

IRRIGATED PASTURES

compete favorably with other field crops in California

GRAZING TRIALS at Davis comparing rotational and continuous grazing on irrigated pastures have shown a remarkable yield per acre in terms of beef production. During the 1968 tests, up to 1,000 lbs of beef per acre were produced (see table 1).

In these tests, yearling beef steers (good to choice grades) were purchased in the fall of 1967 and were held over the winter at the University of California Sierra Foothill Range Station. In March 1968 they were transferred to Davis. After number-branding and treatment for worms, the steers were allotted at random to the two grazing trials. The pasture used was a three-year-old stand of orchard grass, rye grass, ladino clover,

and strawberry clover. Stocking rates were based on previous trials with similar pastures, and were set so that there would be enough forage available for optimum individual animal performance. Grazing was started as soon in the spring as forage growth was considered adequate.

The grazing treatments were: (1) one-field continuous grazing where half of the field was irrigated on Tuesdays and the other half on Thursdays so that the entire field was irrigated weekly; and (2) a five-field rotational grazing treatment with seven-day grazing per field and a 28-day recovery period for the forage between grazings (these fields were also irrigated weekly except for the field being grazed which was irrigated at 10-day intervals). The steers were weighed every 28 days after an overnight shrink without feed or water.

Daily gains

The daily gains (table 1) of 1.53 and 1.76 lbs per day for the cattle in the experimental treatments are comparable to the results of other grazing management studies at Davis when forage available per animal was not limited. Previous work has also shown that, if the stocking rate had been higher for the rotationally grazed fields (above that allowing optimum individual animal performance), more beef could have been produced per acre by rotational grazing

than by continuous grazing. In addition, considering flexibility of livestock handling, soil compaction, and irrigation problems, the rotation grazing management system is generally preferable to the continuous grazing management system.

Carcass grades

The carcass grades of livestock grazed were higher and the carcass color scores were better than had been anticipated. This was reflected in the price received for these animals at the end of the grazing period in mid-October; only slight discrimination was evident against the "grass-fed" steers.

In a conversion of beef-per-acre to monetary returns per acre (table 2), irrigated pasture compared favorably with such other crops as tomatoes and sugar beets. **However, this comparison was made with average production figures for the selected crops shown, while beef per acre was compared at the optimum production per acre figure.** In the planning of an irrigated pasture operation it is important to consider such things as the availability and cost of both irrigation water and cattle as well as the market for "grass-fed" animals. However, these tests do indicate that careful control of stocking rates, proper irrigation, and the use of high-yielding, well-adapted, palatable forage species will allow a very good yield of beef per acre when well-managed irrigated pastures are utilized by yearling beef steers. For further details on pasture plants, grazing, and irrigation management, consult Circular 545, "Irrigated Pastures in California."

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TABLE 1. 1968 GRAZING TRIALS AT DAVIS,* ROTATION VS. CONTINUOUS GRAZING

	Grazing treatment	
	Five-field/rotation	One-field/continuous
Initial weight (lbs)	540	530
Final weight (lbs)	847	881
Average daily gain (lbs)	1.53	1.76
Total gain (lbs)	306	351
Live wt. gain per acre (lbs)	826 (889)†	950 (1013)†
Carcass grade	Average good	Average good
Carcass color score‡	3.4	2.5
Price received per cwt., live basis (\$)§	23.25	23.25

* Ten animals took part in each treatment. The trials lasted 200 days (from March 23 to October 15). There was an average of 2.7 animals per acre.

† Figures in parentheses show an estimate of additional gain per acre made by cattle utilizing pre-trial excess forage.

‡ 1 = white, 5 = yellow.

§ Price received F.O.B. packing plant at time of slaughter (10/15/68).

TABLE 2. RELATIVE COSTS AND PROFIT OF SELECTED CALIFORNIA FIELD CROPS*

Crop	Avg. yield per acre	Price rec'd 1967/unit	Prod. costs acre unit	Net return/acre
		\$	\$	\$
Tomatoes (processing)	22 ton	38.40	22.77	343.86
Peaches (cling)	15 ton	82.20	73.23	134.55
Irrigated pasture†	1000 lbs. live wt. gain	23.25	115.00	117.50
Alfalfa hay	7 ton	29.60	21.60	56.00
Safflower	34 cwt.	4.85	3.62	25.90
Barley (irrigated)	40 cwt.	2.40	1.77	25.20
Sugar beets	20 ton	13.20	13.05	3.00

* Source of sample costs: "Sample costs to product crops—July, 1968," Reed, A. D., UC Agricultural Extension Service.

† Yields and prices received from UC, Davis trials; costs from "Costs and Returns with Irrigated Pasture in Tehama Co.," U.C. Agricultural Extension Service, Tehama County.

Irrigated pastures can compete successfully with many other California field crops—providing that careful control is kept of livestock stocking rates, that efficient irrigation practices are maintained, and that high-yielding, well-adapted, palatable forage species are used.

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