PHOTO BY SHAUNA ROSE HERMEL

Fetal Programming Effects

Calf performance is directly linked to dam's gestational nutrition.

*by **Kasey Brown,** associate editor*

Feed is the single most variable cost in beef production, and while studying protein supplementation during winter grazing, discoveries were made on fetal programming, said Rick Funston, a reproductive physiologist at Nebraska's West Central Research and Extension Center. He spoke to attendees of the 2015 Applied Reproductive Strategies in Beef Cattle (ARSBC) symposium in Davis, Calif., Aug. 17-18.

Fetal programming research is showing that nutrition of the dam before the calf is born affects the calf's subsequent performance — all the way to harvest.

Table 1: Effects of weaning time and supplementation of dam on calf performance in the feedlot, costs and net revenues after finishing

Month weaned:	August	August	November	November
Dam supplemented:	**Yes**	**No**	**Yes**	**No**
Out wt., lb.	1,276	1,254	1,310	1,204
ADG, lb.	3.4	3.4	4.0	3.7
HCW, lb.	796	780	814	747
Costs, $ per head				
Calf	471	449	474	451
Feed	326	301	269	249
Yardage	74	74	59	59
Trucking	2	2	3	3
Processing	25	25	25	25
Total Cost	898	851	830	787
Revenue, $ per head				
Steer	872	858	877	810
Net per cow exposed	-9	3	22	11

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►"We took 100 pounds off calves by what we did to their mother during gestation," said Rick Funston, a reproductive physiologist at Nebraska's West Central Research and Extension Center.

Funston shared data that November-weaned steers out of supplemented dams were more profitable.

"We took 100 pounds off calves by what we did to their mother during gestation," he said, meaning that steers out of unsupplemented mothers weighed 100 pounds (lb.) less coming out of the feedlot than steers of supplemented mothers (see Table 1). Despite the additional costs of supplementation, the steers born to supplemented dams earned $877 per head, compared to $810 for steers born to unsupplemented dams. The net profit per cow was $22 for the supplemented group compared to $11 for the unsupplemented group.

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Another study looked at how supplementing protein during late gestation affects those resulting heifer calves' performance. Seventy-seven percent of heifers out of supplemented dams calved in the first 21 days of the calving season, compared to 49% of heifers out of the unsupplemented dams (see Table 2). Final pregnancy rates were 93% for heifers born to supplemented dams and 80% for the heifers born to unsupplemented dams, he explained.

Comparing winter grazing and supplementation strategies, Funston said cornstalk residues provide a reasonably priced alternative to grazing dormant winter range. Unsupplemented grazing cows did get pregnant, but later in the breeding season. Supplementing cows on corn residue exhibited little change in calves' performance other than higher marbling. Calves out of supplemented dams exhibited more marbling and earned higher quality grades. Calves out of supplemented dams also experience less morbidity in the feedlots.

Funston spoke during Monday's ARSBC session focused on females. Visit the Newsroom at *www.appliedreprostrategies.com* to view his PowerPoint, read the proceedings or listen to his presentation.

Table 2: Effects of prepartum nutrition on heifer development

	No supplement	Supplement
Birth wt., lb.	77	79
Weaning wt., lb.	455	469
Adj. 205-day wt., lb.	480	499
Preg-check wt., lb.	851	882
Age at puberty, days	334	339
Cycling, %	67	61
Calved first 21 days, %	49	77
Final pregnancy %	80	93
Calving date	75	71

Editor's Note: *Comprehensive coverage of the symposium is available online at* www.appliedreprostrategies.com. *Compiled by the* Angus Journal *editorial team, the site is made possible through sponsorship by the Beef Reproduction Task Force.*