The Performance Of Three- And Four-Year-Old Angus X Holstein Crossbred Cows Under Range Conditions

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Story in Brief

A winter supplementation level of 3.55 lb. (41 and 30 percent protein) per cow daily for 3-and-4-year-old Angus x Holstein crossbred cows on dry native grass was adequate to support good weaning weights (466 and 514 lb. at 205 days). Rebreeding performance was also considered good; the failure of 8.6 percent of the cows to rebreed was largely due to the fact that the breeding season was 2 months earlier than the previous year.

Introduction

There is much interest among cow-calf operators in increasing milk production of brood cows to raise weaning weights. Selection for heavy weaning weights automatically results in selection for increased milk production, but a much more rapid method of increasing milk production is the introduction of dairy breeding into a brood cow herd. It is recognized that a higher level of supplementation is necessary to support a higher level of milk production. Information on the performance of part-dairy brood cows under range conditions, and levels of necessary supplementation, is needed as a basis for determining the feasability of infusing dairy breeding.

The performance of a group of 2-year-old Angus x Holstein crossbred females was reported in the 1970 Animal Science Research Report (see Miscellaneous Publication 84, pp. 14-23). The Angus x Holstein crossbreds, compared to Angus females of similar age, had a higher calving percent and weaned a higher percent calf crop, calved earlier, produced more milk and weaned heavier calves (44 and 76 pounds for steers and heifers, respectively). However, only 13 percent of the Angus x Holstein crossbreds and 44 percent of the Angus females rebred. The level of supplementation was apparently too low for all cattle, but the higher milking crossbreds were much more susceptible to the adverse nutritional environment than the Angus.

The Angus x Holstein crossberds (39 head) were moved to a new location at the Lake Carl Blackwell Range in the fall of 1970 before calving in the spring of 1971 as 4-year-olds; their performance as 4-year-olds is reported here. In addition, the performance of a group of 3-year-old Angus x Holstein crossbreds (25 head) is also reported.

Procedure

The Angus x Holstein crossbred cows had been exposed to Angus bulls during May 1 to July 31 of 1970. Twenty-one of 25 and 37 of 39 were pregnant as 3- and 4-year-olds, respectively.

All cows were maintained on tallgrass native range yearlong. Prairie hay was fed only when the grass was covered by snow.

After weaning their calves as 2- and 3-year-olds in the fall of 1970, 21 of the cows were extremely thin. These cows were separated and fed 4 lb. of cottonseed meal per head daily during November and December; during this period the fatter cows were fed 2.2 lb. cottonseed meal per head daily. On January 1 all cows were again combined into one group and fed an average of 3.8 lb. of supplement (cottonseed pellets or a 30 percent natural-protein pellet) until April 20. The average supplement intake of all bred cows from November 5, 1970 to April 20, 1971 (164 days) was 3.55 lb. daily (Table 1).

Cows were pasture mated to Hereford bulls March 1 to May 26, 1971. Calves were weaned September 22, 1971.

Milk production estimates were obtained in May, June, July and September by weighing calves before and after nursing after two consecutive 12-hour periods during which cows and calves were separated.

Results and Discussion

Performance of the cows is summarized in Table 1. All six cows open initially conceived. Of the bred cows, the 4-year-olds calved 12 days earlier and produced calves eight pounds heavier at birth than the 3-year-olds. In addition, the 4-year-olds produced heavier calves at weaning, a 108 pound advantage for the steers and 56 pounds for the heifers. The average actual weaning weight of all calves was 527 and 445 pounds for the 4- and 3-year-old cows, respectively. Part of this advantage for the 4-year-olds was due to the older age of their calves, but even on a 205-day adjusted basis the 4-year-old cows had more advantage than normally expected due to a 1-year difference in age.

The weaning weights observed for the Angus x Holstein crossbred cows were considerably above those previously produced by straightbred cows of comparable ages on the same range; 3- and 4-year-old Angus and

Table 1. The Performance of Three- and Four-Year-Old Angus x Holstein Crossbred Range Cows

		3-year-old cows		4-year-old cows
Cows open initially				
No.		4		2
Daily supplement[1], lb.		3.45		3.45
No. conceiving		4		2
Cows pregnant initially				
No. cows		21		37
Daily supplement[1], lb.		3.55		3.55
Calving date		Mar. 6		Feb. 22
Birth wt.[2], lb.		71		79
No. calves weaned		21		35
Weaning wt., lb.				
Actual				
Steers	(189)[3]	436	(209)	544
Heifers	(199)	452	(213)	508
Total	(195)	445	(211)	527
Adjusted, 205-day basis				
Steers		467		535
Heifers		464		493
Total		466		514
Daily milk yield, lb.		13.2		14.0
No. cows open				
Total		6		3
Less than 60 days postpartum		4		0

[1] From 11-5-70 to 1-7-71 cottonseed pellets was fed, from 1-8-71 to 4-20-71 a 30% protein supplement was fed.
[2] Adjusted to bull equivalent by multiplying heifer weight by 1.048.
[3] Age in days at weaning.

Hereford cows have normally produced calves in the 400 to 435 pounds weight range, or approximately 450 pounds on a 205-day, steer, mature cow basis. The weaning weight of calves from the Angus x Holstein crossbreds in this study adjusted to the same basis was 530 and 560 pounds for the 3- and 4-year-olds, respectively. It is apparent that these particular half-dairy females are rather productive in terms of weaning weight of their calves.

The difference in estimated daily milk yield (Table 1), although in favor of the 4-year-old cows, was very small. The reason for the lack of a large difference in milk yield between 3- and 4-year-olds consistent with a large difference in weaning weight is not known.

It is interesting to compare the 205-day weaning weight of calves from the same cows at 2 and 4 years of age. Steer calves weighed 430 and 535 and heifer calves 320 and 493 pounds from the same cows at 2 and 4 years of age, respectively. These increases of 105 and 73 pounds from 2 to 4 years of age are somewhat larger than the 10 percent increase often observed with straight beef cows.

A total of six 3-year-olds and three 4-year-olds failed to rebreed. However, it should be pointed out that in order to move to an earlier calving season bulls were placed with the cows and removed 2 months earlier than the previous year. Consequently some cows were as little as 20 days postpartum when the breeding season ended and had little opportunity to rebreed. Of all cows which were at least 60 days postpartum, only two 3-year-olds and three 4-year-olds, a total of five of 58 cows, failed to rebreed. The percentage of open cows on this basis, 8.6 percent, is only slightly above the 3 to 5 percent open cows often observed in well managed beef herds.

Weights and condition scores are summarized in Table 2. The 4-year-olds lost considerably more weight than the 3-year-olds, probably because of earlier calving and higher milk production (as indicated by the weaning weight of the calves). Weight losses for both groups were within a range conducive to rebreeding, based on previous observations with straight beef females. Both groups showed some decrease in condition score during the year and failed to increase as much in condition score during the summer as desirable, probably due to their level of milk production.

The 3.55 pounds average daily supplement fed to the cows at 4 years of age can be compared to 2.0 pounds fed to the same cows at 2 years of age (when rebreeding performance was very poor) and the 2.5 pounds normally fed to spring calving beef cows of comparable age on the same range.

Table 2. Weights and Condition Scores of Three- and Four-Year-Old Angus x Holstein Cows

	3-Year-Old Cows	4-Year-Old Cows
Weight, lb.		
Initial, 9-29-70	864	1076
Pre-calving, 1-30-71	975	1181
End of winter, 4-16-71	822	943
Final, 9-21-71	935	1073
Weight change, lb.		
Pre-calving	+111	+105
Post-calving	—153	—238
Total winter	—23	—133
Summer	+94	+130
Total year	+71	—3
Condition score		
Initial, 9-29-70	3.6	5.1
End of winter, 4-16-71	2.9	3.0
Final, 9-21-71	3.3	3.6