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ECONOMIC ASSESSMENT OF STEERS PASTURED AT THREE STOCKING RATES UNDER A ROTATIONAL GRAZING SYSTEM

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Background. Beef producers face multifaceted yet segmented production systems that require a wide variety of management decisions. Producers must understand the factors that impact the net returns of each phase of this system and the interrelationships that affect returns of the overall system. Pasture phase returns greatly depend on the efficiency of forage utilization, which may be accomplished with a wide variety of grazing strategies. Another important relationship affecting returns from stocker programs is the price rollback, or the difference between purchase and selling prices (or values). The objective of this economic assessment was to evaluate potential returns from various grazing strategies of a winter pasture-stocker system.

Research Findings. Steers weaned at an average of 600 lbs were grazed in a rotational grazing system on rye-ryegrass pastures at three stocking rates during the 1997 and 1998 winter grazing seasons (Tables 1 and 2). Stocking rates represented by low, medium, and high differed slightly between years due to differences in growing conditions. Cattle of similar type and weight had different rates of gain due to differing stocking rates. This resulted in estimated net returns of \$134, \$201, and \$228/ac in 1997 and \$85, \$73, and \$23 in 1998 for the low, medium, and high stocking rates, respectively. Very low individual animal performance under high stocking rates accounted for lower returns in the 1998 season. Rising prices or very small price rollbacks also significantly affected net returns. Net returns shown here must pay additional expenses such as depreciation, owner labor, and management not included in these budgets. Annualized rates of return on capital ranged from 23% to 37% except for the high stocking rate treatment in 1998.

Application. Results generally indicated that the most economically efficient stocking rate in a rotational grazing winter pasture system was near a moderate level of 1,200-1,500 lbs of live animal per acre. Stocking rates greater than this generally resulted in lower gain per acre, return per acre, net return per head, and rate of return on capital. Cattle under high stocking rates often face very low negative or even positive price margins as they come off pasture at lower average weights. Owners shipping stockers from systems generating heavier weights and favorable returns may want to sell cattle rather than retaining ownership and chancing unprofitable feedlot experiences. However, owners may have trouble finding interested feedlot buyers or might have to take discounts to get cattle sold. It is more likely cattle coming off high stocking rate pasture systems would fit into retained ownership programs.

Table 1. Actual economic performance of steers pastured at three stocking rates under a rotational stocked system, 1997-98.

Item	Stocking Rate		
	LOW	MEDIUM	HIGH
Date on pasture	12/10/97	12/10/97	12/10/97
On-pasture pay weight (lbs)	600	600	600
On-pasture value (\$/cwt) (Ok City-\$3 transp.)	\$70.60	\$70.60	\$70.60
Off-pasture date	5/18/98	5/18/98	5/18/98
Days on pasture	159	159	159
Winter pasture cost, incl. interest (\$/ac)	\$140.00	\$140.00	\$140.00
Stocking rate (hd/ac)	1.7	2.3	2.9
Winter pasture cost (\$/hd)	\$88.24	\$65.22	\$51.72
Additional labor for rotations (\$/hd)	\$5.00	\$5.00	\$5.00
Additional fencing (\$/ac)	\$10.00	\$10.00	\$10.00
Health care, suppl., feed, hay, etc. (\$/hd)	\$35.00	\$35.00	\$35.00
Total pasture phase production costs (\$/hd)	\$144.22	\$121.20	\$107.71
Off-pasture pay weight (lbs)	1027	988	859
Gain per acre (lbs/ac)	751	944	807
Average daily gain (lbs/hd/da)	2.78	2.58	1.75
Off-pasture value (\$/cwt)	\$63.00	\$64.00	\$71.00
Breakeven price (\$/cwt)	\$55.29	\$55.14	\$61.85
Pasture cost/lb gain (\$/cwt)	\$18.64	\$14.83	\$17.35
Pasture & animal cost/lb gain (\$/cwt)	\$33.77	\$31.24	\$41.59
Net return to pasture phase (\$/hd)	\$79.19	\$87.52	\$78.58
Net return to pasture phase (\$/ac)	\$134.63	\$201.30	\$227.89
Annualized rate of return on capital	32%	37%	34%

Table 2. Actual economic performance of steers pastured at three stocking rates under a rotational stocked system, 1998-99.

Item	Stocking Rate		
	LOW	MEDIUM	HIGH
Date on pasture	12/7/98	12/7/98	12/7/98
On-pasture pay weight (lbs)	600	600	600
On-pasture value (\$/cwt) (Ok City-\$3 transp.)	\$70.60	\$70.60	\$70.60
Off-pasture date	5/12/99	5/12/99	5/12/99
Days on pasture	156	156	156
Winter pasture cost, incl. interest (\$/ac)	\$140.00	\$140.00	\$140.00
Stocking rate (hd/ac)	1.5	2.1	2.7
Winter pasture cost (\$/hd)	\$100.00	\$71.43	\$55.56
Additional labor for rotations (\$/hd)	\$5.00	\$5.00	\$5.00
Additional fencing (\$/ac)	\$10.00	\$10.00	\$10.00
Health care, suppl., feed, hay, etc. (\$/hd)	\$35.00	\$35.00	\$35.00
Total pasture phase production costs (\$/hd)	\$155.68	\$127.11	\$111.24
Off-pasture pay weight (lbs)	1010	898	739
Gain per acre (lbs/ac)	711	704	400
Average daily gain (lbs/hd/da)	3.04	2.15	0.95
Off-pasture value (\$/cwt)	\$63.00	\$70.50	\$73.55
Breakeven price (\$/cwt)	\$57.35	\$61.33	\$72.37
Pasture cost/lb gain (\$/cwt)	\$19.69	\$19.89	\$35.00
Pasture & animal cost/lb gain (\$/cwt)	\$37.97	\$42.65	\$80.03
Net return to pasture phase (\$/hd)	\$57.02	\$82.38	\$8.70
Net return to pasture phase (\$/ac)	\$85.53	\$173.00	\$23.49
Annualized rate of return on capital	23%	35%	4%