

ENHANCING FEED QUALITY

Winter
25-26

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How drones are reshaping ruminant agriculture

Drones are transforming the way farms are managed, offering innovative solutions for efficiency, accuracy, and safety. On dairy farms and feedlots, drones are now essential tools for tasks like measuring silage shrink, monitoring inventory, and evaluating feed mixer performance.

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It's important to understand what drones actually do. A drone's primary function is to capture photos or videos. The real value comes from processing this imagery through specialized software. This software interprets the images and transforms them into actionable insights – for example, calculating silage volumes or detecting temperature variations. While many companies offer image-processing services, not all specialize in agricultural applications. Partnering with a reputable service provider is key to maximizing the benefits of drone technology on your farm.

Key applications of drones in ruminant agriculture

1. Managing silage shrink and inventory

Drones equipped with imaging technology can create accurate 3D models of silage piles. These models allow farmers to calculate volumes, corrected for dry matter (DM) and density. By tracking these metrics over time, farmers can measure silage shrink, reduce waste, and improve inventory management.

2. Detecting silage face heating

Thermal cameras mounted on drones are used to monitor the silage face for temperature variations. High temperatures often indicate secondary fermentation, which reduces silage quality. Early detection of hot spots allows for timely corrective actions, preserving feed value.

3. Evaluating feed mixer performance

Drones provide valuable support during feed mixer evaluations. By capturing aerial footage, drones help identify dead spots in the mixer, timing issues, or tuning adjustments needed to improve mixing consistency. These insights complement shaker box results, ensuring feed rations are properly mixed for livestock health and productivity.

Enhancing farm safety with drones

Safety is a top priority on every farm, and drones help reduce risks in several ways. By using drones to inspect hazardous areas, such as silage piles or heavy machinery zones, farmers can stay at a safe distance while still gathering essential information. Additionally, drone footage can be incorporated into safety meetings and training sessions, highlighting specific hazards and improving awareness among farm workers.

The future of drones in agriculture

While the current uses of drones are already making significant impacts, the potential for this technology is vast. New applications are continually being developed, and some innovations remain undisclosed as they are still in the experimental phase. As drone technology evolves, it's clear that it will play an increasingly vital role in farm management.

Drones are revolutionizing agriculture by combining technology with practical farming needs. From managing silage and feed mixers to improving safety protocols, drones offer precision and insight that were once unimaginable. By investing in this technology and partnering with trusted service providers, farmers can unlock new levels of efficiency and productivity while staying ahead in an ever-evolving industry.

Especially for drones in ruminant agriculture – the sky's the limit!



Why the Right Forage Partner Makes All the Difference

Lallemand Animal Nutrition

Forage is a valuable resource for many dairy and beef operations, but is also one of the most complex to manage. From harvest timing to bunk management and feedout, every step in the process affects not just the quality of the feed, but the performance of the animals consuming it. Weather patterns shift, equipment changes, labor challenges arise – what worked last year might not be the best approach this season. That's why partnering with a trusted company that can provide tailored, science-backed products, practical support, and tools can make a real difference.

One helpful Lallemand service is on-farm evaluations, which can help identify key areas for efficiency by taking the time to walk through an operation, inspect the silos and silage, take samples and observe the animals. Lallemand's EXPLORER Program is a comprehensive on-farm evaluation designed to provide producers and consultants with key performance indicators to help identify areas of success, find opportunities for improvement and plot a course toward greater profitability. Through Lallemand's team and services, we focus on delivering actionable insights, such as identifying areas where nutrient preservation can be improved, highlighting ration consistency and celebrating strong performance where it exists. These insights help producers fine-tune management practices, strengthen team development and training, reduce waste, and maintain feed quality for better animal performance and efficiency outcomes.

Factors like silage DM and nutrients losses, ration compliance, and feed mixing accuracy often go unnoticed until someone takes the time to look closely; and when those areas are addressed, it can lead to better nutrient profile and hygiene aspects of the silage, improved digestibility, and more consistent animal performance.

Our team of experts have decades of combined experience across a variety of disciplines to ensure you receive the most relevant, science-based support for your operation. Our specialists are not only well-versed in the science behind our solutions; they're also passionate educators and collaborators. Through training programs and innovative technical resources such as handbooks, technical guides and bilingual-farm trainings, we aim to help you at every level. Programs like our Silage Safety Training are designed to empower farm employees with the knowledge and confidence to work safely and effectively, while understanding the critical role they play in the success of the operation. We also offer a wide range of supporting materials to bolster your safety and management programs. Whether through in-depth professional development events, collaborative learning exchanges, or tailored on-farm evaluations, our goal is to help elevate your team's expertise.

At the end of the day, forage management isn't just about the crop. Whether it's new technology, training, technical guidance, or collaborative problem-solving, having a partner who celebrates your success and understands your challenges is key.



Beyond Corn Silage: The Wider Role of Oxygen Barrier Technology

Felipe X. Amaro, PhD, PAS, Global Technical Support and R&D, Passion Ag

Oxygen is the number one enemy of silage preservation. When oxygen penetrates stored feed, aerobic microorganisms thrive, consuming valuable nutrients and heating the feed. The result is dry matter loss, lower energy content, reduced palatability, and ultimately, diminished animal performance. For this reason, the exclusion of oxygen is one of the most important principles in successful silage fermentation.

Over the past two decades, oxygen barrier films have become widely adopted in corn silage silos – bunkers and drive-over piles. Producers have seen firsthand how these multi-layer films outperform conventional plastic sheeting, particularly in reducing spoilage at the surface and along silo sidewalls. This adoption has been driven by a clear return on investment: higher feed quality, greater dry matter recovery, and fewer to no problems with mold or heating at feed-out, which ultimately translate to better animal performance.

Yet, despite these proven benefits, the use of oxygen barriers remains largely confined to corn silage. Many producers do not consider applying the same approach to other forage types or to high-moisture corn. This is a missed opportunity.

Although corn silage has been the focal point of research and demonstration, it is not unique in its biological demands. Grass silage, alfalfa, small-grain silages, and high-moisture corn are all fermented feeds. They rely on the same microbial processes to convert sugars into acids, stabilize the feed, and preserve nutrients. And in every case, oxygen exclusion is the single most critical factor in determining success.

Whether the crop is corn, grass, legumes, or high-moisture grain, the story is the same. When oxygen is allowed to infiltrate, losses happen rapidly. When it is excluded, fermentation is more efficient, feed stability improves, and animal performance improves. Passion Ag's oxygen barrier films provide a practical, proven solution to achieve this across all silages.

Expanding the use of oxygen barrier technology beyond corn silage represents an important step forward for forage management. It moves the focus from a crop-specific practice to a universal principle: every silage deserves protection from oxygen. By adopting this technology across the board, producers can safeguard the value of their feed, reduce shrink, and improve the consistency of performance in both dairy and beef systems.

DM loss, %		
	Polyethylene film	Oxygen barrier
Whole-plan Corn	9-14.4	5.9-11.2
Grass/Red Clover Mix	37	10
Alfalfa	12.3-19.5	5-11.4
Ryegrass	14.4	7.4

Silage dry matter loss of several types of silage sealed with polyethylene and oxygen barrier.



Protecting Revenue Through Quality Management in Hay Crops

When it comes to crop production, hay crops can be one of the most psychologically difficult. The Rubik's Cube of agronomics, harvesting and marketing can be in constant motion. Oftentimes, the grower will not know their income potential until the crop is safely baled and under roof or tarp. Even at that point, until a price can be determined, the income is still uncertain. The deciding factor then becomes the quality of the finished product.

There is a truth that exists uniquely in the hay business: the market rewards quality. High quality is always worth more than lower quality, regardless of where those prices may be. Growers may remember that in the fall of 2022, Fair/Grinder quality sold in the neighborhood of \$200/ton in many parts of the U.S., while this fall's market is closer to \$100. The fact remains that during the same time periods, Supreme quality sold for \$300+/ton and now is closer to \$200/ton. The key to profitability is capturing the \$100/ spread between Supreme and Fair/Grinder quality on as many tons as possible.

The impact is significant when calculated in revenue per acre. With a 2-ton/acre yield on first-cutting alfalfa with a sales price for lower quality at \$100/ton versus high quality at \$185/ton, the difference is \$170/acre. For the row crop farmer to understand, this is roughly the equivalent of a 40-bushel/acre yield loss in a corn crop. The agronomic, equipment, and labor costs remain the same despite quality. To stay in business, the producer must get the quality tons and in turn, get paid for them.

The primary quality limiting factor for the hay producer is moisture management. Watching a field that was "almost ready" get rained on is one of the most frustrating things that can happen. Another factor is "pushing" the baling when moisture levels are borderline for safe storage and then hoping for the best (the barn doesn't catch fire).

A proven tool that can help growers capture quality is Hay Guard preservative. This product allows the grower to widen their harvest window by hours or even days through the use of its oxygen scavenging properties. This increases leaf retention, reduces risk of heat-related damage, and preserves nutrient content. At the same time, it is easy and safe to handle, non-corrosive and does not require elaborate or expensive application equipment. For more information, reach out to your Animal Health International representative or International Stock Food at www.isfglobal.com.

*A proven tool
that can help
growers capture
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preservative.*

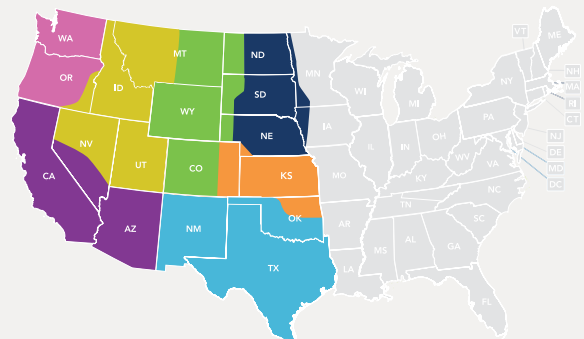


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