Not All Harvested Forages Are Expensive Livestock Feed

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Beef producers who wish to reduce livestock feed costs should consider feeding mechanically harvested forages rather than grazing cows on native rangeland next winter, says a North Dakota State University range scientist.

"Many producers believe the costs of using harvested forage as winter feed are high, and they can be, but not for the reason most people believe," says Lee Manske, range scientist at NDSU's Dickinson Research Extension Center. "Commonly used late-cut domesticated grass hays are expensive livestock feed not because mechanical harvesting or other production factors add directly to the cost; they are expensive because traditional harvest practices are inefficient at nutrient capture and the costs of harvest are prorated across very few pounds of nutrients."

"The valuable products from pastures and haylands are the nutrients, and the cost of livestock feed depends on the price paid per pound of nutrient, not the cost per acre or per ton of feed. The proportion of produced nutrient weight captured by grazing or haying is a measure of harvest method efficiency. When nutrient capture is efficient, both grazed and harvested forages can be inexpensive livestock feeds," Manske says.

Traditional harvest practices capture only 102 pounds of crude protein per acre. Total production costs for crested wheatgrass hay cut at the mature stage are $28.11 per acre, at a prorated cost of 28 cents per pound of crude protein. Livestock feed costs for this late-cut hay are 85 cents per day.

Generally, the forage harvest methods that efficiently capture crude protein at 25 cents or less per pound and provide feed for beef cows at 62 cents or less per day will permit positive net returns from beef production when the value of calf weight produced is 70 cents per pound at weaning, Manske says.

Allowing cattle to graze forages late into the nongrowing season has long been regarded as the least costly method of feeding beef animals. Production costs per acre for harvested forages are greater than pasture rent per acre, and a high percentage of the harvested-forage production costs consist of costs for labor and equipment that are not necessary in grazed-pasture production.

"When only those factors are considered, it's easy to logically conclude that having a cow graze her own feed is less costly than feeding hay," Manske says. But the conclusion is incorrect because land costs, production costs, equipment costs, and labor costs do not independently determine the cost of livestock feed and because the costs per acre for pasture and the costs per ton for harvested forages are not directly comparable."

However, the cost per pound of ingested forage nutrients from pastures and the cost per pound of forage nutrients from harvested forages can be compared. "To determine feed costs accurately, producers need to consider the efficiency of nutrient capture as it is reflected in cost per pound of nutrient. Lower-cost forages will be provided by management strategies that efficiently capture the produced nutrients from the land base, whether the forage is harvested by grazing or mechanical methods," he says.

Manske notes that grazing cows on native rangeland during the nongrowing season is very inefficient at nutrient capture and the costs increase dramatically after mid October because the amount of nutrients captured per acre from mature forage is low. Grazing cows capture only about 8.7 pounds of crude protein per acre during the nongrowing season, at a prorated cost of more than $1 per pound. Using grazed native range results in livestock feed costs of $1.67 per day despite its low production costs of only $8.76 per acre.

"A less costly source of livestock nutrients than either grazed native range or common domesticated perennial grass cut late is annual cereal and annual legume forages mechanically harvested at the optimum plant growth stage to capture nutrients efficiently," Manske says. "Annual forages have very high production costs, but

harvesting them at the proper time captures their high nutrient content efficiently and results in low feed costs per day."

Cutting forage barley early, at the milk stage, efficiently captures 606 pounds of crude protein per acre at a prorated cost of only 11 cents per pound. The forage has livestock feed costs of 38 cents per day even though it has high production costs of $68.21 per acre. Cutting pea forage hay at a late plant stage efficiently captures 685 pounds of crude protein per acre at a prorated cost of only 13 cents per pound. This forage has livestock feed costs of only 43 cents per day even though it has high production costs of $86.87 per acre.

"Extending the grazing season has traditionally been regarded as less expensive than feeding harvested forages, but having cows graze their own feed is not necessarily the lowest-cost strategy," Manske says. "Several harvested-forage types are less expensive than forage consumed by cows in most grazing scenarios. Feeding harvested forages during the fall and winter does require the producer to perform additional planning and work during the spring and summer, but the cost reductions that result from the strategy can be considerable."