

Heifer Gains



Research News You Can Use

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Young Heifer Growth When Fed Alfalfa Hays of Differing Quality

The optimum growth of the young dairy replacement heifer has been well researched over many years. Optimal growth rates have been established to be from 1.8-2.0 lbs per head per day through freshening at 24 months of age. There has always been a tradeoff between economically feeding heifers and achieving these established growth rate goals. Most post-weaning dairy heifer nutrition programs provide a fortified grain mix along with a forage source such as dry hay as the main ration through approximately 5-6 months of age. The amount of grain supplementation is normally dependant upon the quality and protein level of the forage or hay being fed. To establish just how much young heifer growth and performance decreases as hay quality decreases a trial was undertaken at the University of Minnesota Calf & Heifer Research facility, a joint partnership facility with Hubbard Feeds.

Seventy-two Holstein heifers averaging 9-10 weeks of age initially were utilized for this study. Heifers were grouped into pens of 6 animals each and each pen was randomly assigned to one of 3 treatments resulting in 4 pens per treatment. Length of the study was 112 days and the dietary treatments were:

1. **LOW** - 16% Grain Mix (GM) fed to 6 lbs per head per day for 14 days then decreased to 4 lbs per head per day for the duration of the trial. Approximately 100 RFV hay was provided free choice (FC) throughout the 112 day trial.
2. **MED** - 16% GM fed to 6 lbs per head per day for 14 days then decreased to 4 lbs per head per day for the duration of the trial. Approximately 130 RFV hay was provided free choice throughout the 112 day trial.
3. **HIGH** - 16% GM fed to 6 lbs per head per day for 14 days then decreased to 4 lbs per head per day for the duration of the trial. Approximately 154 RFV hay was provided free choice throughout the 112 day trial.

	LOW	MEDIUM	HIGH
Relative Feed Value	100	130	154
Number of Calves	24	24	24
Grain Mix Crude Protein	16%	16%	16%
Rumensin Level, mg/lb		19.5 mg/lb for days 1-14 32.5 mg/lb for days 15-112	
Day 1-14 Feeding Schedule	Limit fed 6 lbs/hd/day of GM and FC hay		
Day 15-112 Feeding Schedule	Limit fed 4 lbs/hd/day of GM and FC hay		

Initial selection of the three alfalfa hay lots for this study targeted alfalfa hay that was approximately 19% crude protein and had a RFV of 100, 135, and 170 for each lot. Initial analysis at the start of the trial suggested that the hay purchased matched targeted values. As the hay was fed and more samples compiled and analyzed, the quality of the treatment 2 and 3 hay ended up analyzing lower but still had acceptable differences from the LOW quality hay. (Table 1) Overall performance and feed intake were measured throughout the study. Body weights were recorded initially and on days 28, 56, 84, and 112 of the trial. Feed intake was recorded daily and summarized every 28 days. Weigh backs were recorded as necessary. Body condition scores and hip heights were also taken initially, on day 56 and 112 of the trial.

Results and Discussion:

Dry matter intake (DMI), was similar for all heifers from day 1-56 but was significantly higher for heifers fed MED hay from day 57 through 112 and overall, compared to heifers fed the LOW and HIGH hay treatments. (Table 2) As grain fed was the same for each treatment, differences in hay intake were responsible for these DMI differences.

The feed efficiency or feed per pound of gain was significantly better for the HIGH hay fed heifers at 4.33 lbs versus the LOW and MED fed heifers, showing an improvement of approximately 7.5% in feed efficiency. (Table 3)

Total body weight gain and Average Daily Gain (ADG) did increase significantly when heifers were fed MED and HIGH treatment hay versus the LOW fed heifers. Day 1-112 ADG was similar for the HIGH and MED fed heifers at 2.13 and 2.10 lbs with the LOW fed heifers being significantly lower at 1.91 lbs of ADG. (Table 4).

Feed cost per head per day was lowest for calves fed the LOW hay diet as expected, with the MED and HIGH hay diets being higher (Table 5), although cost per pound of gain (Table 6) was the same. It is important to note that because of the design of this trial, the heifer diets were not balanced to have similar energy, thus, the feed cost of the LOW fed heifers was much lower than would be expected as no extra grain was fed.

Conclusions:

Not surprisingly, young heifers fed medium to high quality hay grew faster and had better feed efficiency than heifers fed hay of lower quality, with ADG's of 2.10 and 2.13 lbs versus 1.91 lbs for heifers fed the low quality hay. These higher ADG's helped offset higher feed cost by improving feed efficiency to the point that the cost per pound of gain was similar. Ration changes that would either: 1) Feed more grain mix to improve energy and offset the lower average daily gain when feeding low quality hay, or 2) Feed less grain when offering higher quality hay, would typically occur when balancing rations with differing forage quality, and could easily make feeding higher quality hay a less expensive choice for optimal performance in your heifer rearing program. Careful evaluation of heifer performance and the business's financial goals must be considered when balancing rations and selecting the right forages to meet those heifer feeding goals.

Table 1

Lab Analysis of Nutrient Content				
Hay	CP	ADF	NDF	RFV
Low	19.25	38.22	55.06	100
Medium	19.55	33.45	44.65	130
High	18.57	29.84	39.70	154

Table 2

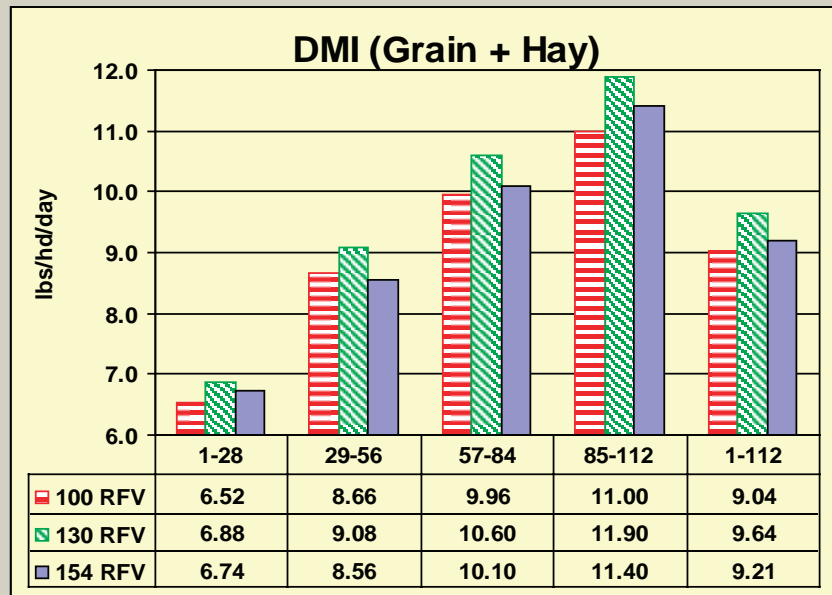


Table 5

100 RFV	\$1.30
130 RFV	\$1.20
154 RFV	\$1.10
	\$1.00
	\$0.90

Hay price t

Table 3

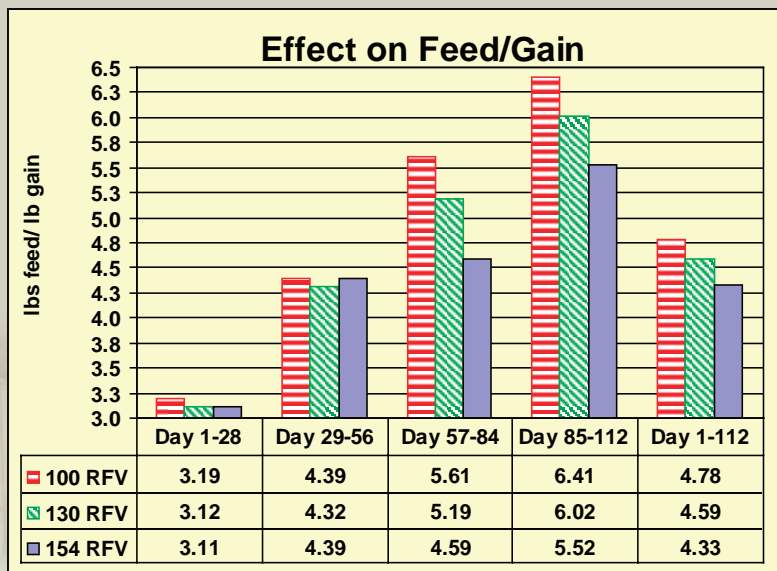


Table 4

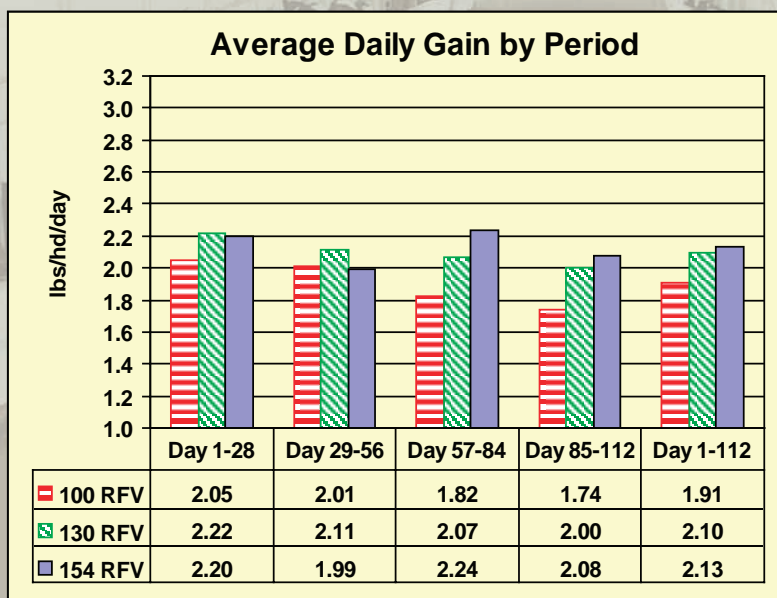
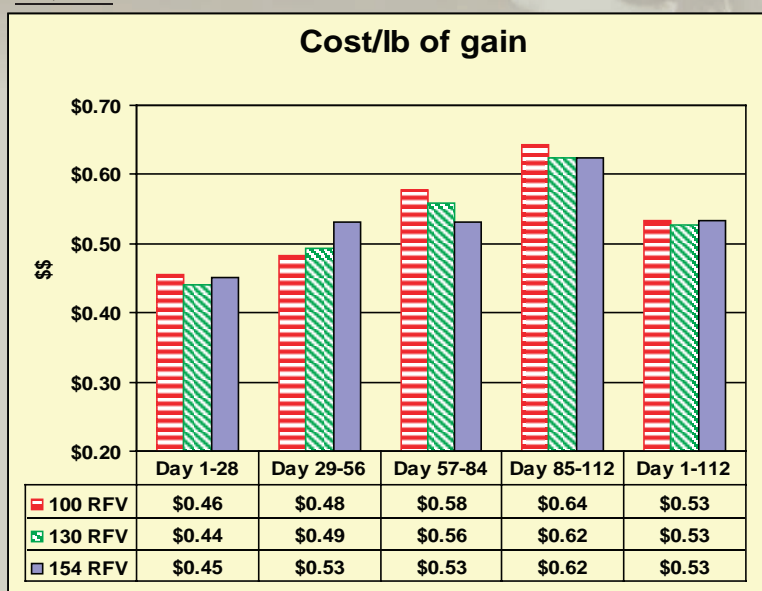
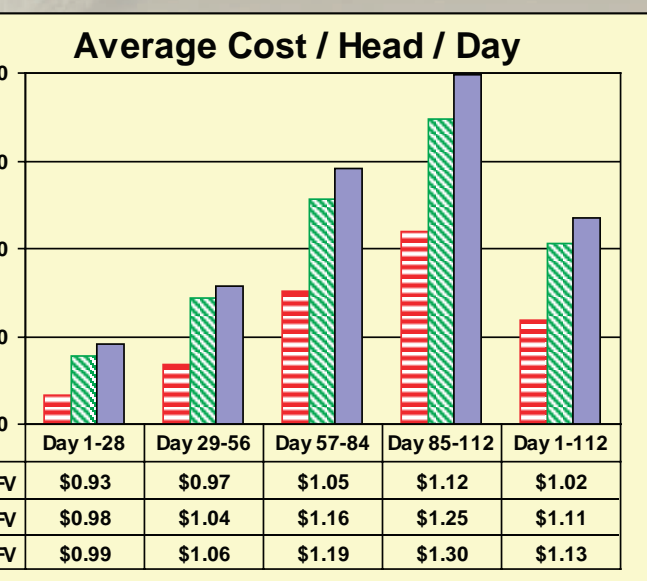


Table 6



Used: 100RFV-\$128/ton; 130RFV-\$145/ton; 154RFV- \$167/ton. Corn \$5/bu.



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