

INTENSIVE EARLY STOCKING VS. SUMMER-LONG STOCKING PROGRAMS FOR STOCKER CATTLE ON CROSS TIMBERS RANGELAND

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Story in Brief

One hundred-seventy four head of crossbred beef steers (avg wt = 475 lb) were divided into two replications of two grazing management programs. Steers were grazed at double normal stocking density (steers/ac) for 84 days (4/27 to 7/20; IES) or at normal density for 146 days (4/27 to 9/20; SLS) during the summer of 1984. Average 84 day gains were 207 lb/steer for IES and 209 lb/steer for SLS. Total summer gain for SLS was 293 lb/steer. Cost and return analyses yielded profits of \$28.10/head for IES cattle and \$26.74/head for SLS cattle. Since twice as many steers were grazed on IES, profit would have increased 110 percent under this program.

(Key words: grazing management, stocker cattle, economics, rangeland)

Introduction

Intensive early stocking (IES) is an adaptation of seasonal suitability grazing and involves grazing range areas by growing animals during the period of high forage quality. The intent of an IES program is to maximize gain/acre without reducing individual animal performance; this is accomplished by stocking heavily during the period when forage quality is high (Smith and Owensby, 1978). "Heavy" stocking is implemented by increasing stock density (animals/acre) rather than stocking rate (animals days/acre).

For the past several years, researchers have studied IES on both shortgrass and tallgrass ranges in Kansas (Smith and Owensby, 1978; Launchbaugh et al., 1983). These studies have shown that IES can increase gain/acre, maintain or improve range condition and increase profitability of the stocker operation. These and other benefits should make IES attractive to Oklahoma stocker operators but few have adapted this grazing management program. The following results are from the first year of a four year study to compare IES and SLS program for stockers on the Cross Timbers range type.

Materials and Methods

In 1984, four pastures on the Pawhuska Research Station were randomly assigned to either intensive-early stocking (IES) or summer-long stocking (SLS). The pastures are comprised of a mosaic of savannah and prairie sites. Proper stocking rates (animal unit days/ac) for each pasture were estimated from SCS soil surveys, visual appraisal of pasture condition and experience of the station herdsman. After yearlong stock-

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ing rates had been established for each pasture, stocking density (animal units/ac) was adjusted to achieve the proper stocking rate under IES and SLS.

On April 27, 174 head of crossbred beef steers averaging 475 lb/hd were weighed and allocated to one of the four treatment pastures. One hundred sixteen head and 58 head were assigned to IES and SLS, respectively. Steers had free access to minerals and ponded water at all times during the summer. Protein supplement (1 lb/hd/day) was fed to SLS cattle during the last 62 days of the summer. All cattle were weighed on the morning of July 20 and SLS cattle were weighed again on the morning of September 20. Weights were taken after a 12 to 16 hour overnight period without feed or water.

Cost-and-return analyses were based on gain data from the steers, market information from the Oklahoma City National Stockyards and the following assumptions: cattle were purchased in March and put through a 28-day receiving program (2 percent death loss, \$14/head feed costs, \$7/head medical costs), interest rates were 14 percent, pasture lease was \$40 per 153 steer days and protein supplement was \$200/ton. In addition, costs for labor and implanting were included.

Results and Discussion

Grazing at double stock density had no apparent effect on steer performance during the first 84 days of the summer season (table 1). Average gains were 207 and 209 lb/hd on IES and SLS, respectively. Lower gains on pasture 2 may indicate that stocking rate was over estimated. Despite pasture differences, gains were very acceptable. Adjusting for differences in stocking density, we find that for every pound of gain produced on SLS, IES produced 1.98 lb of gain ($206.5 \times 2/208.5$). Hence, SLS steers would have had to maintain their early summer rate of gain in order to equalize total summer gain between grazing programs. Instead, SLS cattle, supplemented with protein, only gained 85 lb/hd during late summer yielding a total summer gain of 293 lb/hd. If no supplement had been fed, gain would have been 20 to 25 lb less than reported in table 1. Summarizing performance data, IES did not reduce early summer gains but, instead produced 1.41 lb gain for each 1 lb of gain on the conventional summer long program.

Breakeven prices for IES and SLS were \$60.06/cwt and \$58.31/cwt, respectively (table 2). At the end of the IES period, feeder prices were \$64.18/cwt for 680 lb steers and yielded an estimated \$28.10 profit/head. Likewise, 770 lb cattle were bringing \$61.80/cwt at the end of the SLS program and estimated profits were \$26.74/head. Therefore, IES increased net returns 110 percent since twice as many cattle were pastured on this program. For purposes of comparison, cattle without late summer protein supplements would have returned about \$22.00/head or 82 percent of SLS with protein and only 39 percent of IES returns.

The increased profitability of IES lies in the optimal use of allowable grazing days on a given pasture. Simplistically, during early summer, approximately two thirds of the potential summer gain is paying for all fixed costs plus one half of rent, labor and interest. During late summer, approximately one third of the potential summer gain is paying for one half of rent, labor and interest and all of the supplementation costs. In the current study, cost of gain was \$.345/lb for the first 84

Table 1. Weights and gains of steers.

Pasture	Init wt	7/20 wt	Gain to 7/20	9/20 wt	Gain		Adj ¹ gain
					7/20 to 9/20	Gain 146 days	
Intensive							
early stocking							
84 days	1	474	689	215	--	--	
	2	475	673	198	--	--	
mean		475	681	207	--	--	413
Season-long							
stocking							
146 days	3	472	684	212	764	80	
	4	480	685	205	774	89	
mean		476	685	209	768	85	293

¹Adjusted gain = gains adjusted for differences in stocking density. For every 1 steer on SLS, 2 steers were on IES. Thus, Adj gain for IES = 84 day gain x 2 and Adj gain for SLS = 146 day gain x 1.

Table 2. Cost-and return analyses for IES and SLS grazing.

	Stocking scheme	
	Season-long 4/27-9/20	Intensive-early 4/27-7/20
Initial wt, lb/hd	475	475
Initial value, \$/cwt	71.23	71.23
Initial value, \$/hd	338.34	338.34
Final wt, lb/hd	768	681
Final value, \$/cwt	61.80	64.18
Final value, \$/hd	474.63	437.71
Gross return, \$/hd	136.29	99.37
Cash costs, \$/hd	109.55	71.27
Breakeven, \$/cwt	60.06	58.31
Net return, \$/hd	26.74	28.10
Adjusted net return, \$/hd	26.74	56.20

¹Adjusted for differences in stocking density
 IES Adj net return = IES net return/head x 2
 SLS Adj net return = SLS net return/head x 1

days and \$.45/lb for the final 62 days. These results suggest that by stocking heavily for shorter periods of time one can increase gain/acre, maintain lower costs of gain and increase profit potential. The study will continue for three more years so that a variety of climatic and market conditions should be encountered.

Literature Cited

- Launchbaugh, J.L. et al. 1983. Intensive-early stocking studies on Kansas ranges. Kansas Agric. Exp. Sta. Prog. Rep. 441.
 Smith, E. and C.E. Owensby. 1978. Intensive-early stocking and season-long stocking of Kansas Flint Hills range. J. Range Manage. 31:14.

Stocking system	Initial value, \$/ac	Final value, \$/ac	Gross return, \$/ac	Cash costs, \$/ac	Overhead, \$/ac	Net return, \$/ac	Adjusted net return, \$/ac
Intensive-early (1977-1978)	11.53	135.38	123.85	109.88	80.06	33.97	28.50
Season-long (1977-1978)	11.53	135.38	123.85	109.88	80.06	33.97	28.50

Adjusted gain = gain adjusted for differences in stocking density. For every 1 steer on 2.2, 5 steers were on 12.2. Thus, net gain for 12.2 = 24 day gain x 5 and net gain for 2.2 = 148 day gain x 1.

Table 5. Cost and return analysis for 12.2 and 2.2 grazing.

Stocking system	Initial value, \$/ac	Final value, \$/ac	Gross return, \$/ac	Cash costs, \$/ac	Overhead, \$/ac	Net return, \$/ac	Adjusted net return, \$/ac
Intensive-early (1977-1978)	11.53	135.38	123.85	109.88	80.06	33.97	28.50
Season-long (1977-1978)	11.53	135.38	123.85	109.88	80.06	33.97	28.50

Adjusted for differences in stocking density.
 12.2 [adj] net return = 12.2 net returnhead x 5
 2.2 [adj] net return = 2.2 net returnhead x 1