

# **Effect of Fall Calving Cow Nutrition and Calf Creep Feeding on Subsequent Feedlot Performance and Carcass Traits**

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## **Story in Brief**

Effects of cow nutrition and calf creep were evaluated in a two-year experiment using 60 Angus x Angus x Hereford steers. Two levels of creep feeding (creep fed or not creep fed) and two levels of cow nutrition (6 lb per day of 20% protein feed or 2 lb per day of 40% protein feed) were applied in a factorial design from January through early April. Calves were weaned and placed on feed in early July. Non-creep fed steers gained at a faster rate in the finishing phase compared with steers that had received creep feed, regardless of the dam's supplement treatment during late winter. Finishing phase feed intake tended to be greater when cows received the higher level of winter supplement. When steers were not fed creep during the late winter nursing phase, feed efficiency was improved by 8.1%, regardless of the level of cow nutrition. Creep feeding during late winter resulted in increased dressing percentage, although marbling was not significantly influenced. The high level of late winter cow supplement and creep feeding increased hot carcass weights. Neither level of cow supplement nor creep feeding treatment influenced ribeye area, back fat, marbling, or yield grade. Creep feeding during late winter increases carcass weight and dressing percent although finishing phase rate of gain and feed efficiency are compromised.

Key Words: Cow Nutrition, Creep Feeding, Fall Calving, Carcass Traits

## **Introduction**

One of the limitations in fall calving beef production systems in the southern Great Plains is the lack of high-quality forage available at the time of weaning during mid-summer. Consequently, most fall-born calves bypass the stocker phase and are delivered directly to feed yards at weaning time, or after a brief conditioning period. Medium framed cattle placed on feed at weaning, can have reduced carcass weights by as much as 120 to 180 lb, compared to genetically similar cattle that are placed on feed as yearlings (Klopfenstein et al., 1999).

Management practices that increase carcass weight will increase gross income, and may reduce break-even price at market. According to the 1995 Beef Quality Audit, the industry could benefit by producing 17% more average Choice cattle than was being produced in 1995. When spring-born calves were placed in a calf-fed system, creep-fed calves had higher quality grade and 42 lb heavier carcasses with no differences in finishing phase weight gain or feed efficiency (Faulkner et al. 1994).

The objective of this two-year experiment was to determine the effects of level of cow nutrition and creep feeding during the late winter suckling phase on feedlot performance and carcass traits.

## **Materials and Methods**

Steers used in this study were from our companion study (Mayo et al., 2002). Winter nutrition treatments were applied to cow calf pairs from January through mid April after the breeding season had ended. Treatments were: 1) 2 lb of 40% CP supplement with no creep feed; 2) 2 lb of 40% CP supplement with ad libitum access to creep feed; 3) 6 lb of 20% CP supplement with no creep feed; 4) 6 lb of 20% CP supplement with calves having creep feed. In April steers were treated for internal and external parasites using Dectomax<sup>®</sup> and implanted in year one with Ralgro<sup>®</sup> and in year two with Synovex-C<sup>®</sup>. Three weeks prior to weaning calves were vaccinated with CattleMaster IV<sup>®</sup> and Ultrabac<sup>®</sup>. At weaning (early July) the cattle were shipped to the Willard Sparks Beef Research Center, near Stillwater, OK. Upon arrival, steers were individually weighed, processed, and allotted to one of eight partially covered pens (3-4 hd/pen) with 2 replications of each treatment. Processing included vaccination with Bovi-Shield 4<sup>®</sup> and treatment for internal and external parasites using Ivomec<sup>®</sup> injectable. Steers were weighed on arrival and during early am prior to feeding at 28-d intervals for the duration of the experiment. Final weight was calculated by subtracting 4% from the final gross weight. Dressing percentage was calculated by dividing hot carcass weight by finish shrunk weight. Steers were harvested after being on feed for 160 d and 149 d for yr 1 and yr 2, respectively. Following an approximate 36-h chill, ribeye area, marbling score, lean and skeletal maturity, 12<sup>th</sup> rib fat, and USDA Quality and Yield Grades were recorded.

Data were analyzed using the GLM procedure of SAS (SAS Inst. Inc., Cary, NC) as a 2 x 2 factorial arrangement of treatments in a completely random design. Pen served as the experimental unit for gain, dry matter intake, and efficiency data, and steer was used as the experimental unit for carcass parameters.

## Results and Discussion

At the beginning of the finishing period, initial weight (Table 1) was 10% greater in creep fed steers compared with calves not fed creep. Daily gains tended to be greater ( $P=.09$ ) for steers from cows on the high cow nutrition treatment and were significantly greater ( $P=.03$ ) for steers that did not receive creep feed. Creep feeding did not significantly influence dry matter intake (DMI), although there was a tendency ( $P=.09$ ) for the high cow supplement to increase feed intake. Creep feeding resulted in an average reduction in feed efficiency of 8.1% compared with non-creep fed calves.

**Table 1. Effect of cow nutrition and/or creep feeding on subsequent feedlot performance**

Item	Low cow supplement		High cow supplement		SE	P
	No creep	Creep	No creep	Creep		
Initial wt	617	701	657	712	26	<sup>a</sup> CR
Final wt	1128	1160	1176	1213	36	--
ADG	3.19	2.87	3.25	3.14	.09	<sup>a</sup> CR
DMI	18.73	18.80	19.35	19.98	.64	--
<u>Feed: gain</u>	5.90	6.56	6.03	6.42	.20	<sup>a</sup> CR

<sup>a</sup>Effect of creep feeding (CR) is significant at  $P<.05$

Creep fed steers regardless of cow nutrition had 1.7% greater in dressing percent (Table 2) than non-creep fed steers. Hot carcass weight was greater ( $P=.04$ ) in steers fed creep compared with those not fed creep. Similarly, the high-cow supplement increased carcass weight ( $P=.05$ ). Neither level of cow supplement nor creep feeding influenced ribeye area, back fat, marbling, and yield grade.

**Table 2. Effect of cow nutrition and/creep feeding on subsequent carcass traits**

Item	Low cow nutrition		High cow nutrition		SE	P
	No creep	Creep	No creep	Creep		
Dressing%	63.3	65.0	64.2	64.6	.5	<sup>a</sup> CR
HCW	712	758	756	785	18	<sup>a</sup> CR, CN
REA	12.4	12.6	12.7	13.1	.3	--
BF	.58	.61	.64	.59	.03	--
MARB	424	448	422	424	18	--
YG	3.12	3.27	3.32	3.19	.13	--

<sup>a</sup>Effect of creep feeding (CR) or level of cow nutrition (CN) is significant ( $P<.05$ )

### Implications

Perhaps a higher level of protein and energy supplementation to the cow during late winter has a positive carryover effect when calves enter the finishing phase. Overall, creep feeding had a greater influence on finishing phase performance and carcass traits than did level of cow nutrition. Creep feeding during late winter may increase carcass weight and dressing percent although finishing phase rate of gain and feed efficiency might be compromised.

### Literature Cited

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