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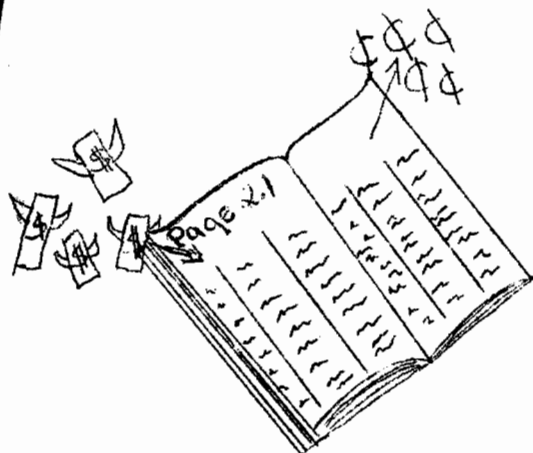
COST  
OF

PRODUCTION

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YOLO COUNTY - 1967

AN ENTERPRISE STUDY  
ON EQUIPMENT CHARGES &  
COST ESTIMATES OF SELECTED  
CROPS GROWN IN THE WOODLAND AREA



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The authors wish to acknowledge and to express their appreciation to the group of Woodland area growers who took time out from busy schedules to serve as a committee for guidance and assistance in developing this enterprise study. Also, we wish to thank the people in related businesses for their help with certain cost information. The many individual contacts and interviews with growers were extremely helpful.

Without the help of these growers and others, the task of developing the equipment costs, equipment usage, basic farming operations and other costs of production would have been much more difficult and probably less accurate.

Again, many thanks.

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To simplify information, when trade names of products have been used, no endorsement of name products is intended, nor criticism implied of similar products which are not mentioned.

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## INTRODUCTION

Farming is a business operation. Efficiency in the use of equipment is essential if the economical production of crops is to be achieved. A grower must know what goes into a crop before he can determine his net returns. Many questions are asked about local production practices, production costs, expected yields, and net returns.

This report presents information on costs of growing several crops of major importance in the Woodland area. The figures given represent an estimate, not a specific or exact average. The figures are based on 1966 usual costs and on the farming operations normally used to produce a specific crop.

In a few places, a recommended practice is used in place of the general practice when the general practice is in error or excessive. Costs vary from farm to farm because of individual differences in soil, sizes of operations, equipment used, crop rotations, wage rates, water costs, etc. Growers are urged to compare their own data and practices in arriving at the true situation for their farming operations.

### BASIS FOR COSTS

#### Crops - Acreage

To determine costs for operating equipment, it was necessary to select several crops, assume certain acreages, and then determine equipment usage for the production of these crops. Costs were developed on the basis of 300 acres of alfalfa, 160 acres of sugar beets, 160 acres of tomatoes, 190 acres milo (grain sorghum) and 190 acres of barley - a total of 1000 acres. There may be some disagreement that this is a typical Woodland area farm or that this rotation could continuously be followed over a period of years. However, to develop these costs the above assumptions were used. To figure costs on crops not listed, the crop could be substituted for one of the crops in the study, i.e., safflower for barley, corn for sorghum, corn for sugar beet, etc., and still maintain the basic 1000 acre operation unit. Equipment usage would be slightly different but still sufficiently accurate for good cost figures.

#### Equipment

Equipment costs which are determined by hours of usage, are divided into cash cost and fixed cost. Cash cost includes fuel, repairs, insurance and taxes. Fixed cost includes depreciation and interest on investment. Generally, the more a piece of equipment is used the less it will cost per acre or per hour to operate. Cash costs are itemized under fuel and repairs in the crop cost operations sheets. The annual fixed costs are totaled together and listed in tractor and equipment investment item but are prorated according to hours of use on the individual crop.

Equipment rental was used in several places where a grower in a similar situation would rent the piece of equipment. A few operations were contracted where cost of ownership of the necessary equipment would be excessive or not justified.

Many growers have more pieces of equipment. Many are difficult to justify economically. For purposes of this study and for efficiency, the listed machinery was considered sufficient.

#### Equipment Taxes and Insurance

The tax rate used for this study was 7.6% of the assessed value. The assessed

value is based on a 15 year life for equipment. The current assessed value is 25% of the market value. The market value is determined from precalculated tables that take into consideration the age of the equipment and what the equivalent new price would be.

For purposes of this study, the average value of the equipment was determined by taking 65% of the new price. (In previous studies the half-life value was used for the average value.) The assumed assessed value was calculated as 25% of the average value. The formula used was:

$$\text{New price} \times 65\% = \text{average value}$$

$$\text{Average value} \times 25\% = \text{assessed value}$$

$$\text{Assessed value} \times 7.6\% (\text{tax rate}) = \text{tax on equipment}$$

Note: In practice, the assessed value is more accurately determined by use of tables. For purpose of this study, the shown method is sufficiently accurate for realistic figures.

65% of equipment life was used, rather than 50%, because in recent years there have been many new pieces of equipment and equipment changes. Much, if not most, of this equipment has not reached the half life. 65% would give a more accurate value.

The insurance, all risk, was charged at 50 cents per \$100 of the insurable value. Insurable value is 80% of the market value, or what a similar piece of equipment could be purchased for. For this study, 50% of the original cost was used as the market value. If a piece of equipment cost \$1000 to buy, the insurable value would be 80% of \$1000 or \$800. The insurance would be 50¢ times 8 or \$4.00 per year for this or a similar piece of equipment.

#### Water and Wells

Total water cost per acre foot was \$4.32. This charge was divided into cash charges and fixed investment charges. Power to pump, repairs and miscellaneous cash costs were \$3.00 acre foot and the fixed cost was \$1.32 per acre foot - \$4.32 acre foot total. Water was charged according to crop usage.

This assumed 1000 acre operation would need 5 wells. To conform with the Woodland district - a 100 foot lift was assumed with the wells yielding 1350 gallons per minute. A 20 year life was assigned to the wells and pumps.

Interest on the investment in the wells and equipment was charged at 6%.

#### Land - Taxes and Interest

Costs are based on a land value of \$900 per acre. Interest at 6% is charged on the investment and is included as a cost. Taxes are included at \$17.10 acre.

#### The Rent Operator

The grower who operates rented ground and is comparing his operations with this cost study, should deduct the land tax, the investment costs for land, wells and equipment, and buildings. He should include the tractor and equipment investment charges.

In place of investment and overhead charges, the grower who rents should include

a charge for rental. Listed below are some general rental rates used:

Tomatoes	17% (15-20%)	Alfalfa (Roadside)	25%
Sugar Beets	20%	Beans (Single Crop)	25%
Milo (Single Crop)	25%	Beans (Double Crop)	20%
Milo (Double Crop)	20%	Safflower	25%
Barley	40%	Sudan Grass	25%
Yellow Corn	25% share drying costs		

These rental rates will vary according to what the landlord supplies, equipment furnished and land preparation a landlord may do.

#### Labor Charges

Labor costs are based on \$1.75 for tractor drivers; \$1.40 for irrigators and for general labor. Additional labor costs are for social security, workmen's compensation insurance, and miscellaneous benefits, and it amounts to about 12% of the cash hourly wage. The foreman or supervisor's wages would be considerably above the tractor driver's hourly rate. In addition, he would receive free transportation, housing, vacation with pay and usually a bonus. Allowances for these non cash costs are included in miscellaneous cost.

An additional charge is made for seasonal and part-time labor - weeding crews, sorters, etc., - at the rate of \$2.00 per day per man (20¢/hour). This charge is paid to labor supervisors (Labor contractors) and include bookkeeping, housing, field supervision, supplies, transportation to the field, etc.

#### Miscellaneous Operating Charges

Many small items go into this figure. A few larger ones would be interest on production loans, phone, roadside weed control, bookkeeping, supplies, office expenses, attending association meetings, etc. These are all incidental to a farming operation and singly they are too small to itemize but collectively amount to a sizeable figure.

Alfalfa Hay (4 year life)  
 300 acres on 1,000 acre farm  
 Land Owner - Operator - Yield 7 tons

	Cash & Labor Costs per Acre					Total
	Hours/ Acre	Labor @ \$1.75/hr	Fuel & Repairs		Materials	
			Tractor	Implt.		
<u>Growing Costs</u>						
Irrigate 2X @ \$1.40/hr	8.00	11.20	--	--	--	11.20
Water (cash)* (4.5 ac. ft. @ \$3.00)					13.50	13.50
Ditch	.05	.09	.16	.06	--	.31
Insect control 1X by air				(applied)	3.25	3.25
Springtooth (weed control)	.12	.21	.29	.25	--	.75
<u>Miscellaneous Costs</u>						
Social Security, compensation ins., etc. @ 12% of hourly wage		1.38	--	--	--	1.38
Phone, pickup, postage, bookkeeping, production loan int. @ 11%					3.34	3.34
Taxes (land)					17.10	17.10
Total Pre-harvest cash	8.17	12.88	.45	.31	37.19	50.83
<u>Harvest</u>						
Swath 5X	1.25	2.19	--	2.59	--	4.78
Combine windrows 5X	.33	.58	.25	.51	--	1.34
Bale 7 tons @ \$3.75					26.25	26.25
Bank out 7 tons @ \$1.60					11.20	11.20
Social security, compensation ins., etc. @ 12% of hourly wage		.33	--	--	--	.33
Total Harvest Cost	1.58	3.10	.25	3.10	37.45	43.90
Total Cash Costs per Year						94.73
<u>Investment</u>						
Land \$900/acre @ 6% interest						54.00
Buildings \$15/acre, Interest & Depreciation						1.20
Wells & Pumps Int. & Depre. @ \$1.32/ac. ft.						5.94
Tractors & Equip., Int. & Depre.						12.54
Stand Establishment, \$43.84/acre (Depr. \$10.96, Int. \$1.32)						12.28
Total Investment Costs per Year						85.96
Total All Costs per Year						180.69
Total All Costs per Ton @ 7 ton yield						25.81

Cost/Ton at Various Yields	
Yield/acre	Cost/Ton
6 tons	\$ 29.22
7 tons	25.81
8 tons	23.26
9 tons	21.27

\*\$3.00 is cost of power, repairs and lubrication - total cost including investment and interest is \$4.32 per acre foot.

Alfalfa Hay (Cost to Establish and Destroy)  
300 Acres (75 acres/year)

	Hours/ Acre	Labor @ \$1.75/hr.	Fuel & Repairs Tractor Equip.	Materials	Total	
<u>Costs to Establish</u>						
<u>Seed bed Preparation</u>						
Disc 2X	.40	.70	.95	.42	--	2.07
Landplane 3X	.75	1.31	2.36	.74	--	4.41
Mark - checks	.15	.26	.12	--	--	.38
Pull & shape checks	.33	.58	.79 (rent shaper)	.50	--	1.87
Chisel 1X	.60	1.05	1.88	.49	--	3.42
Springtooth 3X	.36	.63	.86	.76	--	2.25
Harrow 2X	.34	.60	.81	.05	--	1.46
Plant - airplane \$1.00/acre					1.00	1.00
Seed - 25# @ 60¢					15.00	15.00
Move equip., set-up and service @ 10% of time	.29	.51	--	--	--	.51
<u>Miscellaneous</u>						
Compensation insurance, Social Security, etc. @ 12% of hourly wage		.68				.68
Phone, pickup, postage, bookkeeping, production loan interest, weed cont., etc., @ 11% of growing costs					3.64	3.64
Total Cash costs to establish	3.22	6.32	7.77	2.46	20.14	36.69
<u>Cost to Destroy</u>						
Plow out borders	.10	.18	.31	.08	--	.57
Plow 1X	.70	1.23	2.20	.53	--	3.96
Landplane 1X	.25	.44	.79	.25		1.48
Move equip., set-up & service @ 10% of time	.10	.19	--	--	--	.19
<u>Miscellaneous</u>						
Social security, compensation ins., etc. @ 12% of hourly wage		.24				.24
Phone, pickup, postage, bookkeeping, production loan int., weed control, etc. at 11% of cost					.71	.71
Total Cash costs to destroy	1.15	2.28	3.30	.86	.71	7.15
Total Cash Costs to Establish and Destroy						43.84



Alfalfa Hay (4 year life)  
 300 acres on 1,000 acre farm  
 Lease basis - 25% of Gross Sales to Landlord  
 Yield - 7 tons

	Cash & Labor Costs Per Acre					
	Hours/ Acre	Labor @ \$1.75/hr	Fuel & Repairs		Materials	Total
			Tractor	Implt.		
<u>Growing Costs</u>						
Irrigate 8X @ \$1.40/hr.	8.00	11.20	--	--	--	11.20
Water (cash)* (4.5 ac. ft. @ \$3.00)					13.50	13.50
Ditch	.05	.09	.16	.06	--	.31
Insect control 1X by air				(applied)	3.25	3.25
Springtooth (weed control)	.12	.21	.29	.25	--	.75
<u>Miscellaneous Costs</u>						
Social security, compensation ins. etc. @ 12% of hourly wage		1.38	--	--	--	1.38
Phone, pickup, postage, bookkeeping, production loan int. @ 11%					3.34	3.34
Landlord share - 7 tons @ \$22.50					<u>39.38</u>	<u>39.38</u>
Total Pre-harvest cash	8.17	12.88	.45	.31	59.47	73.11
<u>Harvest</u>						
Swath 5X	1.25	2.19	--	2.59	--	4.78
Combine windrows 5X	.33	.58	.25	.51	--	1.34
Bale 7 tons @ \$3.75					26.25	26.25
Bank out 7 tons @ \$1.60					11.20	11.20
Social security, compensation ins., etc. @ 12% of hourly wage		.33	--	--	--	.33
Total harvest cost	1.58	3.10	.25	3.10	37.45	43.90
Total Cash Costs per Year						117.01
<u>Investment</u>						
Buildings \$15/acre, Interest & Depreciation						1.20
Tractors & Equip., Int. & Depre.						12.54
Stand Establishment, \$43.84/acre (Depre. \$10.96, Int. \$1.32)						<u>12.28</u>
Total Investment Costs per Year						26.02
Total All Costs per Year						143.03
Total All Costs per Ton @ 7 ton yield						20.43

Cost/Ton at Various Yields	
Yield/acre	Cost/Ton
6 tons	22.01
7 tons	20.43
8 tons	19.25
9 tons	18.33

\*\$3.00 is cost of power, repairs and lubrication - total cost including investment and interest is \$4.32 per acre foot.

Barley  
190 Acres - Following tomatoes  
Yield - 3700 lbs.

	Hours/ Acre	Cash & Labor Costs Per Acre				Total
		Labor	Fuel & Repairs Tractor	Implt.	Materials	
<u>Growing Costs</u>						
Disc 3X	.60	1.05	1.43	.62	--	3.10
Plant - airplane					1.25	1.25
Seed - 100 lbs. @ .04¢/lb.					4.00	4.00
Harrow	.17	.30	.40	.03	--	.73
Weed control - 1½ pints 2,4-D (½ acres)	.09	.15	.07	.07	.33	.62
Total	.86	1.50	1.90	.72	5.58	9.70
<u>Miscellaneous Costs</u>						
Compensation insurance, social security @ 12% of cash wage						.18
Phone, pickup, roadside weed control, etc. @ 11% of growing costs						1.09
Total						1.27
<u>Taxes - Land</u>						17.10
						Total Cost up to Harvest 28.07
<u>Harvesting</u>						
Combine	.50	.99 (.88+.11)	1.70	--	--	2.69
						Total Growing & Harvesting Costs 30.75
<u>Investment Costs</u>						
Land - \$900/acre @ 6%						54.00
Buildings @ \$15/acre						1.20
Tractors and equipment						7.20
Total Investment Costs						62.40
Managment - 5% of 37 cwt @ \$2.40/cwt						4.44
						Total All Costs 97.59
						Cost per 100 lbs. 2.64

Milo (Grain Sorghum)  
 1b) Acres - Following spring harvested Sugar Beets  
 Yield 6000 lbs.

	Hours/ Acre	Cash & Labor Costs per Acre				Total
		Labor	Fuel & Repairs		Materials	
			Tractor	Implt.		
<u>Seed Bed Preparation</u>						
Disc 2X	.40	.70	.95	.42	--	2.07
Chisel	.60	1.05	1.88	.49	--	3.42
Furrow for pre-irrigation	.25	.44	.36	.40	--	1.20
Ditch	.04	.07	.13	.04	--	.24
Pre-irrigate	1.50	2.10	--	--	--	2.10
Water - 1/2 acre foot @ \$3/acre foot (pumping charge)					1.50	1.50
Harrow & roll 2X	.34	.60	.81	.22	--	1.63
Move equip., set-up and service @ 10% of time	.16	.28	--	--	--	.28
<b>Total</b>	<b>3.29</b>	<b>5.24</b>	<b>4.13</b>	<b>1.57</b>	<b>1.50</b>	<b>12.44</b>
<u>Planting</u>						
Plant - sled	.30	.53	.43	.63	--	1.59
Seed - 12 lbs. @ 23/lb.					2.76	2.76
<b>Total</b>	<b>.30</b>	<b>.53</b>	<b>.43</b>	<b>.63</b>	<b>2.76</b>	<b>4.35</b>
<u>Growing Costs</u>						
Cultivate, furrow & Fertilize	.25	.44	.36	.40	--	1.20
Rent tag-a-long @ 50¢/acre					.50	.50
Fertilize - 125 lbs. N @ 08¢/lb.					10.00	10.00
Cultivate & Furrow	.25	.44	.36	.40	--	1.20
Irrigate 3X	4.50	6.30	--	--	--	6.30
Water - 2 acre feet @ \$3/acre foot (pumping charge)					6.00	6.00
Ditch 2X	.08	.14	.25	.08	--	.47
Weed spray	.17	.30	.13	.14	--	.57
2,4-D amine @ 3/4 lb.					.65	.65
Move equip., set-up and service @ 15% of time	.16	.28	--	--	--	.28
<b>Total</b>	<b>5.41</b>	<b>7.90</b>	<b>1.10</b>	<b>1.02</b>	<b>17.15</b>	<b>27.17</b>
<u>Miscellaneous</u>						
Compensation insurance, social security @ 12% of cash wage						1.64
Phone, pickup, roadside weed control @ 11% of growing costs						5.02
<b>Total</b>						<b>6.66</b>
<u>Taxes - Land</u>						<u>17.10</u>
<b>Total Costs up to Harvest</b>						<b>67.72</b>
<u>Harvesting Costs</u>						
Combine	.67	1.31	2.28	--	--	3.59
		(1.17+.14)				

Milo, cont.	Hours/ Acre	Cash & Labor Costs Per Acre				Total
		Labor	Fuel & Repairs Tractor Implt.	Material		
<u>Post-Harvest Costs</u>						
Disc 2X	.40	.78 (.70+.08)	.95	.42	--	2.15
Total Growing and Harvesting Costs						73.46
<u>Investment Costs</u>						
Land - \$900/acre @ 6%						54.00
Buildings @ \$15/acre						1.20
Irrigation wells and pumps						3.30
Tractors and equipment						<u>16.24</u>
Total Investment Costs						74.74
<u>Management</u> - 5% of 60 cwt @ \$2.20/cwt						6.60
Total All Costs						154.80
Cost Per 100 lbs.						2.58

Sugar Beets  
160 Acres - Yield 20 ton - Following Grain Sorghum

	Hours/ Acre	Cash & Labor Costs Per Acre				Total
		Labor	Fuel & Repairs Tractor	Implt.	Material	
<u>Seed Bed Preparation</u>						
Plow 1X	0.70	1.23	1.00	0.53	--	2.76
Landplane 1X	0.50	0.87	1.57	0.50	--	2.94
Disc 2X	0.40	0.70	0.95	0.42	--	2.07
Springtooth 1X	0.12	0.21	0.29	0.25	--	0.75
Harrow & Roll	0.17	0.30	0.40	0.11	--	0.81
List & Fertilize	0.25	0.44	0.36	0.40	--	1.20
Rent - Tag-a-long @ 50¢/acre					0.50	0.50
Fertilizer - Nitrogen - 60 lbs. @ 8¢/lb.					4.80	4.80
Move equipment, set-up and service @ 10% of operating time	0.21	0.37	--	--	--	0.37
Total	2.35	4.12	4.57	2.21	5.30	16.20
<u>Planting</u>						
Sled Plant & Incorporate	0.40	1.26	0.57	0.78	--	2.61
Weed materials - 2 men - Herbicide 6" band (1/5 of 4#/Ac/@ \$4/lb.)					3.20	3.20
Seed - monogerm - 3# @ \$1.00/lb.					3.00	3.00
Rent - Tag-a-long - @ 50¢/Ac.					0.50	0.50
Move equip., set-up and service @ 15% of operating time	0.06	0.19	--	--	--	0.19
Total	0.46	1.45	0.57	0.78	6.70	9.50
<u>Growing Costs</u>						
Roll 1X	0.17	0.30	0.13	0.08	--	0.51
Tine Harrow 2X	0.24	0.42	0.24	0.23	--	0.89
Thin - Mech.	0.17	0.30	0.17	0.09	--	0.56
Hoe (Trim & Hoe, Hoe)	16.5	23.10	--	--	--	23.10
Cultivate - Sled 4X	1.00	1.75	1.01	0.55	--	3.31
Rolling Cultivate 1X	0.17	0.30	0.17	0.65	--	1.12
Fertilize	0.25	0.44	0.25	0.14	--	0.83
Nitrogen - 60# @ 8¢/lb.					4.80	4.80
Rent - Tag-a-long @ 50¢/Ac.					0.50	0.50
Irrigate 7X	10.50	14.70	--	--	--	14.70
Water - 4½ Ac. ft. @ \$3.00/Ac. ft.					13.50	13.50
Misc. Irrig. Equip. - Canvas dams, shovels, siphons, etc.	0.25					0.25
Ditch 3X	0.12	0.21	0.37	0.14	--	0.72
Insect control (ground ng.)	0.17	0.30	0.11	0.03	--	0.44
Cutworm bait - 20# @ 14¢/lb.					2.80	2.80
Move Equip., Set-up and service @ 15% of operating time	0.34	0.60	--	--	--	0.60
Total	2.63	42.42	2.45	1.91	21.85	68.63

Sugar Beet, cont.	Hours/ Acre	Cash & Labor Costs Per Acre			Total
		Labor	Fuel & Repairs Tractor Implt.	Material	
<u>Misc. Growing Costs</u>					
Phone, pickup, postage, roadside weed control, etc. @ 11% of growing costs					11.75
Comp. Insurance, Soc. Security, fringe benefits @ 12% cash wage					5.57
Vacation, bonuses, special benefits @ 30¢/hour					1.40
Additional general labor charge -					
Labor manager - \$2.00/day/man or 20¢/hr. (includes camp charges, transportation, supervision, bookkeeping, etc.)					<u>5.48</u>
Total					24.20
Total Production Costs					118.53
Taxes - Land - \$17.10/Acre					<u>17.10</u>
				Cost up to Harvest	135.63
				Cost per Ton	6.78
<u>Harvest Costs</u>					
Dig - Contract @ \$1.50/ton					30.00
Load & Haul - Contract @ \$1.15/ton					<u>23.00</u>
Total Harvest Cost					53.00
Management charges @ 5% of gross income					
20 ton beets - 15.5 sugar @ 8.00 NSP + Gov't. payment = \$301.00					<u>15.05</u>
				Total Growing & Harvest Costs	203.68
				Cost per Ton	10.18
<u>Investment Costs</u>					
Land - \$900/Acre @ 6%					54.00
Buildings - \$15/Acre					1.20
Irrigation Wells & Pumps					5.94
Tractors & Equipment					<u>15.28</u>
				Total Investment Costs	76.42
				Total All Costs	280.10
				Cost per Ton	14.00

Tomatoes  
 160 Acres - 30 following Milo, 130 following Barley  
 Yield 22 Tons/Acre

Cash & Labor Costs Per Acre

	Hours/ Acre	Labor	Fuel & Repairs			Total
			Trac-	Implt.	Materials	
<u>Seed Bed Preparation</u>						
Plow (30A) 3/13 of 0.70	0.23	0.40	0.33	0.17	--	0.90
Disc (Fall) 2X 13/3 of 0.40	0.18	0.32	0.43	0.19	--	0.94
Landplane 2X	0.50	0.88	1.57	0.50	--	2.95
Subsoil or chisel 2X	1.20	2.10	3.77	0.97	--	6.84
Disc 2X (Spring)	0.40	0.70	0.95	0.42	--	2.07
Springtooth 1X	0.12	0.21	0.29	0.25	--	0.75
Harrow & Roll 1X	0.17	0.30	0.40	0.12	--	0.82
List, Ridge & apply starter fertilizer - 10 gal. @ 40¢/gal.	0.25	0.44	0.36	0.40	--	1.20
Rent - Tag-a-long @ 50¢/Acre					4.00	4.00
Move equip., set-up and service @ 10% of operating time	0.34	0.58	--	--	0.50	0.50
<b>Total</b>	<b>3.39</b>	<b>5.93</b>	<b>8.10</b>	<b>3.02</b>	<b>4.50</b>	<b>21.55</b>

Planting

Sled Plant & Incorp. (2 men) + Weed Materials - 20" band @ 5#/Acre (1/3 area) 1.67 lbs. Seed 1 lb. @ \$15/lb. Rent - Tag-a-long @ 50¢/Acre	0.40	1.26	0.57	0.80	--	2.63
Move equip., set-up and service @ 15¢ of operating time	0.06	0.19	--	--	--	0.19
<b>Total</b>	<b>0.46</b>	<b>1.45</b>	<b>0.57</b>	<b>0.80</b>	<b>22.18</b>	<b>25.00</b>

Growing Costs

Cultivate - Sled & Implements 2X	0.50	0.88	0.51	0.27	--	1.66
Thin - Mechanical	0.40	0.70	0.44	0.22	--	1.36
Rolling Cultivator 1X	0.17	0.30	0.27	0.65	--	1.22
Cultivate & Farrow 2X	0.50	0.88	0.51	0.80	--	2.19
Hoe (Trim & Hoe, hoe) 6.5 + 3 hrs/Ac. = 9.5 hrs/Ac. @ \$1.40 = \$13.30						13.30
Ditch 2X	0.08	0.14	0.25	0.09	--	0.48
Irrigate 5X @ 1.5 hrs/Acre						
Labor	7.5	10.50	--	--	--	10.50
Water - 4 Ac. ft. @ \$3.00/Ac. ft. (Cash costs)					12.00	12.00
Irrigation equip., siphons, dams, shovels, etc.					0.30	0.30
Fertilize (sidedress)						
Tractor & Sled	0.25	0.44	0.25	0.14	--	0.83
Fertilizer - 75 lbs. Nitrogen @ 8¢/lb.					6.00	6.00
Rent - Tag-a-long @ 50¢/Acre					0.50	0.50

Tomatoes, cont.	Hours/ Acre	Cash & Labor Costs Per Acre				Total
		Labor	Fuel & Repairs		Materials	
			Tractor	Implt.		
<u>Growing Costs continued</u>						
Insect Control - ground rig						
Seedling stage 1½X	0.25	0.44	0.19	0.13	--	0.76
Worm control 2X	0.34	0.60	0.26	0.20	--	1.06
Russett Mite (Air) 1X @ 2.50/Acre					2.50	2.50
Materials - DDT - 5# @ \$1.00/lb.					5.00	5.00
- Sulfur - Dust - 30 lbs @ 6¢/lb.					1.80	1.80
Move equip., Service & set-up @ 15% of operating time	<u>0.37</u>	<u>0.65</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>0.65</u>
Total	2.86	28.83	2.68	2.50	28.10	62.11
<u>Misc. Operating and Growing Costs</u>						
Pickup, phone, postage, bookkeeping, roadways, misc. weed control, travel, meetings, etc. @ 11% of cultural costs						12.92
Social Security, compensation insurance, transportation, vacation, bonuses, etc. @ 12% of hourly wage						4.43
Additional charges for seasonal and part-time labor @ \$2.00/day/man (includes transportation, bookkeeping, crew supervision, labor manager fees, etc.)						<u>4.34</u>
						Total Misc. 21.69
						Total Growing Costs 130.35
Taxes - Land						<u>17.10</u>
						Total Costs Pre-Harvest 147.45
						Pre-Harvest cost per ton (22 ton) 6.70
<u>Harvesting Costs</u>						
Machine 3 A/day	3.33	--	17.42	--	--	17.42
Driver @ \$1.75	4.0	7.00	--	--	--	7.00
Sorters 12 @ \$1.40	3.33	55.94	--	--	--	55.94
Trailers (2)	3.33	--	--	0.97	--	0.97
Tractors (2)	3.33	--	5.92	--	--	5.92
Drivers (2) @ \$1.50/hr.	3.33	10.00	--	--	--	10.00
Forklift	3.33	--	2.93	--	--	2.93
Driver @ \$1.65/hr.	4.0	6.60	--	--	--	6.60
Swampers 1 @ \$1.40	3.33	4.66	--	--	--	4.66
Other labor (Mech., super) 4.0	10.00	--	--	--	--	10.00
Misc. Equipment (Disc, scraper, washing equip., pickup) @ \$1.85/Hr.						5.55
Misc. supplies - drinking water, sodas, goggles, etc. @ \$2.45/day						0.82
Toilet facilities - 2 units - 2 months - \$120						0.75
Inspection @ 20¢/ton - 22 ton						4.40
Bin rental @ 40¢/ton - 22 ton						8.80
T. G. Assoc. Dues @ 10¢/ton						2.20
Rejected load - 0.3% of del. loads - 20% loss from sorting						1.20



Tomatoes, cont.	Hours/ Acre	Cash & Labor Costs Per Acre			Total
		Labor	Fuel & Repairs Tractor	Implt.	
<u>Harvesting Costs continued</u>					
Social Security, Workman's Comp., bonus, transportation etc., @ 12% of hourly wage.					11.30
Additional charges for seasonal and part-time labor (sorters, swamper, 1 trailer man) @ \$2.00/day/man					<u>8.40</u>
		Total Harvesting Costs (cash)			164.86
		Cost Per Ton			7.49
Management charges @ 5% of gross income (22 ton @ \$30/ton)					<u>33.00</u>
		Total Growing and Harvesting Cost			345.31
		Cost Per Ton			15.70
<u>Investment Costs (Depreciation &amp; Interest)</u>					
Land - \$900 @ 6%					54.00
Buildings - \$15/Acre					1.20
Irrigation Wells & Pumps					5.28
Tractors & Equipment					<u>59.58</u>
		Total Investment Costs			120.06
		Total All Costs			465.37
		Total All Costs Per Ton			21.15

Alfalfa Seed - Mature Stand - Row Planted  
Yield - 400 lbs. (clean weight)  
(as a substitute crop in this study)

	Hours/ Acre	Cash & Labor Costs Per Acre				Total
		Labor	Fuel & Repairs		Materials	
			Tractor	Implt.		
<u>Growing Costs</u>						
Burn straw					.25	.25
Irrigate - fall	1.50	2.10	--	--	--	2.10
Water - 1/2 acre foot @ \$3/acre foot (pumping charge)					1.50	1.50
Cultivate 2X - fall	.50	.88	.72	.80	--	2.40
Cultivate 2X - spring	.50	.88	.72	.80	--	2.40
Furrow	.25	.44	.36	.40	--	1.20
Cut-back - chop	.60	1.05	.86	.09	--	2.00
Irrigate 2X	3.00	4.20	--	--	--	4.20
Water - 1 2/3 acre foot @ \$3/acre foot (pumping charge)					5.00	5.00
Pest control - hire ground rig 3X @ 2.00					6.00	6.00
Materials 3X					17.76	17.76
Pest control - hire airplane					1.75	1.75
Material					5.92	5.92
Hand weeding	5.00	7.00	--	--	--	7.00
Bees 3 hives					9.00	9.00
Certification inspection					.20	.20
Move equip., set-up and service @ 10% of time	<u>.19</u>	<u>.33</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>.33</u>
Total	11.54	16.88	2.66	2.09	47.38	69.01
<u>Miscellaneous</u>						
Compensation insurance, social security @ 12% cash wage						2.03
Phone, pickup, roadside weed control @ 11% growing costs						<u>7.81</u>
Total						9.84
<u>Taxes - Land</u>						<u>17.10</u>
Total Costs up to Harvest						95.95
<u>Harvesting Costs</u>						
Defoliate - hired application & material					6.00	6.00
Combine	1.00	1.96	3.40	--	--	5.36
		(1.75=.21)				
Haul - hire					.80	.80
Cleaning, bags, tags, etc. @\$3.15/cwt					<u>12.60</u>	<u>12.60</u>
Total	1.00	1.96	3.40	--	19.40	24.76
Total Growing and Harvesting Costs						120.71
<u>Investment Costs</u>						
Land - \$900/acre @ 6%						54.00
Buildings @ \$15/acre						1.20
Irrigation wells and pumps						2.85

	Hours/ Acre	Cash & Labor Costs Per Acre			Total
		Labor	Fuel & Repairs Tractor Implt.	Materials	
Alfalfa Seed, cont.					
<u>Investment Costs cont.</u>					
Tractors and equipment					12.22
Stand depreciation \$36 ÷ 6 year life					<u>6.00</u>
Total Investment Costs					76.27
<u>Management</u> - 5% of 4 cwt @ \$35/cwt					7.00
			Total All Costs		203.98
			Cost Per 100 lbs.		51.00

Corn  
 Following Barley - Yield 7500 lbs.  
 (as a substitute crop in this study)

	Hours/ Acre	Cash & Labor Costs Per Acre				Total
		Labor	Fuel & Repairs		Material	
			Tractor	Implt.		
<u>Seed Bed Preparation</u>						
Disc 2X	.40	.70	.95	.42	--	2.07
Landplane 2X	.50	.88	1.57	.50	--	2.95
Chisel	.60	1.05	1.88	.49	--	3.42
Springtooth 2X	.24	.42	.57	.51	--	1.50
Fertilizer	.20	.35	.48	--	--	.83
Rent tag-a-long @ .50/acre					.50	.50
150 lbs. N @ .08/lb.					12.00	12.00
Harrow & roll 2X	.34	.60	.81	.22	--	1.63
Move equip., set up and service @ 10% of time	.23	.40	--	--	--	.40
Total	2.51	4.40	6.26	2.14	12.50	25.30
<u>Planting</u>						
Plant & Fertilize	.30	.53	.43	.63	--	1.59
Seed - 20 lbs. @ 35¢/lb.					7.00	7.00
8-24-0 20 gals/acre @ 40¢/gal.					8.00	8.00
Total	.30	.53	.43	.63	15.00	16.59
<u>Growing Costs</u>						
Cultivate, Furrow & Fertilize	.25	.44	.36	.40	--	1.20
Rent tag-a-long @ 50¢/acre					.50	.50
75 lbs. N @ .08¢/lb.					6.00	6.00
Ditch 3X	.12	.21	.38	.13	--	.72
Irrigate 6X	9.00	12.60	--	--	--	12.60
Water 3 acre feet @ \$3.00/acre foot (pumping charge)					9.00	9.00
Weed spray	.17	.30	.13	.14	--	.57
2, 4-D amine @ 1 lb.					.90	.90
Miticide (custom)					7.00	7.00
Move equip., set-up and service @ 15% of time	.13	.23	--	--	--	.23
Total	9.67	13.78	.87	.67	23.40	38.72
<u>Miscellaneous</u>						
Compensation insurance, social security @ 12% of cash wage						2.25
Phone, pickup, roadside weed control @ 11% of growing costs						9.11
Total						11.36
Taxes - Land						17.10
Total Costs up to Harvest						109.07

Corn, cont.	Hours/ Acre	Cash & Labor Costs Per Acre				Total
		Labor	Fuel & Repairs Tractor	Implt.	Material	
<u>Harvesting Costs</u>						
Harvest	1.00	1.96	4.40	--	--	6.36
		(1.75+ .21)				
Drying @ 3.50/ton (custom)					<u>13.13</u>	<u>13.13</u>
Total	1.00	1.96	4.40	--	13.13	19.49
Total Growing & Harvesting Costs						128.56
<u>Investment Costs</u>						
Land - \$900/acre @ 6%						54.00
Buildings @ 15/acre						1.20
Irrigation wells and pumps						3.96
Tractors and equipment						<u>25.19</u>
Total Investment Costs						84.35
Management - 5% of 75 CWT @ \$2.55/CWT						9.56
Total All Costs						222.47
Cost per 100 lbs.						2.97

Sudan Seed  
Yield - 2500 lbs. (clean weight)  
(as a substitute crop in this study)

	Hours/ Acre	Cash & Labor Costs Per Acre				Total
		Labor	Fuel & Repairs		Material	
			Tractor	Implt.		
<u>Seed Bed Preparation</u>						
Disc 2X	.40	.70	.95	.42	--	2.07
Furrow and Fertilize	.25	.44	.36	.40	--	1.20
Rent tag-a-long @ 50¢/acre					.50	.50
Fertilizer - 100 lbs. N. @ 08¢/lb.					8.00	8.00
Pre-irrigate	1.50	2.10	--	--	--	2.10
Water - ½ acre foot @ \$3.00/acre foot (pumping charge)					1.50	1.50
Springtooth	.12	.21	.28	.26	--	.75
Harrow and roll	.17	.30	.41	.11	--	.82
<u>Total</u>	2.44	3.75	2.00	1.19	10.00	16.94
<u>Planting</u>						
Drill	.33	.58	.79	.23	--	1.60
Seed - 20 lbs. @ 10¢/lb.					2.00	2.00
<u>Total</u>	.33	.58	.79	.23	2.00	3.60
<u>Growing Costs</u>						
Ridge	.20	.35	.29	.32	--	.96
Irrigate 3X	4.50	6.30	--	--	--	6.30
Water - 2 acre feet @ \$3.00/acre foot (pumping charge)					6.00	6.00
Spray	.17	.30	.13	.14	--	.57
2,4-D amine @ 1 lb.					.90	.90
Inspect for isolation	.10	.14	--	--	--	.14
Certification inspection					.20	.20
Move equip., set-up and service @ 10% of time	.16	.28	--	--	--	.28
<u>Total</u>	5.13	7.37	.42	.46	7.10	15.35
<u>Miscellaneous</u>						
Compensation insurance, social security @ 12% of cash wage						1.40
Phone, pickup, roadside weed control @ 11% of growing costs						4.10
<u>Total</u>						5.50
<u>Taxes - Land</u>						17.10
Total Cost up to Harvest						58.49
<u>Harvesting Costs</u>						
Windrow	.34	.67	.70	--	--	1.37
		(.60+.07)				
Thrash	1.00	1.96	4.40	--	--	6.36
		(1.57+.21)				

Sudan Seed, cont,	Hours/ Acre	Cash & Labor Costs Per Acre			Material	Total
		Labor	Fuel & Repairs			
			Tractor	Implt.		
Haul - hire @ \$2.00/ton					2.50	2.50
Cleaning, bags, tags, storage & testing @ \$1.05/cwt					<u>26.25</u>	<u>26.25</u>
Total	1.34	2.63	5.10	--	28.75	36.48
<u>Post Harvest Costs</u>						
Disc 2X	.40	.78	.95	.42	--	2.15
		(.70+.08)				
Total	.40	.78	.95	.42	--	2.15
Total Growing & Harvesting Costs						97.12
<u>Investment Costs</u>						
Land - \$900/acre @ 6%						54.00
Buildings @ \$15/acre						1.20
Irrigation wells and pumps						3.30
Tractors and equipment						<u>17.62</u>
Total Investment Costs						76.12
<u>Management</u> - 5% of 25 cwt @ \$6/cwt						<u>7.50</u>
Total all Costs						180.74
Cost per 100 lbs.						7.23

Annual Costs of Equipment - Overhead and Cash - Yolo County 1967

Equipment	Size	Acres Per Hour	Orig. Cost	Annual Overhead Costs			Cash Costs			Total All Costs	Total Hours Use	Costs Per Hour				
				Depreciation Life Yrs.	Int. 6% of Avg. Value	Total Ann. Overhead Cost	Repairs % Orig. Amt. Cost Per Yr.	Taxes and Ins.	Cash Costs			Total All Costs	Cash	Fixed	Total	
Subsoiler	8'	1.6	\$ 2500	10	\$ 250.00	\$ 75.00	\$ 325.00	10	\$ 250.00	\$ 35.86	\$ 285.86	\$ 610.86	351	.81	.93	\$ 1.74
Landplane	12'x60'	4.0	5600	20	280.00	168.00	448.00	2	112.00	80.36	192.36	582.36	195	.99	2.30	3.29
Disc (Offset)	18'	5.0	3000	10	300.00	90.00	390.00	15	450.00	43.05	493.05	883.05	476	1.04	.82	1.86
Springtooth 3 Bar	28'	8.0	2700	10	270.00	81.00	351.00	6	162.00	38.74	200.74	551.74	95	2.11	3.69	5.80
Tine Harrow - Weeder	35'	8.0	1100	10	110.00	33.00	143.00	7	77.00	15.78	92.78	235.78	98	.95	1.46	2.41
Roller	21'	6.0	2100	20	105.00	63.00	168.00	2	42.00	30.13	72.13	240.13	146	.49	1.15	1.64
Swede Harrow and Cart	20'	6.0	750	20	37.50	22.50	60.00	1	7.50	10.59	18.09	78.09	119	.15	.50	.65
Rolling Cultivator	6 row	6.0	1800	8	225.00	54.00	279.00	10	180.00	25.83	205.83	484.83	54	3.81	5.17	8.98
Tool Bar	15'	4.0	2400	15	160.00	72.00	232.00	15	360.00	34.44	394.44	626.44	247	1.60	.94	2.54
Sled (Plant) & Incorp.	6 row	2.5	3500	10	350.00	105.00	455.00	10	350.00	50.22	400.22	855.22	204	1.96	2.23	4.19
Sled (Cultivate)	6 row	4.0	2000	10	200.00	60.00	260.00	10	200.00	28.70	228.70	488.70	415	.55	.63	1.18
Ditcher	54"	25.0	1350	20	67.50	40.50	108.00	3	40.50	19.17	59.67	167.67	54	1.10	2.00	3.10
Planters (6)	6 row	2.5	900	10	90.00	27.00	117.00	2	18.00	12.91	30.91	147.91	231	.13	.51	.64
Swather	14'	4.0	7200	5	1440.00	216.00	1656.00	8	576.00	103.32	679.32	2335.32	375	2.07*	4.42	6.49
Side Del. Rakes 2	14'	15.0	1200	10	120.00	36.00	156.00	12	144.00	17.22	161.22	317.22	105	1.54	1.48	3.02
Plow, MLBD, 2 way(90HPW)	3-18"	1.5	1800	10	180.00	54.00	234.00	7	126.00	25.83	151.83	385.83	203	.75	1.15	1.90
Sprayer	35'	6.0	1250	10	125.00	37.50	162.50	5	62.50	17.94	80.44	242.94	157	.81*	1.04	1.85
Tomato Harvester	--	0.35	22000	6	3666.67	660.00	4326.67	10	2200.00	315.70	2515.70	4542.37	532	5.23*	8.13	13.36
Trailers (2) - Tilt	6 Bin	--	2400	6	400.00	72.00	472.00	5	120.00	34.44	154.44	626.44	532	.29	.89	1.18
Forklift	4000 lbs.	--	6000	10	600.00	180.00	780.00	4	240.00	86.10	326.10	1106.10	532	.88*	1.47	2.35
Combine Harvester #95	14' 2.OB&1.5Milol	13500	10	1350.00	405.00	1755.00	3	405.00	193.72	598.72	2353.72	222	3.40*	7.90	11.30	
Tracklayer Diesel	90 HP	--	23500	12	1958.33	705.00	2663.33	4	940.00	337.22	1277.32	3940.65	620	3.14*	4.30	7.44
Tracklayer Diesel	75 HP	--	20000	12	1666.67	600.00	2266.67	4.5	900.00	287.00	1187.00	3453.67	690	2.38*	3.28	5.66
Wheel Tractor Diesel	90 HP	--	9000	12	750.00	270.00	1020.00	3.5	315.00	129.15	444.15	1464.15	654	1.43*	1.56	2.99
Wheel Tractor Diesel	45 HP	--	6000	12	500.00	180.00	680.00	9	540.00	105.60	645.60	1325.60	1099	1.01*	.62	1.63
Wheel Tractor 1 Diesel	30 HP	--	4000	12	333.33	120.00	453.33	10	400.00	57.40	457.40	910.73	821	.77*	.55	1.32
Pickup	--	--	2500	10	250.00	75.00	325.00	--	100.00	35.87	--	--				
Pickup - used	--	--	500	5	100.00	15.00	115.00	20	100.00	7.17	107.17	222.17				
Truck and bed	--	--	1200	5	240.00	36.00	276.00	10	120.00	17.22	137.22	413.22				
TOTAL	--	--	\$150,750	--	\$16,250.00	\$4,552.50	\$20,677.50	--	\$9,537.50	\$2,196.68	--	--				

charged under  
misc. costs  
\*Includes fuel

Irrigation System - Wells - 100' lift - water pumped per year - 3185 acre feet @ 1350 gpm.

											Cost per AC. Ft.		
5-14" cased wells, 300' depth - 5 @ 4500 = 22,500	20	1125.00	675.00	1800.00	--	--	322.87	322.87	2122.87		0.47	1.32	1.79
5 pumps, 75 HP and panel - 5 @ 6000 = 30,000	20	1500.00	900.00	2400.00	2.5	750.00	430.50	1180.50	3580.50		Power		2.43
											Misc.		0.10
											Total		4.32



GENERAL TRACTOR AND EQUIPMENT COSTS OF OPERATIONS\*

Costs of operations have been calculated for varying sized tractors and different pieces of equipment. A grower developing costs of production for his operation can utilize these costs to figure costs for his equipment.

The first table presents a general formula for fuel consumption by different types of tractors.

The second table presents cash costs of operation for varying sizes of tractors and different pieces of equipment.

TRACTOR FUEL CONSUMPTION

<u>Tractor type</u>	<u>Gallons fuel per hour per horsepower @ 75% of maximum horsepower</u>
Wheel, gasoline	.085
Wheel, diesel	.065
Tracklayer, gasoline	.090
Tracklayer, diesel	.075

SAMPLE COSTS OF OPERATION FOR TRACTORS AND EQUIPMENT

<u>Implement</u>	<u>Size</u>	<u>Cash Operating Costs</u>		
		<u>Fuel</u>	<u>Repairs</u>	<u>Total</u>
		<u>(Dollars per hour)</u>		
Tractor - HP - 75% maximum				
wheel, gasoline	15 HP	.26	.28	.54
	30 "	.52	.43	.95
wheel, diesel	40 "	.68	.56	1.24
	50 "	.85	.67	1.52
	30 "	.32	.50	.82
track, gasoline	40 "	.42	.60	1.02
	50 "	.52	.75	1.27
	70 "	.75	.90	1.65
track, diesel	20 "	.36	.35	.71
	30 "	.54	.50	1.04
Truck	30 "	.36	.61	.97
	40 "	.48	.76	1.24
	55 "	.66	1.38	2.04
	90 "	1.08	1.82	2.90
	140 "	1.68	2.84	4.52
		<u>Cents per mile</u>		
Pickup	1/2 ton	2.2	2.6	4.8
	3/4 ton	2.3	2.9	5.2
Truck	1 1/2 ton	4.2	4.3	8.5
	2 ton	4.5	5.3	9.8
		<u>Dollars per hour</u>		
Baler, motor, twine	--	.70	.80	1.50

\*Adapted from Machinery Costs and Performance - published November 1966 by A. D. Reed, Extension Economist, University of California, Davis, California

<u>Implement</u>	<u>Size</u>	<u>Cash Operating Costs</u>		
		<u>Fuel</u>	<u>Repairs</u>	<u>Total</u>
		<u>Dollars per hour</u>		
Baler, motor, wire	--	.70	1.40	2.10
Baler, Sp., twine	--	.80	1.60	2.40
Baler, Sp., wire	--	.80	1.85	2.65
Baler, Sp., 3 wire	--	.80	2.65	3.45
Combine, Sp.	10'	.50	2.25	2.75
Combine, Sp.	12'	.60	2.80	3.40
Combine, Sp.	14'	.70	3.35	4.05
Combine, Sp.	16'	.80	3.50	4.30
Combine, Sp.	20'	.90	3.70	4.60
Forklift	--	.27	.23	.50
Swather	10'	.24	2.96	3.20
Swather	12'	.25	3.30	3.55
Swather	14'	.26	3.54	3.80
Swather	16'	.28	3.67	3.95
Tomato harvester	--	.50	4.90	5.40
Sprayer, weed	200 gal.	.30	.40	.70

Information on many more pieces of equipment not listed can be found in the publication - Machinery Costs and Performances - compiled by A. D. Reed, Extension Economist, November 1966.

ESTIMATING ELECTRIC POWER COST FOR PUMPING IRRIGATION WATER  
by Arthur Shultis and L. J. Booher - 1958

You can compute the electric power cost for pumping under any set of conditions by using these formulas and the applicable rate schedule. On the reverse side of this sheet we show some sample costs computed for four rates of pumping with several pumping lifts and different levels of use at 60% overall efficiency and at the PA 1 schedule shown below.

Size of Motor Required

$$HP = \frac{G.P.M. \times H}{3960 \times E_p}$$

G.P.M. = pump discharge in gallons per minute  
 $E_p$  = Efficiency of pump expressed as a decimal  
 H = head in feet  
 H.P. = horsepower output of motor

FORMULAS

Efficiency of pumping plant

$$E_o = E_p \times E_m$$

$E_p$  = Efficiency of pump  
 $E_m$  = Efficiency of motor  
 $E_o$  = Overall efficiency

Power Required to pump 1 Ac. ft.

$$Kwh = 1.024 \frac{H}{E_o}$$

Kwh. = Kilowatt hours  
 H = head or total feet of lift  
 $E_o$  = overall efficiency expressed as a decimal

EXAMPLE

800 G.P.M. 120 ft. head  
 $E_p = .62, E_o = .55$ , 500 Ac. ft. pumped  
 $Kwh = \frac{1,024 \times 120}{.55} = 223 \text{ Kwh per Ac. ft.}$   
 Total Kwh used each year  
 $500 \times 223 = 111,500 \text{ Kwh}$   
 $HP = \frac{800 \times 120}{3960 \times .62} = 39.1$

Power cost at schedule below

Service, 40 hp @ \$6.73	269.20
Energy @ 1.49¢ 40,000 Kwh	596.00
@ .91¢ 40,000	364.00
@ .65¢ 31,500	204.75
Total 111,500	1,433.95

per acre foot \$2.87

P.G. & E. AGRICULTURAL POWER SCHEDULE PA 1  
Effective Nov. 12, 1957, in all areas except around Santa Cruz

Connected Load hp.	Annual Service Charge per hp.	Energy charge in addition per kwh.		
		First 1000 kwh per hp.	Next 1000 kwh per hp.	All over 2000 kwh per hp.
2-4.9	\$ 8.83	1.85¢	.91¢	.65¢
5-14.9	7.46	1.59	.91	.65
15-49.9	6.73	1.49	.91	.65
50-99.9	5.99	1.38	.91	.59
100-249.9	5.26	1.33	.91	.59
250-499.9	5.26	1.28	.91	.59
500-999.9	5.05	1.22	.91	.59
1000-2499.9	4.73	1.22	.91	.59

ELECTRIC POWER COST FOR PUMPING, BASED ON P.G. & E. POWER SCHEDULE PA-1 (2891E, Nov. 12, 1957)

All areas served except the service area of former Coast Counties Gas and Electric Co.

With 60% overall efficiency and a single pumping plant

Compiled by Arthur Shultis and L. J. Booher, January 1958, California Agricultural Extension Service

Total head in feet	25	50	75	100	125	150	175	200	250	300		
Kwhr. required per acre foot	42	85	128	171	213	256	299	341	427	512		
Pump delivering 450 gallons per minute, 1 cu. ft. per second, 1 acre-inch per hour, 2 acre-feet per 24 hour day												
Size motor required, hp.	5	10	15	20	20	25	30	40	40	50		
Acre-feet pumped	Hours	24-hour days	power cost per acre-foot including demand charge									
100	1200	50	\$1.04	\$2.10	\$2.92	\$3.89	\$4.43	\$5.46	\$6.47	\$7.77	\$8.90	\$10.00
200	2400	100	.74	1.49	2.10	2.81	3.16	3.88	4.60	5.61	6.32	7.29
300	3600	150	.60	1.20	1.72	2.29	2.57	3.14	3.72	4.58	5.14	5.87
400	4800	200	.52	1.04	1.50	2.00	2.27	2.77	3.27	3.99	4.55	5.16
500	6000	250	.47	.94	1.36	1.82	2.09	2.55	3.01	3.63	4.19	4.73
Pump delivering 900 gallons per minute, 2 cu. ft. per second, 2 acre-inches per hour, 4 acre-feet per 24-hour day												
Size motor required, hp.	10	20	25	40	40	50	60	75	100	100		
Acre-feet pumped	Hours	24-hour days	power cost per acre-foot including demand charge									
200	1200	50	\$1.94	\$1.94	\$2.73	\$3.89	\$4.44	\$4.98	\$5.92	\$6.95	\$8.31	\$9.39
400	2400	100	.74	1.40	1.04	2.81	3.16	3.65	4.32	5.11	6.25	6.99
600	3600	150	.60	1.14	1.57	2.29	2.57	2.93	3.47	4.15	5.16	5.66
800	4800	200	.52	1.00	1.39	2.00	2.27	2.58	3.05	3.61	4.50	5.00
1000	6000	250	.47	.91	1.28	1.82	2.09	2.36	2.80	3.29	4.11	4.61
Pump delivering 1350 gallons per minute, 3 cu. ft. per second, 3 acre-inches per hour, 6 acre-feet per 24-hour day												
Size motor required, hp.	15	25	40	50	60	75	100	100	125	150		
Acre-feet pumped	Hours	24-hour days	power cost per acre-foot including demand charge									
300	1200	50	\$ .96	\$1.82	\$2.80	\$4.34	\$4.08	\$5.00	\$5.73	\$6.26	\$7.83	\$9.39
600	2400	100	.70	1.29	2.00	2.43	2.97	3.65	4.30	4.66	5.82	6.99
900	3600	150	.57	1.05	1.62	1.96	2.40	2.93	3.53	3.77	4.72	5.66
1200	4800	200	.49	.92	1.42	1.72	2.11	2.58	3.09	3.33	4.17	5.00
1500	6000	250	.45	.85	1.30	1.58	1.94	2.36	2.82	3.07	3.84	4.61
Pump delivering 1800 gallons per minute, 4 cu. ft. per second, 4 acre-inches per hour, 8 acre-feet per 24-hour day												
Size motor required, hp.	20	40	50	75	100	100	125	125	150	200		
Acre-feet pumped	Hours	24-hour days	power cost per acre-foot including demand charge									
400	1200	50	\$ .96	\$1.94	\$2.50	\$3.48	\$4.15	\$4.69	\$5.62	\$6.05	\$7.43	\$9.39
800	2400	100	.70	1.40	1.82	2.56	3.12	3.49	4.20	4.49	5.49	6.99
1200	3600	150	.57	1.14	1.47	2.08	2.58	2.83	3.42	3.76	4.50	5.66
1600	4800	200	.49	1.00	1.29	1.81	2.25	2.50	3.00	3.25	4.01	5.00
2000	6000	250	.45	.91	1.18	1.65	2.05	2.30	2.76	3.00	3.71	4.61

Over for rate schedule and formula used.