

## ***Silage Face Management***

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The goal of silage face management is to minimize silage exposure to oxygen. In the presence of oxygen, yeast can metabolize lactic acid, a strong acid that keeps the silage pH low. When pH increases, undesirable fungi and bacteria are able to grow and further spoil the silage. This spoilage is translated into dry matter (DM) losses that can be as high as 10% when face management is marginal. This article discusses the importance of good face management practices to minimize DM losses and describes current silage management practices in California dairies based on a UCCE survey (Silva-del-Rio et al., 2010).

**Maintain a smooth surface:** The feedout face should be a smooth surface (with no cracks) and perpendicular to the floor. The advantages of a smooth and perpendicular face are reductions of:

- The surface area exposed to oxygen by up to 9%.
- The risk for avalanches.
- The water caught during the rainy season.

**Dairy 1:** In this dairy, silage face management is poor. The front loader lifts the silage from the bottom of the pile to the top, allowing oxygen to enter the face.



**Dairy 2:** This silage face is smooth and perpendicular to the floor. The face is carefully shaved across the width (from left to right as shown in the picture below).



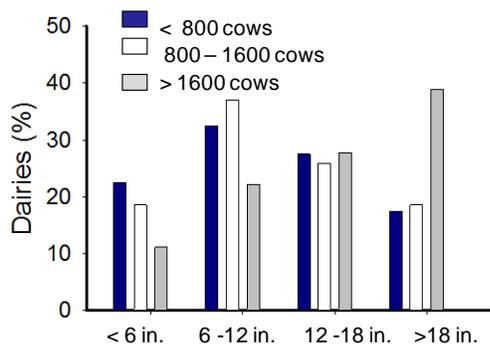
**Dairy 3:** This dairy uses a face shaver. It is estimated that face shavers can reduce DM losses by 3% compared to front-end loaders. However, more research needs to be conducted.



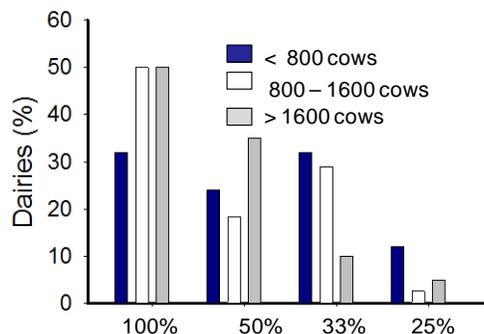
Based on results from the UCCE corn silage management practices survey, most dairy producers considered that their silage faces were maintained smooth. However, only five of 109 producers used a face shaver.

**Maintain a rapid progression through the silage face.** The rule of thumb is to remove between 6-12 inches per day during the cold season and 18 inches per day during the warm season. Muck and Huhnke (1995) found that in well packet silages (density = 14 -15 lb DM/ft<sup>3</sup>) air moves 3ft into the silage pile. Therefore, with a removal rate of 6 inches per day the silage will be exposed to oxygen for a week before feeding.

A desirable removal rate can only be achieved if the silage pile is sized according to the herd needs. If the pile's face is oversized, it is recommended to work on removing small sections of the silage face at a time. Silage removal rate and width of the face removed in California dairies is represented in **Figure 1 and 2** respectively.



**Figure 1.** Depth of the corn silage face removed per day by herd size (Silva-del-Rio et al., 2010).



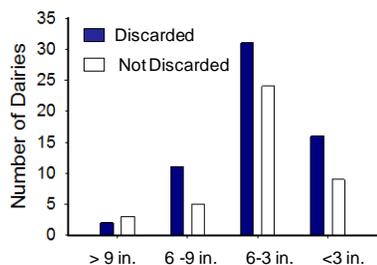
**Figure 2.** Width of the corn silage face removed per day by herd size (Silva-del-Rio et al., 2010).

**Minimize the time loose silage is sitting in the commodity area before it is added to the ration.** Silage sitting in the commodity area, exposed to sun and oxygen, heats and undergoes secondary fermentation. In some dairies, the silage may need to be removed several times a day in order to avoid this. There should be little to no silage left at the base of the face after feeding is done for the day (**Figure 9**). Silage should not be removed prior to the time of feeding. This practice may save a small amount of time, but is detrimental to silage quality



**Figure 3.** Loose silage sitting at the face exposed to oxygen and air.

**Remove the cover as needed, discard spoiled feed and keep air out of the edges and seams.** No more than three days of cover should be removed at one time. This will prevent a prolonged silage exposure to oxygen and weather elements. Spoiled and moldy feed should be discarded as it decreases intake, digestibility and destroys the rumen forage mat. A total of 60% of dairy producers reported that they discarded spoil forage (**Figure 4**). The face should be kept tight to prevent air infiltration. Silage should be sealed on the edges with sand, gravel bags or other materials (**Figure 5**).



**Figure 4.** Dairies discarding spoiled forage from the Silage Surface (Silva-del-Río et al., 2010).



Photo courtesy of Dr. Limin Kung Jr.

**Figure 5.** Gravel bags on the front and sides of the silage face help to prevent air infiltration into the silage mass.