EVALUATION OF WHEAT FORAGE IN WINTERING PROGRAMS FOR COW CALF OPERATIONS

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Story in Brief

One hundred and sixty two Hereford and Hereford x Angus calves were used to compare (1) alternate day grazing of cows on wheat pasture, (2) dry wintering of cows on dormant bermuda/native pasture with calves having continuous access to wheat pasture, or (3) cows wintered the same as for Treatment 2 but calves fed dry creep feed limited to 2 lb/day. After removal from wheat pasture on March 8, all cattle were maintained on native range until weaning in July. Calves from Treatment 1 cows gained faster during the wheat pasture phase than calves from other treatments. Gains were similar for calves creep grazed on wheat and calves fed limited creep. Calves creep grazed on wheat forage gained less than calves from the other groups when removed from wheat pasture and grazed on native range until weaning. Treatment 1 had a $56.13 per cow advantage over Treatment 2 and a $45.34 per cow advantage over Treatment 3 when wintering costs and value of additional weaning weights were combined. Data from the first year of this study suggest that alternate day grazing of cows and permitting free access of their calves to wheat can be an economical method of wintering a cow herd.

(Key Words: Wheat Pasture, Beef Cows, Creep Feed, Winter.)

Introduction

Wheat pasture has long been recognized as an extremely high quality forage that will support rapid gain (1.5-2 lb/day) in stocker calves. It has been assumed that beef cows, having large daily forage intakes and lower nutrient requirements on a percentage basis, would waste much of the nutrient content of wheat forage if permitted to graze wheat pasture full time. As a result, programs such as limit-grazing of cows on wheat forage one day in two or three or only allowing calves access to wheat forage through creep gates have been suggested to improve efficiency of wheat

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forage utilization by cows. Unfortunately, many of these recommendations are not backed by controlled research. The objective of this study was to compare traditional wintering of fall calving cows and their calves on dormant native range with protein supplementation to alternate day grazing of wheat pasture or traditional wintering of cows with calves permitted access to wheat forage through creep gates.

Materials and Methods

One hundred and sixty two Hereford and Hereford x Angus calves were used to compare three wintering treatments. The study was conducted on a ranch near Duncan in south central Oklahoma. Cows calved from early September to late October. Treatments were: 1) cows alternately grazed one day on wheat pasture and one day on an adjacent dormant dry bermuda native pasture with free choice wheat straw in round bales. Calves of these cows had continuous access to wheat via creep gates; 2) cows were wintered on dormant bermuda native pasture and fed 4 lb/day of a 39% crude protein supplement. Calves had continuous access to wheat pasture via creep gates; and 3) cows were wintered the same as for Treatment 2 but calves had access to a creep ration fed in conventional creep feeders. The creep ration consisted of 65% corn, 30% soybean meal, 4% salt and 1% limestone. The salt was added to limit intake to a target level of 2 lb/day.

Cows were randomly allotted to treatments on September 1, before calving. Cows were then grazed on three similar native grass pastures during the calving season until the beginning of the study on November 13. Cows and calves were gathered off pasture and calves were individually identified with an ear tag, and weighed unshrunk on November 13, 1989. Cows were not weighed. Steer calves were implanted with Synovex C® (Syntex) on November 13 and again on March 8. All cattle were maintained on their respective treatment regimens until March 8, 1990 when calves were again weighed unshrunk. From March 8 until calves were weighed at weaning on July 10, all cattle were grazed together on native range.

Data were analyzed using the GLM procedure of SAS (1985). The final model included treatment, calf breed, calf sex, initial calf weight and two way interactions. Differences between treatment means were detected by LSD test.

Results and Discussion

Calves weighed about 165 lb at the start of the study on November 13 (Table 1). Although not individually weighed or scored for condition, cows

Table 1. Performance of calves wintered on wheat, creep grazed on wheat or wintered on dry grass with limit-fed creep.

	Treatments		
Cows / Calves	1 Wheat pasture alternate days Wheat pasture continuous	2 Native range Wheat pasture continuous	3 Native range limit fed creep
No. of pairs	58	54	50
Calf wt, lb			
11/13/89	166	164	157
3/08/90	398[a]	369[b]	356[b]
7/10/90	582[a]	535[b]	546[b]
Calf daily gain, lb			
11/13/89 to 3/08/90	2.02[a]	1.79[b]	1.73[b]
3/08/90 to 7/10/90	1.50[a]	1.35[b]	1.54[a]
11/13/89 to 7/10/90	1.75[a]	1.56[b]	1.63[b]
Winter costs - 11/13/89 to 3/08/90, $[l]			
Native pasture	7.00[c]	26.66[f]	26.66[f]
Wheat straw, 80 bales	11.60[d]	--	--
Wheat pasture	60.00[e]	15.00[g]	--
39% Supplement	--	50.60[h]	50.60[h]
Creep feed	--	--	21.20[i]
Total winter cost, $	78.60	92.26	98.46
Additional wt gain, lb 11/13 to 7/10[j]	45	0	18
Value of additional gain,[k] $	42.47	0	16.99

[a,b] Means on a line with different superscript letters differ (P<.05).
[c] Native pasture @ $10/acre, 1/2 time use.
[d] Wheat straw @ $10/bale.
[e] Wheat pasture @ $60/acre.
[f] Native pasture - 10 acres/cow @ $8/acre, 1/3 time use.
[g] 4 calves/acres @ $60/acre.
[h] 39% protein supplement @ $220/ton.
[i] Creep feed - 231 lb/calf @ $183/ton.
[j] Computed from lowest treatment to highest treatment.
[k] Average 500-600 lb steer and heifer price, medium frame #1, July, 1990, for Oklahoma City market.
[l] Winter maintenance costs based on original cow numbers carried throughout the trial. Performance figures exclude any calf losing an I.D. tag.

were estimated by trained observers to be in an average condition score of 5. The winter of 1989-90 was remarkable because of a period of extreme cold in late December, mild weather from January to March, and extremely cool temperatures in April and May. Wheat pasture was ample throughout the period of November 13 to March 8. However, native forage was very limited from March to June because of abnormally cool spring temperatures and record low rainfall in June.

As expected, calves from cows grazed alternate days on wheat pasture (Treatment 1) gained significantly faster during the winter wheat pasture phase than calves from the other treatments. Gains were similar for calves creep grazed on wheat and calves fed salt limited creep. Average daily intake of the limit fed creep was 2.01 lb/head/day. By March, Treatment 1 cows which grazed alternate days on wheat pasture had estimated body condition scores of 6 compared to 5 for Treatment 2 and 3 cows which grazed dormant forage. Based on observations of grazing behavior and wheat straw consumption, Treatment 1 cows apparently obtained a large proportion of their total intake from wheat pasture and consumed a minimal amount of low quality straw on alternate days off wheat pasture. However, even with alternate days on wheat straw, Treatment 1 cows wintered in greater body condition than was probably necessary for good milk production and reproduction.

Cows and calves were removed from wheat pasture in March because this procedure permitted grain to be harvested. An important finding in this study was that Treatment 2 calves, creep grazed on wheat forage, gained less ($P<.05$) than calves from the other groups when removed from wheat pasture and grazed on native range until weaning. It is likely that calves accustomed to free access to wheat forage found the native range much less palatable, particularly in late winter. We are not aware that this has been previously reported. If repeatable, poor calf performance after a change from wheat forage to lower quality forage would significantly affect the application and economics of creep grazing. During the period between removal from wheat pasture until weaning, calves previously fed salt limited creep on dry grass had similar gains as Treatment 1 calves. It is possible that limit fed creep calves were accustomed to consuming native forage and continued to do so after removal of the creep. Even if Treatment 1 calves consumed less native forage after removal from wheat pasture, it is likely that milk production of Treatment 1 cows was greater (based on higher body condition) than for Treatment 2 and 3 cows wintered on dry grass and protein supplements.

Wintering costs and weaning weights (Table 1) were improved with Treatment 1 compared to other treatments. Treatment 1 had a $56.13 per cow advantage over Treatment 2 and a $45.34 per cow advantage over Treatment 3 when wintering costs and value of additional weaning weights

were combined. The cost of wheat pasture was more than offset by the increased pasture requirements and supplement costs for wintering on native range. Treatment 3 improved marginal returns by $10.79 compared to Treatment 2 by increasing weaning weights, even though wintering costs were higher. The producer must realize that the decision must be evaluated each year based on expected calf prices and wintering costs. With only one year of data, it appears that returns can be increased for the cow-calf producer who has wheat pasture available as a winter feed source for cows and calves.

There are other issues that need to be addressed when using wheat pasture for wintering the cow herd. Although rebreeding performance was not evaluated in this study, less than 6% of cows failed to calve the following fall, suggesting that rebreeding efficiency was high for all treatment groups. Data from the first year of this study suggest that alternate day grazing of cows and permitting free access of their calves to wheat can be an economical method of wintering a cow herd.