Feedlot Versus Pasture: Comparisons of Dairy Heifer Systems

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A 3-year on-farm research trial looked at heifer growth and costs of raising dairy heifers in a feedlot and under a management intensive grazing (MIG) system. Three questions related to MIG systems for dairy heifers were addressed.

1. Can growing dairy heifers attain a target 2 pounds per head per day in a MIG pasture system over the grazing season?
2. How do costs of the MIG pasture system compare to a feedlot system for growing dairy heifers?
3. Does raising dairy heifers on pasture generate enough returns per acre to justify converting corn-soybean land into pasture?

Table 1 shows the starting weights, ending weights and average daily gain (ADG) of the two systems for each of the 3 years. The stocking rate was lower and grazing season shorter in 2001 than in the other years. These two factors influenced costs and returns in this year.

Table 1. Summary of animal performance.

	2000		2001		2002	
	Feedlot	Pasture	Feedlot	Pasture	Feedlot	Pasture
Number of heifers on trial	72	70	58	58	72	72
Initial weight (lb/head)	478 (44.5)	481 (46.9)	563 (56.5)	543 (48.4)	534 (81.1)	522 (68.8)
Ending weight (lb)	769 (55.2)	778 (59.4)	821 (65.1)	794 (51.9)	842 (86.6)	813 (70.8)
Average daily gain	2.00 (0.20)	2.04 (0.18)	2.03 (0.20)	1.98 (0.22)	2.10 (0.31)	1.97 (0.19)
Days on trial	145	145	127	127	147	147

1. Standard deviation.

Costs are calculated as dollars per head per day. Detailed costs are presented in Table 2. MIG pasture system had lower costs than the feedlot system. MIG costs per head were higher in 2001 because of the lower stocking rate and shorter grazing season.

Based on a grower contract of $1.28/head/day and 28 acres of pasture, net returns per acre were also calculated. The impact of the lower stocking rate is seen here as well. Table 3 provides a comparison of per acre returns of corn, soybeans and alfalfa hay obtained from the University of Minnesota, Center for Farm Financial Management FinBin database. Crop returns include government payments as well as a charge of operator labor. With the exception of alfalfa in 2001, net returns per acre from raising dairy heifers on pastures exceeded net returns of substitute crops.

Table 2. Costs comparisons ($/head/day) between MIG pasture and feedlot systems.

	2000		2001		2002		Average over 3 years	
	Feedlot	Pasture	Feedlot	Pasture	Feedlot	Pasture	Feedlot	Pasture
Feed	0.73	0.28	0.74	0.35	0.85	0.20	0.77	0.28
Labor	0.17	0.10	0.16	0.15	0.20	0.07	0.18	0.11
Machinery	0.15	0.04	0.19	0.06	0.20	0.05	0.18	0.05
Facilities	0.05		0.07		0.05		0.06	
Bedding	0.07		0.12		0.11		0.10	
Fencing		0.08		0.15		0.10		0.11
Pasture charge		0.23		0.32		0.22		0.26
Seed				0.06		0.02		0.03
Fertilizer				0.05		0.03		0.03
Health costs	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03
Death loss		0.15						0.03
TOTAL COST	1.20	0.92	1.31	1.17	1.44	0.72	1.32	0.93
Net return per acre		$123		$26		$531		$215

Table 3. Per acre returns for different crops.

	2000	2001	2002	Average over 3 years
Corn	-$18	-$ 56	$30	-$15
Soybeans	$35	$16	$39	$30
Alfalfa hay	$81	$79	$114	$91
Grazing dairy heifers	$123	$26	$215	$121