

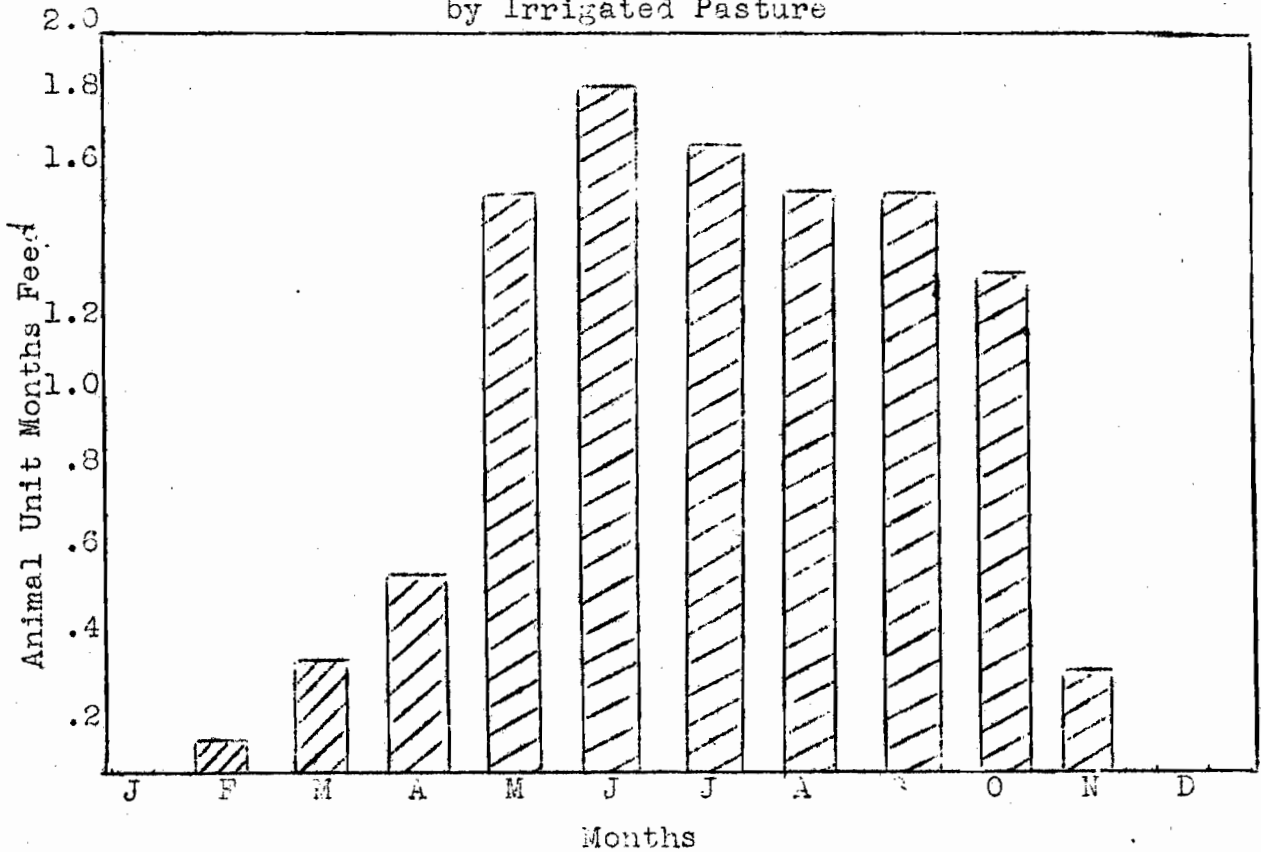
S I X T H A N N U A L

Sacramento County

IRRIGATED PASTURE MANAGEMENT STUDY

1948

Distribution of Feed During the Year
by Irrigated Pasture



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I N T R O D U C T I O N

This is the sixth annual report of the Sacramento Irrigated Pasture Study covering the calendar year 1948. This study has been conducted to help the producers improve their management practices and to develop a source of management information. The study is valuable not only to the cooperators in the study but also to others interested in this type of enterprise.

Records of dairy and beef enterprises show irrigated pasture to be one of the most economical of feed sources. Since it can be produced successfully on land not well suited to other agricultural uses, it has a very definite place in the farming pattern of California. The phenomenal increase in acreage since the popularization of the crop is a monument to its place in California agriculture. Many additional farmers may find use for irrigated pasture in the future.

BASIS OF MEASURING FEED

In order to determine and compare the amount of feed obtained from pastures where different kinds and ages of livestock are fed, the animal unit is used as a basis of measurement. An animal unit is defined as a mature beef animal, or a dairy cow producing 200 pounds of butterfat per year, or the equivalent in feed requirement. An animal unit month of feed is approximately 400 pounds of T.D.N.

The following factors were used to determine the number of animal units.

Dairy Cows	400# B.F.	1.33
Dairy Heifers		.66
Lambs		.15

RESULTS OF STUDY

The average cost of feed from the pastures in this study was equivalent to hay at \$8.90 per ton and barley at 69 cents per cwt.

Each acre of pasture in this study produced the equivalent of over 4 tons of hay and the livestock did the harvesting themselves. Two of the records have practically the same cost per acre, but the other record is high due to being on sandy soil and requiring more irrigation and fertilization. Feed can be produced on irrigated pasture at less than \$4.00 per animal unit month.

TABLE 1

SUMMARY OF COSTS AND VALUE OF FEED PRODUCED FOR COOPERATORS IN
THE 1948 SACRAMENTO IRRIGATED PASTURE STUDY WITH AVERAGES FOR 1946-48

Serial Numbers	1948				Average 1946 - 48			
	7	5	3	Average	Dairy	Records	Sheep	7
					5	3	Average 5 & 3	
Age of stand, years	6	-	10	--	-	-	-	-
Animal Unit Months per acre	10.9	9.0	10.5	10.5	8.4	10.6	9.5	11.1
Pounds TDN per Acre	4360	3600	4200	4200	3360	4240	3800	4,440
Expense per Acre								
Labor and Field power								
Fertilizing	.09	2.05	2.25	.85	2.63	2.38	2.50	.15
Clipping	.54	1.55	3.50	1.29	1.51	3.14	2.37	.42
Irrigation	10.38	4.76	18.60	11.02	5.38	21.82	14.05	11.64
Ditch Work and Other	.07	--	.80	.20	.16	1.96	1.11	.15
Total Labor and power	11.09	8.36	25.15	13.36	9.68	29.30	20.03	12.36
Material								
Irrigation Power	6.45	5.72	7.54	6.54	5.16	9.33	7.36	5.73
Fertilizer Material	1.96	2.31	3.37	2.30	7.21	5.43	6.27	1.08
Total material	8.41	8.03	10.91	8.84	12.37	14.76	13.63	6.81
Cash Overhead								
General expense	.97	.82	1.80	1.11	1.10	2.20	1.68	.96
County Taxes	1.25	1.85	1.88	1.47	1.85	1.50	1.66	1.14
Other	--	--	.25	.05	--	.26	.14	.15
Total cash overhead	2.22	2.67	3.93	2.63	2.95	3.96	3.48	2.25
Total Cash Cost	21.72	19.06	39.99	24.83	25.00	48.02	37.14	21.42
Depreciation	3.97	5.73	9.72	5.39	5.73	9.72	7.83	3.84
Interest	6.91	7.61	8.34	7.37	7.61	8.64	8.15	6.79
Total Cost per acre	32.60	32.40	58.35	37.59	38.34	66.38	53.12	32.05
Cost per Animal Unit Month	3.00	3.84	5.55	3.58	4.59	6.28	5.58	2.90
Cost per cwt TDN	.75	.96	1.39	.89	1.15	1.57	1.39	.72
Equivalent value hay per ton	7.50	9.60	13.90	8.90	11.50	15.70	13.90	7.25
Equivalent value barley per cwt	.59	.75	1.08	.69	.90	1.22	1.09	.57

TDN - Total Digestible Nutrients, the net digestible portion of the feed available for growth and maintenance. An Animal Unit Month is considered as 400 lbs. TDN.

Hay - 50% TDN. Barley 78% TDN.

TABLE 2
PASTURE, USE BY MONTHS, INVESTMENT, DEPRECIATION, AND IRRIGATION DATA FOR
COOPERATORS IN THE 1948 SACRAMENTO IRRIGATED PASTURE STUDY WITH AVERAGES FOR 1946-48

	1948				Average 1946 - 48			
	7	5	3	Average	Dairy			Sheep
	Lambs	Dairy	Dairy		5	3	Average 5 & 3	7
Kind of livestock pastured					Dairy	Dairy	Dairy	Sheep
Animal Units per Acre								
January	--	--	--	--	--	--	--	--
February	--	--	--	--	--	--	--	--
March	--	--	.3	.1	--	.7	.4	--
April	--	.5	1.3	.3	.9	1.4	1.2	.1
May	1.6	1.2	1.6	1.5	1.5	1.6	1.6	1.9
June	2.2	2.0	1.7	2.2	1.3	1.7	1.5	2.3
July	2.2	1.1	1.7	1.9	1.0	1.6	1.3	1.8
August	1.7	1.1	1.5	1.5	1.0	1.3	1.2	1.6
September	1.9	1.2	1.3	1.6	1.1	1.1	1.1	1.7
October	1.2	1.0	1.0	1.2	1.0	.9	.9	1.5
November	--	.8	.3	.2	.4	.3	.3	.2
December	--	.1	--	--	.2	--	--	--
Total Animal Unit months	10.9	9.0	10.5	10.5	8.4	10.6	9.5	11.1
Animal units per month	.9	.8	.9	.9	.7	.9	.8	.9
Grazing season units per month	13.6	11.2	13.1	13.1	1.1	1.3	1.2	13.9
Investment per Acre								
Pasture stand	9.00	8.00	8.00	8.63	8.00	8.00	8.00	8.62
Fences	5.00	10.00	4.00	5.66	10.00	4.00	6.84	5.00
Irrigation Facilities	23.00	33.62	58.70	31.78	33.62	58.70	46.84	21.17
Other	1.25	.50	2.00	1.27	.50	2.00	1.29	.92
Land	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Total Investment	138.25	152.12	172.70	147.34	152.12	172.70	162.96	135.71
Depreciation per Acre								
Pasture stand	1.80	1.60	1.60	1.73	1.60	1.60	1.60	1.72
Fences	.67	1.33	.80	.81	1.33	.80	1.05	.67
Irrigation facilities	1.35	2.60	6.52	2.57	2.60	6.52	4.66	1.30
Other facilities	.15	.20	.80	.28	.20	.80	.52	.15
Total Depreciation	3.97	5.73	9.72	5.39	5.73	9.72	7.83	3.84

Grazing season considered as eight months.

TABLE 3
SUMMARY OF GAINS ON ONE RECORD PASTURING SHEEP

	1946	1947	1948	Average 1946-48	
Net Gain per acre					The total net gain was divided between supplemental feed and pasture on the basis of pounds of TDN. The net gain is the difference between the pounds removed from the pasture and the pounds put into the pasture. It does not include gains on animals lost through mortality. The net gain includes the following pounds of wool per acre:
Supplemental Feed	44	28	98	49	
Pasture	360	345	433	372	
Total Gain	404	373	531	421	
Gain per Head	8.2	12.1	14.5	10.8	
Gain per Head Day	.16	.149	.188	.164	
Lamb months per acre	76	76	73	74	
Per cent of gain from pasture	89.2	92.5	81.5	88.4	
Pasture cost per cwt gain	9.34	8.73	7.53	8.72	
					1947 83.6 lbs.
					1948 139.2 lbs.
					Average 65.7 lbs.

TABLE 4
IRRIGATION COSTS PER ACRE AND IRRIGATION DATA

Serial Number	1948				Average 1946 - 48			
	7	5	3	Average	5	Dairy 3	Average	Sheep 7
Labor								
Irrigation	10.38	4.76	18.60	11.02	5.38	21.82	14.05	11.64
Ditch work	.07	--	.80	.20	--	1.35	.87	.15
Power	6.45	5.72	7.54	6.54	5.16	9.33	7.36	5.73
Interest on Irrigation system	1.15	1.68	2.94	1.59	1.68	2.94	2.34	1.06
Depreciation on Irrigation system	1.35	2.60	6.52	2.57	2.60	6.52	4.66	1.30
Total Irrigation Cost	19.40	14.76	36.40	21.92	14.82	42.26	29.28	19.88
Number of Irrigations	20	18	18	19	18	22	20	23
Acres Inches Water Per Acre	59.7	29.3	66.1	55.7	37.9	94.8	67.9	69.2
Total Cost per Acre Foot	3.90	6.05	6.61	4.72	4.70	5.35	5.18	3.45

These pastures received about the same number of irrigations, but there was wide variation in the amount of water applied. The heavy application and high cost of No. 3 results from a sandy soil requiring more elaborate irrigation facilities and greater care in irrigation.

TABLE 5

SUMMARY OF SACRAMENTO IRRIGATED PASTURE STUDY 1943 - 48

	1943	1944	1945	1946	1947	1948	Six Year Aver- age
Number of Records							
Animal Units per Acre							
January	.2	.1	--	--	.1	--	--
February	.2	.1	--	--	--	--	.1
March	.3	.2	.2	.2	.1	.1	.3
April	1.0	.5	.3	.5	.4	.3	.5
May	1.1	1.5	1.5	1.7	1.7	1.5	1.5
June	1.3	1.3	2.0	1.7	1.8	2.2	1.8
July	1.3	1.3	1.9	1.4	1.5	1.9	1.6
August	1.2	1.3	2.2	1.1	1.6	1.5	1.5
September	1.1	1.6	2.1	1.0	1.7	1.6	1.5
October	.9	1.1	1.6	1.4	1.2	1.2	1.3
November	.5	.3	.3	.5	.2	.2	.3
December	.3	--	--	--	.1	--	--
Total Animal Unit Mon.	9.4	10.2	12.4	9.5	10.4	10.5	10.4
Expense Per Acre							
Labor and Field Power							
Fertilizing	1.99	1.41	1.61	1.41	.65	.85	1.25
Clipping	1.78	1.31	.90	1.41	.55	1.29	1.14
Irrigation	10.76	10.21	10.14	10.93	11.99	11.02	10.78
Ditch work and Other	1.54	1.48	.79	1.12	.10	.20	.88
Total Labor & Power	15.97	14.41	13.44	14.43	13.29	13.36	14.05
Material							
Irrigation Power	10.71	6.02	6.76	5.72	6.54	6.54	6.64
Fertilizer and Miscellaneous	2.31	4.35	7.95	3.26	1.75	2.30	3.78
Total Material	13.02	10.37	14.71	8.98	8.29	8.84	10.42
Cash Overhead							
General Expense	1.45	1.24	1.41	1.17	1.08	1.11	1.22
County Taxes	1.33	1.01	1.09	1.13	1.19	1.47	1.17
Other	.21	.45	.36	.54	.03	.05	.26
Total Cash Overhead	2.99	2.70	2.86	2.60	2.30	2.63	2.65
Total Cash Cost	31.98	27.48	31.01	26.01	23.88	24.83	27.12
Depreciation	4.41	4.00	4.36	4.65	5.03	5.39	4.60
Interest	5.11	6.04	6.64	6.50	6.39	7.37	6.49
Total Cost Per Acre	41.50	37.52	42.01	37.17	35.90	37.59	38.21
Cost per Animal Unit							
Month	4.39	3.68	3.38	3.93	3.45	3.58	3.67

Costs per acre over this six-year period have remained fairly constant, but variations in the animal unit months of pasture secured have caused a rather wide variation in the cost per animal unit month. These records indicate that nine to twelve animal unit months of feed should be obtained from an irrigated pasture scattered over an eight-months-grazing period.