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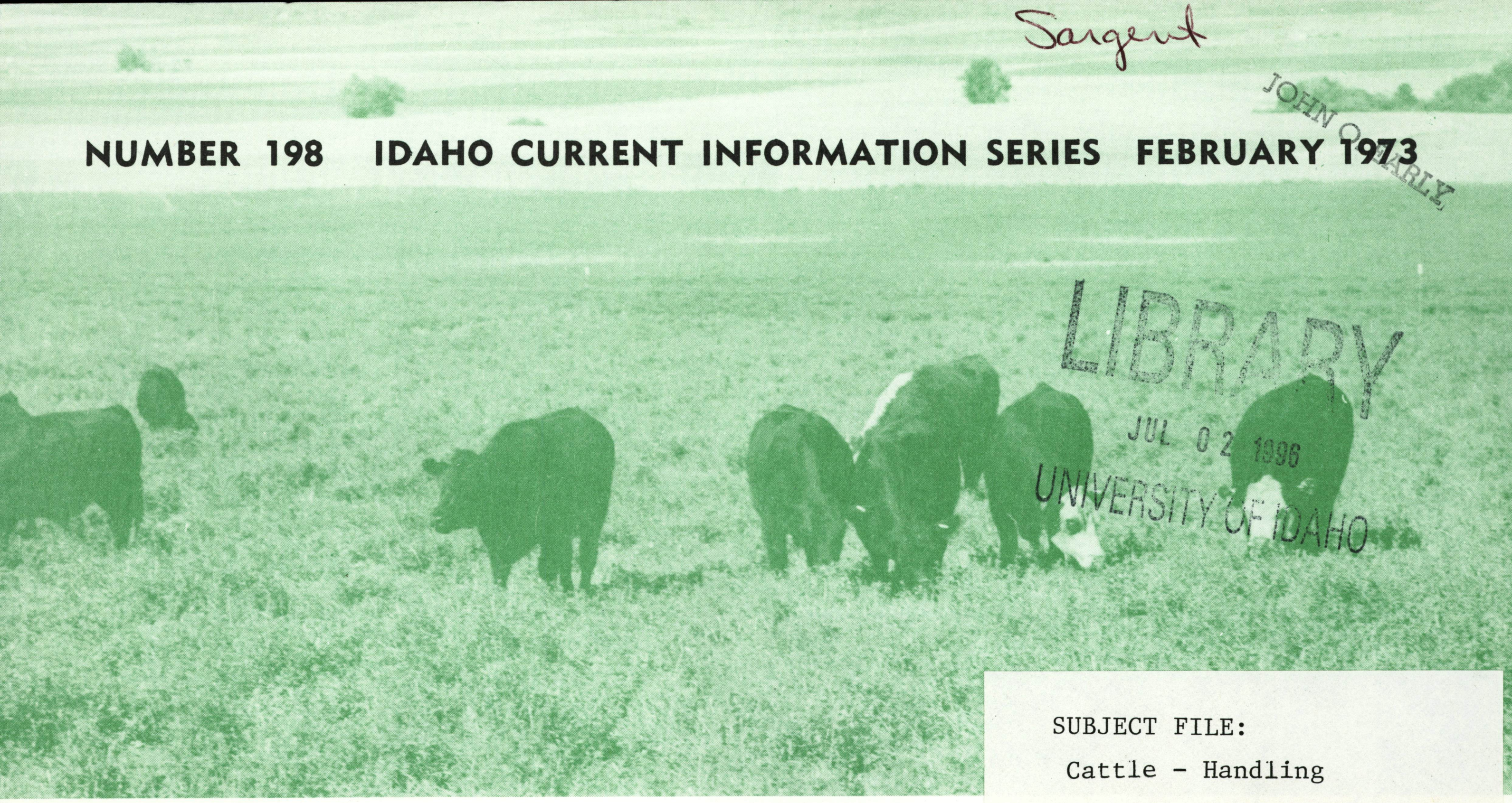

Managing Beef Cattle On Improved Irrigated Pastures

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Beef may be the most valuable cash crop some of your irrigated land can produce. With good management, you can market 800 to 1,200 pounds of beef per acre from improved irrigated pasture that is harvested by yearling steers.

This kind of "beef cropping" is based on guidelines far different from conventional grazing methods and stocking rates. The yield potential, in terms of saleable beef, is directly related to:

Agronomic management — including fertility, varieties, seeding, irrigation, harvesting — to produce maximum forage yields.

Cattle management — including selection, nutrition, health — to obtain maximum yields of beef per acre.

This publication considers primarily the requirements of cattle management and pasture harvesting. You can obtain additional information on agronomic considerations from your county extension agricultural agent.

What is irrigated pasture worth?

What is the beef producing potential of an improved, ...ly managed irrigated pasture? You can calculate this from actual or estimated hay production (table 1). Total digestible nutrients (TDN) of feed are the basis for converting pounds of air-dry forage or tons of hay into pounds of beef. Colorado research has indicated that a pasture mixture of one-third alfalfa and two-thirds grass is about 58 percent TDN. Straight alfalfa pastures will run about 64 percent TDN. We also know that a yearling steer with an average daily gain of 2

Table 1. Saleable beef produced on irrigated grass-legume pasture with 58 percent TDN conversion.

Air-dry usable forage per acre	TDN per acre	Saleable beef produced per acre: Yearling steers	Saleable beef produced per acre: Cow-calf system*
tons	lb.	lb.	lb.
1	1,160	200	115
2	2,320	400	235
3	3,480	600	355
4	4,640	800	470
5	5,800	1,000	590
6	6,960	1,200	705
7	8,120	1,400	825
8	9,280	1,600	945

*This is total weight of calves produced per acre. (Based on Colorado study.)

...n is Extension Agricultural Agent, Livestock Programs, ...u, Bear Lake and Franklin Counties.

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pounds per day is converting beef at the rate of 5.79 pounds of TDN per pound of gain.

To estimate the beef-producing potential of a straight alfalfa pasture, then, figure this way:

Pounds of air-dry forage per acre x 64% = Total TDN per acre

Total TDN per acre = Pounds of yearling steers produced per acre 5.79 (TDN per lb. gain)

You can use forage and beef production potential calculated in this way to estimate profit potential of irrigated pastures in your situation.

Cattle management for irrigated pastures

Yearling steers are highly efficient at converting forage to beef. Yearlings will produce 50 to 70 percent more saleable beef per acre than a cow-calf operation on the same pasture (table 1). Where the yearling steer requires 5.79 pounds of TDN per pound of gain, the cow-calf pair will need 9.84 pounds per pound of calf gain, assuming 100 percent calf crop and including .39 pound gain on the cow for each pound gain on the calf.

Yearling steers are also more efficient in growth rate than yearling heifers. Idaho studies comparing straightbred steers and heifers in a weight range of 620 to 650 pounds showed that steers gained 23 percent faster than heifers grazing irrigated grass-legume pastures. This meant almost half-a-pound per day faster gains for the steers.

Size of the animal also directly influences his rate of gain on lush forage. A growthy steer in the 550 to 650 pound range will use large quantities of lush forage more efficiently than the 400 pound or smaller steer.

The wintering period can be an effective conditioning period to prepare steers to use irrigated pasture efficiently. Weaner calves fed to gain from .75 to 1 pound per day through the winter will have enough size and rumen development for efficient forage use in the spring. They will be ready to make economical compensatory weight gains on pasture.

If these same steers are fed a high-energy ration to gain 1.5 pounds per day, they may be too fleshy by spring and can be expected to shrink on pasture unless their energy level is maintained or slightly increased. In contrast, a small, lightweight calf wintered on limited feed will have neither the size nor rumen development to eat enough pasture. His growth and gain rates both may suffer.

The objective then is to winter calves to produce a thrifty, growthy 600 to 650 pound yearling ready for the irrigated pasture in the spring. The winter ration should be at a 6:1 or 5:1 roughage-concentrate ratio with from 10 to 12 percent protein. Meadow hay plus a small amount of supplemental feed will meet these standards and should keep the weaner calves growing gradually through the winter.

Grazing management

A grazing management system aimed at maximum beef yields per acre requires flexibility in forage harvesting. Stocking rates must be kept in balance with forage production. In general, you can choose from three systems of grazing management — continuous grazing, strip grazing and rotational grazing.

Continuous grazing is the least desirable system since the pasture plant is never given opportunity to rest and replenish itself. This leads to overgrazing, to weaker, lower-yielding plants, to plant loss and, overall, to reduced yield of saleable beef.

Strip grazing requires the use of a temporary electric fence that can be moved and adjusted daily to provide enough forage for one day's consumption. The system gives you control of pasture use and always provides a fresh daily supply of forage to the cattle. But the daily labor requirement limits practical use of this system on many ranches.

Rotational grazing requires cross-fencing to divide the pasture into several units that are grazed in rotation. Research has shown that the rotational system can increase beef production by 20 percent compared with the continuous system.

Ideally, the pasture should be cross-fenced to provide 5 grazing units, and the cattle should be moved every 7 days. This would allow plants a 28-day regrowth period between uses and still will provide fresh, palatable forage for the grazing cattle. For most efficiency, design cross-fences to complement the irrigation system.

Use of pasture plants by grazing cattle will vary with plant species. Normally, plants can be grazed down to a stubble height of 4 to 6 inches. Cattle can be turned on grass pastures when the plants are 10 to 12 inches high and on legume pastures when the plants reach 12 to 18 inches high.

Most pasture-seeding recommendations include a grass-legume mixture. These mixtures are good for plant nutrition but they are less desirable for cattle management. You can manage cattle more efficiently on pastures that have only one species, whether grass or legume. In the single-specie grass mixture, your operating costs will include application of nitrogen fertilizer. And in the straight alfalfa pastures, figure in the cost of an antifoaming agent to prevent bloat.

Every pasture system should include a resting area for the cattle. The resting area usually is on less productive land outside the pasture forage area. In the resting area, with a minimum of trampling the high-yielding forage plants, you can handle such cattle management needs as watering, supplemental feeding, summer fly control, holding and resting.

Herd health and comfort

Disease prevention and overall herd health of your cattle, whether on pasture or range, must be based on programs planned in cooperation with a competent veterinarian.

You should, however, pay close attention to health needs of the cattle on pasture. The closer confinement of a pasture system may increase diseases, parasite loads, insect infestations and sanitation. Be alert to parasitism and to problems such as horn flies.

Grazing alfalfa

You will harvest more beef per acre from a straight alfalfa pasture than from straight grass. At the same time, you will have more potential trouble, particularly with bloat. Alfalfa has a high bloat-producing potential at certain stages of growth. Unless bloat losses — both deaths and losses through lower weight gains — are prevented or controlled adequately, alfalfa pastures will not be economical.

Legume bloat can be effectively and safely prevented with an antifoaming agent, poloxalene, available as Bloat Guard*. This material will protect cattle from bloat by dispersing foam in the rumen for 12 hours or more after feeding. The drug is not absorbed from the digestive tract and thus does not leave residue in meat or milk.

Bloat Guard is available in medicated blocks, in commercial pelleted feeds, or as a top dress. In Idaho trials with steers grazing alfalfa pasture, Bloat Guard was effective when mixed into a high-energy barley supplement. The feed was pelleted and fed twice daily. The steers ate the pellets readily and daily consumption of the drug could be regulated fairly accurately.

The manufacturer recommends that Bloat Guard be fed daily to each animal at the dosage of 2 grams per 100 pounds of body weight. This maximum dosage is essential if pastures are extremely bloat-provocative; twice daily feedings at 12-hour intervals would be desirable in these instances. When bloat dangers decline, the poloxalene dosage can be decreased to 1 gram per 100 pounds body weight.

If poloxalene is mixed in a pelleted grain supplement, start feeding it to the cattle about a week before putting them on pasture. This gets them accustomed to the pellets. Feed the cattle in sufficient bunk space in the resting area near the pasture. Avoid any abrupt changes in ingredients or form of feeding which might cause them to refuse to eat the daily dosage of the drug.

Most nutritionists agree that the protein level of alfalfa is high enough for cattle and that carbohydrates are probably a limiting factor for optimum use of alfalfa pasture. This makes is more desirable to feed an energy supplement such as barley during summer grazing of lush alfalfa.

***Trade name is used for purpose of providing specific information. Mention does not constitute guarantee or warranty of the product by the University.**

In the Idaho trials, economical weight gains were obtained when the barley-molasses pellet containing poloxalene was fed at a gradually increasing rate from 2 to 6 pounds per head per day. Daily gains averaged 2.75 to 3 pounds per head during a 140-day grazing period.

Cattle fed under this system will regularly eat the dry feed and the lush forage. Their weight off pasture will be 950 pounds or more. Another 60-day final feed period on a high-energy ration will bring these steers to a desirable live and carcass grade.

Will pastures pay for you?

Will improved irrigated pastures and an intensified grazing program pay? This will vary depending on your available resources and management ability. Profit of this system depends greatly on successful management.

You can estimate the costs and management practices required by an intensive pasture grazing program under your conditions. Table 2 can be used to project costs in relation to rate of gain within each phase of a yearling steer operation. Table 3 is a guideline for estimating overall production costs and returns. The prices used here are arbitrary. The actual costs and returns will vary according to annual price fluctuations.

A yearling operation based on short-term ownership of purchased cattle tends to be a high risk capital investment because of the market fluctuations within any one year. By comparison, there may be more security in the combination cow-calf and yearling operation, based on the cow herd producing calves that are weaned and conditioned for an intensified pasture grazing system.

It is essential to buy wisely and to explore all marketing alternatives. For example, marketing two lots of lightweight cattle may be most profitable one season. Cattle finished to slaughter weight and grade may be best another time. Another alternative would be to graze yearlings early in the season and follow with a late fall cleanup with cows and calves or replacement cattle.

The manager must use all available resources wisely to maximize profits from intensive irrigated pasture grazing systems on irrigated pasture.

Table 2. Guide to estimating gains and returns of yearling steers on alfalfa pasture.

Feeding period	Days	Avg. lb. weight		Lb. Gain	Total lb. gain		cost/lb. gain		Break-even selling price	
		Example	Actual		Example	Actual	Example	Actual	Example	Actual
Winter feeding Oct. 28 - May 15	200	400	---	1.00	200	---	15c	---	$33.52	---
Summer grazing* May 15 - Oct. 2	140	600	---	2.75+	385	---	9.8c	---	24.26	---
Finishing Oct. 2 - Dec. 11	70	1250	---	3.00+	210	---	25c	---	23.32	---

*Summer cost estimate includes forage and supplemental feed. All prices are used for illustration only and may not reflect current market values.

Table 3. Guide to estimating costs and returns of yearling beef operation on irrigated alfalfa pasture.

Annual alfalfa pasture costs per acre	**Example***	**Estimate**	**Actual**
Fixed Costs:			
Land — $300/acre at 7% interest	$ 21.00		
Taxes	2.35		
Stand establishment (alfalfa prorated over 10 years)	2.00		
Fencing — 15-year depreciation	3.25		
Total fixed costs	28.60		
Operating Costs:			
Water assessment	2.00		
Irrigation pumping cost	5.00		
Fertilizer — 140 lb. P_2O_5/acre	14.00		
Labor — irrigation and management	7.50		
Clipping and harrowing	1.00		
Total operating costs	29.50		
Total Costs: Pasture	**$ 58.10**		
Cattle Production costs and returns per acre			
Costs:			
Steer calves (choice quality) (4 head per acre; average weaning weight, 400 lb.; cost, $38/cwt.)	$ 608.00		
Interest — 7%, 12 months	42.56		
Death losses	6.08		
Medication	12.00		
Marketing & transportation	10.00		
Labor, livestock handling	6.00		
Feed costs:			
Winter gain, 200 lb./head at 15c/lb.	120.00		
Summer forage	58.10		
Barley supplement — 1,760 lb. at 5.3c, plus 5 grams/lb. poloxalene	93.28		
Total cattle costs	**$ 956.02**		
Returns:			
4 choice yearling steers (985 lb. average weight; $32/cwt selling price)	$1260.80		
Net return per acre	**$ 304.78**		

*Prices in this example may or may not reflect current market values. They are used here for illustration only. Note that in this example, break-even selling price would be $24.26 per cwt. for the finished steers.

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