

INTRODUCTION

This study was made by the Agricultural Extension Service of the University of California and the United States Department of Agriculture in cooperation with alfalfa growers of the Antelope Valley.

Seven growers cooperated in the study by making their records available on 809 acres of alfalfa.

The purpose of this study is to analyze the costs, returns, and water use of alfalfa hay in order that growers may compare their records and, when possible, eliminate uneconomical practices. The returns and water use of alfalfa may be compared with that of new crops. This study is also of value to newcomers to the valley.

Similar studies were conducted in 1931 to 1934, inclusive. The average cost of alfalfa hay production has risen from \$73.42 an acre in 1934 to \$121.13 an acre in 1949; the grower's profit has increased from \$14.14 an acre in 1934 to \$29.49 in 1949.

A comparison of returns from alfalfa hay production during years of low prices to the present can be made. Indications are that we are in such a period at the present time.

It is hoped that this study will be of interest and value to the growers of the area.

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DEFINITIONS

Cultural labor and field power includes all labor and tractor or truck expense in irrigation, renovating, or pest control operations. The operator's labor is included.

Harvest labor and field power includes all labor, including operator, and power costs in harvesting operations such as mowing, raking, and baling.

Material costs includes the electric bill for irrigation, seed, baling wire, etc.

Cash overhead includes taxes, insurance, machinery repairs, and interest at 5% on the operating capital.

Depreciation is the annual charge made on the well, pipelines, all machinery, and the alfalfa stand itself. This is based on the average useful life of the facility.

Interest is the charge made for the use of capital and is calculated at 5%.

Management income is the amount remaining after all costs are deducted from income. The costs include the operator's labor, depreciation, and interest.

Capital and Management income is management income plus the interest charge.

Income above cash costs is capital and management income plus depreciation.

None of these income figures will correspond with that paid on your income tax. If the rancher owns his own place the capital and management income figure plus a value on the operator's labor will approximate income as used in income tax returns.

TABLE 3. YIELDS, INCOME, AND COSTS PER TON

Record Number	11	14	15	10	13	7	12	Av. 1949	Av. 1948	Av. 1947
Number of Acres	125	360	160	52	31	43	38	115.6	79.4	54.4
Yield-Tons per Acre	6.14	6.36	6.29	5.11	5.31	5.57	5.64	6.12	6.15	6.94
Average Price hay per Ton	\$28.23	\$24.09	\$21.68	\$25.74	\$21.29	\$19.36	\$20.31	\$23.84	\$31.12	\$24.06
Cultural Labor & Field Power	2.80	3.00	1.15	5.58	5.95	3.45	9.03	3.13	4.16	3.73
Harvesting Costs Per Ton	4.69	4.74	4.19	5.19	6.04	7.05	6.08	4.88	6.77	6.30
Material Costs per Ton	3.72	3.96	2.98	5.18	3.17	6.62	4.60	3.93	4.67	3.62
Overhead Costs per Ton	1.62	2.28	2.07	1.57	1.81	3.20	1.89	2.12	2.06	1.15
Total Cash Costs	12.83	13.98	10.39	17.52	16.97	20.32	21.60	14.06	17.66	14.80
Depreciation	2.61	2.25	2.88	3.70	2.70	3.79	3.12	2.65	2.57	2.47
Interest on Investment	2.56	3.08	3.49	2.77	3.12	2.92	3.57	3.09	2.71	2.22
Total all Costs per Ton	\$18.00	19.31	16.76	23.99	22.79	27.03	28.29	19.80	22.94	19.49
*Management Income per Ton	\$10.64	6.25	4.92	1.75	-2.72	-7.67	-7.98	4.82	8.18	5.30
Capital & Management Income	13.20	9.33	8.41	4.52	.40	-4.75	-4.41	7.91	10.89	7.52
Income above Cash Costs	15.81	11.58	11.29	8.22	3.10	-.96	-1.29	10.56	13.46	9.99

*This income includes any income from pasture distributed over the tonnage.

The smaller ranches received lower returns because of lower yields and lower prices received. This lower yield accounts for the higher cost per ton. There is considerable similarity in the costs per acre for both large and small ranches. Record No. 15 is very efficient in labor use and is lowest in cost of production. Numbers 13, 7, and 12 could more than cover their net loss if they had received better prices for their hay. Producing quality hay and selling it at peak annual price is as important as getting large yields in determining profit.

DISTRIBUTION OF
INCOME FROM A TON OF HAY

Profit	20%
Interest	12%
Depreciation	11%
Taxes, Repairs, Ins., etc.	3%
Water, baling wire, etc.	16%
Harbor, labor and power	20%
Irrig., labor and other cultural costs	13%

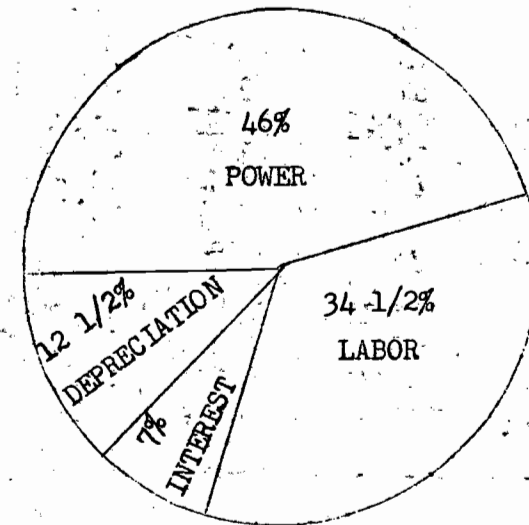
TABLE 4. IRRIGATION - DATA ON WELLS, WATER USE, AND COST PER ACRE

Record Number	11	14*	15*	10	13	7	12	1949 Av.	1948 Av.	1947 Av.
Depth in Feet	504	600	450	450	183	515	330	468	397	
Size of Casing-inches	14-12	16	14	12-10	12	14-10	12-10	-	-	
Pumping Lift - feet	-	190	200	135	120	160	180	174	149	136
Rate of Flow in Miners-inches	142	120	95	51	35	100	55	35-360	40-160	61
Number of Irrigations	15	16-17	12-13	11	20	16	14	11-20	8-25	15.5
Acre-inches per Application	5.5	5.9	8.2	6.9	4.8	5.3	6.2	4.8-8.2	4.1-7.2	4.9
Total Acre-Feet per Acre	6.84	8.07	8.56	6.35	7.98	7.06	7.28	7.77	7.3	6.7
Power Cost per Acre	\$19.17	\$20.73	\$14.31	\$22.44	\$15.13	\$30.01	\$20.59	\$19.60	\$21.88	\$18.32
Depreciation Cost per Acre	5.38	4.82	4.68	6.65	4.56	10.80	5.82	5.35	5.59	8.47
Interest on Investment	2.69	3.19	2.82	2.63	2.28	4.83	2.91	3.04	2.70	3.97
Total Water Costs-at the well	\$27.24	\$28.74	\$21.81	\$31.72	\$21.97	\$45.64	\$29.32	\$27.99	\$30.17	\$30.76
Costs per Acre-foot-at the Well	3.98	3.56	2.55	5.00	2.75	6.46	4.03	3.60	4.13	4.59
Irrigation labor per Acre	10.40	12.97	6.86	21.63	31.36	19.20	50.97	14.74	24.09	23.89
Total costs per Acre in Field	\$37.64	\$41.71	\$28.67	\$53.35	\$53.33	\$64.84	\$80.29	\$42.73	\$54.26	\$54.65
Costs per Acre-foot-in Field	\$ 5.50	5.17	3.35	8.40	6.68	9.18	11.03	5.50	7.43	8.16

*Average of more than 1 well

Water costs declined to \$5.50 an acre foot delivered in the field in spite of a lower water table. The main cause of this reduction is more efficient use of irrigation labor on the ranches cooperating in this year's study. Record number 15 showed the highest water use but the lowest power bill due to using 100H.P. motors and a different rate for electricity.

DISTRIBUTION OF WATER COSTS
IN FIELD - 1949

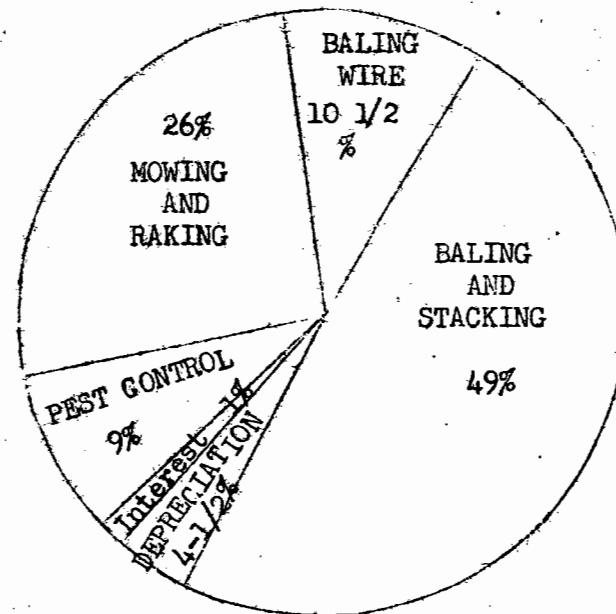


	11	14	15	10	13	7	12	1949 Avg.	1948 Avg.	1947 Avg.
Mowing Cost per Acre	\$10.40	\$11.47	\$ 8.00	\$ 4.81	\$15.78	\$ 9.21	\$14.21	\$10.28	\$11.92	\$11.37
Raking & Bunching per Acre	3.70	4.45	4.04	3.19	2.59	5.86	4.16	4.16	4.50	4.16
Baling Wire per Acre	18.43	17.87	18.36	21.73	19.76	28.28	20.06	19.11	23.44	30.27
Baling per Acre	1.09	1.33	2.67	1.40	1.60	1.16	2.20	1.60	1.22	.98
Depreciation of Harvesting Equipment	.23	.32	.67	.18	.59	.17	.65	.38	.38	.23
Interest	33.85	35.44	33.74	31.31	40.32	44.68	41.28	35.53	41.46	47.01
Total harvesting Costs per Acre	5.51	5.57	5.36	6.13	7.59	8.02	7.32	5.81	6.74	6.77
Total harvesting Costs per Ton	6.80	5.28	-	4.41	2.38	-	-	3.77	-	-
Pest control per Acre										

AVERAGE
COSTS PER ACRE

\$43.25	Irrigation
3.60	Pest Control
35.85	Harvesting
13.53	Taxes, insurance, repairs
9.30	Depreciation - alfalfa stand
15.60	Interest
<u>\$121.13</u>	Total costs

DISTRIBUTION OF
HARVESTING COSTS
PER ACRE
1949



Records number 10 and 7 hired their baling done and averaged \$4.75 per ton for baling costs. All the other records average about \$4.00 per ton for baling when depreciation and interest are included as costs. Approximately 75¢ per ton can be saved by the grower who is doing his own baling. It is advisable that a grower on a small acreage contract as much additional acreage as possible to spread his fixed costs over more acres.

