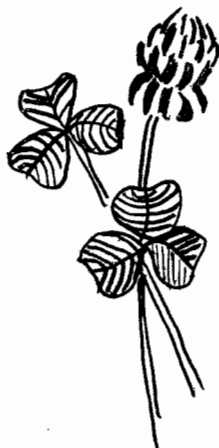


# IRRIGATED PASTURES

## COSTS OF PRODUCTION



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# HERE IT IS

THE AVERAGE COST OF PRODUCTION WAS \$83.28 PER ACRE.

THE AVERAGE COST OF FEED WAS \$9.43 PER ANIMAL UNIT MONTH.

THIS COST WAS EQUAL TO HAY AT \$23.57 PER TON.

INTEREST ON INVESTMENT AND DEPRECIATION - BOTH FIXED COSTS - MADE UP 43.5% OF THE TOTAL COST.

LABOR, MATERIAL, AND WATER MADE UP 46.8% OF THE COST. HERE IS THE MAIN PLACE TO REDUCE COSTS.

YIELDS WERE LOWER THAN EXPECTED.

IMPROVED MANAGEMENT IN SOME CASES CAN REDUCE THE COST OF THIS FEED.

IMPROVED MANAGEMENT CAN INCREASE YIELDS AND REDUCE COSTS AT THE SAME TIME.

FERTILIZATION MAY INCREASE YIELDS.

# INTRODUCTION

The cost of producing feed on irrigated pasture in Alameda County in 1952 was high.

Seven operators of irrigated pastures, totalling 355 acres, kept accurate records the past season showing their costs and yields. Their records have been summarized here in an effort to find ways and means of reducing costs and ways to increase yields. These records show where the costs were and where they might be reduced. Cost records kept in coming years will tell the true story of the results of changes in operation and management.

In spite of high costs, one must realize that irrigated pastures have a value over and above what shows in the figures. Irrigated pastures provide excellent feed for livestock when natural feed is poor, thereby permitting normal growth and development of livestock and more efficient production in many cases. Green, succulent feed from irrigated pasture no doubt acts as a good stimulant to high milk production in dairy cows.

These figures are not necessarily an average for all the county, but give some good ideas for everyone.

Our thanks go to the co-operators who carried on this program.

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# INTEREST ON INVESTMENT AND DEPRECIATION

Serial Number	1	2	3	4	5	6	7	Ave.
Depreciation on Stand, Fences, etc. \$	4.83	3.28	4.07	5.53	3.60	4.40	6.58	4.36
Depreciation on Irrigation System \$	7.40	1.08	12.91	26.33	16.42	12.50	21.28	10.53
Total Depreciation per Acre \$	12.23	4.36	16.98	31.86	20.02	16.90	27.86	14.89
Interest on Stand, Fences, Land, etc.\$	16.77	11.14	11.29	7.13	6.37	27.15	26.65	17.62
Interest on Irrigation System \$	4.25	.66	5.28	11.92	6.22	3.10	7.07	3.76
Total Interest on Investment/acre \$	21.02	11.80	16.57	19.05	12.59	30.25	33.72	21.38
Total Interest & Depreciation/acre \$	33.25	16.16	33.55	50.91	32.61	47.15	61.58	36.27

A large proportion of the cost of producing these irrigated pastures was taken up by depreciation and interest on the investment. In fact, over 43% of the cost came in these items. These are practically fixed costs, and cannot be changed to the good like irrigation practices and labor use can.

Most of the depreciation is on the irrigation system. Most of the interest is on the irrigation system and land or rent. These costs show the need for anyone going into irrigated pasture, or anyone developing additional pasture, to plan his program very carefully. The irrigation system must be planned to do an efficient job at the least possible cost to avoid high depreciation charges. The land must be leveled carefully to insure proper irrigation.

Land values are important. If land costs \$500 an acre, 5% interest on the investment makes a charge of \$25.00 an acre before you start. On the other hand, \$200 an acre land shows only \$10.00 an acre interest. High priced land is justified when yields are also higher and when costs of operation may be lower.

# TOTAL COSTS

These figures show where the major costs come from. Note that interest and depreciation account for 43.5% of the cost, and these items are difficult to improve in an existing pasture.

About 10% of the cost is in miscellaneous expenses such as taxes, repairs, and insurance. These items, too are difficult to change. Over 44% of the cost was in labor, materials, and water. Here is where improvements can be made.

	1	2	3	4	5	6	7	Average	% of Total
Miscellaneous Expenses									
Taxes, repairs, insurance, etc.	\$ 6.73	4.85	5.95	7.38	7.53	12.36	10.48	8.04	9.7
Labor and Material (not water)									
Fertilization, harrowing, irrigation labor	\$ 27.02	15.54	18.97	44.10	26.88	24.44	15.35	20.46	24.6
Water or Power Cost	\$ 10.89	13.69	14.69	15.47	30.97	23.29	28.25	18.51	22.2
Depreciation	\$ 12.23	4.36	15.98	31.86	20.02	16.90	27.86	14.89	17.9
Interest on Investment	\$ 21.02	11.80	16.57	19.05	12.59	30.25	33.72	21.38	25.6
Total Costs per Acre	\$ 77.90	50.24	73.16	117.86	97.99	107.24	115.66	83.28	100
Animal Unit Months Feed per Acre	10.4	6.3	8.4	14.1	9.5	10.4	9.6	8.8	—
Cost per Animal Unit Month Feed	\$ 7.50	7.95	8.71	8.35	10.27	10.30	12.07	9.43	—

Minimum 1953

Serial Number	1	2	3	4	5	6	7	Ave.
Source of Water	Creek & Well	Ditch	Well	Well	Well	Well	Well	
Method of Irrigation	Flood	Flood	Sprink.	Sprink.	Sprink.	Flood	Sprink.	
Number of Irrigations	12	9	12	11	26	13	15	14
Acres Inches per Irrigation	4.6	2.7	3.3	4.6	2.8	6.5	2.5	3.4
Total Acres Inches Used per Acre	55.5	24.4	38.6	50.8	73.5	84.0	36.0	47.8
Water or Power Cost per Acre	\$ 10.89	13.69	14.69	15.47	30.97	23.29	28.25	18.51
Irrigation Labor per Acre - hours	13.4	7.4	15.9	14.3	25.1	19.5	12.7	14.0
Cost of Irrigation Labor per Acre	\$ 13.43	8.49	15.94	14.30	25.13	19.65	12.69	14.26
Total Water, Irrigation & Labor Cost \$ per Acre	24.32	22.18	30.63	29.77	56.10	42.94	40.94	32.77
A.U. Mos. Grazing per Acre	10.4	6.3	8.4	14.1	9.5	10.4	9.6	8.8

# IRRIGATION COSTS- LABOR AND WATER

Irrigation schedules were fairly constant. An irrigation every two weeks is the common schedule, and a satisfactory one.

The amounts of water used showed large differences. Record No. 1 used some creek water, which is not shown. Considering two irrigations from the creek, the total water used was 55.5 inches. Power costs were for only 10 irrigations and 46.6 inches. Pasture No. 2 did not get water until late in the season, and as a result the total water used was small.

Generally, smaller amounts of water may be used per irrigation and for the entire season by sprinkling as compared to flooding. Two excellent jobs of irrigation were done with sprinklers, one using only 36 inches, and one using 38.6 inches. On the other hand, an extreme case showed 84 inches used in one flooding operation.

Irrigation labor requirements were about normal for sprinkling, but were rather high for flooding.

Labor and power costs would be reduced considerably by using deep-rooted plants in the pasture, where soil conditions permit. For example, an alfalfa-grass pasture would require only about  $1/2$  the labor and  $2/3$  the power to irrigate as does a ladino clover-grass mix. On good soils, the yield may be increased at the same time.



# SPRINKLERS VS. FLOODING

Total power costs per acre need not be much greater with sprinklers than with flooding irrigation. Sprinklers make possible the use of less water over the entire season, so even though the cost per acre foot of water may be higher, this cost is balanced by the use of less water.

Labor in sprinkler irrigation is generally higher than with flooding. However, when a man must stay with the water at all times, the labor cost of flooding may be greater than with sprinklers.

In most cases a higher investment is necessary to develop a sprinkler irrigation system. As a result depreciation charges and interest on the investment are increased, thereby increasing the total cost per acre.

Sprinkling enables crops to be produced on land that is too steep for levelling and on land that has shallow soil not suited to levelling.

## MANAGEMENT and YIELDS

Yields generally were lower than expected. This is certainly due, to some extent, to the fact that much of the pasture in these records was in its first year and not producing to its full capacity.

### IRRIGATION

An irrigation every two weeks has proven satisfactory for ladino-grass mixtures. Alfalfa-grass pastures may go as long as 30-40 days between irrigations. About 2-3 inches of water per irrigation is sufficient in most cases for ladino-grass. Four to six inches would be required per irrigation for alfalfa-grass pastures. Gravelly soil may require more water. It is more difficult to apply small amounts of water by flooding than it is with sprinkling.

### GRAZING

Pastures should be divided into several fields so a good rotation grazing system may be used. Rotations should be planned so that each field has a three-four week period to grow back. Alfalfa-grass pastures should have a 28-30 day regrowth period, while ladino clover-grass pastures should have 21-25 days to grow between grazings for high yields. Fields should be fed off in as short a time as possible.

### FERTILIZATION

Fertilization may, in some cases, increase yields enough to more than cover the cost of fertilization. Exact recommendations cannot be made at this time.

### ANIMAL UNIT MONTHS

Yields were all converted to animal unit months so that all records would be uniform. The amount of feed required to keep a mature steer, cow or bull for one month is considered an animal unit month (A.U.Mo.). High producing dairy cows are considered as more than an animal unit. Ewes are considered as 1/5 of an animal unit and yearling steers as 3/4 of an animal unit.

## VALUE

Even though yields were not high, the cost of the pasture was equal to hay at \$23.57 per ton. The average yield was a little less than 9 A.U. Mos. of feed per acre. In other words, these pastures produced enough feed for one cow per acre for nine months.