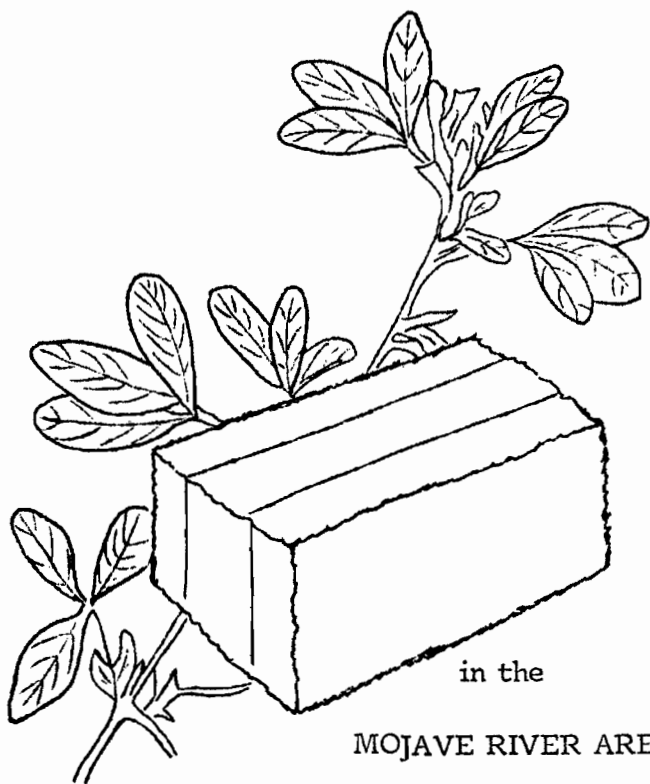


# ALFALFA -

## COST OF PRODUCTION



in the

MOJAVE RIVER AREA

of

SAN BERNARDINO COUNTY

University of California Agricultural Extension Service

## ALFALFA - COST OF PRODUCTION

by

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## GENERAL

The Mojave Valley area of San Bernardino County lies north and northeast of San Bernardino. Alfalfa is the main crop presently being produced in this area. Acreage was estimated at nearly 14,000 in 1961. Economically, a family-sized farm should be 120 to 160 acres. Yields vary from three to ten tons per acre, depending upon management, soil, and climatic conditions.

The primary source of water is the Mojave River, which drains over 500 square miles at the lower narrows, near Victorville. Growers pump from underground basins along the Mojave River. Depth to water increases on higher ground located away from the river channel.

Since the late 1940's, there has been a general overdraft of the underground basins. Though not a limiting factor now, continued annual depletion of the underground water supply could be serious. Increased costs due to the lowering of water tables could necessitate a reduction in irrigated acreage, or the production of higher cash income crops.

## SEEDBED PREPARATION

Proper seedbed preparation is a "must" for successful establishment of alfalfa. If flood irrigation is to be used, one of the most important factors is properly leveled land. If the land is not properly leveled, unproductive areas for the life of the stand will result.

## SEEDING RECOMMENDATIONS

Experience has shown that fall seedings are much more successful in the Mojave Valley area than spring plantings. Alfalfa can be drilled at 18 to 20 pounds per acre, or broadcast 25 to 30 pounds per acre. Best months for planting are September and October.

Frequently, a companion crop of 10 to 20 pounds per acre of barley or oats is seeded with the alfalfa. Seeding into sudan stubble without a companion crop is also recommended.

Spring seedings, if necessary, can generally be made after February 15. It is always a good idea to inoculate seed before planting--even on old alfalfa land.

## VARIETIES

Lahontan is the only aphid-resistant variety, at the present time, that has been adequately tested for adaptability on the high desert. Trials on the new aphid-resistant varieties--Moapa, SA-3, and Cody--are being conducted. Growers wishing a progress report may contact the Agricultural Extension Service office.

## IRRIGATION

An established stand of alfalfa on the desert will generally use from 1/4 to 1/3 of an inch of water per day during the summer. Most alfalfa growers irrigate three times, and on

some of the lighter soils, four times between cuttings. Cuttings are made every 28 to 35 days.

Alfalfa in need of water will have a blue cast. A shovel or soil auger, and knowledge of his own soils, are some of the best tools a farmer can use when irrigating.

## HARVESTING

Alfalfa should be cut when 25 per cent of the crowns have buds 1/4 to 1/2 inch long.

## FERTILIZERS

Alfalfa is a very heavy user of phosphorous. In deficient areas, applying enough phosphorous to last the expected life of the stand will save the labor costs of annual application.

### Example:

Expected yield.....	7 tons per acre
Phosphorous requirement...approx.	80 lbs. per ac. annually
Expected life of stand....	6 years

At time of seeding, approximately 500 pounds of actual  $P_2O_5$  per acre could be applied. Or, the application may be split and half this amount applied the first and fourth years.

Properly inoculated alfalfa will supply its own nitrogen.

## DISEASES AND PESTS

The variety Lahontan is resistant to the more common diseases, but is susceptible to leaf spot diseases. It is very resistant to the spotted alfalfa aphid, except when weakened by insufficient fertilizer or moisture.

Weed and insect control recommendations are handled by annual publications available from the Agricultural Extension Service office.

## ABOUT THE COST STUDIES

Two methods of irrigation and two distinct farming areas were analyzed in the cost studies included in this leaflet. The flood method of irrigation represents the older farming areas along the Mojave River.

The sprinkler cost study is representative of the newer land being developed east of Barstow. Production cannot be expected to be as high on the newly-developed land as on the older, established farms.

Recommendation of one system over the other, as a result of these cost studies, is not implied. The individual must decide which system is most efficient and best suited for his own operation.

The cost studies were developed with the assistance of representative alfalfa growers in areas using these irrigation practices. Their cooperation is greatly appreciated.

## EFFECT OF YIELD AND PRICE ON PROFITS PER ACRE

### FLOODING

Yield Tons Per Acre	Net Cost* Per Acre	Net Profits Per Acre at Varying Prices Per Ton of Hay				
		\$24	\$26	\$28	\$30	\$32
5	\$145.00	\$-25.00	\$-15.00	\$-5.00	\$ 5.00	\$15.00
6	148.00	- 4.00	8.00	20.00	32.00	44.00
7	151.00	17.00	31.00	45.00	59.00	73.00
8	154.00	38.00	54.00	70.00	86.00	102.00
9	157.00	59.00	77.00	95.00	113.00	131.00

### SPRINKLER

4	\$148.00	\$-52.00	\$-44.00	\$-36.00	\$-28.00	\$-20.00
5	149.50	-29.50	-19.50	- 9.50	.50	10.50
6	151.00	- 7.00	5.00	17.00	29.00	41.00
7	152.50	15.50	29.50	43.50	67.50	71.50
8	154.00	38.00	54.00	70.00	86.00	102.00
9	155.50	60.50	78.50	96.50	114.50	132.50

\*Only baling and hauling costs have been considered in making adjustments in net cost for variations in yield.

**ALFALFA PRODUCTION COSTS BY FLOODING IN DESERT AREA**

Based on owner operation, 120 acre-unit, yield of 7 tons from 5 cuttings, 6-year-life stand, Lahontan variety. Labor at \$1.25 per hour, tractor \$1.35, 10-year-life depreciation for machinery, 30 years for irrigation system. Interest on investment is computed at 6% on one-half of the original investment, with exception of land.

Operation	Annual Hours	Labor	Equipment and Repair	Materials	Cost	Combined Costs	Total Per Acre
<b>Land Preparation</b>							
Fall Plow	1.0	\$1.25	1.85		\$	\$ 3.10	\$
Disc	0.8	1.00	1.25			2.25	
Harrow	0.5	.65	.80			1.45	
Border	0.5	.70	.80			1.50	
Irrigate - 2 times	0.8	1.00	--	Water - 3" \$4.25 acre ft.	1.05	2.05	
Level	1.5	1.90	1.00			<u>2.90</u>	13.25
<b>Cereal Rotation Crop - 20 acres will be rotated to cereals every year. Costs of establishing and harvesting the cereal crop are offset by returns from sale of the grain or grain hay.</b>							
<b>Seeding Stand</b>							
Disc and Harrow (grain stubble)	1.3	1.65	2.05			3.70	
Drill	0.3	.35	.50	Seed-18#-\$8.10, Inoculant-25¢	8.35	9.30	
Fertilize (spinner)	0.3	.35	.45	16-20-0 - 100# @ \$65/Ton	3.25	<u>4.05</u>	17.05
<b>TOTAL COST TO ESTABLISH STAND</b>		<u>\$8.85</u>	<u>\$8.80</u>		<u>\$12.65</u>		<u>\$30.30*</u>
<b>Cultural Costs</b>							
Irrigate - 20 times	5.0	6.25	--	Water-8 acre ft. \$4.25	34.00	40.25	
Fertilize	0.3	.35	.30	Fertilizer - 80# P <sub>2</sub> O <sub>5</sub>	8.00	8.65	
Rodent Control	0.2	.25	--	Bait-5# Pkg.-\$12.80-Use 1 1/4 oz.	.20	<u>.45</u>	49.35
<b>Harvest</b>							
Swath - 5 times	1.5	1.90	.90			2.80	
Bale - 5 times	1.5	1.90	1.45	Wire - 65¢/Baled Ton	4.55	7.90	
Haul and Stack-Custom Rate-10¢/Bale		--	--	7 Tons @\$1.90/Ton - Contract	13.30	<u>13.30</u>	24.00
<b>Cash Overhead</b>							
General Expense (accounting, electricity, insurance, office, transportation)					10.15	10.15	
Taxes					<u>10.00</u>	<u>10.00</u>	20.15
<b>TOTAL CASH COSTS</b>		<u>\$10.65</u>	<u>\$2.65</u>		<u>\$80.20</u>		<u>\$93.50</u>
<b>Non-Cash Costs Per Acre</b>							
	<u>Investment</u>	<u>Depreciation</u>	<u>Interest 6%</u>				
Land	\$300.00	\$ --	\$18.00				
Equipment	177.10	17.70	5.30				
Irrigation System	150.00	5.00	4.50				
Building	15.00	.75	.45				
Stand	30.30	5.00	.90				
	<u>\$672.40</u>	<u>\$28.45</u>	<u>\$29.15</u>				
				<u>57.60</u>			

\*Cost of establishing stand is distributed in non-cash costs.

**TOTAL ALL COSTS**  
Cost per Ton **\$151.10**  
**21.58**

**ALFALFA PRODUCTION COSTS BY SPRINKLER IN DESERT AREA**

Based on owner operation, 120 acre-unit, yield of 6 tons from 6 cuttings, 7-year-life stand, Lahontan variety. Labor at \$1.25 per hour, 10-year-life depreciation for machinery, 30 years for irrigation system. Interest on investment is computed at 6% on one-half of the original investment, with exception of land.

Operation	Annual Hours	Labor	Equipment and Repair	Materials	Cost	Combined Costs	Total Per Acre
<b>Land Preparation</b>							
Float - 2-way	0.5	\$ 1.25	\$ .50		\$	\$ 1.75	\$
Fertilize	0.2	.25	.05	200# - 16-20-0 @ \$65/Ton	6.50	6.80	
Chisel & Harrow	3.5	4.40	1.20			<u>5.60</u>	14.15
<b>Establish Stand</b>							
Drill Seed	0.3	.40	.45	Seed - 20# @ 45¢/lb.	9.00	9.85	
Irrigate	3.0	<u>3.75</u>		Water - 1 acre ft.	<u>7.00</u>	<u>10.75</u>	<u>20.60</u>
<b>TOTAL COST OF STAND</b>		<b>\$10.05</b>	<b>\$ 2.20</b>		<b>\$22.50</b>		<b>\$ 34.75*</b>
<b>Cultural Costs</b>							
Irrigate - 24 times	6.5	8.15	--	Water - 6½ acre ft. @ \$7.00	45.50	53.65	
Fertilize	0.3	.35	.30	Fertilizer - 80# P <sub>2</sub> O <sub>5</sub>	8.00	8.65	
Rodent Control	0.2	.25	--	Bait - 3#-3% Mix @ 80¢/lb.	2.40	2.65	
Spray - None						--	64.95
<b>Harvest</b>							
Swath - 6 times	1.2	1.50	.70			2.20	
Bale - 6 times	2.4	3.00	2.30	Wire @ 65¢/Ton	3.90	9.20	
Roadside with Haro-bed - 6 times	1.0	1.25	1.85			<u>3.10</u>	14.50
<b>Cash Overhead</b>							
General Expense (accounting, electricity, insurance, office, transportation)					6.75	6.75	
Taxes					5.80	5.80	<u>12.55</u>
<b>TOTAL CASH COSTS</b>		<b>\$14.50</b>	<b>\$ 5.15</b>		<b>\$72.35</b>		<b>\$ 92.00</b>
<b>Non-Cash Costs Per Acre</b>							
	<u>Investment</u>	<u>Depreciation</u>	<u>Interest 6%</u>				
Land	\$250.00	\$ --	\$15.00				
Equipment	167.00	16.70	5.00				
Irrigation System	249.00	8.30	7.45				
Building	10.00	.50	.30				
Stand	<u>34.75</u>	<u>5.00</u>	<u>1.05</u>				
	<b>\$710.75</b>	<b>\$30.50</b>	<b>\$28.80</b>				
							<b>59.30</b>

\*Cost of establishing stand is distributed in non-cash costs.

TOTAL ALL COSTS **\$151.30**  
Cost per Ton **25.21**

## PUBLICATIONS

Alfalfa Production in California  
Circular 442

Drainage  
Circular 391

Vertical Mulching

Legume Inoculation

Border Method of Irrigation  
Circular 408

Sprinkler Irrigation  
Circular 456

Diseases of Alfalfa in California  
Circular 435

The Spotted Alfalfa Aphid

Gopher Bait Applicator

Rabbit Control

When writing for these publications,  
request them by title; circular number  
may be used, if available.