

Quality silage is more valuable than ever

Lance Whitlock for *Progressive Dairyman*

Most feed prices are nearly double historical prices. There is a lot of debate about whether feed prices will ever go back down to historical prices, or how much the prices must go back down and when. Those are speculations about factors largely out of our control. We have the ability to forward contract or use call options to control our exposure to feed price risk and must continue to educate ourselves about those strategies and use the strategies when appropriate.

But we have a tremendous opportunity to save money (lower feed cost) by making higher-quality silage. The management of our silage operations can determine whether we make a profit or not in tight years. This article will demonstrate the

financial impact of improving silage quality, and then I will give you three key steps to improving your profitability by improving your silage quality.

Forage is the foundation of a dairy cow's diet. The amount of energy and protein a cow consumes through her forage determines how much energy and protein must be supplemented by concentrates. As the quality of forage increases, both energy and protein in the forage increase. As we feed higher-quality forages, we decrease the amount of energy and protein we must supply or purchase through concentrates. We are able to save money on purchased commodities when we buy, produce and/or ultimately feed



The goal of silage making is to preserve a feed that is not available throughout the entire year and retain as much of the original quality and quantity as possible. Photo by PD staff.

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Dry matter loss, by definition, is not visible. The evidence of dry matter loss can only be seen when you have a surface you can use to compare the size of a silage mass at harvest with variable time points post-ensiling. This is possible in upright tower silos and may be possible in bunker silos if the silage is not filled above the top of the wall. However, it is not possible to visually see two or three feet of silage missing in a pile that is 20, 25 or more feet high. To get true dry matter loss numbers, every load of forage must be weighed and the dry matter checked when it is put into the pile, and again, when it is removed from the pile, which is not practical on most commercial dairies. Research has clearly identified the main drivers of dry matter loss. We now can estimate dry matter losses in silage piles with good accuracy.

Even though it seems unlikely, a great proportion of silage piles in the western United States have dry matter losses above 15 percent, and too many even have dry matter losses greater than 25 percent.

Table 1 shows the economic impact dry matter loss has in terms of tons of silage lost, dollar value of silage lost, acres of harvested silage crop lost and actual price of silage after accounting for shrink or losses. The table shows that decreasing shrink from 20 percent to 15 percent in 10,000 tons of harvested corn silage valued at \$50 would save \$22,500, or 17 acres of forage assuming 30 tons per acre of forage (20 acres of forage if yield is 25 tons per acre). Additionally, decreasing shrink from 20 percent to 15 percent would decrease the actual as-fed price of corn silage from \$62.50 to \$58.82 per ton.

In a diet feeding 40 pounds of corn silage per cow per day, that would mean a ration cost savings of more than seven cents per cow per day. These economic calculations are only showing the value of saving the

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Table 1

Shrink	Silage lost (tons)	Silage lost (\$)	Silage value remaining	Acres lost 30 ton/acre	Acres lost 25 ton/acre	Silage cost when fed (\$)
0% (original)	0	\$0.00	\$500,000	0	0	\$50.00
5%	500	\$22,500	\$477,500	17	20	\$52.63
10%	1,000	\$45,000	\$455,000	33	40	\$55.56
15%	1,500	\$67,500	\$432,500	50	60	\$58.82
20%	2,000	\$90,000	\$410,000	67	80	\$62.50
25%	2,500	\$112,500	\$387,500	83	100	\$66.67
30%	3,000	\$135,000	\$365,000	100	120	\$71.43
35%	3,500	\$157,500	\$342,500	117	140	\$76.92

Tons of silage lost, cost of silage lost, value of silage remaining, acres of silage lost and final silage cost at 0, 5, 10, 15, 20, 25, 30, and 35% shrink loss assuming 10,000 tons of corn silage valued at \$50 in the silo was harvested.

quantity of silage that was lost and assumes no loss in quality.

Dry matter loss in silage starts with the loss of the most soluble and highest-quality nutrients. Dry matter loss means nutrients such as sugars, starches and soluble proteins are lost. Cellulose, lignin and ash are lost only minimally. Furthermore, dry matter loss will increase the concentration of lower-value nutrients such as fiber and protein bound to fiber while decreasing the concentration of higher-value nutrients.

Dry matter loss means less feed is available to feed. This lost feed must be replaced with other feed. Often this other feed is purchased. If the replacement feed is grown by the dairy, it represents extra cost that wasn't necessary had there been less dry matter loss. It also may mean the opportunity to sell feed that was lost. Additionally, because the higher-value nutrients were lost, we have to replace them if we want to continue providing the plane of nutrition the cows need to perform at optimal levels. Yet these higher-quality nutrients are more expensive to

replace, which will in turn increase your cost.

There are several sources of

dry matter loss in silage. The most

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Lance Whitlock

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