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Don't Throw that Hay Away

There is more than one way to feed your cattle; with the cost of feeding at an all-time high you should know which method leads to the least amount of waste.

Story by
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With production costs as high as they are, no one can afford to throw away an amount of hay equal to what their cattle consume, but that is precisely what you could be doing if you aren't paying attention to how you handle that forage.

Robert Kallenbach, Division of Plant Sciences, University of

Missouri (MU), has studied the hay-feeding process and is still surprised by how much of it is wasted during and after that activity.

"It is not unusual to see 30% of what is fed not going into the animal," he says. "That can have a big impact on the cost of maintaining your herd."

Kallenbach's observation is particularly true this year when so many natural and man-made events threaten to turn the predictions of

hay shortages and higher prices into reality. Last fall's dramatic rise in corn prices set much of the central U.S. on a corn planting binge. A substantial number of the new acres sown, until recently, had been in hay production.

For those who were relying on purchased hay to feed their cattle, 2007 brought more bad news. In April of this year the U.S. Department of Agriculture (USDA) reported that this country's season-

ending hay stocks had hit a 50-year low, while a freak late freeze in the same month destroyed much of the Midwest's first cutting of alfalfa. This was followed by severe drought conditions in all states east of the Mississippi except Illinois and states in the Northeast.

"If you are going to let your cattle tramp on hay this year, you are supplying them with some very expensive bedding," Kallenbach says.

For the MU researcher and beef specialist, the key to reducing hay waste is simple. "The more unrestricted access the animals are given to hay, the more of it they wind up wasting," he says. "That is a given."

Kallenbach adds that, while the premise is simple, how one goes about reducing waste by restricting access often depends on how the hay is packaged and what labor and facilities are available to accomplish the task. He points out that no matter

Table 1: Estimated losses (% of hay offered) from different hay-feeding methods

Bale type	With rack		Without rack	
	1-day supply	7-day supply	1-day supply	7-day supply
Small square bales	3.9%	4.1%	6.7%*	
Large round or square bales	4.9%	5.4%	12.3%*	43.0%*
Formed haystacks	8.8%	15.0%	22.6%	41.0%
Small round bales (fed in place on pasture)			10.0%	30.0%

*Bales spread or unrolled across pasture.

Source: Robert Kallenbach, Division of Plant Sciences, University of Missouri.

what feeding system is used, there are some universal feeding rules that should be adhered to in all circumstances.

Feeding basics

One universal feeding rule Kallenbach emphasizes deals with what hay is fed first. He recommends feeding the lower-quality hay first when it makes sense from a nutritional intake standpoint, noting that cattle will waste a greater percentage of poor-quality hay than they will good-quality hay. He adds that animals fed high-quality hay early in the season will often refuse poor-quality hay when it is offered later.

This usually means feeding the hay that is least protected from the elements first, saving the hay stored under cover for a time when the exposed hay has all been consumed.

Referring back to his restricted access premise, Kallenbach elaborates, "When you feed a limited quantity at a time, cattle have less opportunity to trample and soil the hay." The waste difference between feeding cattle a one-day supply and feeding them a week's supply is significant, he adds. "We are talking about 12% vs. 40% waste on rolling out round bales. I guarantee you most of our producers don't have that kind of money to waste."

For those who don't have time to feed fresh baled forage every day, Kallenbach suggests the following: "If you have a lot where you can give animals hay in the evening and let them eat during the night and turn them out in the early morning so there is no hay during the course of the day, you will see a significant reduction in wasted hay."

He notes that those producers who don't have a separate lot for feeding can see similar reductions in waste by using hay rings and other feeding devices to limit cattle's access to their feed source. "Hay fed in bale rings will show [a] hay loss rate of between 5% and 10%," Kallenbach says. "That is about as good as you can get."

He adds that bale rings do require an initial investment of between \$125 and \$300 a piece, depending on the quality, but with today's cost of feed they will quickly pay for themselves.

"Loading several rings on the weekend is a good feeding strategy for producers whose time is limited during the week," Kallenbach says, pointing out that this approach solves more than one problem. "One mistake I see a lot of guys making is not having enough spaces in their bale rings for all their cattle to feed at one time."

Kallenbach says this limitation can be detrimental to the herd, because the more aggressive boss cows will eat first and consume the more desirable hay, while the more timid cows will only have access to the lower-quality material or nothing at all.

By utilizing several rings at once, the producer not only extends the length of time between feeding and reduces his labor cost, but he also gives every cow in the herd an opportunity to get the hay she needs.

He cites, as an example, a 30-cow

herd that requires one 900-pound (lb.) bale per day. "To feed a 30-cow herd, we could use one hay ring that is filled daily," Kallenbach says. "But a better alternative would be to use three hay rings that are filled every three days."

Spread it out

Kallenbach adds that it also makes sense to place hay rings on higher dry ground and

move them around as much as possible. "If you can find those areas in the pasture that tend to be drier you will do a lot better," he says, noting that the consequence of not selecting the right ground is not pretty. "I have seen cows trying to feed in mud well over their knees, and that isn't any good for the animals or the ground."

When considering a location for rings, Kallenbach recommends considering the

nutrient value of the manure that will be deposited around the feeding site.

"Remember, when you are feeding bales, nutrients have a tendency to concentrate in those areas," he says. "For that reason, if I am purchasing hay, I like to feed it on my lowest-fertility sites because I know I am building them up."

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One system Kallenbach recommends to producers who have access to paddocks is the spaced hay bale system developed by MU Forage Systems Research Center. Designed specifically to cut labor time and machinery use during the winter feeding months, all bales are placed at 20-foot centers in the locations where they will be fed.

“When they are ready to let the cattle in, they put a hot tape around all the bales except the ones they plan on feeding right away. A ring goes around those bales,” he says. “When they are ready to feed more, they just move the hot tape and drop the rings around the next set of bales. The beauty of this system is you

can [get] out of there in less than 30 minutes.”

Kallenbach notes that the number of bales per paddock is based on bale size, herd size and planned length of stay. Again citing the example of 30 cows requiring one 900-lb. round bale per day, 10 bales stored in a paddock

would supply about 10 days' worth of feed.

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— *Robert Kallenbach*

Waste recovery

For Kallenbach, one of the real benefits of the spaced hay bale system is the controlled distribution of manure over a broad area of pasture. He adds that a similar strategy can be used that involves rolling out bales and controlling access with hot tape.

“Again, the success of the system depends on how well you can control the access,” he says. “You can use a hot wire to keep them away from the other bales, but it does have its own set of problems.”

Kallenbach points out that the return in pasture fertility using these systems is far from meager. “We see a recovery value of \$18 in P (phosphorus) and K (potassium) in every large round bale,” he says.

Bart Lardner, research scientist with the Western Beef Development Centre of the University of Saskatchewan concurs, adding that the production value of manure deposited by cattle is considerably higher than that of manure applied by machine. In a study evaluating feed waste in winter feed systems and the subsequent forage production from manure deposition on winter feeding sites, it was determined that the dry matter yield was substantially higher (2.3 to 3 times higher than the control plots) when compared to locations where the manure was applied mechanically as either compost or solid.

The study concluded that “considerable benefits can result from winter feeding beef cows on preselected sites due to increased capture and utilization of manure nutrients. Deposition of nutrients with animals vs. machinery indicates more efficient cycling of nutrients for subsequent pasture growth the following spring. This response can be observed even into the second year. Results also indicate that benefits from wintering cows on feeding sites can be managed to reduce daily costs with minimal impacts on cow performance.”

Economists from Agriculture Canada estimate that a single grazing cow returns to a pasture 30¢ a day in nitrogen, potassium, phosphorous and sulfur.

“At \$23.37 per animal per season, that return represents a substantial credit to any feed bill,” Lardner says.

