

1968

PRODUCTION COSTS AND RETURNS FOR ALFALFA HAY  
IN  
TEHAMA COUNTY

University of California  
Agricultural Extension Service  
Tehama County

## PRODUCTION COSTS AND RETURNS FOR ALFALFA HAY IN TEHAMA COUNTY

### Foreword . . .

The costs involved in production of alfalfa hay vary considerably from farm to farm. They vary because of variations in cost of the several factors that make up the total. Costs of individual growers may also vary because they may be figured in different ways - - - depending on what they want to know. The purpose of this publication is to show a method anyone may use to arrive at production costs in a way that will suit his own needs.

The figures used for illustration should not be considered as average for Tehama County. On the other hand, they can be considered typical of costs that may be found in the county for they were developed with the help of farmers who are in the business of producing alfalfa hay for a living.

Returns also vary from farm to farm, and on the same farm from year to year, because of differences in yield and changes in the price for which the crop may be sold. The gross income that may be expected from an acre of alfalfa is shown for different yields and for different prices experienced by growers in Tehama County during the past few years.

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with assistance of  
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## COST OF PRODUCING ALFALFA HAY

The cost of producing alfalfa hay is composed of many factors, each of which can vary and therefore affect the total. Table 1 shows an example of costs that may be expected in growing hay in Tehama County. To arrive at the costs shown the following assumptions were made.

### CAPITAL INVESTMENT

	Investment	
	Total	Per Acre
---- 150 acres leveled land	\$75,000	\$500
---- Irrigation system <u>1/</u>	18,000	120
---- Equipment <u>2/</u>	<u>21,000</u>	<u>140</u>
	\$114,000	\$760

### OPERATION

Consists of 150 acres with an average yield of 7 tons per acre.

### LABOR

Skilled @ \$2.50 per hour including fringe benefits.

Unskilled @ \$1.65 per hour including fringe benefits.

### TAXES AND INSURANCE

Calculated @ 1.50% on investment.

### INTEREST

Calculated @ 7.0%.

### MACHINERY COSTS

See appendix item 2.

1/ See appendix item 1

2/ See appendix item 2

Table 1

AN EXAMPLE OF PRODUCTION COSTS FOR ALFALFA HAY IN TEHAMA COUNTY, 1968

Based on 150 acre operation - 7 ton yield

Operation	Hours Per Acre	Labor	Cash and Labor Cost Per Acre			Total
			Fuel and Repairs	Kind and Quantity	Materials Cost	
<b>Cultural costs:</b>						
Fertilize	.3	\$ .75	\$ .39	Fertilizer 400#	4.00	
Spring tooth	.3	.75	.54			
Irrigate 8x	3.0	4.95	-	Power 5 ac-ft*	9.60	
Irrg. system maintenance	.1	.25	2.00			
<b>CULTURAL COSTS</b>						\$ 23.23
<b>Harvest costs:</b>						
Swath and condition 5x	1.4	3.50	2.94			
Bale 7 tons	1.1	2.75	2.86	Wire @ 1.00/ton	7.00	
Bank out 7T.	4.2	10.50	5.46			
<b>HARVEST COSTS</b>						\$ 35.01
<b>Cash overhead:</b>						
Taxes and Ins.					11.87	
Misc., office, etc.					2.93	
<b>CASH OVERHEAD COSTS</b>						\$ 14.80
<b>TOTAL CASH COST 6.7 hr</b>		\$23.45	\$14.19		\$35.40	\$ 73.04
<b>MANAGEMENT 5% of 7 tons @ \$20</b>						\$ 7.00
<b>INVESTMENT COSTS</b>						
<b>Investment Per Acre</b>		<b>Annual Costs</b>				
			<b>Depreciation</b>		<b>Interest</b>	
\$500	Land		-		\$35.00	
70	Well and Pump		\$ 2.80		2.45	
50	Irrigation Pipeline		2.00		1.75	
125	Equipment		12.50		4.38	
19	Pickup Truck		1.90		.67	
27	Stand**		6.74		.24	
\$791	<b>Total</b>		\$25.94		\$44.49	\$ 70.43
<b>TOTAL COST PER ACRE</b>						\$ 150.47
<b>COST PER TON @ 7 TON YIELD</b>						\$ 21.50

\*For details see Appendix 1 a

\*\*See Appendix 3

## RETURNS FROM PRODUCING ALFALFA HAY

The annual returns per acre, of course, depend on the yield and price. For the example shown in Table 1 the yield was 7 tons per acre and the price was \$20 per ton. Table 2 shows the returns per acre that might be expected for yields ranging from five to nine tons per acre selling for prices ranging from \$15.00 to \$25.00 per ton.

Table 2

### ANNUAL RETURNS PER ACRE FROM ALFALFA HAY FOR YIELDS RANGING FROM 5 to 9 TONS PER ACRE AND PRICES FROM \$15 TO \$25 PER TON

Yield per acre	PRICE PER TON				
	\$15.00	\$17.50	\$20.00	\$22.50	\$25.00
(tons)	GROSS INCOME PER ACRE				
5	75.00	87.50	100.00	112.50	125.00
6	90.00	105.00	120.00	135.00	150.00
7	105.00	122.50	140.00	157.50	175.00
8	120.00	140.50	160.00	180.00	200.00
9	135.00	157.50	180.00	202.50	225.00

## APPENDIX ITEM 1

Irrigation System.	Investment	
	Total	Per Acre
Well		
16-inch hole, 400 ft. deep @ \$12.00 per foot	\$4,800	
Casing and gravel pack @ \$5.00 per foot	<u>2,000</u>	
	\$6,800	
Pump and Motor		
40 h.p. to provide 1,600 gpm	<u>\$3,830</u>	
	\$10,630	\$70
Concrete Pipeline		
1/2 mile 18 inch pipe laid @ \$2.05 per foot	\$5,412	
88 alfalfa valves (30 ft checks) @ \$23.00	<u>2,042</u>	
	\$7,454	\$50
<b>Total cost of irrigation system</b>	<b>\$18,084</b>	<b>\$120</b>

APPENDIX ITEM 1 a

Electric Power Required

Water required:

150 acres @ 5 acre-feet = 750 acre-feet

Power required:

Pumping lift	80 feet
Motor size	40 horsepower
Pumping plant efficiency	55%

Formula:

$$\text{kwh per acre-foot} = \frac{1.024 \times \text{pumping lift}}{\text{overall plant efficiency}}$$

$$\frac{1.024 \times 80 \text{ feet}}{.55} = 148.9 \text{ kwh per acre-foot}$$

Then:

750 acre-feet x 150 kwh	=	112,500 kwh
service charge @ 6.73/h.p. x 40	=	\$269.20
energy: 40,000 kwh @ .0149	=	596.00
40,000 kwh @ .0091	=	364.00
32,500 kwh @ .0065	=	<u>211.25</u>
cost of power for 150 acres		\$1,440.45

and:

$$\frac{\$1,440.45}{750 \text{ acre-feet}} = \$1.92 \text{ power cost per acre-foot}$$

$$\$1.92 \times 5 \text{ acre-feet} = \$9.60 \text{ power cost per acre}$$

APPENDIX ITEM 2

EQUIPMENT INVESTMENT\* FOR ALFALFA HAY

Based on 150 acres of alfalfa on a 150 acre farm, 1968

Item	Cost	Depreciation	Interest	Cash Costs Per Hour	Hours Per Acre
Tractor, wheel 30 hp	\$ 5,250	\$525	\$184	\$1.05	-
Plow, mold board 2-14	525	53	19	.35	1.18
Disc, tandem 6 ft.	575	58	22	.35	.56
Ridger single	325	33	12	.20	.17
Harrow 12 ft.	390	20	14	.16	.13
Springtooth harrow 12 ft.	1,250	125	44	.75	.29
Fertilizer spreader 12 ft.	450	90	16	.25	.26
Graindrill 12 ft.	1,000	100	35	.80	.26
Cultipacker 12 ft.	840	84	30	.40	.13
Swather, PTO 12 ft.	1,750	220	62	1.05	.27
Trailer 20 ft.	1,400	175	46	.20	-
Baler 2 wire	3,860	386	135	1.55	.15/T
Bale loader	<u>450</u>	<u>45</u>	<u>16</u>	.25	.30/T
	\$18,065	\$1,914	\$635		
				Cash Costs Per Mile	
Pickup Truck 3/4 Ton	<u>\$ 2,800</u>	<u>\$ 560</u>	<u>\$ 98</u>	5.2	
	\$20,865	\$2,474	\$733		

\*Reference: Machinery Costs & Performance, A. D. Reed, 1967



APPENDIX 3

SAMPLE COSTS OF ESTABLISHING A STAND OF ALFALFA

Tehama County, 1968

Operation	Hours Per Acre	Cash and Labor Cost Per Acre				Total
		Labor*	Fuel and Repairs	Kind and Quantity	Materials Cost	
<b>Cultural Costs</b>						
Plow	1.2	3.00	1.68			
Disc (2x)	1.2	3.00	1.68			
Ridge	.2	.50	.25			
Float	.5	1.25	.58			
Harrow (2x)	.3	.75	.35			
Fertilize	.3	.75	.39	Sulphur 50#	3.00	
Plant	.3	.75	.56	Seed 15#	6.00	
Roll (2x)	.3	.75	.44			
<b>CULTURAL COSTS</b>						<b>\$25.68</b>
<b>Cash overhead</b>						
Misc., office, etc.					1.28	
<b>CASH OVERHEAD COSTS</b>						<b>\$ 1.28</b>
<b>TOTAL CASH COST</b>	<b>4.3 hr</b>	<b>\$10.75</b>	<b>\$5.93</b>		<b>\$10.28</b>	<b>\$26.96</b>

\*Labor

Skilled @ \$2.50 per hour

Unskilled @ \$1.65 per hour

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