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Spring versus Summer Calving for the Nebraska Sandhills: Production Characteristics

Greg Lardy
University of Nebraska-Lincoln

Terry J. Klopfenstein
University of Nebraska-Lincoln, tklopfenstein1@unl.edu

Don C. Adams
University of Nebraska-Lincoln, dadams1@unl.edu

Dick Clark
University of Nebraska-Lincoln

Jackie Johnson
University of Nebraska-Lincoln

See next page for additional authors

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Greg Lardy
Don Adams
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Terry Klopfenstein
Jackie Johnson
Andy Applegarth[1]

Summer calving reduced hay inputs necessary to maintain the cow herd by 1.5 tons/cow/year.

Summary

Effects of summer calving versus traditional spring calving were investigated over three years. Calving dates were: 1) March to April (beginning March 18) for spring calving and 2) mid-June to mid-August (beginning June 18) for summer calving. Spring-born calves were weaned in October, while summer-born calves were weaned in November or January. Summer calving cows were bred either on native range or subirrigated meadow. Birth weights were higher for summer-born calves, although weaning weights were lower. Pregnancy rates for spring-calving cows bred on native range were similar to summer-calving cows bred on subirrigated meadow or native range. Summer calving reduced the amount of hay necessary to winter the cow herd by about 3,150 lb/hd/year. The amount of supplement fed/cow/year was similar for spring and summer calving cows. Summer calving offers significant feed and labor savings for cow-calf producers.

Introduction

Analysis of herds participating in the Nebraska IRM project indicated feed costs were the largest portion of the total cost of cow-calf production, although these cost varied among herds. In order to increase profitability, producers must either reduce production costs without sacrificing production or increase production without markedly increasing costs.

The major portion of grazing land in the Nebraska Sandhills is native upland range, which is primarily warm-season grasses. These grasses are highest in quality in June, July, and August (1997 Nebraska Beef Report pp. 3-5). Traditional spring calving herds, however, calve in February, March and April in Nebraska, when warm-season grasses are dormant and will not maintain a lactating cow. Cows, therefore, are fed meadow hay and supplement until turnout to grass. Previous research indicates extending winter and/or spring grazing reduces the amount of hay fed and increases profitability (1993 Nebraska Beef Report pp. 5-8). This information led to establishment of the summer calving project.

Key components of the summer calving system include: 1) cows have access to vegetative forage for a short time prior to calving; 2) reduced hay and supplement cost since peak lactation occurs on vegetative forage; 3) reduced calf sickness and death loss during calving since it occurs during a warm, dry time period rather than the late winter/early spring; 4) reduced labor, machinery and fuel inputs associated with feeding hay; and 5) different marketing alternatives for Sandhills ranches, including a backgrounded calf in March or April, a yearling in September or slaughter cattle in January.

The objectives of this research were to: 1) compare the production traits of spring and summer calving herds in the Nebraska Sandhills, including birth and weaning weights and hay and supplement inputs; and 2) evaluate the effect of breeding on subirrigated meadow or native range for summer calving cows. We hypothesized that while November weaning would be beneficial to the lactating cow grazing winter range, January weaning would be best for keeping calf cost low. Spring born-calves were weaned in mid-October.

Procedure

In 1993, a summer-calving herd was initiated at the University of Nebraska-Lincoln's Gudmundsen Sandhills Laboratory. Cows previously maintained in a traditional spring-calving herd were assigned randomly to be bred in September and October for calving between mid-June and mid-August. Approximately 130 cows are maintained in the summer-calving cow herd, while 400

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cows are maintained in the spring-calving herd. Each herd is based on MARC II composite breeding (1/4 Angus, 1/4 Hereford, 1/4 Simmental, 1/4 Gelbvieh).

Table 1 shows the production calendars for the spring- and summer-calving herds. Birth weight, weaning weight, pregnancy rate and feed input data from the spring- and summer-calving herds were collected in 1994, 1995 and 1996.

Within the summer-calving herd, two grazing treatments, either native range or subirrigated meadow regrowth, were imposed during the breeding season.

Two weaning date treatments were imposed on the summer-calving herd. Early weaning occurred November 1, while late weaning occurred January 10.

Because replicate spring- and summer-calving herds were not maintained during the winter feeding period, feed inputs are simply reported and not statistically analyzed. Generally, the spring-calving herd was fed hay from January through mid-May. The summer-calving herd was managed on dormant winter range plus supplement throughout the winter. Hay was fed to summer-calving cows only during extremely inclement weather.

Table 1. Production calendar for spring- and summer-calving herds at the Gudmundsen Sandhills Laboratory.

		Summer calving	
	Spring calving	Early wean	Late wean
Calving dates	March 18 - April 18	June 8 - August 8	June 15-August 15
Breeding season	June - July	September-October	September-October
Weaning date	October 10	November 1	January 10

Table 2. Effect of calving and weaning date on birth weight, birth date, and weaning weight (three years).

		Summer calving		
	Spring calving	Early wean	Late wean	Contrast[1]
Birth weight (lb)	90.0	96.4	95.8	1,3
Birth date (Julian date)	90.5	181.6	179.0	1,3
Weaning weight (lb)	471.0	369.8	435.8	1,2,3

[1]Contrasts: 1, Spring vs. Summer Calving; 2, Early vs. Late-Weaned Summer-Born Calves; 3, Late-Weaned Summer-Born Calves vs. Spring-Born Calves.

Table 3. Effect of grazing native range or subirrigated meadow on cow weight change and body condition score change during the breeding season for summer calving cows.

Treatment	Year	Cow Weight Change	Cow BCS Change
Native Range	1994	-10.8	-0.14
Native Range	1995	-23.0	-0.90
Native Range	1996	-27.2	+0.07
Subirrigated Meadow	1994	45.5	+0.09
Subirrigated Meadow	1995	10.7	-0.39
Subirrigated Meadow	1996	97.1	0.08

Results

Birth weights were higher ($P < .01$) for the summer-calving herd compared to the spring-calving herd (Table 2). Although birth weights were greater, we observed less dystocia with the summer-calving cows than the spring-calving cows. In addition, summer-calving cows were checked less frequently during calving than spring calvers. Average birth date for the spring-born calves was March 30; for the summer-born calves the average birth date was June 29. Actual weaning weights were lower for early and late-weaned summer born calves ($P < .01$) compared to spring-born calves. In addition, weaning weights at about the same day of age (i.e. October versus January) were also lower for late-weaned summer-born calves compared to spring-born calves ($P = .06$). Summer-born calves weaned early had lower weaning weights than summer-born calves weaned in January ($P < .05$).

Summer-calving cows were fed 30 lb of hay/cow/year compared to 3,182 lb/cow/year for spring-calving cows. Similar amounts of protein supplement was fed to summer- (131 lb/cow) and spring-calving cows (108 lb/cow) each year. Opportunities for reducing the amount of hay fed to spring-calving herds exist (1993 Beef Report, pp. 3-5). Previous economic analysis of wintering systems for Sandhills cow herds indicated that maximizing winter grazing while minimizing hay feeding resulted in higher profitability (1993 Beef Report, pp. 5-8).

Significant year-by-treatment interactions were detected for cow weight change and cow body condition score change during the breeding season for summer-calving cows bred on subirrigated meadow or native range (Table 3). Generally, cows gained weight while grazing subirrigated meadow and lost weight while grazing native range. Condition score changes were similar and mostly small during the breeding season, except in 1995 when two fall snowstorms adversely affected cow performance. In 1994, no snowfall was recorded during the breeding season and average temperatures were 2.4°F above normal. During September and October, 1995, 24 inches of snow fell and average temperatures were 1.0°F below average.

Calf gains were higher on subirrigated meadow, compared to native range, during the breeding season ($P = .03$; Table 4). Pregnancy rates were similar ($P = .25$).

Pregnancy rates were similar for spring-calving cows bred on native range during June and July or summer-calving cows bred on either native range or subirrigated meadow during September and October (Table 4).

Summer calving offers advantages for Sandhills cow-calf producers. Perhaps the most significant advantage is

Table 4. Effect of grazing native range or subirrigated meadow during the breeding season on calf weight gains and pregnancy rate (three years).

	Subirrigated meadow	Native range	P-Value
Calf Weight Gain (lbs)	143.6[a]	127.6[b]	.03
Pregnancy Rate[c] (%)	91.6	94.9	.25

[a,b]Means in same row with different superscripts differ (P = .03).
[c]Spring calving cow pregnancy rate = 94.6%.

the reduced amount of hay and labor for feeding hay necessary to winter the cow herd. Summer-born calves weaned at the same age as the spring-born calves were 35 lb lighter at weaning. Savings in feed costs, however, may offset the loss in weaning weight. In addition, January calf prices for the relevant weight of calves tend to be higher than October prices. For the producer selling weaned calves, January calf prices would need to be only about 8% higher than October prices for the summer-born calves to generate equal gross income. In Nebraska, producers received an average of 7.8 percent more for the relevant weight calves in January than in October over the 10-year period 1986-1995. Given the historical price differentials, summer- and spring-born calves will generate similar gross income; therefore, cost savings due to reduced feeding of hay made the summer-born system more profitable at weaning time.

[1]Greg Lardy, former graduate student; Terry Klopfenstein, Professor, Animal Science, Lincoln; Don Adams, Professor; Dick Clark, Professor; Jackie Johnson, research technician, West Central Research and Extension Center, North Platte; Andy Applegarth, ranch manager, Gudmundsen Sandhills Laboratory, Whitman.