

# Shrink-anomics! What are shrink losses costing your operation?

Keith Bolsen for *Progressive Dairyman*

## Three dairy producers share silage management practices

Over the next several months, three dairy producers from across the country will be sharing silage management strategies they use and steps they take to mitigate shrink loss.

Ronnie Walker of Walker & Sons Farm Inc. puts up more than 23,000 tons of silage each year. They double-crop approximately 1,200 acres in northern Florida. Silage is stored in pits and bags.

Bob Sprunger of Raygor Farms in northeastern Ohio puts up 2,500 tons of corn silage each year. Silage is stored in bunkers and haylage is stored in upright silos. Sprunger is in partnership with his son, Scott, and his son-in-law, Mark Ostarchvic.

Peter Van Warmerdam of Van Warmerdam Dairy farms 1,000 acres in central California and puts up more than 12,000 tons of corn silage each year. Silage is stored in bunkers and drive-over piles. Van Warmerdam farms with his brothers, Leo and Danny.

Watch for the July 1st issue to learn how these three operations prepare for harvest.

The amount of money lost each year as a result of "shrink" is too high, and it happens in way too many silage programs. It's estimated that between 16 and 20 percent of the corn silage put up in the U.S. this past year will be lost. That's \$1.1 to \$1.3 billion in feed inventory out the window.

If the U.S. could achieve a single-digit shrink, we would be looking at about a \$600 million loss in corn silage. While that's still substantial, it would cut the value of the loss in half and return millions of dollars to the industry.

In a time when feed prices and input costs are at all-time highs and likely only to go higher, these losses need to stop. The good news is that it is possible, with proper planning, attention to detail and a well-prepared silage team, to achieve a shrink loss in the single digits.

Almost all of the livestock operations I've been on the past 10 years could make improvements, which would not only allow them to feed a higher percent of their silage inventory but also improve the quality of their corn silage. Both will result in more money at the end of the day.

Let's take a look at ways to reduce shrink and how each one can add to your bottom line.

## Communication and preparation

The first thing dairy producers should do to minimize losses to shrink is to host a team meeting. This is a step that has little to no cost but will have a significant economic impact on the silage program. Parties to include in the meeting are the nutritionist, the crop grower, the silage harvesting and covering contractors and their key employees, and employees of the dairy who are involved with the corn silage.

Here are just a few items to be discuss and agreed upon: acres and tons to be harvested, size and shape of drive-over piles, kernel maturity and dry matter (DM) targets, chop length, kernel processing, tons per hour delivered to the bunker or pile, silage density goal and number of pack tractors required, the inoculant and its application, sampling protocol of the chopped forage and the covering schedule.

## Inoculate at the forage chopper

Inoculants should be applied to every load of forage ensiled. Research backs this practice, and inoculants alone can reduce shrink loss in corn silage by 2 to 4 percentage points.

What are the economics of using an inoculant? To evaluate the economics, let's consider a herd with an average production of 80 pounds per cow per day, a ration DM intake of 53 pounds (corn silage DM intake of 16 pounds), \$16 per hundredweight milk price and \$60 per ton of silage. Reducing shrink by 1.5 percentage

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points with an inoculant increases net income per cow per day by 10 to 12 cents. Reducing shrink by 3 percentage points increases net income per cow per day by 20 to 22 cents.

Kansas State University's silage program has a tool available which looks at the economics of inoculating corn silage for dairy cows and replacement heifers.

### Reach an optimum silage density

Silage density and shrink loss are inversely related, so as packing density increases, shrink loss decreases. The goal should be to have a silage density of 15 to 16 pounds of DM and 44 to 48 pounds of fresh weight per cubic foot. If producers increase density by 2 or 3 pounds of DM per cubic foot, that will translate to a reduction in shrink loss of about 3 to 5 percentage points.

Recently, I worked with a herd that was feeding corn silage from a 3,500-ton capacity drive-over pile that had a density of only 11.4 pounds of DM per cubic foot. Ration DM intake was down by 4 to 6 pounds and milk production per cow per day was down significantly from the previous year. The silage was aerobically unstable at feedout and there was a lot of visible surface spoilage. The dairy added

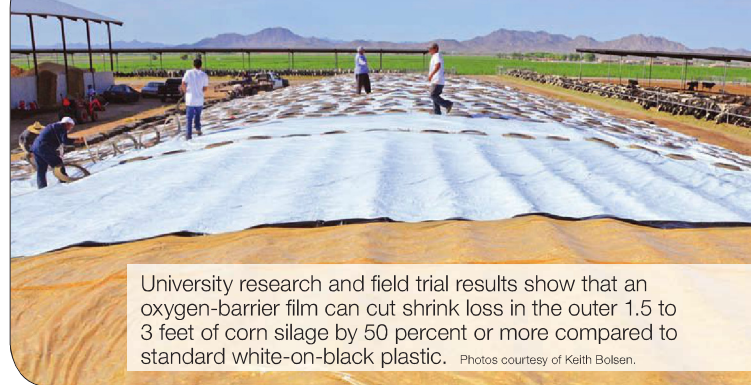
another pack tractor and increased the whole-plant DM content at harvest from 32 to 34 percent. These changes increased the density to 16.4 pounds of DM per cubic foot and reduced the shrink loss from an estimated 20 percentage points to 14 percentage points. This saved 210 tons of corn silage with a total value of \$12,600. The cost of adding the second pack tractor was \$5,250 (\$1.50 per ton), so the dairy had a net savings of \$7,350 of corn silage.

Two of the best practices for achieving higher densities are to increase the number of pack tractors and spread the forage in uniform layers that are 6 inches thick or less. Remember, if forage is delivered too quickly or not enough pack tractors are available, it can be difficult to achieve a uniform layer of 6 inches or less and to pack each individual layer before another layer of forage is added.

The University of Wisconsin-Extension has a tool available that can help predict packing density and the number of tractors needed to achieve the density. This tool can be found here: <http://bit.ly/zCFRj0>

### Apply the best cover and seal

Poorly sealed bunker silos and drive-over piles continue to be a huge



University research and field trial results show that an oxygen-barrier film can cut shrink loss in the outer 1.5 to 3 feet of corn silage by 50 percent or more compared to standard white-on-black plastic. Photos courtesy of Keith Bolsen.

problem. More than \$250 million of last year's corn silage will be lost as a result of poor covering alone.

The use of oxygen-barrier film can reduce total shrink loss in bunkers and piles by 2 to 5 percentage points. The key is to select a product that is truly an "oxygen-barrier" film. University research and field trial results show that an oxygen-barrier film can cut shrink loss in the outer 1.5 to 3 feet of corn silage by 50 percent or more compared to standard white-on-black plastic.

In a bunker silo of corn silage with a 4,250- to 4,500-ton capacity, which is 60 feet wide x 250 feet long, with a depth of 12 feet and above-average density, sealing with oxygen-barrier film would produce a net savings of \$4,000 to \$8,000 more silage compared to standard white-on-black 5-mil plastic.

In the case of a drive-over pile of corn silage with a 4,250-ton to 4,500-

ton capacity, which is 80 feet wide at the base x 400 feet long, with an apex height of 12 feet and above-average density, sealing with oxygen-barrier film would produce a net savings of \$7,000 to \$14,000 more silage compared to standard white-on-black 5-mil plastic.

The economic benefit of sealing with oxygen-barrier film has been well documented. But if we also consider the financial impact of feeding surface-spoiled corn silage to dairy cows and replacement heifers, there are even bigger savings to be gained.

Focusing on these four areas of their silage program will help dairymen achieve a single-digit shrink and reduce the cost of feeding a ton of corn silage. **PD**

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