

1992
**U.C. COOPERATIVE EXTENSION
SAMPLE COSTS TO ESTABLISH AND PRODUCE ALFALFA HAY
IN THE HIGH DESERT OF SOUTHERN CALIFORNIA
(Wheel Line Irrigation System)**

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by

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The detailed costs for alfalfa hay establishment and production in the high desert areas (Antelope Valley, El Mirage, Lucerne Valley, Apple Valley and Oro Grande) of Los Angeles and San Bernardino counties are presented in this study. The hypothetical farm used in this report consists of 360 acres of which 320 acres are in alfalfa hay production.

Practices described are based on those production procedures considered typical for this crop and area. Sample costs given for labor, materials, equipment and contract services are based on current figures. Some costs and practices detailed in this study may not be applicable to your situation. **This study is only intended as a guide and can be used in making production decisions, determining potential returns, preparing budgets and evaluating production loans.** A blank Your Costs column is provided to enter your actual costs on Table 1, Costs Per Acre To Establish Alfalfa Hay and Table 5, Costs Per Acre To Produce Alfalfa Hay.

This study consists of **General Assumptions for Establishing and Producing Alfalfa Hay** and ten tables.

Table 1.	Costs Per Acre To Establish Alfalfa Hay
Table 2.	Monthly Cash Costs Per Acre To Establish Alfalfa Hay
Table 3.	Annual Equipment Costs for Alfalfa Hay Establishment
Table 4.	Hourly Equipment Costs For Alfalfa Hay Establishment
Table 5.	Costs Per Acre To Produce Alfalfa Hay
Table 6.	Monthly Cash Costs Per Acre To Produce Alfalfa Hay
Table 7.	Annual Equipment, Investment And Business Overhead Costs For Alfalfa Hay Production
Table 8.	Hourly Equipment Costs For Alfalfa Hay Production
Table 9.	Ranging Analysis
Table 10.	Costs And Returns / Breakeven Analysis

For an explanation of calculations used for the study refer to the attached General Assumptions, call the Department of Agricultural Economics, Cooperative Extension, University of California, Davis, California, (916) 752-3589 or call the Farm Advisor in the county of interest.

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GENERAL ASSUMPTIONS FOR ESTABLISHING AND PRODUCING ALFALFA HAY

High Desert of Southern California - 1992
(Wheel Line Irrigation System)
U.C. Cooperative Extension

The following is a description of some general assumptions pertaining to sample costs of alfalfa hay establishment and production in the high desert of Southern California. These costs are presented on an annual, per acre basis.

1. LAND:

This cost of land in this production study is based on a 360 acre field crop farm. 320 acres are in alfalfa hay production and the remaining 40 acres include other crops grown in rotation with alfalfa hay such as cereals grown for hay and sudangrass. The 360 acres of land in this study is owned by the grower and is valued at \$2500 per acre. Land is not depreciated.

2. STAND ESTABLISHMENT:

Table 1, Costs Per Acre To Establish Alfalfa Hay shows the cost associated with ground preparation, planting and growing an alfalfa stand until the first production year. All of the primary tillage and land preparation operations are done in August. Fertilizer (P₂O₅) is custom applied to the field in September before the alfalfa stand is planted. A total of 1 acre-foot of water applied by 9 irrigations during stand establishment starting in September. The rest of the irrigations are scheduled during the months of October and November. A post-emergence herbicide (2,4-DB) is applied to seedling stands when needed. A herbicide (Kerb or Poast) is used for grass control as needed. The first production year's hay is harvested over the following summer. Stand life can vary from as few as 4 years to as many as 10 years or more. Stand life is assumed to be 8 years in this study. To obtain stand establishment cost for an average production year, the total cost per acre to establish alfalfa hay in **Table 1**, is divided by 8 (years of stand life). This becomes an investment cost in **Table 5, Costs Per Acre To Produce Alfalfa Hay**. The annual production cost in the study represents the production costs for any year in the life of the stand.

3. CULTURAL PRACTICES:

Cultural, pesticide and fertilizer inputs for the production of alfalfa hay vary considerably from grower to grower and field to field. Six acre-feet of water is applied in 11 irrigations over the season. Water is pumped from three wells (700 feet deep) to the wheel line irrigation system. The cost of water (or electricity to pump it) is assumed to be \$50 per acre-foot. Pest control is managed with one insecticide application. Aphids and weevils are sprayed in March using Furadan mixed with Lorsban. The spray is applied with a tractor and sprayer. A soil residual herbicide (Velpar) for winter weed control is applied in December to established stands. Treflan is used for summer grass and dodder control. The practices and inputs used in this cost study serve only as a sample or a guide. Variations of cultural practices and inputs can be significant. Use of trade names by the University of California is not an endorsement of these products.

4. YIELDS & RETURNS:

The crop yield used in this study is 8 tons of hay per acre from a total of 5 cuttings per year. An estimated price of a \$110 per ton of hay is used in this study. After the last cutting of hay is taken in the fall the field is grazed with sheep. A grazing fee of \$25 per acre is charged. Returns will vary depending on market conditions.

5. HARVEST:

In this cost study the ranch owns its harvesting equipment and performs all of its harvest operations. Five cuttings of hay is normal for the area, though some fields are harvested six times. The fields are grazed with sheep during the winter and a grazing fee of \$25 per acre is collected as additional income from the alfalfa stand. This study assumes a three twine baler

with a twine cost of \$21.50 per box. The equipment for harvest operations are inventoried, and labor, fuel, repairs, depreciation, and interest on investment, are calculated as a cost of production. If a grower contracts his harvest operation, all harvest equipment and its appropriate cost should be subtracted from harvest and investment costs in Table 5 and a custom charge would then be added to harvest costs in Table 5.

6. LABOR:

Basic hourly wages for workers are \$7.00 and \$4.45 per hour for machine operators and field workers (irrigator), respectively. Adding 34% for SDI, FICA, insurance and other benefits increases the labor rates shown to \$9.38 per hour for machine labor and \$6.10 per hour for non-machine labor. The labor hours for operations involving machinery are 10% higher than the machine hours to account for extra labor involved in equipment set-up, moving, maintenance and repair. Wages for managers are not included as a cash cost. Any returns above total costs are considered returns to management.

7. INVESTMENT:

The investments shown in Table 7 are those that are partially or completely allocated to the alfalfa hay operation. Costs of investments such as stand establishment is attributed only to alfalfa hay and cannot be spread over the rest of the farms enterprises. Other investments including land, shop buildings and irrigation systems can be used by the whole farm so only a portion of the costs can be assigned to the alfalfa hay enterprise and the rest of the costs are distributed to the other farm enterprises. Annual investments shown in Tables 1 and 5 represent depreciation and opportunity cost for each investment on an annual per acre basis.

8. OVERHEAD:

County taxes are calculated as 1% of the average value of land, equipment, buildings and improvements. Insurance is charged at 0.5% of the average value of the equipment over its useful life. Office and business costs are estimated at \$20 per acre for the ranch. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, road maintenance, etc.

9. INTEREST:

Interest on operating capital is based on cash costs and is calculated monthly for ten months until the last harvest at the rate of 11.75% per year. Interest is also charged on investment at 12.05% per year to account for income foregone that could be received from an alternative investment (opportunity cost) and is based on the average value of the buildings and equipment.

10. EQUIPMENT COSTS:

In allocating the equipment costs per acre, the following calculations were made and shown in Table 3 and Table 7: (a) **Original Cost** of equipment is the cost of the new equipment plus sales tax. (b) **Depreciation** is straight line with a 10% salvage value. (c) **Interest** on investment is calculated as the average value per acre of the equipment during its useful life (average value equals (new cost + salvage value) / 2 on a per acre basis) multiplied by an interest rate of 12.05%. (d) The total investment costs are also calculated as 50% of the depreciation and the interest costs for all new equipment to reflect a mix of the new and used equipment. These values are also used in Table 1 and Table 5. Most of this equipment is used on the entire 360 producing acres. Hourly equipment costs are shown in Tables 4 and 8.

11. FUEL & REPAIR:

The fuel and repair cost per acre for each operation in Tables 1 and 5, is determined by multiplying the total hourly operating cost for each piece of equipment in Tables 4 and 8, by the number of hours per acre for that operation. Prices for on-farm delivery of gasoline and diesel are \$0.79 and \$1.00 per gallon respectively.

Table 1.

U.C. COOPERATIVE EXTENSION
 COSTS PER ACRE TO ESTABLISH ALFALFA HAY
 HIGH DESERT OF SOUTHERN CALIFORNIA
 (Wheel Line Irrigation System)

Labor Rate: \$ 9.38/hr. machine labor Interest Rate: 11.75%
 \$ 6.10/hr. non-machine labor Yield per Acre: 8.00 ton

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per Acre					Total Cost	Your Cost
		Labor Cost	Fuel & Repairs	Material Cost	Custom/Rent			
Cultural:								
Subsoil	0.33	3.71	4.47	0.00	0.00	8.19		
Plow	0.40	4.50	5.26	0.00	0.00	9.76		
Disc 2X	0.30	3.38	4.61	0.00	0.00	7.98		
Land plane field	0.17	1.91	2.33	0.00	0.00	4.25		
Fertilize - custom	0.00	0.00	0.00	28.00	5.00	33.00		
Plant (20 lbs of seed)	0.13	1.46	1.91	50.00	0.00	53.38		
Irrigate (1 acft)	1.62	9.88	0.00	49.91	0.00	59.80		
Post emergence herbicide	0.10	1.11	0.62	16.36	0.00	18.09		
Pickup use	0.74	8.34	3.45	0.00	0.00	11.79		
TOTAL CULTURAL COSTS	3.79	34.30	22.66	144.27	5.00	206.24		
Interest on operating capital @ 11.75%							7.33	
TOTAL OPERATING COSTS/ACRE		34.30	22.66	144.27	5.00	213.57		
CASH OVERHEAD:								
Office expense							20.00	
Property Taxes							37.98	
Investment Insurance							18.99	
Investment Repairs							4.17	
TOTAL CASH OVERHEAD COSTS							81.14	
TOTAL CASH COSTS/ACRE							294.71	
NON-CASH OVERHEAD:								
	Per producing Acre	Annual Cost						
		Depreciation	Interest @ 12.25%					
Land	2500.00			306.25	306.25			
Shop Building	102.78	5.14		6.30	11.43			
Wheel Line Systems	1154.17	34.63		77.76	112.39			
Shop tools	27.78	1.67		1.87	3.54			
Motorcycle	25.00	2.25		1.68	3.93			
Hay barns 1000 ton	900.00	27.00		60.64	87.64			
Fuel tanks & pumps	22.36	1.12		1.37	2.49			
Storage building	20.83	1.04		1.28	2.32			
Equipment	120.91	9.69		8.15	17.83			
TOTAL NON-CASH OVERHEAD COSTS	4873.83	82.53		465.29	547.82			
TOTAL COSTS/ACRE					842.53			

Table 2.

U.C. COOPERATIVE EXTENSION
 MONTHLY CASH COSTS PER ACRE TO ESTABLISH ALFALFA HAY
 HIGH DESERT OF SOUTHERN CALIFORNIA
 (Wheel Line Irrigation System)

beginning AUG 90	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	TOTAL
Ending JUL 91	90	90	90	90	90	91	91	91	91	91	91	91	
Cultural:													
Subsoil	8.19												8.19
Plow	9.76												9.76
Disc 2X	7.98												7.98
Land plane field	4.25												4.25
Fertilize - custom		33.00											33.00
Plant (20 lbs of seed)		53.38											53.38
Irrigate (1 acft)		26.58	19.93	13.29									59.80
Post emergence herbicide				18.09									18.09
Pickup use				11.79									11.79
TOTAL CULTURAL COSTS	30.18	112.95	19.93	43.17									206.24
Interest on oper. capital	0.30	1.40	1.60	2.02	2.02								7.33
TOTAL OPERATING COSTS/ACRE	30.48	114.35	21.53	45.19	2.02								213.57
OVERHEAD:													
Office expense					20.00								20.00
Property Taxes						37.98							37.98
Equipment Insurance						18.99							18.99
Investment Repairs	0.83	0.83	0.83	0.83	0.83								4.17
TOTAL CASH OVERHEAD COSTS	0.83	0.83	0.83	0.83	20.83	56.97							81.14
TOTAL CASH COSTS/ACRE	31.31	115.19	22.36	46.02	22.85	56.97							294.71

Table 3.

**U.C. COOPERATIVE EXTENSION
ANNUAL & HOURLY EQUIPMENT COSTS FOR ESTABLISHING ALFALFA HAY
HIGH DESERT OF SOUTHERN CALIFORNIA
(Wheel Line Irrigation System)**

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	- Non-Cash Over. -		- Cash Overhead -		Total
				Depre- ciation	Interest	Insur- ance	Taxes	
90	130 hp 2wd tractor	66000	12	4950.00	4446.75	181.50	363.00	9941.25
90	50 hp 2wd trac #1	31000	20	1395.00	2088.63	85.25	170.50	3739.38
90	Disc - 14' stubble	17500	15	1050.00	1179.06	48.13	96.25	2373.44
90	Grain drill - 12'	8500	7	1092.86	572.69	23.38	46.75	1735.68
90	Landplane 40'x 16'	21200	15	1272.00	1428.35	58.30	116.60	2875.25
90	Pickup - 3/4 ton	16000	7	2057.14	1078.00	44.00	88.00	3267.14
90	Plow - 4 bot 16"	8300	15	498.00	559.21	22.83	45.65	1125.69
90	Spray tank 1 300g	1500	10	135.00	101.06	4.13	8.25	248.44
90	Spray boom - 25'	3500	10	315.00	235.81	9.63	19.25	579.69
90	Subsoiler - 8' 3sk	10000	15	600.00	673.75	27.50	55.00	1356.25
TOTAL		183500		13365.00	12363.31	504.65	1009.25	27242.21
50% of New Cost *		91750		6682.50	6181.66	252.32	504.62	13621.11

* Used to reflect a mix of new and used equipment.

Table 4.

HOURLY EQUIPMENT COSTS

Yr	Description	Actual Hours Used	----- COSTS PER HOUR -----						Total Oper.	Total Costs/Hr.
			-Non-Cash Over- depre- ciation	- Interest	- Cash Overhead - Insur- ance	- Taxes	Repairs	Operating Fuel & Lube		
90	130 hp 2wd tractor	1093.6	2.26	2.03	0.08	0.17	3.30	6.85	10.15	14.70
90	50 hp 2wd trac #1	658.9	1.06	1.59	0.06	0.13	1.55	2.23	3.78	6.62
90	Disc - 14' stubble	166.0	3.16	3.55	0.14	0.29	4.19	0.00	4.19	11.34
90	Grain drill - 12'	170.2	3.21	1.68	0.07	0.14	3.55	0.00	3.55	8.65
90	Landplane 40'x 16'	165.8	3.84	4.31	0.18	0.35	2.56	0.00	2.56	11.24
90	Pickup - 3/4 ton	266.6	3.86	2.02	0.08	0.17	2.36	2.30	4.66	10.79
90	Plow - 4 bot 16"	166.0	1.50	1.68	0.07	0.14	1.99	0.00	1.99	5.38
90	Spray tank 1 300g	120.0	0.56	0.42	0.02	0.03	0.63	0.00	0.63	1.66
90	Spray boom - 25'	120.0	1.31	0.98	0.04	0.08	1.47	0.00	1.47	3.88
90	Subsoiler - 8' 3sk	165.2	1.82	2.04	0.08	0.17	2.40	0.00	2.40	6.50

Table 5.

U.C. COOPERATIVE EXTENSION
 COSTS PER ACRE TO PRODUCE ALFALFA HAY
 HIGH DESERT OF SOUTHERN CALIFORNIA
 (Wheel Line Irrigation System)

Labor Rate: \$ 9.50/hr. machine labor Interest Rate: 11.75%
 \$ 6.70/hr. non-machine labor Yield per Acre: 8.00 ton

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per Acre					Total Cost	Your Cost
		Labor Cost	Fuel & Repairs	Material Cost	Custom/ Rent			
Cultural:								
Summer weed control	0.06	0.68	0.25	20.20	2.00	23.13		
Insect control	0.12	1.40	0.88	6.82	0.00	9.10		
Irrigate (6 acft)	1.98	13.27	0.00	300.24	0.00	313.51		
Winter weed control	0.10	1.14	0.72	7.13	0.00	8.99		
Fertilize (100 lbs P205)	0.00	0.00	0.00	28.00	9.00	37.00		
Pickup use	0.74	8.43	3.44	0.00	0.00	11.87		
TOTAL CULTURAL COSTS	3.00	24.92	5.29	362.39	11.00	403.60		
Harvest:								
Swath hay - 5X	1.00	11.40	14.39	0.00	0.00	25.79		
Bale hay - 5X (with 2 balers)	0.70	7.98	17.20	16.35	0.00	41.53		
Roadside hay - 5X	0.63	7.13	12.96	0.00	0.00	20.09		
TOTAL HARVEST COSTS	2.33	26.50	44.55	16.35	0.00	87.41		
Interest on operating capital @ 11.75%						15.49		
TOTAL OPERATING COSTS/ACRE		51.42	49.85	378.74	11.00	506.49		
OPERATING COSTS/TON						63.31		
CASH OVERHEAD:								
Office expense						20.00		
Property Taxes						39.18		
Equipment Insurance						19.59		
Investment Repairs						2.51		
TOTAL CASH OVERHEAD COSTS						81.27		
TOTAL CASH COSTS/ACRE						587.77		
TOTAL CASH COSTS/TON						73.47		

Table 6.

U.C. COOPERATIVE EXTENSION
 MONTHLY CASH COSTS PER ACRE TO PRODUCE ALFALFA HAY
 HIGH DESERT OF SOUTHERN CALIFORNIA
 (Wheel Line Irrigation System)

Beginning FEB 91	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	TOTAL
Ending JAN 92	91	91	91	91	91	91	91	91	91	91	91	92	
Cultural:													
Summer weed control	23.13												23.13
Insect control		9.10											9.10
Irrigate (6 acft)		26.23	26.23	34.57	60.79	60.79	52.45	26.23	26.23				313.51
Winter weed control											8.99		8.99
Fertilize (100 lbs P205)												37.00	37.00
Pickup use											11.87		11.87
TOTAL CULTURAL COSTS	23.13	35.33	26.23	34.57	60.79	60.79	52.45	26.23	26.23		20.86	37.00	403.60
Harvest:													
Swath hay - 5X				5.16	5.16	5.16	5.16	5.16					25.79
Bale hay - 5X				8.31	8.31	8.31	8.31	8.31					41.53
Roadside hay - 5X				4.02	4.02	4.02	4.02	4.02					20.09
TOTAL HARVEST COSTS				17.48	17.48	17.48	17.48	17.48					87.41
Interest on oper. capital	0.23	0.57	0.83	1.34	2.11	2.87	3.56	3.98					15.49
TOTAL OPERATING COSTS/ACRE	23.36	35.90	27.06	53.39	80.38	81.15	73.49	47.69	26.23		20.86	37.00	506.49
TOTAL OPERATING COSTS/TON	2.92	4.49	3.38	6.67	10.05	10.14	9.19	5.96	3.28		2.61	4.63	63.31
OVERHEAD:													
Office expense					20.00								20.00
Property Taxes					39.18								39.18
Equipment Insurance					19.59								19.59
Investment Repairs	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	2.51
TOTAL CASH OVERHEAD COSTS	0.21	0.21	0.21	0.21	78.97	0.21	0.21	0.21	0.21	0.21	0.21	0.21	81.27
TOTAL CASH COSTS/ACRE	23.57	36.11	27.26	53.60	159.35	81.35	73.70	47.90	26.44	0.21	21.07	37.21	587.77
TOTAL CASH COSTS/TON	2.95	4.51	3.41	6.70	19.92	10.17	9.21	5.99	3.30	0.03	2.63	4.65	73.47

Table 7.

U.C. COOPERATIVE EXTENSION
ANNUAL EQUIPMENT, INVESTMENT AND BUSINESS OVERHEAD COSTS FOR ALFALFA HAY PRODUCTION
HIGH DESERT OF SOUTHERN CALIFORNIA
(Wheel Line Irrigation System)

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	- Non-Cash Over. -		- Cash Overhead -		Total
				Depre- ciation	Interest	Insur- ance	Taxes	
90	50 hp 2wd trac #1	31000	20	1395.00	2054.52	85.25	170.50	3705.27
90	50 hp 2wd trac #2	31000	20	1395.00	2054.52	85.25	170.50	3705.27
91	Baler - engine #1	42000	10	3780.00	2783.55	115.50	231.00	6910.05
91	Baler - engine #2	42000	10	3780.00	2783.55	115.50	231.00	6910.05
91	Balewagon - SP	78100	10	7029.00	5176.08	214.78	429.55	12849.41
90	Pickup - 3/4 ton	16000	7	2057.14	1060.40	44.00	88.00	3249.54
90	Sprayer - 300g PTO	7200	10	648.00	477.18	19.80	39.60	1184.58
91	Swather - SP 14'	47100	7	6055.71	3121.55	129.52	259.05	9565.83
TOTAL		294400		26139.85	19511.35	809.60	1619.20	48080.00
50% of New Cost *		147200		13069.93	9755.68	404.80	809.60	24040.00

* Used to reflect a mix of new and used equipment.

ANNUAL INVESTMENT COSTS

Yr	Description	Price	Yrs Life	- Non-Cash Over. -		- Cash Overhead -			Total
				Depre- ciation	Interest	Insur- ance	Taxes	Repairs	
INVESTMENT									
	Establishment cost	269610	8	33701.20	16244.00	674.02	1348.05	0.00	51967.27
	Fuel tanks & pumps	8050	20	402.50	485.01	20.13	40.25	125.00	1072.89
	Hay barns 1000 ton	36000	30	1080.00	2385.90	99.00	198.00	25.00	3787.90
	Land	900000			108450.00	4500.00	9000.00	0.00	121950.00
	Motorcycle	1000	10	90.00	66.28	2.75	5.50	50.00	214.53
	Shop Building	37000	20	1850.00	2229.25	92.50	185.00	250.00	4606.75
	Shop tools	10000	15	600.00	662.75	27.50	55.00	100.00	1445.25
	Storage building	7500	20	375.00	451.88	18.75	37.50	100.00	983.13
	Wheel Line System	415500	30	12465.00	27537.20	1142.63	2285.25	250.00	43680.08
TOTAL INVESTMENT		1684660		50563.70	158512.27	6577.28	13154.55	900.00	229707.80

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Office expense	360.00	acre	20.00	7200.00

U.C. COOPERATIVE EXTENSION

HOURLY EQUIPMENT COSTS FOR ALFALFA HAY PRODUCTION
HIGH DESERT OF SOUTHERN CALIFORNIA
(Wheel Line Irrigation System)

Table 8.

Yr Description	----- COSTS PER HOUR -----								Total Costs/Hr.
	Actual Hours Used	-Non-Cash Depre- ciation	Over.- Interest	- Cash Insur- ance	Overhead - Taxes	----- Repairs	Operating Fuel & Lube	Total Oper.	
90 50 hp 2wd trac #1	628.7	1.11	1.63	0.07	0.14	1.55	2.23	3.78	6.73
90 50 hp 2wd trac #2	631.4	1.10	1.63	0.07	0.14	1.55	2.23	3.78	6.71
91 Baler - engine #1	251.9	7.50	5.53	0.23	0.46	5.09	2.30	7.39	21.11
91 Baler - engine #2	251.9	7.50	5.53	0.23	0.46	5.09	2.30	7.39	21.11
91 Balewagon - SP	253.0	13.89	10.23	0.42	0.85	12.49	6.36	18.86	44.25
90 Pickup - 3/4 ton	266.5	3.86	1.99	0.08	0.17	2.36	2.30	4.66	10.76
90 Sprayer - 300g PTO	119.4	2.71	2.00	0.08	0.17	3.01	0.00	3.01	7.97
91 Swather - SP 14'	357.5	8.47	4.37	0.18	0.36	9.45	3.63	13.08	26.46

Table 9.

U.C. COOPERATIVE EXTENSION
RANGING ANALYSIS
HIGH DESERT OF SOUTHERN CALIFORNIA
(Wheel Line Irrigation System)

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE ALFALFA HAY

	YIELD (TON/ACRE)						
	5	6	7	8	9	10	11
OPERATING COSTS/ACRE:							
Cultural Cost	404	404	404	404	404	404	404
Harvest Cost	64	72	80	87	95	103	111
Interest on operating capital	15	15	15	15	16	16	16
TOTAL OPERATING COSTS/ACRE	483	491	499	506	514	522	530
TOTAL OPERATING COSTS/TON	96.54	81.77	71.22	63.31	57.16	52.24	48.21
CASH OVERHEAD COSTS/ACRE	81	81	81	81	81	81	81
TOTAL CASH COSTS/ACRE	564	572	580	588	596	604	612
TOTAL CASH COSTS/TON	112.77	95.30	82.83	73.47	66.19	60.37	55.60
NON-CASH OVERHEAD COSTS/ACRE	658	659	660	661	661	662	662
TOTAL COSTS/ACRE	1222	1231	1240	1248	1257	1265	1274
TOTAL COSTS/TON	244.38	205.15	177.09	156.04	139.65	126.52	115.78

U.C. COOPERATIVE EXTENSION
RANGING ANALYSIS Table 9. continued

NET RETURNS PER ACRE ABOVE OPERATING COSTS FOR ALFALFA HAY

PRICE (DOLLARS PER TON)	YIELD (TON/ACRE)						
	5	6	7	8	9	10	11
80.00	-77	-4	69	142	215	289	362
90.00	-27	57	140	223	307	390	473
100.00	24	118	211	304	398	491	585
110.00	75	178	282	386	489	593	696
120.00	125	239	353	467	580	694	808
130.00	176	300	424	548	672	795	919
140.00	227	361	495	629	763	897	1,031

NET RETURNS PER ACRE ABOVE CASH COSTS FOR ALFALFA HAY

PRICE (DOLLARS PER TON)	YIELD (TON/ACRE)						
	5	6	7	8	9	10	11
80.00	-158	-85	-12	61	134	207	280
90.00	-108	-24	59	142	225	309	392
100.00	-57	36	130	223	317	410	503
110.00	-6	97	201	304	408	511	615
120.00	44	158	272	385	499	613	726
130.00	95	219	343	466	590	714	838
140.00	146	280	414	548	681	815	949

NET RETURNS PER ACRE ABOVE TOTAL COSTS FOR ALFALFA HAY

PRICE (DOLLARS PER TON)	YIELD (TON/ACRE)						
	5	6	7	8	9	10	11
80.00	-816	-744	-672	-600	-527	-454	-382
90.00	-766	-684	-601	-518	-436	-353	-270
100.00	-715	-623	-530	-437	-345	-252	-159
110.00	-664	-562	-459	-356	-253	-150	-47
120.00	-614	-501	-388	-275	-162	-49	64
130.00	-563	-440	-317	-194	-71	52	176
140.00	-512	-379	-246	-113	20	154	287

Table 10.

U.C. COOPERATIVE EXTENSION
 COST AND RETURNS / BREAKEVEN ANALYSIS
 HIGH DESERT OF SOUTHERN CALIFORNIA
 (Wheel Line Irrigation System)

COSTS AND RETURNS - PER ACRE BASIS

Crop	1. Gross Returns	2. Operating Costs	3. Net Returns Above Oper. Costs (1-2)	4. Cash Costs	5. Net Returns Above Cash Costs (1-4)	6. Total Costs	7. Net Returns Above Total Costs (1-6)
Alfalfa Hay	892	506	386	588	304	1248	-356

COSTS AND RETURNS - TOTAL ACREAGE

Crop	1. Gross Returns	2. Operating Costs	3. Net Returns Above Oper. Costs (1-2)	4. Cash Costs	5. Net Returns Above Cash Costs (1-4)	6. Total Costs	7. Net Returns Above Total Costs (1-6)
Alfalfa Hay	285440	162078	123362	188085	97355	399451	-114011
TOTAL	285440	162078	123362	188085	97355	399451	-114011

BREAKEVEN PRICES PER YIELD UNIT

CROP	Base Yield (Units/Acre)	Yield Units	----- Breakeven Price To Cover -----		
			Operating Costs	Cash Costs	Total Costs
Alfalfa Hay	8.0	ton	62.46	72.48	153.94

BREAKEVEN YIELDS PER ACRE

CROP	Yield Units	Base Price (\$/Unit)	----- Breakeven Yield To Cover -----		
			Operating Costs	Cash Costs	Total Costs
Alfalfa Hay	ton	110.00	4.5	5.3	11.2