

Beef from Holsteins x Angus Cross Calves - Observations

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Garland Dahlke, Iowa Beef Center;
Jordan Harding, Beef Nutrition Research Farm,
Iowa State University

Summary and Implications

Early health challenges, adequate feedyard performance and good carcass grades can be expected when feeding dairy-beef cross calves.

Introduction

The utilization of sexed semen in the dairy industry has led to a surge of interest in using beef sires on dairy cows that are less desirable to use for generation of herd replacements. This has led to a large number of the dairy-beef cross calves being fed for beef in feed yards across Iowa and other places in the United States. The purpose of this paper is to provide some detail of what was observed in feeding a small group of these calves at Iowa State University.

Materials and Methods

A group of 19 calves from Holstein cows bred to Angus bulls was sourced from the Iowa State University Dairy Farm. These calves, heifers and steers, weighed 179 pounds at the time of arrival and were newly weaned. Most of these calves appeared to be challenged with a mycoplasma respiratory infection and were subsequently treated with Draxxin at this time.

Receiving – The calves came in early March and were provided the shelter of a 3sided building with clean pens bedded with wood chips at arrival. Free Choice grass hay and dry distillers' grain with Rumensin was provided to these calves for the first month after arrival. Pen floor space was about 32 square feet per calf.

Growing – The growing phase consisted of two rations, provided in Table 1. The calves were placed on the first ration after the initial month from arrival and remained on this ration until they reached 500 pounds. Then calves were transitioned to the second ration and remained on this ration until they reached about 900 pounds. No implants were used at this time and the rations were moderate in energy concentration and adequate in metabolizable protein. Pens were cleaned about every month and bedded with chopped corn stalks or wood chips, depending on availability. Calves had access to a small out door lot as well.

Finish – The finishing phase then consisted of one ration (see Table 1) and during this time individual feed

intakes were acquired on these animals using the Iowa State University Feed Intake Monitoring System. Heifers were then separated from steers and melengestrol acetate (MGA) was fed to the heifers to inhibit estrus. All calves received the Elanco TE 200 implant at this time. This was the only implant used throughout the time on feed. During the last 4 weeks of the trial the calves were placed on Optaflexx. All finished calves were sold to a commercial packing plant on a grade and yield basis. Pens were cleaned approximately monthly and bedded with chopped corn stalks throughout this time as well.

Results and Discussion

Receiving – As mentioned in the materials and methods area, these calves did have some health challenges at the beginning with mycoplasma pneumonia. Draxxin was the drug used primarily, Nuflor, LA200 and Meloxicam were also used. Other than the respiratory issues, one case of pink eye, one cyst and two injuries comprised the treatment listed in Table 2. It should be noted that of the 30 treatment events listed in the receiving/backgrounding phase, 15 of these involved 2 calves of which one died and one was euthanized. Another point is that 60% of these treatments occurred in the first two months after arrival when the calves were quite small. Aggressive treatment during this time with the proper drug is a key step in minimizing total drug use/cost and preventing a condition of chronic illness.

Growing – The growing phase involved a fairly rapid transition from the initial hay and dry distillers' grain to the rations shown in Table 1. The rations were intended to get the calves growing quickly and were fairly aggressive in terms of the energy concentration, but were fortified with a fairly high level of digestible fiber and adequate metabolizable protein.

The heifers were scheduled to be spayed. However, at the time this was to take place the heifers were weighing 750 to 850 pounds and the ovaries were too large in all but one of the heifers. The attempt at spaying was also the reason for extra antibiotic treatments that occurred later in the feeding phase to ward off any infection for those animals going through this procedure. It should be noted that no implants were used during this growing production phase due to the potential instability in feed intake that can be brought on by health issues.

Finishing – The target for the final finishing phase was set to start when the calves reach the 900 to 1000 pound range. The calves at this time were given one terminal implant and placed on their final ration. Heifers were separated from the steers since MGA was provided to the

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heifers because the process of spaying could not take place. During the last 4 weeks Optaflexx was provided in the ration as well. Performance of the heifers and steers is provided in Table 2. The steers did not perform as well as the heifers, but in reality, there was one steer with a chronic lung infection that appeared to have had a relapse and did not grow very well in the finishing phase. This contributed heavily to the steer group's poorer feedlot performance relative to the heifer group.

Individual feed intake measures indicated a wide range in feed conversion ranging from 4.4 to 9.5 pounds of ration dry matter per pound of empty body weight gain. The residual feed intake (RFI) results reflect this wide spread as well. This fact is somewhat expected since this is a trait that is seldom selected for directly. The residual gain (RG) which has correlations to average daily gain was much tighter in range and probably influenced by the fact that cattle are selected for the rate of weight gain and in the case of dairy breeding, expected to reach certain standards if they are to be retained as replacements.

Carcass and market data are provided in Table 3. The use of Holstein genetics is well masked by the Angus, however not always. In this feeding trial, one of the animals did not qualify for the marketing channel of the others due to white patches on the flank. Conformation otherwise appeared acceptable for traditional fed-beef markets.

Figures 1, 2 and 3 provide images of the young calves when they were received and then the same calves at market time. The calves, which were born in January and February of 2020, received from the dairy in March and April of 2020, were finished by mid-April of 2021 at approximately 15 months of age. All calves were sold at the same time and all data was adjusted to a 63% carcass yield for the feedlot data in Table 2. The plant data did indicate a 62.41% dressing percent based on the plants estimated live weight and hanging carcass weight. These cattle, which were sold on a quality grid, all graded quite well and as a group beat the packing plant's grid base price by \$5 per cwt of carcass weight. The steer that was mentioned earlier with a chronic respiratory infection was the only animal in the entire group that did not receive a quality grade of USDA Choice or above. Aggressive treatment to health issues, solid nutrition with adequate energy early in the lives of these animals and delayed implantation to ensure that adequate caloric intake is first being achieved seem to be good management practices that ensure good returns when feeding dairy-beef crossed calves.

Acknowledgements

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Table 1. Rations – Ingredients as percent of dry matter.

	<500 lbs	500 – 900 lbs	900 lbs to Finish
Corn Silage	30.65 %	20.59 %	17.8 %
Cargill Sweet Bran	18.50 %	19.34 %	16.72 %
Mineral Supplement	1.83 %	1.36 %	1.17 %
Rolled Corn	31.60 %	58.72 %	64.31 %
Dry Distillers Grain	17.43 %		
NE g (Mcal / lb DM)	0.56	0.62	0.63
Cr. Pro. (% of DM)	15.5	11.0	10.6
RDP (% of Cr. Protein)	45.8	57.3	58.5

Table 2. Feedout – Weight out adjusted to a 63% yield.

	Up to 900 lbs	900 lbs to Finish Heifers	900 lbs to Finish Steers
Weight In	179	925	1072
Weight Out	998	1417	1339
Days	281	120	120
ADG (lbs/day)	2.92	4.10	2.46
F:G (DM/lb)	4.18	5.43	8.66
RG	-	1.38 - -0.72	0.59 - -0.31
DMI (lbs / head / day)	12.2	22.3	21.3
RFI	-	-3.00 – 4.02	-2.40 – 1.38
Treatments (total)	30	0	1
*Mortality %	15.8	0	0
**Removed %	5.3	0	0

*1 pen dead, 1 euthanized for severe respiratory issue, 1 euthanized for broken hip

**chronic mycoplasma infected calf

Table 3. Market and carcass data.

	Heifers	Steers
Carcass Wt (lbs)	868	847
Range (lbs)	799 - 977	655 – 951
CAB %	37.5	71.4
Prime %	37.5	42.9
Choice %	62.5	28.6
Select %	0	14.3
YG 1 %	12.5	14.3
YG 2 %	50	14.3
YG 3 %	37.5	57.1
Had to sell in Holstein Beef Market %	0	14.3



Figure 1. Baby Holstein x Angus calves - shortly after arrival.



Figure 2. Holstein x Angus calves - one month prior to market.

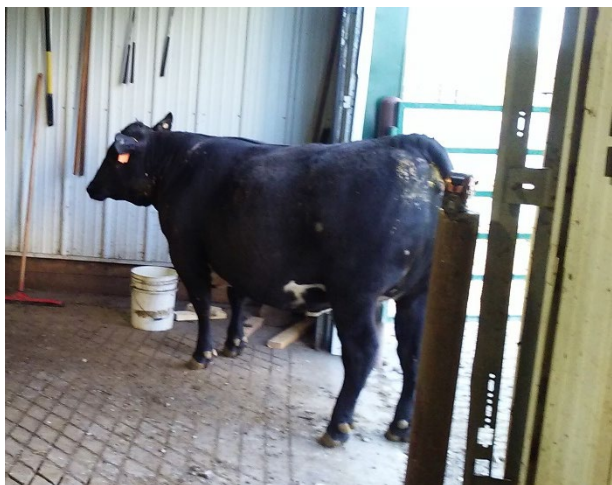


Figure 3. Finished Holstein x Angus calf.