Grazing Demonstrations in Western Iowa

RFR-A1511

Mark Honeyman, professor
Department of Animal Science
Chris Beedle, superintendent
ISU Western Research Farm
Dallas Maxwell, superintendent
Armstrong Research Farm
Pete Lammers, assistant professor
University of Wisconsin-Platteville

Introduction

Consumer interest in grass-fed beef is high, but adoption by farmers in the northern United States, including Iowa, has been limited. High-marbling genetics and intense pasture management are critical for successful grass-fed programs. It is hypothesized that grass-fed cattle will consistently produce high-value carcasses if excellent pasture management is combined with high-marbling genetics.

These demonstrations examined rotationally grazing growing beef cattle in western Iowa. This project demonstrated it is feasible to combine high-marbling genetics with pasture management to produce reasonable gains in Iowa. Selection of small-framed, high-marbling potential beef cattle is essential because of the relatively low-energy density of the grass-based diet and the limited grazing season. Efforts to improve pasture quality and extend the grazing season would be beneficial to meet this goal.

Materials and Methods

Two demonstrations were conducted at two ISU research farms in western Iowa. In Trial 1, 28 yearling steers were grazed (April 28-November 3, 2015, 189 days) at the ISU Armstrong Research Farm, Lewis, Iowa. In Trial 2, 52 calves (36 heifers and 16 steers) were grazed (May to September 2015, 128 days) at the ISU Western Research Farm Castana, Iowa.

In Trial 1, the yearlings consisted of two distinct groups of steers that were commingled. There were 13 purebred Angus steers identified as high-marbling potential and small/medium frame size born in spring 2014 at the ISU McNay Research Farm, Chariton, Iowa (sub-group A). There also were 15 crossbred steers that were medium/large frame size purchased at a local livestock auction (sub-group B).

The yearling steers grazed a 38-acre grass (smooth brome grass) pasture. The pasture was subdivided into three paddocks and cattle were moved to a fresh paddock every seven days. A 10 × 30 ft portable steel shade (10 ft high) was provided to the pasture cattle near the water source. The cattle also were offered free choice hay for the entire season. No implants or ionophores were used.

In Trial 2, calves from the ISU McNay Farm, but born in the fall (August/September 2014), were fed MGA in a corn grain mix daily while grazing a smooth brome grass pasture that totaled 48 acres and was divided into 6 paddocks. The calves were rotated as needed.

When fall arrived, the demonstrations ended. At the beginning and end of the trials, the cattle were weighed. At the end of Trial 1, the cattle were scanned with ultrasound to determine rib eye area, rib fat cover, and intramuscular fat (IMF).

Results and Discussion

The 2015 grazing season was long due to frequent rains during the entire season and a late frost. Grass grew all season and was never in short supply for the grazing cattle. The

yearling steers (Trial 1) consumed 2.1 lb/day of free-choice hay over the grazing duration.

In Trial 1, the grazing steers gained 1.28 lb/day overall for the 189-day grazing season. The purebred Angus smaller-framed steers gained 1.01 lb/day and the larger-framed crossbred steers gained 1.52 lb/day (Table 1).

At the end of the grazing season, the IMF was 4.65 percent overall with 6.39 percent for the Angus steers (sub-group A) and 3.14 percent for the crossbred steers (sub-group B) (Table 1). Rib eye area and rib fat also is reported in Table 1. Rib fat thickness was similar, and rib eye area was larger for the larger cattle.

Based on prior work at Iowa State University, cattle that have ≥ 5 percent intramuscular fat as measured by digital ultrasound usually grade Choice. In this study, all of the Angus steers (sub-group A) had ≥ 4.7 percent IMF and would presumably grade at or near Choice. Only two of the crossbred steers had IMF% of ≥ 4.7 percent (sub-group B).

For Trial 2, the calves supplemented with corn on grass gained 1.80 lb/day for the season.

Conclusion

This project demonstrated it is feasible to combine high marbling genetics with pasture management to produce reasonable gains in Iowa. Selection of small-framed, high-marbling potential beef cattle is essential because of the relatively low-energy density of the grass-based diet and the limited grazing season. Efforts to improve pasture quality and extend the grazing season should be encouraged.

Table 1. Performance of grazing yearling steers, 2015.

	Combined groups	Sub-group A s/m frame	Sub-group B m/l frame
Start weight, lb	821± 64	775 ± 53	860 ± 49
End weight, lb	1063 ± 109	966 ± 94	1147 ± 60
% IMF[a], end	4.65 ± 1.93	6.39 ± 1.79	3.14 ± 1.33
ADG[b], lb/d	1.28 ± 0.33	1.01 ± 0.35	1.52 ± 0.18
Rib fat, in., end	0.17 ± 0.06	0.17 ± 0.05	0.17 ± 0.07
Rib eye area, square in., end	10.5 ± 1.3	9.9 ± 1.0	11.41± 1.3

[a]IMF = Intramuscular fat percent measured by ultrasound.
[b]ADG = Average Daily Gain.

Table 2. Performance of grazing calves, 2015.

	Grain-supplemented on grass
Start weight, lb	514.5
End weight, lb	744.0
ADG[a], lb/d	1.80

[a]ADG = Average Daily Gain.