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Winter Grazing vs. Feeding Harvested Forage

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The management decision to feed harvested forage or to graze reserved pastures during the winter has been a topic of debate among livestock producers of the Northern Great Plains since the severe winter of 1886-1887. Maintaining herds on reserved pastures in the winter can be accomplished most years with some type of protein supplementation and an allocation of about double the number of acres for an animal unit month that would be necessary during the summer. The choice between grazing winter pastures and feeding harvested forage is complex, and to reach a sound decision, producers must consider factors in addition to the cost of the harvested forage. An important but often overlooked cost of grazing winter pastures is the amount of calf production lost to the ranch when pastures are held for winter use.

It is my hypothesis that for a ranch the cost of winter pastures in lost calf production is greater than the feed savings. I suggest that it would be more profitable for a ranch to use the winter pasture as summer pasture and use the additional pounds of calf produced to purchase feed for the cow herd during the winter. The basic question is which strategy efficiently captures the protein and energy produced on the ranch. In order for scientists to help producers decide whether to graze winter pastures or feed harvested forage, we need to address this question: Is converting the protein and energy produced on the land into saleable calf weight more efficient than using that forage for winter feed for the cow herd?

Typical ranches with winter grazing systems have about 40% of the land base as summer pasture, 40% of the land as winter pasture, and 20% of the land as hay fields and calving, bull, and horse pastures. Herds are maintained 6 months of a year on summer pasture, 3 months on winter pasture, and 3 months on harvested feed. Generally the forage from a winter pasture system is considered to be a cheap feed source. The cost of the land rent and the cost of lost calf production from that land are usually not included in the perceived winter pasture costs.

The animal performance data presented in the research report Economic Returns as Affected by Grazing Strategies (Manske 1995, 1996) were used to simulate the economic returns of 3 strategies of providing 12 months of forage for a cow-calf operation with 6000 acres. This study was intended to be a comparison of feed and pasture costs and relative dollar value for the different calf weight production levels. In this study the term "net" refers to figures obtained when pasture rent at $8.76 per acre and the value of the purchased harvested forage at $60.00 per ton have been subtracted from the dollar value of produced calf weight sold at $0.70 per pound. One strategy uses 6 months seasonlong grazing on 2500 acres of native range, 3 months grazing on 2500 acres of reserved winter pasture, and 3 months in drylot with

purchased harvested forage. The second strategy converts the winter pasture to summer pasture and has two 6-month seasonlong grazing pastures of 2500 acres each on native range and 6 months in drylot with purchased harvested forage. The third strategy uses 2 twice-over rotation systems with complementary domesticated grass pastures with each system consisting of 2500 acres with 7% crested wheatgrass pasture, 12% altai wildrye pasture, and 81% native range pastures grazed for a total of 6.5 months. For the remaining 5.5 months cows are fed purchased harvested forage in drylot.

The first strategy, with 6.0 months seasonlong grazing and 3.0 months winter pasture, had net returns for a year of -$13,326.42 (Figure 1). The second strategy, with the winter pasture converted into a second summer pasture grazed seasonlong, had a net return for the year of +$183.06 (Figure 2). The third strategy, with 2 twice-over rotation systems with complementary domesticated grass pastures on the same amount of land, had net returns for the year of +$78,353.48 (Figure 3).

The differences among the net returns for the 3 grazing strategies are the differences among the strategies' efficiencies of capturing the protein and energy produced on the land and converting it into a saleable product. The seasonlong strategy with purchased winter forage had greater net return than did the seasonlong strategy with winter pasture. The total amount of calf production was greater on the twice-over rotation strategy than on the seasonlong

strategies. The net return for a year was greater on the twice-over rotation strategy with purchased harvested forage than on the seasonlong strategies. The value of the additional pounds of calf production on summer pasture was greater than the cost savings from reserving the pasture for winter grazing.

Literature Cited

Manske, L.L. 1995. Economic returns as affected by grazing strategies. NDSU Dickinson Research Extension Center. Range Research Report DREC 95-1012. Dickinson, ND. 20p.

Manske, L.L. 1996. Economic returns as affected by grazing strategies, p. 43-55. *in* Z. Abouguendia, ed. Total Ranch Management in the northern Great Plains. Grazing and Pasture Technology Program, Saskatchewan Agriculture and Food. Regina, Saskatchewan, Canada.

Figure 1. Summer grazing and winter grazing and feeding scenario using seasonlong grazing management strategy.

Seasonlong	
Summer	**Winter**
2500ac	2500ac

2500 ac native range	2500 ac native range
C-C pr 24.24ac/6.0m 15 May-15 Nov 103 c-c pr	Cow 24.24ac/3.0m 15 Nov-15 Feb 103 cows
Rent $8.76/ac $21,900.00	Rent $8.76/ac $21,900.00
Weaning weight=540.30lbs $0.70/lb Gross/calf=$378.21 Gross/103c=$38,955.63	Drylot Feed 3.0m 15 Feb-15 May Mid-third gestation 0.0m
Gross - Rent= Net summer pasture	Last third gestation 1.0m 30lbs/d/cowX30.5d=915lbs Early lactation 2.0m 30lbs/d/cowX61.0d=1830lbs 2745lbs
$17,055.63	$60.00/tonX1.37T=$82.35/cow
	103 cow feed $8,482.05 Rent $21,900.00 Winter cost $30,382.05
	Net summer pasture $17,055.63
	Net for year -$13,326.42

Figure 2. Summer grazing and winter feeding scenario using seasonlong grazing management.

Seasonlong	

Summer		Winter
2500 ac	2500ac	
2500ac native range	2500ac native range	
C-C pr 24.24 ac/6.0m 15 May-15 Nov 103 c-c pr	C-C pr 24.24 ac/6.0m 15 May-15 Nov 103 c-c pr	
Rent $8.76/ac $21,900.00	Rent $8.76/ac $21,900.00	Drylot feed 6.0m 15 Nov-15 May
Weaning weight=540.30lbs $0.70/lb Gross/calf=$378.21 Gross/103c=$38,955.63 Gross - Rent=	Weaning weight=540.30lbs $0.70/lb Gross/calf=$378.21 Gross/103c=$38,955.63	Mid-third gestation 1.0m 30lbs/d/cowX30.5d=915lbs Last third gestation 3.0m 30lbs/d/cowX91.5d=2745lbs Early lactation 2.0m 30lbs/d/cowX61.0d=1830lbs 5490lbs
Net summer pasture $17,055.63	Net summer pasture $17,055.63	$60.00/tonX2.75T=$164.70/cow
		206 cow feed $33,928.20 Rent = 0.0
Net for summer pastures on 5000 ac $34,111.26		Winter cost= $33,928.20 Net summer pasture=$34,111.26 Net for year= $ 183.06

Figure 3. Summer grazing and winter feeding scenario using twice-over rotation grazing management strategy.

Twice-over Rotation	

Summer		Winter
2500 ac	2500 ac	
168 ac crested wheat 312 ac altai wildrye 2020 ac native range	168 ac crested wheat 312 ac altai wildrye 2020 ac native range	
C-C pr 11.14 ac/6.5m 1 May-15 Nov 224 c-c pr	C-C pr 11.14 ac/6.5m 1 May-15 Nov 224 c-c pr	
Rent $8.76/ac $21,900.00	Rent $8.76/ac $21,900.00	Drylot feed 5.5m 15 Nov-1 May
Weaning weight=605.52lbs $0.70/lb Gross/calf=$423.86 Gross/224c=$94,945.54	Weaning weight=605.52lbs $0.70/lb Gross/calf=$423.86 Gross/224c=$94,945.54	Mid-third gestation 1.0m 30lbs/d/cowX30.5d=915lbs Last third gestation 3.0m 30lbs/d/cowX91.5d=2745lbs Early lactation 1.5m 30lbs/d/cowX46.0d=1380lbs 5040lbs
Gross - Rent= Net summer pasture	Gross - Rent= Net summer pasture	
$73,045.54	$73,045.54	$60.00/tonX2.52T=$151.20/cow
		448 cow=$67,737.60
Net for summer pastures on 5000 ac $146,091.08		Rent= 0.0 Winter cost= $67,737.60 Net summer pasture=$146,091.08 Net for year= $78,353.48

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