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Weaning Date for Spring Calving Cows Grazing Sandhills Range

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When weaning is timed with the decline in forage quality, cow body weight, condition and calf performance can be maintained.

Summary

A two-year experiment was conducted with March calving cows to determine the effect of the weaning date on cow body condition score, cow body weight, and calf body weight. Treatments were of eight weaning dates imposed at consecutive two-week intervals, beginning in mid-August and ending in late November. Cow body condition score declined linearly as weaning date was later in the fall. Calf body weight gains from August through November increased with weaning dates from August 18 through October 13; however, weaning after October 13 provided no advantage of increased calf body weight gain.

Introduction

Weaning date is a tool to help beef producers obtain specific production and economic goals. Body condition score of the cow at spring calving in systems that extend grazing through the winter can be greatly influenced by weaning date. Producers may use weaning date to manage cow body condition.

Weaning has nutritional impacts on both the cow and the calf. Cows with suckling calves have greater nutritional requirements than dry cows. Nonlactating pregnant spring calving cows generally maintain body condition score on fall range as long as forage supply is adequate. In contrast, a lactating cow's requirements may not be met by dormant range forage during fall months. When a lactating cow's nutrient requirements are not met, cows will use body stores for milk production. Use of body stores results in a decline of body condition score and may affect subsequent reproductive performance.

Previous research with spring calving cows shows cows become thinner as weaning is moved later into the fall when forage quality is declining. The objective of this experiment was to evaluate effects of weaning date of March calving cows during the fall from 140 to 240 days after the beginning of calving on cow body weight, cow body condition score, and calf body weight gain.

Procedure

A two-year experiment was conducted at the Gudmundsen Sandhills Laboratory located near Whitman, Neb., using MARC II mature spring calving cows in 1999 (year 1; n=97) and 2000 (year 2; n=104). Cows were blocked by age and randomly assigned to one of eight weaning dates. In year one, weaning began August 18 and continued at two week intervals through November 24. In year two, cows were re-randomized and calves were weaned every two weeks beginning August 16 through November 22.

At weaning, calves were fed hay in a dry lot for five days and then grazed subirrigated meadow to the end of the trial in November. Cow/calf pairs were managed as a single group and grazed native sandhills range until weaning. After each weaning date, cows were rejoined with cow-calf pairs and grazed as a single group until the last group of calves was weaned.

Major grass species for native sandhills range include little bluestem (Schizachyrium scoparium [Michx.] Nash), prairie sandreed (Calamovilfa longifolia [Hook] Scribn.), sand bluestem (Andropogon gerardii var. paucipilus [Nash] Fern.), switchgrass (Panicum virgatum L.), sand lovegrass (Eragrostic trichodes [Nutt.] Wood), scribner panicum (Dichanthelium oligosanthes [Schult.] Gould), and grasslike plants (Carex spp. and Cyperus spp.). Common forbs included western ragweed (Ambrosia psilostachya DC.), cutleaf ironplant (Haplopappus spinulosus [Pursh] DC.), and prairie clover (Petalostemum purpureumn Vent.), and shrubs include leadplant (Amorpha canescens Pursh) and small soapweed (Yucca glauca Nutt.).

Individual cow body weight, cow body condition score (scale 1-9), and body weight of calves were taken at the first weaning date in August and at the last weaning date in November. Data were analyzed using the MIXED procedures of SAS. Calf sex was included in the model.

Results

No year x treatment interactions ($P>0.05$) occurred. Cow body condition score, cow body weight, and calf body weights were similar ($P>0.05$) among all weaning dates at the first weaning date in August.

Cow body condition score, cow body weight, change in cow body condition

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score, and change in cow body weight declined linearly (Table 1; P<0.05) from the first weaning date in August to the last weaning date in November. Cow body condition scores in November ranged from 5.9 for the initial weaning date in August to 5.0 for the final weaning date group in November. Cow body weight in November decreased from 1,243 lb for the initial weaning date in August to 1,144 lb for the last weaning date in November.

Average calf age for all groups at the first weaning date was 139± 3 days. Calf body weights at the last weaning date in November increased quadratically (Table 1; P<0.05) with the lowest body weight occurring for the initial weaning date (440 lb) and the highest for the November 10 weaning (535 lb). Calf body weight gain responded to weaning date in a quadratic fashion (Table 1; P<0.05). Calves weaned later in the fall had greater gains; however, the amount of gain diminished as weaning dates advanced from October through November. Declining cow body condition score and a diminishing return in calf body weight gain showed little biological advantage to weaning after October 13, 1999 or October 11, 2000.

Table 1. Mean ending and change in (August through November) cow body condition score, cow body weight, calf body weight and calf gains across weaning dates.

	Weaning Dates[a]								
	Aug 18	Sep 1	Sep 15	Sep 29	Oct 13	Oct 27	Nov 10	Nov 24	SE
BCS									
End[b]	5.9	5.7	5.6	5.5	5.4	5.3	5.3	5.0	.09
Change[b]	.36	.26	.20	.15	.05	-.04	-.11	-.35	.16
Weight, lb									
End[b]	1243	1225	1236	1218	1203	1159	1183	1144	27.00
Change[b]	53.7	38.5	37.5	1.06	3.35	-21.1	.013	-39.5	55.9
Calf Weight, lb									
End[c]	440	477	485	508	518	502	535	524	13.3
Gain[c]	80.0	102.6	115.9	127.2	133.7	134.4	145.8	147.6	13.7

[a]Weaning dates for year 2 started August 16 and ended November 22.
[b]Linear effect across weaning dates (P<0.05).
[c]Quadratic effect across weaning dates (P<0.05).

In summary, cow body condition score and cow body weight decreased linearly as weaning date was delayed to later in the fall, and calf weights increased quadratically with similar performance of calves weaned after October 13. Weaning calves after October 13 seems to show minimal advantage in calf performance while cow body condition score would decrease. Weaning earlier than October 13 and removing the calf from the low quality forage during fall grazing reduces the nutrient requirements of the cow and allows cow body condition score to increase.

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