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Comparing March and May Calving Systems in the Nebraska Sandhills

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Summary with Implications

Three production years for March and May calving, Red Angus-based cows and their offspring from the Gudmundsen Sandhills Laboratory (GSL), Whitman, NE, were evaluated. Steer progeny were evaluated through harvest and carcass data collected. Calf birth body weight (BW) and breeding BW were greater for May calves vs. March; however, adjusted weaning BW was greater for March calves. Pregnancy rates, weaning rates, calving interval, calving difficulty, and calf vigor were similar between calving systems. Udder score was greater for March cows. Compared with March calf-fed steers, May calf-fed steers had greater hot carcass weight (HCW), longissimus muscle area (LMA), marbling, and backfat. May yearlings had greater HCW, LMA, marbling, and backfat compared with March calf-feds. In the Sandhills, a May calving system can increase production while reducing total herd inputs when compared to a March calving system.

Introduction

Selecting a calving season can be one of the most influential factors for a successful beef production system. Weather, available labor and feed resources, market potential for calves and open cows, and breeding season impact the profitability of a calving season. In addition, location and producer goals will affect the decision about when to calve. When comparing March and June calving in the Nebraska Sandhills, a June calving system reduced labor and the amount of hay fed, but increased protein supplement needed for June cows (2001 Nebraska Beef Cattle Report, pp. 8–9). Weaning rates were similar between both systems, but the March-born calves had approximately 70 lb increased weaning weights over June-born calves of similar age. June was selected in this region to best match cow nutrient needs with nutrients in grazed forages. The current study was conducted to provide information on a May calving system as May was selected to balance the differences/downfalls between the March and June systems.

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Table 1. Comparison of calf performance between March and May calving systems

	March	SEM	May	SEM	*P*-value System[1]	*P*-value Cow Age[2]
n						
Birth wt, lb	77.34	0.46	78.06	0.64	0.02	0.01
Breeding wt, lb	173.0	1.56	213.83	1.97	0.01	0.01
Weaning wt, lb	533.62	2.89	441.43	3.62	0.01	0.01
Adj weaning wt[3], lb	499.18	2.45	426.33	4.44	0.01	0.01
Calving difficulty[4]	1.04	0.01	1.00	0.01	0.05	0.27
Calf vigor[5]	1.04	0.01	1.00	0.01	0.16	0.29
Calf sex[6]	0.54	0.02	0.49	0.03	0.10	0.80

[1]*P*-value significance of calving system
[2]*P*-value significance of age of cow
[3]Adjusted 205 d weaning weight
[4]Calving difficulty score on scale of 1 to 5: 1 = unassisted, 2 = easy pull, 3 = hard pull, 4 = surgical removal, 5 = abnormal presentation
[5]Vigor of the calf shortly after birth on scale of 1 (nursed immediately, strong) to 5 (dead on arrival)
[6]Average sex of calf born in herd (0 = female, 1 = male)

Procedure

Data from 3 production years from 2 calving herds in the Nebraska Sandhills were analyzed. Red Angus-based cows from the Gudmundsen Sandhills Laboratory, Whitman, NE, calved either in March or May. All cows analyzed were at least 3 yr of age or older. The numbers varied each year for March (n = 194, n = 160, and n = 149 for yr 1, 2, and 3 respectively) and May (n = 105, n = 106, and n = 90 for yr 1, 2, and 3 respectively) calving herds. Average calving date was March 24 for the March herd and June 5 for the May herd. March cows calved in a drylot and May cows calved on native range.

All steer calves from the March herd entered the feedlot after a 14 d weaning period as calf-feds. May-born steer calves were backgrounded for approximately 136 d. After backgrounding, half of the steers entered the feedlot as calf-feds and the remainder grazed native upland range for approximately 129 d before entering the feedlot as yearling-feds. All steers were harvested when visually assessed to have approximately 0.5 in backfat depth and carcass quality data was collected.

Results

In the March calving system, 82% of the calves were born in the first 21 d; while 85% of the May calves were born within the first 21 d. Calf birth BW and calf BW at breeding were ($P < 0.01$) greater for May calves vs. March (78 ± 0.6 lb vs. 77 ± 0.5 lb and 214 ± 2 lb vs. 173 ± 1.6 lb respectively); however, adjusted weaning BW was greater ($P < 0.01$) for March calves (500 ± 2.5 lb vs. 426 ± 4.4 lb, March vs. May, respectively; Table 1). Pregnancy rates (89% vs. 91%), weaning rates (96% vs. 94%), calving interval, calving difficulty, and calf vigor were similar ($P > 0.10$) between systems. Udder

Table 2. Comparison of cow performance between March and May calving systems

	March	SEM	May	SEM	*P*-value	
					System[8]	Cow Age[9]
n	503		301			
Cow Age[1]	5.83	0.08	4.70	0.08	-	-
Calving wt, lb	1,107.84	6.30	1,012.78	6.50	0.01	0.01
Calving BCS[2]	5.18	0.03	4.87	0.03	0.01	0.13
Breeding wt, lb	1,033.77	5.64	1,079.10	7.37	0.01	0.01
Breeding BCS	4.90	0.03	5.74	0.03	0.01	0.01
Wean wt, lb	1,101.27	5.53	972.96	7.55	0.01	0.01
Wean BCS	5.37	0.03	4.70	0.04	0.01	0.01
Preg[3]	0.91	0.01	0.89	0.02	0.74	0.16
Calving Rate[4]	0.98	0.01	1.00	0.00	0.05	0.46
Wean Rate[5]	0.94	0.01	0.96	0.01	0.64	0.17
Julian DOB[6]	82.60	0.56	145.37	0.59	-	-
Udder Score[7]	3.32	0.03	3.01	0.05	0.01	0.06

[1]Average age of cows in the herd

[2]Body condition score based on scale of 1 (emaciated) to 9 (extremely obese)

[3]Percentage of cows pregnant that were given opportunity to breed

[4]Percentage of cows that gave birth to a calf that were diagnosed as pregnant

[5]Percentage of cows that weaned a calf of those who gave birth to a calf

[6]Average calving date of herd based on Julian calendar

[7]Average udder score of cow at calving on scale of 1 (poor) to 5 (exceptional)

[8]*P*-value of calving system

[9]*P*-value of age of cow

score was greater ($P < 0.01$) for March cows (3.32 ± 0.03 vs. 3.01 ± 0.05, March vs. May, respectively; Table 2).

Compared with March calf-fed steers, May calf-fed steers had greater ($P < 0.01$) HCW (898 ± 12 lb vs. 830 ± 5 lb), LMA (15 ± 0.2 in^2 vs. 14 ± 0.1 in^2), marbling (494 ± 12 vs. 477 ± 5.9), and backfat (0.65 ± 0.02 in vs. 0.57 ± 0.01 in). May yearling steers had greater ($P < 0.01$) HCW (961 ± 13.2 lb vs. 830 ± 4.7 lb), LMA (15 ± 0.2 in^2 vs. 14 ± 0.1 in^2), marbling (566 ± 15 vs. 477 ± 5.9), and backfat (0.66 ± 0.03 in vs. 0.57 ± 0.01 in) compared with March calf-feds. May steers likely finished with increased HCW and carcass traits due to increased backgrounding period compared to March steers.

Conclusion

Selection of calving season is best assessed by each producer at his/her own location. Management decisions for steers and replacement heifers will vary between systems as this study illustrated briefly the flexibility post weaning depending on forage availability and time of year. Peak forage nutrients vary as well as complementary forages and access to stockpiled feeds. By synchronizing peak nutrient requirement of the cow with peak forage quality, a producer can mitigate cost and amount of forage used per cow and increase potential for profitability. In the Sandhills, a May calving system can increase production while reducing total herd inputs when compared to a March calving system.

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