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# Finishing Beef Cattle on Grass with Self-Fed By-Products

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## **Abstract**

There has been increasing interest by consumers in beef from cattle that are finished or fattened “on grass” rather than in a conventional feedlot. Also recently, Iowa has had a proliferation of plants that produce ethanol from corn. The byproduct of this process is distillers dried grains with solubles (DDGS). The objective of this study was to feed beef cattle to market weight by grazing cool-season grass supplemented with self-fed by-product pellets.

## **Keywords**

Animal Science

## **Disciplines**

Agricultural Science | Agriculture | Animal Sciences

## **Authors**

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# Finishing Beef Cattle on Grass with Self-Fed By-Products

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## Introduction

There has been increasing interest by consumers in beef from cattle that are finished or fattened “on grass” rather than in a conventional feedlot. Also recently, Iowa has had a proliferation of plants that produce ethanol from corn. The by-product of this process is distillers dried grains with solubles (DDGS). The objective of this study was to feed beef cattle to market weight by grazing cool-season grass supplemented with self-fed by-product pellets.

## Materials and Methods

The study took place at the Neely-Kinyon Farm, Greenfield, IA, during 2006. Yearling steers were used with an average starting weight of 850 lb/head. Cattle were allotted by weight to treatments of continuous grazed or rotationally grazed in three paddocks. Cattle were rotated weekly for the first six weeks of grazing and then every two weeks for the remainder of the trial. All pasture acres were clipped in mid-June to help control undesirable plants and maintain forage quality. The by-product pellets were a blend of DDGS, soy hulls, and wheat midds (Table 1). The by-product feed was chosen because of its low starch content and high digestible fiber content, which compliments the forage and minimizes negative associative effects. It is also easy and safe to feed in a self-feeder with minimal risk of acidosis, over eating, or bloat problems. A similar trial was conducted in 2005.

The pasture at the Neely-Kinyon Farm was a mixture of fescue, bromegrass, and bluegrass with a small legume component of primarily

birdsfoot trefoil. The cattle were accustomed to the self-fed pellet while grazing a nonresearch paddock prior to initiating the trial. The cattle were weighed every 42 days. The cattle were scanned by a certified ultrasound technician for backfat, ribeye, marbling, and tenderness three weeks before harvest. Carcass data was collected along with rib sections for fatty acid composition and Warner Bratzler shear force. Complete scan, carcass, and fatty acid data are not reported in this article.

## Results and Discussion

The cattle performed well with an overall gain of 3.1 lb/day, regardless of which grazing method. Cattle consumed over 25 lb of self-fed pellet/day, which was more than in 2005. Cattle were much heavier at the end of the summer grazing season and all animals went directly to harvest with 60% grading low choice or better, which was also improved over the 2005 results.

The yearling steers grew faster (ADG=3.1 vs 2.6) in 2006 than in 2005. The cattle consumed about 6 lb more pellets/day in 2006 versus 2005 (data not shown). The grazing method did not impact cattle gains or carcass parameters. Sward stick estimates for dry matter availability/acre exceeded 1,200 lb on April 26 at start up, 1,800 lb in early June, and 1,250 lb in mid-August. Stocking rates of two steers/acre is very conservative when self-fed by-products are provided.

*Carcass data.* All cattle were harvested off grass in 2006 compared with less than 25% in 2005. Cattle started heavier and ended heavier in 2006 with an average end weight of 1,258 lb/head. The cattle graded approximately 60% choice with no differences between grazing treatments. Fatty acid composition was not complete at the time this report was written. Ultrasound tenderness scores had a -.07 regression with

Warner Bratzler shear force values (data not shown).

*Costs.* The self-fed pellets cost \$108 to \$119/ton at the mill. Delivering the pellets to the farm added about \$25/ton. Thus the average daily feed cost excluding the pasture was \$1.70 to \$1.80/head/day or \$0.55 to \$0.60/lb of gain.

### Conclusions

Some lessons can be derived from this study.

- The by-product feed was safe and consumed readily.
- The by-product feed should be offered immediately for maximal gains.
- The key to having cattle at market weight in the fall is to start with heavy yearlings in the spring.
- With good grass, yearling steers can be expected to gain 400 lb in 4.5 months of grazing with by-product feed supplementation.
- Daily gains over 3 lb/day can be expected with this system.
- Achieving choice quality grade is possible with this system.
- Cattle may meet “natural” or “grass-finished” criteria, but not “organic” using this system.

**Table 1. Composition and calculated analysis of a by-product feed mix.**

Composition	%
DDGS	50.0
Soy hulls	25.0
Wheat midds	20.9
Molasses	2.5
Calcium carbonate	1.6
Total	100.0
<u>Calculated analysis</u>	
Dry matter, %	90.1
Crude protein, %	21.8
Calcium, %	.94
Phosphorus, %	.67
NE <sub>m</sub>	.91
NE <sub>g</sub>	.61
TDN, %	85.9

**Table 2. Performance of grazing beef cattle supplemented with by-product feed.<sup>1</sup>**

	Continuous	Rotational
Number, head	34	34
Stocking rate, hd/acre	2	2
Live weight		
Avg lb (4/26/06)	852	846
Avg lb (6/06/06)	1,061	1,087
Avg lb (8/19/06)	1,150	1,162
Avg lb (9/05/06)	1,258	1,257
Average daily gain		
First period, lb/day	3.8	3.9
Second period, lb/day	2.7	2.3
Third period, lb/day	2.6	2.3
Overall gain, lb/day	3.1	3.1
Choice or better, %	58.8	63.6

<sup>1</sup>During the study, one steer died and three steers had to be treated for lameness associated with mycoplasma.