Alternatives for Reducing Forage Acres

A 2005 survey of beef-cow operations identified available land as the biggest obstacle to expand one's herd. This survey was completed before an increase in corn prices created further competition for pasture or hay land. If there is a shift in acres from forage to corn, will cow numbers decrease — or can the same number of cows be carried on fewer forage acres?

Cow-calf producers who have tillable acres in forage production may be looking at alternatives to decrease forage acres and increase row crop acres. With higher corn prices, pasture and hay land may have higher profit potential if converted to corn production. Plus, pasture rent likely will increase significantly if available pasture acres decrease.

In the short run, producers realize that maximizing the amount of return per acre may not meet their operation's management criteria, including soil conservation requirements and long-term goals. However, there are several alternatives that may allow producers to manage the same amount of livestock on fewer acres of forage or carry more cows on the acres of forage they have available. As with most management decisions, there are trade offs between the cost of implementing these alternatives and the potential returns of converting forage acres to corn production.

Management alternatives

Management alternatives designed to increase productivity of pastures include:
1) Using fertilizer or legumes to boost production
2) Incorporating managed intensive grazing
3) Utilizing more productive species of forage.

Typically, a 30- to 40-percent increase in productivity would be projected by utilizing nitrogen (N) fertilizer or legumes compared to using none. Producers could also expect an estimated 10- to 15-percent increase in productivity by utilizing managed grazing with three to five paddocks or a 15- to 25-percent increase by utilizing five or more paddocks in their grazing system as compared to continuous grazing.

Another alternative might include supplementing cows on pasture or removing the cows from the pasture and feeding them in a lot or sacrifice area during part of the traditional summer grazing period. This system would rest the pasture acres during the late summer/early fall time frame, allowing for increasing stocking rate levels during the early, fast-growing period of the growing season. Producers may want to consider weaning calves at an earlier age when feeding in a dry-lot situation. The dry-lot scenarios may work well with other management practices, such as artificial insemination.

Even though this "feeding versus grazing" scenario can significantly reduce grazing acres during the summer growing season, it is a different mindset for producers. Utilizing low-cost feedstuffs that meet the nutrient requirements of the cow is key. Potentially higher labor and equipment costs, herd health and feeding systems must also be considered. To feed a cow nursing a calf for 45 days in July and August, it would require about 1,250

pounds of cornstalks or low-quality hay, and 1,150 pounds of wet distillers grains. If the calves are weaned, these requirements would be significantly reduced. Cereal grain silage might also be considered to provide feed for a dry-lot period. An acre of cereal grain silage would provide about 2.5-3 tons of dry matter versus an estimated .75 tons of dry matter from a tall, cool-season grass pasture in the July-August time period.

Some producers currently supplement feed on pastures using silage, corn or hay when pasture productivity decreases in the summer or dry weather limits forage growth. While supplementation does help to maintain the cow and calf, little is known about the amount of grazed forage saved or reduced. A forage supplementation option may be to use corn co-products if these products are cost competitive. Several demonstrations have been conducted and numerous ongoing studies are currently exploring various levels of co-product supplementation and the respective impact on the amount of forage consumed by grazing. In the following tables, we have assumed that 1 pound of dry matter supplemented would replace .6 pounds of forage dry matter grazed. Note that this supplementation strategy has the advantage of not needing to feed every day.

Other management factors, such as calving dates and weaning ages, will impact the demand for forage. Typically, earlier calving dates require less grazed forage, but would require more stored feed. For example, a March 1 calving date would require about 8-percent fewer grazed acres than an April 15 date. Earlier weaning also requires fewer grazed acres, assuming the calves will be fed in a lot after weaning. A mature cow that is nursing a calf would consume about 1-percent more of her body weight in dry matter than a dry cow. In general, reducing weaning age from 180 to 150 days would require 5- to 10-percent fewer grazed acres.

Grazing acres required

The number of variables and potential management combinations that are available to individual beef producers is mind boggling—making the number of alternatives almost endless. We have attempted to simulate a few of these alternatives and estimate the number of acres required to carry a cow-calf pair under various management scenarios. The simulation does not accurately represent any individual operation, since there would typically be a mix of grazing systems, forages and pasture productivity in one operation. It does, however, demonstrate the reduction in acres under different grazing systems and three pasture productivity scenarios. An individual producer would need to inventory his acres, level of productivity, and the management options available to adequately determine acres needed for his/her operation.

In Table 1, bluegrass and tall grass pastures with applied nitrogen or legumes are represented with grazing starting in late April and ending in mid-October. Continuous grazing and rotational managed grazing systems are included with a supplementation period. The rotational system also includes a dry lot or sacrifice area feeding period for 45 days. Productivity is represented in terms of corn suitability rating (CSR) in an effort to include the impact of soil type. Within each level of productivity there would be a range as well. The simulation in the table would reflect the middle of the range.

Table 1. Estimate of acres per cow-calf unit[1]						
	Bluegrass with N or legume			Tallgrass with N or legume		
Management alternative	<40 CSR	40-60 CSR	>60 CSR	<40 CSR	40-60 CSR	>60 CSR
Continous grazing	3.5	2.4	2.2	2.3	1.6	1.5
>5 paddocks rotation	2.8	1.9	1.8	1.8	1.3	1.2
Continuous grazing with 5 lbs dry matter supplementation June-Aug.	3.4	2.3	2.2	2.2	1.5	1.4
>5 paddocks rotation with dry matter supplementation June-Aug.	2.7	1.9	1.7	1.8	1.2	1.1
>5 paddocks rotation with dry lot or sacrifice area July and half of Aug.	2.1	1.5	1.3	1.3	0.9	0.8

[1] *One cow-calf unit includes a mature cow and an appropriate number of 2nd calf heifers, 1st calf heifers and yearling heifers and bulls.*

The supplementation scenario assumes that for each 1 pound of dry matter fed replaces .6 pounds of forage dry matter that is consumed through grazing. There is not a great deal of research that has been carried out to document this assumption. The replacement rate may vary with the amount actually supplemented.

The dry lot or sacrifice area scenarios assume that the cows are fed stored feed to meet their expected dry matter consumption and nutrient needs. The time period of July thru the first half of August is used to coincide with decreased forage growth. The time period could be altered or extended to match up with weather conditions, especially drier weather. The acres estimated in the table do not take into account producing forage for winter feeding. In some cases, hay might be harvested early in the season and then those acres grazed later in the season. Hay acres might be replaced with cornstalks and corn co-products if these products are available at a lower cost than the cost of raising hay.

Conclusion

This fact sheet addresses the number of grazeable forage acres required to maintain a beef cow-calf animal unit under various management systems. The grazing system scenarios selected concentrate on management systems that would reduce the number of grazable acres required while maintaining animal numbers and performance expectations. Individual producers may consider utilizing grazed forages throughout the year, along with crop residues, to minimize feeding stored feed if pasture acres are not limiting.

Other fact sheets in this series address the economics of decreasing forage acres to raise corn, managing cows in dry lot systems, managing sacrifice areas, and ration options for cows — including using corn co-products, cornstalks and traditional feeds.

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