

The Dollars and Sense in Silage Bagging

Improved feed management involves a lot more than how to store it. Expanding your thinking can save tens of thousands of dollars each year while enhancing nutrition, herd health, and milk production.



For farmers with livestock such as dairy cows and beef cattle, feed costs are the largest expense, typically making up 50% or more of the total operating costs. Bagging silage has proven to be an efficient way to reduce feed waste. But, when we further examined how bagging can impact the entire feed management and handling process, even greater savings were discovered. While all operations are different, these discoveries may open your eyes about how much you can save on your own farm.

Let's start with the equipment. New innovations can produce higher-quality feed at a lower cost.

This is particularly true for silage, a preserved forage made from energy-rich crops such as corn, alfalfa, sorghum, or grass that undergo fermentation under anaerobic conditions. While silage has traditionally been stored in silos, bunkers, piles, or pits, more farmers with livestock, for example, are shifting to bagged silage to maintain optimal fermentation and ensure long-term feed quality.

This transition requires investing in bagging equipment, which initially can be more expensive than building a concrete pad or pit. As a result, these producers evaluated both the initial purchase price and the expected



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reductions in feed loss.

But this evaluation is limited given the broader financial advantages, which include better nutrition preservation, reduced health risks, improved breed-back times, increased storage flexibility, lower labor requirements, and potential revenue opportunities.

This is where the conversation shifts from simply justifying an equipment purchase to understanding its long-term financial impact. By recognizing the ripple effect across your entire operation and how the financial benefits align, the decision to bag silage easily justifies the investment.

Reducing Silage Loss Up to 30% Saves Dairy Farms \$4,500-\$45,000/Year

Overall, a typical U.S. farm with 100 dairy cows and beef cattle might use between 1,500 and 2,500 tons of silage annually. Larger farms (1,000+ dairy cows/beef cattle) can require 15,000 to 25,000 tons per year.

As stated at the beginning, one of the main disadvantages of storing silage using traditional methods like piles, pits, and bunkers is the considerable risk of spoilage and loss, which can amount to as much as 30%. This combined loss is often referred to as “shrink”.

“The problem with conventional silage storage methods is excessive exposure to

oxygen, which leads to rapid silage deterioration. Standard practice is to leave the face of the pile, pit or bunker open for feeding. This leaves hundreds of square feet exposed and deteriorating before it can be fed,” says Steve Cullen, President of Astoria, OR-based Versa Corporation, a global leader in agricultural silage bagging and handling.

A key advantage of properly bagged silage is the smaller feedout face, which reduces daily exposure to air, thereby minimizing spoilage. This design ensures that silage is consumed more quickly, preserving its freshness and maintaining its nutritional value.

Harvesting is a time-driven process. As farmers rush to protect their valuable crop, tractor packing time is often cut short, leaving oxygen still in the pile. With silage bagging, the oxygen is removed almost instantly, and fermentation begins promptly.

Even at a conservative 15%, the savings derived from reducing shrink are substantial.

Let’s take a simple example:

- If a producer’s feed is worth \$72 per ton at harvest,
- And they are putting up 10,000 tons of feed,
- A 15% reduction in loss means they are saving 1,500 tons of feed.
- At \$72 per ton, that translates to a savings of \$108,000.

Whether a farmer must harvest additional feed each year or purchase more to offset losses, annual feed loss accrues year after year to reduce long-term profitability.

More Retained Nutrients = Less Feed Needed

The higher-quality silage produced in bags further reduces feed costs by providing greater nutrient density. Limiting oxygen exposure reduces the risk of yeast and mold growth. These contaminants consume essential



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carbohydrates and proteins, leading to nutrient losses, lower digestibility, and potential mycotoxin production that can harm livestock health.

“The feed is more nutritious because we are not losing nutrients to those spoilage microorganisms, and we are not introducing contaminants into an animal that we are asking to grow rapidly and efficiently or make large volumes of milk,” explains Dr. Keith A. Bryan, who holds a PhD in Animal Science and is Technical Service Manager Silage and Dairy, North

America, for global biosolutions company Novonesis.

“Animals eat to meet their energy and nutrient needs. So, if [the silage] is suboptimal and retains only 90% of its full nutrient density during the ensiling process, then we have to feed it 110% [of the silage] to get the same total nutrients into the animal,” adds Dr. Bryan.

A correctly managed silage bag also produces higher levels of lactic acid, which enhances digestibility and translates to better nutrient absorption. Lactic acid plays a key role in improving feed efficiency, and studies suggest that it is almost directly absorbed into the animal’s bloodstream along with essential nutrients.

Longer Feed Life

Dairy cows and beef cattle naturally choose the highest-quality feed available, just as they would do in a pasture. Keeping feed fresh in the bunk is essential for reducing waste and improving efficiency.

In long bunks, uneaten feed sits, molds, and requires frequent cleaning, leading to unnecessary waste. Bagged feed stays fresh and consistent much longer, making it more appealing and reducing discarded feed. This extended feed life translates to cost savings since more of the feed is consumed rather than thrown away.

Improved Herd Health

Properly stored and well-preserved silage maintains higher nutrient density, particularly in terms of energy, protein, and digestibility, all of which contribute to better overall cow health and fertility.

Although assigning a dollar value to a healthier herd is more challenging than calculating feed savings, producers who have transitioned to bagging frequently report noticeable reductions in veterinary expenses and treatment costs.

“Bagged silage can have a huge impact on profitability, herd health, and milk production,” says Bonni Kowalke, fermentation researcher, practitioner and owner of Stem Ag Consulting, LLC., a firm that specializes in monitoring and optimizing dairy farm inputs and outputs at all forage production stages.

Improved Breed-Back, Conception, Reproduction

High-quality silage can also play a significant role in improving reproductive efficiency in dairy and beef cattle herds.

In a dairy operation, breed-back intervals are critical to maintaining consistent milk production and profitability. Ideally, cows should be pregnant again within 60 days after going dry so they can return to lactation on

schedule. Modern herd management software tracks these intervals, and many dairies report an average breed-back of approximately 85 days. While they aim to shorten this timeframe, challenges like poor nutrition or herd health issues can extend it as much as 90 to 120 days, which is a major financial loss.

To put this into financial terms, for a cow producing 35 pounds of milk per day, a breed-back delay of 30 days results in 1,050 pounds of lost milk. Converting this to hundredweight (cwt), the total is 10.5 cwt (1,050 lbs. ÷ 100). At a milk price of \$18 per cwt, the financial loss amounts to \$189 per cow (10.5 cwt × \$18).

For a 1,000-cow dairy, a one-month delay in breed-back could result in \$189,000 in lost revenue.

Research suggests bagged feed also improves overall conception rates. In a June 21, 2019, article in *Farmer's Weekly*, a South African farmer stated that after switching to bagging, not only did his cows breed back faster, but his overall birth success rates improved. This means that in addition to cows getting pregnant sooner, a higher percentage of pregnancies resulted in successful births, further increasing herd productivity and profitability.

One of the leading causes of reproductive loss in cattle is exposure to mold and toxins found in spoiled feed. Properly bagged silage significantly reduces the risk of mold development, thereby lowering the likelihood of mycotoxin contamination. While the percentage of feed losses may not seem overwhelming, the financial impact of losing thousands per cow due to poor feed quality is a risk no producer can afford to overlook.

Improved Feed Management Brings Additional Savings

Bagging becomes a valuable tool for cost-effective farm management. The increased flexibility and versatility reduces labor, enhances safety, eliminates the need for

additional equipment, and allows for the storage of a broader range of high-value feed options.

One of the primary benefits of using a bagging machine is the ability to store and manage small quantities of different feed types such as alfalfa, corn, grass-legume mix, sorghums, or oats.

If needed, farmers can even designate sections within a single bag for different crops, such as marking one portion for wheat and another for corn. This method allows for greater versatility in feed storage without the inconvenience of physically separating crops in a silo, where it would be challenging to determine where one type starts and another ends.

Placing various crops and cuttings into bags offers dairy farmers the flexibility to create silage and mixed rations tailored to their specific needs and even the cow's stage of development.

As an international dairy consultant, Steve Massie, Head of Nutrition at Renaissance Nutrition Inc. says he takes forage samples, matches those with the farm's goals and current production levels, and creates a tailored grain mix for the farms.

"We sample all the silage in the bags so we can feed the best forage to the cows year-round and potentially help make the dairy the most money," says Massie.

A major advantage is that bagging feed is much more forgiving when it comes to moisture content. Sealed bags preserve silage quality and sustain optimal fermentation conditions even amid unfavorable circumstances such as exposure to rain, moisture, excessive dryness, or prolonged storage.

Bagging provides the flexibility to start and stop as needed, especially in unpredictable weather. Unlike traditional methods that risk missing peak nutritional value due to delays, bagging allows farmers to pause and resume without sacrificing feed quality.

Feed moisture levels can vary, affecting the daily rations. By blending feed from multiple bags, producers can minimize these fluctuations, ensuring a more consistent nutrient supply.

Bagging also is an effective storage method for high moisture corn silage, particularly for snaplage/earlage and other head-chopped concentrate feeds. Snaplage/earlage consists of the entire ear—cob, kernels, husk, and part of the shank—harvested and ensiled at an optimal moisture range of 32–40%.

Rather than relying on expensive dried grain, producers can bag head chops from barley, wheat, or ear-leaf snaplage as a near pound-for-pound replacement, reducing feed costs and maximizing on-farm resources. These high-energy concentrates rival dry grain in nutrition, making them an efficient alternative for dairy cows, particularly those in peak lactation, which require up to 70% of their energy intake for milk production. Beef cattle, of course, require similar nutritional concentration for optimal growth.

Expanded Storage Options Go Beyond Silage

Expanding bagging beyond silage improves efficiency, reduces costs, and can even create revenue streams from materials that would otherwise go to waste.

For instance, when an upright silo reaches full capacity, any additional grain must be stored elsewhere. In many cases, excess corn is simply piled outside, exposed to the elements, which can lead to spoilage and a decline in quality.

Rather than selling immediately when supply is high and prices are low, farmers can store their surplus in bags and wait for demand to rise, maximizing their returns. This storage flexibility offers a financial advantage by reducing the impact of oversupply on market prices.

Many farmers dairies and beef cattle already bag corn and hay but may not realize

they can do the same for byproducts like beet pulp, tomato pulp and spent grain (ethanol and brewing byproducts). These byproducts offer cost-effective feed options, often available at little to no cost, but spoil quickly without proper storage.

Regardless of the material stored, bagging can preserve the contents for up to three years with proper management, reducing waste and ensuring a stable feed supply.

Bagging Versus Fixed Structures

Many producers start with traditional storage methods—bunkers, pits, piles, concrete pads, or silos. While a fixed physical structure might seem like a slightly lower-cost investment upfront, the long-term costs are significantly higher.

“Unless you fully understand the typical feed loss associated with bunkers—chasing the face, spoilage, and the ongoing management challenges—those hidden costs get overlooked in the decision-making process,” says Versa’s Cullen.

A bunker may cost hundreds of thousands to build, plus long-term costs go beyond the initial expense. With 15% annual feed waste, costs compound over time. Property taxes on permanent structures like bunkers further increase costs. These factors should be considered in financial evaluations.

As dairy or cattle operations grow, fixed structures limit capacity and flexibility. When silos and bunkers fill, producers must stack feed higher, creating safety risks and inefficiencies, or store it in scattered piles, leading to additional spoilage. Overfilled silos increase waste and complicate feedout. In bumper crop years, spoilage increases as rapid packing reduces compaction, weakens fermentation, and leads to greater losses.

Bagging provides flexibility unmatched by fixed structures, with no permanent footprint, improved feed preservation, and scalable storage. Farmers can store precise quantities in optimal

locations, making it particularly valuable during bumper crops or when buying surplus feed at lower costs.

As operations expand, farmers can sell or exchange bagging machines for larger units, allowing them to adapt efficiently while optimizing investments.

Bagging Silage Can Eliminate Baling

Many dairy and beef cattle producers believe they must invest in both a baler and a silage bagger, but switching to bagged grass or alfalfa silage can eliminate the need for baling altogether. This method preserves dry matter, digestibility, and essential nutrients, offering a more efficient alternative.

Removing the need for ideal drying conditions, bagging allows for more frequent harvests and a higher yield per cutting. Traditional baling often leads to substantial dry matter loss as plant material respire during the drying process. Based on these factors, bagging offers at least 40% more value per acre compared to baling.

Baling is also tough, labor-intensive work, often with extended labor hours waiting for moisture to be correct or optimal baling conditions. Bagging reduces the need for heavy lifting, stacking, and hauling, cutting down on labor hours and the risk of injury. It also streamlines storage, allowing more forage to be processed in less time with fewer workers.

Bagging also eliminates the fire risk created with baling. When baled above 20% moisture, microbial activity generates heat, which can build up in dense, poorly ventilated

stacks and ignite.

Creative Financing, Revenue Opportunities

The portability of bagging equipment allows relocation to different sites, optimizing usage and allowing cost-sharing or reduced investment expenses.

Shared ownership among neighboring farms helps lower the financial burden by splitting acquisition and maintenance expenses. By leveraging its mobility, farmers can also use the bagger for local contract work, offering silage bagging services to other operations. This can serve as an additional income stream or a way to reduce overall harvesting costs.

When you add it all up, silage bagging presents a compelling financial advantage for dairy and beef cattle operations, saving 30 -50% while transforming feed management into a more efficient, cost-effective, and profitable practice.

Farmers can save tens of thousands of dollars annually while maintaining higher nutrient retention, extending feed life, and improving herd health. The ability to better control feed quality and minimize spoilage not only enhances overall milk production but also leads to improved reproductive efficiency, reduced veterinary costs, and lower labor expenses. Additional uses for bagging saves money and adds new revenue streams. Overall, these cumulative benefits contribute to a more sustainable and financially resilient operation.

For more information, call (800) 837-7288 or visit versacorporation.com.