



# NUTRITION NOTES

Innovation + Research from Kent Nutrition Group

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## EFFECT OF VARIOUS FEEDING PROGRAMS ON THE FEEDLOT PERFORMANCE AND CARCASS QUALITY OF ANGUS CROSSBRED GROWING AND FINISHING CATTLE

*Steve Sachtleben, Ph.D., PAS, Beef Nutrition and Research*

In this study, we set out to determine whether feedlot cattle performance and carcass quality are influenced by the feeding program (conventional vs natural vs grass fed).

Within the last 10 years, conventional cattle production has partially given way in certain areas of the US to all-natural and grass-fed beef production. Natural and grass-fed production does not take advantage of the feedlot tools which can improve performance and the efficiency of that performance. Such tools are ionophores, medications, implants, ractopamine HCl and approved animal ingredients which can lower feed costs. In addition, grass-fed cattle generally outlaw the use of grain products. Some natural programs even go to the extent of not permitting the feeding of GMO grains and protein supplements. Without a doubt, conventional cattle production produces the best-quality beef with the least cost of gain. However, today's consumers on the east and west coasts prefer a different kind of beef.

Seventy-five crossbred calves (average 689 lb) were placed into 10 inside confinement pens (50 head) and one outside pasture (25 head) during December 2016. Cattle were allotted to pens or pasture based on purchase origin (PDC or sale barn), genetic background and body weight. The 10 inside pens (two treatments x 5 replicates/treatment) contained 5 head/pen and the outside pasture contained 25 head (one replicate). The treatments evaluated were:

Treatment	Description
1	Conventional feeding program
2	All Natural feeding program
3	Grass fed program

Cattle assigned to the conventional feed program (Treatment 1) received a corn based diet with 7 pounds of corn silage/head/day and were fed dry distillers grains with solubles (DDGS) to meet a 12 % crude protein diet recommendation on a dry matter basis. These cattle were also implanted every 90 days with a TBA implant, and fed 250 milligrams of Rumensin/head/day. Approximately 30 days preharvest, all conventional cattle were to receive 200 mg/head/day of Optaflexx (Elanco, Indianapolis, IN).

All-natural cattle (Treatment 2) received the same diet as conventional cattle without the benefits of implants, Rumensin and Optaflexx.

Treatment 3 cattle (grass fed) were placed into a pasture adjoining the feedlot and were offered pasture and supplemental hay along with free-choice mineral (Framework 365 Mineral ADE) and EnergiLass tubs (EnergiLass 20%). They were not implanted nor offered any feed additives.

When sold, cattle were marketed on a grid basis and carcass data were recovered by Blackhawk College staff at Tyson's Joslin, Illinois plant.

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Cattle were placed on test December 1, 2016 and the confined cattle were sold on May 18, 2017 (169 days on test). The grass-fed cattle (Treatment 3) were taken off test on this date in May and placed on a finishing diet until marketed in October 2017. The data in Table 1 represent the performance data from December 1 thru May 18, 2018.

Treatment	Description	ADG, lb	DMI, lb	F/G
1	Conventional feeding program	3.83 <sup>a</sup>	22.34	5.83 <sup>a</sup>
2	All Natural feeding program	3.33 <sup>b</sup>	21.91	6.58 <sup>b</sup>
3	Grass fed program	.85 <sup>c</sup>	15.92	18.73

*abc (P<.05), statistics not done on Grass Feed DMI and F/G as only a single rep*

Feedlot cattle fed the conventional diet with feed additives and implanted as defined, gained faster (P<.05), tended to eat more feed (P>.10) and were more efficient (P<.05) in their gains when compared to those on the all-natural program. In the 169-day trial, conventional cattle weighed 84.5 lb more at harvest (live weight) while consuming 0.75 lb less dietary dry matter per pound of gain. As cattle were started on test at 689 lb of body weight and sold at approximately 1350 lb, this represents 495.75 lb less dry matter per animal for the feeding period. This is approximately 8.85 bushels of corn dry matter or 10.4 bushels per head of normal, 85% dry matter corn. Today, with \$3.40 corn/bushel, this equates to a savings of \$35.36/head. In addition, the 84.5 lb of added weight gain would be valued at \$111.54 (\$1.32/lb x 84.5). The value of conventional feeding over natural feeding in this study was \$111.54 + \$35.36=\$146.90/head. There were no differences on carcass value as 96% of all cattle killed yielded choice or better carcasses.

The grass-fed cattle were 503.6 pounds lighter than the conventional group and 419.1 pounds lighter than the all-natural cattle. At the gain rates established in this trial the grass-fed cattle would require an additional 493 to 588 days on feed in order to reach the market weights of treatment 1 and 2 cattle. This is true if their maintenance requirements remain the same but that will increase as body weight increases; so actually days on feed to finish will be substantially greater.

In summary, conventional cattle feeding will result in the best animal performance using all the additives available to enhance performance. This does not necessarily mean that the conventional group is more profitable. The premiums for naturally fed and raised cattle may exceed the \$146.90 per head, demonstrated in this study. Perhaps the naturally fed cattle may be owned from farm to plate thus providing more opportunity for profitability. A place for truly grass-fed cattle in the industry is questionable due to total economics, the land required, the slow growth (2-3 years before marketing) and the lack of great consumer support at this juncture.