile without the blade getting stuck.

Many things can be done to get the tractors as heavy as possible. Fill the tires full of fluid, bolt center castings from other tractors onto the center castings of the pack tractor, add suitcase weights on the front end and over the back axle, add a cement block to the three-point or on the hitch. There are spreadsheets on the University of Wisconsin Web sight to determine the amount of weights required. Also slightly over-inflate the tires and offset the tires to cover more square feet per pass i.e. (make the front tires wider and the rear tires narrower). Always use duals all the way around for safety reasons and to cover more area per pass.

Procedural issues include items like keeping the tractors on the pile all the time (cement does not need packing), use the push up tractor to bring the feed on to the ramp. Use the second tractor to do the side to side work, always go up the pile then back down and move over one wheel track vs. going around in circles and missing many spots. Do not let the tires spin - the pile is getting too steep if this happens. Try to put the feed in thin layers 6 inches or less. Layer thickness has a profound affect on compacting the forage.

Covering the pile is an art all on its own. Besides covering within hours vs. days, also try using plastics such as the Silo Stop or Integra Plastics (one sheet - 12 mil) to aid in oxygen elimination and reduce spoilage. Small ventilation fans placed under the cover can be used to pull out any remaining air. Lime or pea gravel bags help seal the edges. If using conventional plastic, use tire to tire over the plastic (truck tire side walls work well). Make sure the pile or bunker has a crown so all water will run off and not sit on the plastic.

Feed-out is a critical time also. Keep the oxygen out without disturbing the packed feed. Face grinders can help with this task or feeders with some patience can use the side of a bucket. Remove the entire face for the each day and mix up the forage of the entire face to add consistency.

Last but not least, each farm should create their own system of measurement so they can continuously improve and know how they are doing. Some items of interest are packing densities, pH, VFA's, temperature of the forage at feed out. Computerized feed management systems can aid in determining the amount of shrink etc.

*-Roger Olson, Akey Dairy Specialist*

## Using Drought-Stress Corn

Several areas in the Midwest are under moderate to severe moisture stress. Some corn has not pollinated, some corn is fired, and other corn has not reached the critical stages that will impact corn yield and quality. While corn grain managers have limited options, livestock producers (sheep, beef, and dairy cattle) have alternatives and should be making decisions in the next few weeks to harvest nutrients as forage resources and purchase surplus from grain managers. Several guidelines may be helpful when making these decisions.

Determine ear development and stage of maturity when deciding to cut the corn crop for silage. If the corn plant has green tissue remaining, allow it to grow and mature adding nutrients. Once the crop is down to 30 to 40 percent dry matter, successful ensiling can be achieved (be sure to add an inoculant). If a sample of chopped corn silage is squeezed tightly in a grip and water runs out between fingers, the silage is over 70 percent moisture and too wet. Running a dry matter test using a Koster tester, microwave, or commercial lab will be more accurate.

Yield of corn silage will depend if cob formation has started. Purdue workers suggest one ton of wet corn silage per foot of barren or immature corn plant excluding the tassel.

Nitrate levels can be a concern. The level nitrates in the lower one-third of the corn stalk can contain over 5500 ppm (parts per million nitrate-nitrogen) while top one third of the stalk and leaves contain less than 160 ppm.

The feed value of the corn silage is reduced 80 to 90 percent depending on the amount of corn grain in the drought-stress corn silage. Barren stalks will feed similar to high quality grass silage or hay.

Making corn forage as hay will be difficult as the corn stalk will be wet (over 70 percent moisture) and difficult to dry down. Hay curing also does not reduce nitrate levels while corn silage does reduce nitrate levels due to fermentation by 35 to 50 percent. Testing for nitrates is highly recommended after fermentation has been completed by a commercial lab.

Grain managers may sell drought-stress and barren corn to livestock producers. Based on the quality and tonnage in the field and adjusting for harvesting costs, a price can be calculated. Using a guideline of one ton (wet basis) per linear foot, one acre of corn silage standing at five feet (excluding the tassel) could provide five tons of wet corn silage time 30 percent dries matter or 1.5 tons of forage dry matter. Subtracting harvesting costs (higher than normal corn silage due to lower yields) or \$8 dollars per ton of wet corn silage or \$40 an acre. If the corn forage is worth \$80 a ton of dry matter, the value per acre could be \$120 per acre minus harvest costs of \$40. Adjust values based on individual situations. The recommended approach to weigh actual chopper boxes of silage and test the silage for quality to determine a price per ton and per acre.

Some grain producers may consider plowing down the corn stalks for fertility. The nutrients in the corn stalks are estimated to worth \$25 per acres (50 pounds of nitrogen, 12 pounds of phosphorous (as P<sub>2</sub>O<sub>5</sub>), and 60 pounds (as K<sub>2</sub>O). Drought-stress corn silage is an alternative for livestock producers. Be sure to balance rations for lower levels of starch and reduced dry matter intake potential.

*-Mike Hutjens and Dave Fischer, Univ. Illinois*

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