

EVALUATION OF WHEAT FORAGE DURING THE GRAZEOUT PERIOD FOR COW-CALF OPERATIONS--YEAR 3

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Story in Brief

From early November to February 28, 103 beef cows and their calves grazed wheat forage for 4-hour periods on alternate days with calves having continual access to wheat forage through creep gates. On February 28, cows and calves were allotted to three treatment groups consisting of (1) continued alternate day grazing of cows on wheat pasture with calves having continuous access to wheat pasture, (2) cows moved to dormant native pasture with calves creep-grazed on wheat pasture or (3) cows and their calves moved to native pasture with no creep provided to calves. On April 24, all cattle were moved to native range until weaning on July 2. During grazeout, calves from Treatment 3 gained 1.83 lb/day compared to 2.56 and 2.29 for Treatment 1 and 2 calves, respectively. Calf gains were similar, about 2.3 lb/day, from May to weaning in July. During grazeout, Treatment 1 had a \$9.08 per cow advantage over Treatment 3 and a \$2.12 per cow loss over Treatment 2. In conclusion, permitting fall-calving cows and/or their calves to have access to wheat forage during grazeout increased calf gain compared to grazing on native range with supplements. Creep grazing appeared to be the most economical use of grazeout wheat by fall-born calves. The decision whether to also permit cows to graze wheat during grazeout will depend on prices for wheat and commercial protein supplement and availability of other forage.

(Key Words: Wheat Pasture, Creep, Beef cows)

Introduction

Results of two previous studies at this ranch showed that alternate day grazing of wheat pasture during the winter by fall-calving cows is economically advantageous compared to dry wintering on native range with purchased protein supplements and creep feed. It is a normal practice to

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remove steers from wheat pasture by March in order to permit grain harvest. An alternative practice is to leave cattle on the wheat forage from March until May (grazeout) and totally use the wheat crop. Breeding of fall-calving herds is finished by March and it is often feasible to reduce the level of nutrition between the end of breeding and the onset of green forage in April. Another option might be to remove cows from wheat forage in March but permit continued access by calves to small acreages of wheat forage. Previous studies suggested that increased milk production from winter grazing of wheat might carry over during the grazeout period. Winter annuals that begin growth in native range pastures in March might provide additional nutrients to calves. The objective of this study was to determine the value of wheat forage during the grazeout period on calf performance when used for both cows and calves or for calves only.

Materials and Methods

From early November to March 8, 103 Hereford and Hereford x Angus cows and their calves were given access to wheat forage for 4-hour periods on alternate days. In addition, calves had continual access to wheat forage through creep gates. Management of cattle on wheat pasture during the winter period has been described by Apple et al. (1991). On February 28, calves were weighed without shrink, individually identified with ear tags and randomly allotted to three treatment groups. Steer calves were implanted with Synovex C (Syntex) on February 28. After weighing, calves were paired with their dams. Cows were not weighed. Treatments consisted of (1) continued alternate day grazing of cows on wheat pasture with calves having access to wheat pasture, (2) cows moved to dormant bermuda-native pasture with calves having continuous access to wheat pasture through creep gates or (3) cows and their calves moved to dormant bermuda-native pasture with no creep provided to calves. Cows moved to native range pastures were supplemented with alfalfa hay until the onset of green forage. The grazeout period lasted from February 28 until April 24 when all cattle were moved to native range and grazed together until weaning on July 2.

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.

Results and Discussion

Calf Performance

This was the third in a series of studies at this ranch. Therefore, the study reported here will be referred to as Year 3 and the two previous studies

will be referred to as Years 1 and 2, respectively. During Year 2, the months of March and April were extremely dry and warm. The availability of wheat forage during the grazeout period proved to be limited, and as a result, calf gains were similar during the grazeout period for calves creep grazed on wheat or maintained on native range. In Year 3, cattle management during the grazeout period was evaluated again because of unusual weather conditions the previous year. Rainfall during the grazeout period of Year 3 was near normal and wheat forage supplies were abundant.

Calves weighed about 330 lb on February 28 (Table 1). Although not individually weighed or scored for condition, cows were estimated by trained observers to be in an average condition score of 5, which is considered to be good condition for fall-calving cows in February.

Calves from Treatment 1 in which both cows and calves had access to wheat forage during the 56-day grazeout period gained .27 lb/day more than calves from Treatment 2 in which calves creep grazed wheat pasture but cows were maintained on native range (2.56 vs 2.29 lb/day; $P < .05$). This

Table 1. Effect of wheat grazing during grazeout on performance of fall-born calves to weaning.

	Treatments during grazeout		
	1 Wheat pasture alternate days	2 Native range	3 Native range
Cows			
Calves	Wheat pasture continuous	Wheat pasture continuous	Native range
No. of pairs	35	33	33
Calf wt., lb,			
2/28/92	329	342	334
4/24/92	472	473	473
7/2/92	626 ^a	633 ^a	595 ^b
Calf daily gain, lb			
2/28/92 - 4/24/92	2.56 ^a	2.29 ^b	1.83 ^c
4/24/92 - 7/02/92	2.23	2.34	2.32
2/28/92 - 7/02/92	2.39 ^a	2.32 ^a	2.10 ^b

^{a,b,c} Means on a line with different superscript letters differ ($P < .05$).

difference may reflect some decrease in milk production as cows are changed from alternate day access to wheat pasture to poor-quality, late winter native range. Gains of calves from Treatment 3 were .73 lb/day lower than for Treatment 1 and .46 lb/day lower than for Treatment 2 ($P < .01$). In the previous year (Year 2) calf gains were similar for Treatments 2 and 3. However, wheat forage was very limited during the grazeout period of Year 2 compared to very good wheat forage supplies during Year 3. This suggests that calves derived substantial nutrients from creep-grazed wheat forage compared to dormant native range and early green annuals that begin growing in native pastures during the grazeout period. Expected differences will vary with relative availability of wheat forage and winter annuals.

Calf gains were similar (2.23 - 2.32 lb/day) during the period of April 24 to July 2 when all cattle grazed together on native range. Calves from Treatment 3 did not compensate for their lower gains during the grazeout period. The failure of fall-born calves with significantly lower winter gains to compensate during the early summer period before weaning agrees with findings from Years 1 and 2 in this series. It is possible that the increased winter gain from wheat grazing has not made calves fat enough to reduce summer performance but rather has permitted a good level of growth and development compared to underfed calves. It is doubtful that milk production was a factor because all cows from Treatments 2 and 3 were removed from wheat pasture at the same time in February.

Economic Analysis. Years 1 and 2 of this study consistently showed the economic advantage of limit grazing of fall-calving cows on wheat pasture from November until normal takeoff date for wheat harvest. The major unanswered question is whether and/or how wheat pasture should be used by cattle during grazeout. Table 2 details the costs associated with the three treatment groups and the value of the added gain. Alfalfa hay was used as the supplemental protein source during Year 3. When alfalfa costs were used from 2/28/92 to 4/24/92 and the value of calf weight gains were combined for this period, Treatment 1 had a \$9.08 per cow advantage over Treatment 3 and a \$2.12 per cow loss over Treatment 2. If cottonseed meal had been used instead of alfalfa, it is estimated that Treatment 1 would have had a \$1.96 per cow advantage over Treatment 3 and a \$9.24 per cow loss compared to Treatment 2.

Treatment 2 (cows grazed on native range and calves creep grazed on wheat) has been the most economical use of wheat pasture during both years when the grazeout period has been studied. However, when calf weight gains are improved as they were in 1991-92, limit grazing cows on wheat also proved to be an economical use of wheat with existing wheat and cattle prices. No attempt was made to determine if the graze-out acres could have been harvested or if the acres could have only been used for haying or grazing. A different value could be assigned to the grazeout acres based on

Table 2. Economic analysis of wheat grazing during grazeout on performance of fall-born calves to weaning.

	Treatments during grazeout		
	1	2	3
Cows	Wheat pasture alternate days	Native range	Native range
Calves	Wheat pasture continuous	Wheat pasture continuous	Native range
Grazeout costs (\$)			
2/28/92 to 4/24/92			
Native pasture	4.22 ^a	10.56 ^b	10.56 ^b
Alfalfa hay	-----	24.72 ^c	24.72 ^g
Wheat pasture	53.57 ^d	12.50 ^e	-----
Total grazeout costs	57.59	47.78	35.28
Additional weight gain, lb^f			
2/28/92 to 4/24/92			
	+40	+25	-----
4/24/92 to 7/2/92			
	-40	+2	-----
Total added gain	+36	+27	-----
Value of added gain (\$)^{gh}			
2/28/92 to 4/24/92			
	31.59	23.70	-----

^aNative pasture charged at 4 acres/cow @ \$80/yr., \$.088/day.

^bNative pasture charged at 109 acres/cow @ \$80/yr., \$.22/day.

^cAlfalfa hay was fed as a protein supplement to Groups 2 and 3 after February 28 (15 bales @ 1400 lb @ \$80/ton).

^dWheat pasture valued at \$75/acre from March through grazeout.

^eWheat pasture valued at \$75/acre from March through grazeout, stocking rate of 6 calves/acre.

^fComputed from lowest treatment to highest treatment.

^gAvg of 500-600 lb and 600-700 lb heifers for July 1992 (\$93.34 + 87.46 = \$90.40/cwt for steers and \$85.11 for heifers).

^hAdditional gain after 4/24/92 included.

the producer's option for use. It is apparent that limit-grazed wheat pasture can replace a substantial amount of purchased feed and also reduces the acreage of native range needed during the winter.

In conclusion, permitting fall-calving cows or their calves to have access to wheat forage during the grazeout period significantly increases calf gain compared to grazing on native range with supplements. The greatest improvement in calf gain may occur from providing the calves continued access to wheat. The decision whether to also permit cows to graze wheat during grazeout will depend on prices for wheat, commercial protein supplement, cow condition in March and availability of other forage.

Literature Cited

- Apple, K.L., et al. 1991. Evaluation of wheat forage in wintering programs for cow calf operations. Oklahoma Ag. Exp. Sta. Res. Rep. MP-134:137.