

Michigan State University Grass Finishing Beef Report

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A set of Red Angus steers weighing between 750-800 pounds were allocated to either an intensive grazing system with low pressure irrigation or a lower-input leader-follow system with the intent to grass finish, May 15, 2013. Within the intensive system, steers (n = 54) were grazed on a cool season pasture sward irrigated one acre-inch of water weekly until mid-August. The leader follow system consisted of steers (n = 25) integrated into the breeding heifer population and moved in synchrony either before or after 180 head of beef cows grazed at a density of 150K/acre moving three times daily. Botanical compositions of the two systems are presented in Table 1.

Table 1. Botanical composition of pastures grazed with different grazing management strategies.

Systems	May 15th	%	August 15th	%
2013 grazing season				
L/F	Kentucky (<i>Poa pratensis</i>)	50	Bromegrass (<i>Bromus inermis</i>)	51
	Orchard (<i>Dactylis glomerata</i>)	17	Orchard (<i>Dactylis glomerata</i>)	26
	Red/white clover (<i>T. pratense/repens</i>)	7	Birdsfoot trefoil (<i>Lotus corniculatus</i>)	9
Irrigation	Kentucky (<i>Poa pratensis</i>)	54	Orchard (<i>Dactylis glomerata</i>)	55
	Orchard (<i>Dactylis glomerata</i>)	30	Kentucky (<i>Poa pratensis</i>)	14
	Red/white clover (<i>T. pratense/repens</i>)	3	Red clover (<i>Trifolium pratense</i>)	21

Within the two systems, especially later in the grazing season there was roughly double the legumes in the irrigated system when compared to the leader-follow system. Our hypothesis would be that grazing the taller forages in the low-input system led to some shading of legumes that thrive lower in the overall canopy.

Figure 1 shows the overall average daily gain performance for the steers in each of the finishing systems. Importantly, steers gained very aggressively early in the grazing season (turnout day May 15th) such that cattle maintained a 3.5 lb average daily gain for the first 30 days of the grazing season (May 15th to June 15th). Concurrently, it is also important to note that the forage quality during this early stage was over 20%. While there is a premise that crude protein can be too high early in the grazing system because of ‘washy grass’, we enjoyed very high gains coming out of the winter.

As the summer slump ensued, in July and August, the systems dramatically changed in terms of weight gain. In the irrigated system, gains were managed at close to 2 lbs a day, this was done by supplementing 10 lbs of high quality hay/head daily for a 30 day window. This was done for two reasons. First, we wanted to maintain a high plane of gain for the entire grazing and

secondly (perhaps most importantly) we did not want to overgraze lowering residual forage and slowing subsequent growth which would prevent having high quality forage late in the grazing season for finishing cattle. The stocking rate for the irrigated system averaged 1.20 steers per acre. On the other hand the leader-follow system fell to below a 0.5 pound average daily gain. These cattle were stocked at 1 steer/1.5 acres. Not only were these cattle not supplemented forage, but also we determined that there was not enough high quality forage during these months. If we chose to lead with the calves, we did not witness enough immature forage for the steers to enjoy 2 pound average daily gains and if we chose to follow the cows to graze fresh regrowth, the warmer months limited overall forage availability.

Figure 1. Average Daily Gain of Cattle in Two Systems

ADG 2013



In mid August we pulled the steers out of the irrigated paddocks and leader-follow systems and placed them on predominately alfalfa pasture for the remainder of the finishing system. This was done for two reasons, forage started to become limiting in the irrigated group and we also identified low performance in the leader-follow. Once receiving higher quality forage, the leader-follow group improved to a 3 pound average daily gain, while the steers from the irrigated group maintained over 2 pound of gain daily. Beginning in October with cooler temperatures and less overall energy in the alfalfa, we again supplemented hay for the final finishing period. Steers were ultrasounded as well to ensure they had adequate last rib backfat at slaughter (over 0.30 in last rib backfat).

Figure 2 shows overall carcass merit and income from the two of cattle from the two systems. Because of overall carcass weight and performance, steers from the

Figure 2. Overall carcass and income of steers from Leader-Follow or Irrigated System

Performance Facts

2013-Leader Follow	2013
• 53% Dress	• 54% Dress
• 575 lb carcass	• 660 lb carcass
• Income: \$1445/hd	• Income: \$1640
• One steer per 1.5 acre to finish	• One steer per acre to finish (w hay)
• Average Kill Date Dec 1	• Avg Kill date Nov 15
• .29 in backfat	• .31 in backfat

irrigated system enjoyed close to \$200.00 more income per head and were finished at the desired back fat two weeks earlier with a 85 pound carcass weight advantage. This was our first year to attempt a leader-follow system. The main take home we learned from this system was that it is very challenging to use the cows and steers symbiotically to keep gains high throughout the grazing system.

Overall costs of the irrigated system are outlined in Table 2. Please also note that opportunity costs are built into the budget and your overall on farm costs could vary greatly. Especially on hay cost. We used \$200/T hay costs and an estimated calf cost of \$945.00/hd. However, the overall budget should be a guide for a grass-finishing beef budget. Please, too, note that irrigation is included in this overall budget.

Table. 2. Grass Finishing Budget for 2014

Production Costs Per Head-GF 2014	(\$) Cost/year
Calf Costs ¹	945
Labor Costs	-
Hay Period ²	12
Pasture Period ³	41
Land Costs	
Pasture Rent (1 steer/ac)	70
Fence, Electric and Water ⁴	9
Feed	
Alfalfa Hay ⁵	281
Alfalfa Hay ⁶	169
Rent Ownership	8
Mineral Cost	11
Irrigation Costs	
\$7.50/ac in	51
Health ⁷	10
Machinery ⁸	20
Misc/Supplies ⁹	15
Operating Cost	1641
Interest ¹⁰	82
Death ¹¹	17
Total Costs 2014	1740
Total Income ¹²	1815
Net Income	75

¹Taking an average 525 lb steer at \$1.80, Midwest, calf worth \$945

²Two hours/wk, 25 wks at \$12.50/hr

³One half hour/d May 14-November 7, 177 days at \$12.50/hr

⁴ Fencing pro-rated 25 years; Electric for meter, water and piping/upkeep

⁵Represents 2814 lbs of winter intake (Nov-May) at \$200/T

⁶Represents 1692 lbs of summer/fall intake at \$200/T

⁷ Assumes one deworming winter treatment and any other health trt

⁸ Assumes a straight depreciation of 10 yrs on new equipment

⁹Represents additional items identify as important

¹⁰Interest of 5% on operating

¹¹Death Loss at 1%

¹²Average carcass weight 668 lbs at \$2.75/lb carcass weight basis