

SAMPLE COST OF

P R O D U C T I O N

1975

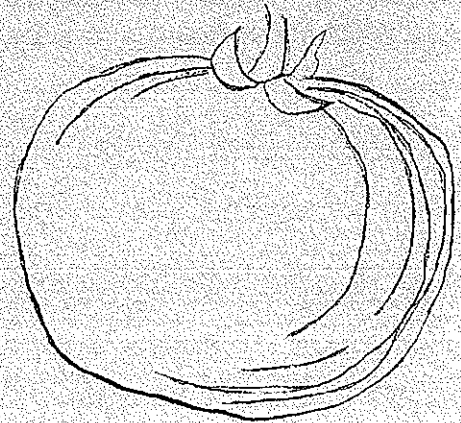
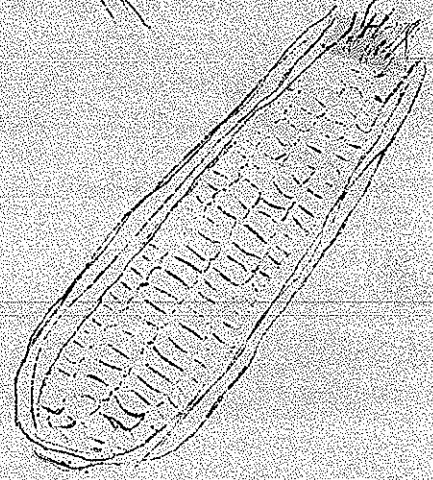
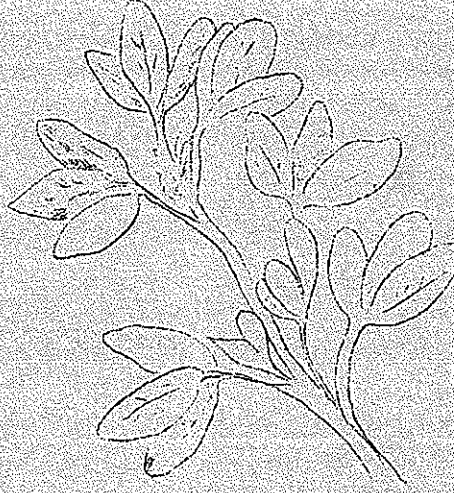
YOLO COUNTY

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

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Without the help of these growers and Agri-businessmen, 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 economic production of crops is to be achieved and a grower must know crop inputs before he can determine his returns.

This report presents information on estimated costs of growing several crops of major importance in the Woodland area. It is aimed at answering questions on local production practices, production costs, expected yields and potential net returns. Figures given represent estimates, not specific or exact averages of crop production in the Woodland area. Figures are based on 1974-75 usual costs and on the farming operations basically used to produce specific crops.

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 720 acres of alfalfa, 240 acres of sugar beets, 240 acres of tomatoes, 240 acres grain sorghum (milo) 480 acres of corn, and 720 acres of wheat - a total of 2640 acres. There may be some disagreement that this is a typical Woodland area farm or that this rotation would 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 or barley for wheat, corn for sorghum, corn for sugar beets, etc., and still maintain the basic 2640 acre operating unit. Equipment usage would be slightly different, but still sufficiently accurate for good estimated cost figures.

Equipment

Equipment costs which are determined by hours of use, 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 operations sheet. The annual fixed costs charges were calculated on the basis of hours of use in a crop. The accumulated charges are listed in the investment cost under tractors and equipment.

Equipment rental was used in several places in this study 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 adequate.

Equipment Taxes and Insurance

The tax rate used for this study was 9.5% of the assessed value. Assessed value is based on a 15 year life for most equipment. The current assessed value is 25% of the market value. Market value is usually 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, average value of the equipment was determined by taking 65% of new price. The assumed assessed value was calculated as 25% of the average value. The formula used was:

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

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

$$\text{Assessed value} \times 9.5\% (\text{tax rate}) = \text{tax on equipment}$$

Note: In practice, assessed value is more accurately determined by use of tables.

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 half life. 65% would give a more accurate value.

Insurance, all risk (\$100 deductible), was charged at 50 cents per \$100 of the insurable value. Insurable value is 80% of replacement value. For this study, 80% of new 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.

Interest on Investment of Equipment

Interest on investment of equipment was charged @ 9.0%.

Water and Wells

Water requirements for the farming operation were developed as follow:
1920 acres @ 4 acre feet/year = 7680 ac ft (row crops & alfalfa)
720 acres @ 0.5 acre feet/year = 360 ac ft (wheat)
Total = 8040 ac ft/year

The study assumed 450' cased wells using 75 HP pumps @ 65% efficiency. Lift was considered to be 127'. Pumps were operated for 1800 hours/year, delivering 1725 gallons/minute. Fourteen wells and pumps were

required to deliver 8040 acre feet. Total water cost was \$10.49/acre foot. Power, repairs, and insurance costs (cash costs) were \$5.93/ac ft. Overhead costs (depreciation and interest on investment) came to \$4.56/acre foot. A 20 year life was assigned to wells and pumps. Water costs were charged according to crop usage.

Buildings

A \$100,000 investment in farm buildings is assumed for the study. The primary building is a fully equipped farm shop. Other storage buildings are included such as chemical storage, fertilizer storage, seed storage, etc.

Costs of buildings are spread over the entire operation on a per acre basis. Original cost \$100,000 - life 20 years - depreciation \$5,000 per year - interest on investment @ 9% \$4,500 - Taxes \$1544 - Insurance \$436. Total annual overhead \$9,500 - Total annual cash costs \$1,980 - Total all costs per year \$11,840. Total cost/acre \$4.48.

Land - Taxes and Interest

Costs are based on a land value of \$1750 per acre. Interest at 8% is charged on the investment and is included as a cost. Taxes were charged at \$17.00/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%)
Sugar Beets	20%
Grain Sorghum (Milo)(Single Crop)	25%
Grain Sorghum (Milo)(Double Crop)	25%
Barley & Wheat	40%
Field Corn	25% share drying costs
Alfalfa (Roadside)	25%
Beans (Single Crop)	25%
Beans (Double Crop)	20%
Safflower	25%
Sudangrass Seed	25%

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

Labor Charges

Labor costs were based on \$3.50 for tractor drivers; \$3.00 for irrigators and \$2.85 for general labor. There are additional labor costs for social security, workmen's compensation insurance, and miscellaneous benefits, and it amounts to 14% of the 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 15% of the hourly cash wage. This charge is paid to labor supervisors and it includes bookkeeping, housing, field supervision, supplies, transportation to the field, etc.

Miscellaneous Production and Operation Costs

This category includes several general operating expenses not charged as direct production costs. Production loan interest, foreman and mechanic salaries and benefits, farm shop expenses, crop loss and replanting expenses, roadside weed control, accounting, office supplies, telephone, travel and expenses of association meetings. While not itemized, these costs are a real part of the farming operations and are conservatively estimated as 11% of production expenses.

Management Cost

Cost of management is charged at five percent of the gross sales value. This charge is for supervision and management of the crop from planting through harvest. Management is a necessary and real cost to every successful business.

Alfalfa Hay (3 year life)
 720 Acres on a 2,640 acre farm
 Land Owner - Operator - Yield 7 tons

	Cash & Labor Costs Per Acre					Total
	Hours/ Acre	Labor @ \$3.50/hr	Fuel & Repairs Tractor	Implt.	Materials	
<u>Cash Growing Costs</u>						
Irrigate 8X @ \$3/hr	5.00	15.00	--	--	--	15.00
Water (cash*) 4 ac ft @ \$5.93/ac ft					23.72	23.72
Ditch	.05	.18	.28	.05	--	.51
Insect Control 2.5X Materials					8.95	8.95
Airplane apply					6.90	6.90
Weed Control Weed Oil & Dinitro					19.70	19.70
Ground apply					3.75	3.75
Pickup & truck use				.79		.79
<u>Miscellaneous Costs</u>						
Soc. Sec., comp. ins., bonuses, vac., etc. @ 14% of hourly wage		2.13	--	--	--	2.13
Total	5.05	17.31	.28	.84	63.02	81.45
Misc. Production & Operation costs @ 11% of cultural costs (see page iv)						4.64
Taxes (land)						17.00
Total Pre-harvest Cash Costs						103.09
<u>Cash Harvest Costs</u>						
Swath 6X	1.20	4.20	--	4.21	--	8.41
Combine windrows 6X	.40	1.40	.59	.56	--	2.55
Bale 6X	.86	3.01	1.27	2.98	17.82	25.08
Bankout (auto bale loader)	.60	2.10	--	4.90	--	7.00
Pickup & truck use				.80		.80
Move equip., setup & service @ 10% of operating time	.31	1.07	--	--	--	1.07
Soc. Sec., comp. ins., bonuses, vac., etc. @ 14% of hourly wage		1.65				1.65
Total	3.37	13.43	1.86	13.45	17.82	46.56
Misc. Production & Operation costs @ 11% of harvest cost (see page iv)						4.84
Total Cash Harvest Costs						51.40
Total Cash Costs per Year						154.49
Management cost @ 5% of Gross Income - 7 tons @ \$60/ton						21.00
<u>Investment Costs</u>						
Land \$1750/acre - interest @ 8%						140.00
Buildings \$38/acre (taxes, int., depr.)						4.48
Wells & Pumps (interest, depr. @ 4.56/ac ft)						18.24
Tractors & Equip. (interest, depr.)						18.63

Alfalfa Hay (Cost to Establish and Destroy)
240 Acres/year - Following wheat

	Hours/ Acre	Labor @ \$3.50/hr	Fuel & Repairs Tractor	Implt.	Materials	Total
<u>Costs to Establish</u>						
<u>Seed Bed Preparation</u>						
Disc 2X	.25	.88	1.67	1.75	--	4.30
Landplane 3X	.60	2.10	3.31	.36	--	5.77
Mark checks	.06	.21	.39	.63	--	1.23
Pull checks	.29	1.02	.94	.43	--	2.39
Shape checks	.06	.21	.33	.75 (shaper rented)	--	1.29
Chisel 1X	.40	1.40	2.66	.55	--	4.61
Springtooth 3X	.25	.86	1.38	.64	--	2.88
Harrow & Roll 2X	.14	.49	.77	.41	--	1.67
Seed 25# @ \$2.00					50.00	50.00
Plant - airplane					2.00	2.00
Move equip., setup & service @ 10% of operating time	.20	.70	--	--	--	.70
<u>Miscellaneous Costs</u>						
Soc. Sec., comp. ins., bonuses, vac., etc. @ 14% of hourly wage		1.10				1.10
Total	2.25	8.97	11.45	5.52	52.00	77.94
Misc. Production & Operation costs @ 11% of cultural cost (see page iv)						3.07
Total Cash Costs to Establish						81.01
<u>Costs to Destroy</u>						
Disc borders 1X	.06	.21	.40	.38	--	.99
Landplane 1X	.20	.70	1.30	.12	--	2.12
Disc 1X	.22	.77	1.47	1.39	--	3.63
Plow 1X	.50	1.75	3.25	2.83	--	7.83
Move equip., setup & service @ 10% of operating time	.10	.34	--	--	--	.34
<u>Miscellaneous Costs</u>						
Soc. Sec., comp. ins., bonuses, vac., etc. @ 14% of hourly wage		.53				.53
Total	1.08	4.30	6.42	4.72		15.44
Misc. Production & Operation costs @ 11% of cultural cost (see page iv)						1.70
Total Cash Costs to Destroy						17.14
Total Cash Costs to Establish & Destroy						98.15
Equipment Overhead Costs based on Hours of Use						26.72
Total Cost to Establish & Destroy						124.87

Alfalfa Hay (3 year life)
 720 Acres on a 2,640 acre farm
 Lease basis - 25% of Gross Sales to Landlord
 Yield - 7 tons

	<u>Cash & Labor Costs Per Acre</u>					Total
	Hours/ Acre	Labor @ \$3.50/hr	<u>Fuel & Repairs</u>		Materials	
			Tractor	Implt.		
<u>Cash Growing Costs</u>						
Irrigate 8X @ \$3/hr	5.00	15.00	--	--	--	15.00
Water (cash*) 4 ac ft @ \$5.93/ac ft					23.72	23.72
Ditch	.05	.18	.28	.05	--	.51
Insect Control 2.5X						
Materials					8.95	8.95
Airplane apply					6.90	6.90
Weed Control						
Weed Oil & Dinitro					19.70	19.70
Ground apply					3.75	3.75
Pickup & truck use				.79		.79
<u>Miscellaneous Costs</u>						
Soc. Sec., comp. ins., bonuses, vac., etc. @ 14% of hourly wage		2.13	--	--	--	2.13
Total	5.05	17.31	.28	.84	63.02	81.45
Misc. Production & Operation costs @ 11% of cultural cost (see page iv)						4.64
Landlord share - 7 tons @ \$60/ton						<u>105.00</u>
Total Pre-harvest Cash Costs						191.09
<u>Cash Harvest Costs</u>						
Swath 6X	1.20	4.20	--	4.21	--	8.41
Combine windrows 6X	.40	1.40	.59	.56	--	2.55
Bale 6X	.86	3.01	1.27	2.98	17.82	25.08
Bankout (auto bale loader)	.60	2.10	--	4.90	--	7.00
Pickup & truck use				.80		.80
Move equip., setup & service @ 10% of operating time	.31	1.07	--	--	--	1.07
<u>Miscellaneous Costs</u>						
Soc. Sec., comp. ins., bonuses, vac. etc. @ 14% of hourly wage		1.65				1.65
Total	3.37	13.43	1.86	13.45	17.82	46.56
Misc. Production & Operation costs @ 11% of harvest cost (see page iv)						4.84
Total Cash Harvest Costs						<u>51.40</u>
Total Cash Costs per Year						242.49
Management cost @ 5% of Gross Income - 7 tons @ \$60/ton						21.00
<u>Investment Costs</u>						
Buildings \$38/acre (taxes, int., depr.)						4.48
Tractors & Equipment (interest, depr.)						18.63

Field Corn
 480 Acres - Following corn, grain sorghum,
 alfalfa, wheat or sugar beets
 Yield - 8000 lbs.

	Hours/ Acre	Cash & Labor Costs Per Acre				Total
		Labor	Fuel & Repairs		Materials	
			Tractor	Implt.		
<u>Seed Bed Preparation</u>						
<u>Fall</u>						
Plow (½ acreage)	.25	.88	1.67	1.41	--	3.96
Subsoil (½ acreage)	.20	.70	1.33	.28	--	2.31
Landplane 2X	.40	1.40	2.20	.24	--	3.84
<u>Spring</u>						
Springtooth 2X	.17	.60	1.10	.43	--	2.13
Fertilize	.11	.39	.61	--	--	1.00
Rent Tag-a-long @ 75¢/acre					.75	.75
Fertilizer - 125N @ 20¢/lb.					25.00	25.00
Swede Harrow & Roll 2X	.14	.49	.77	.41	--	1.67
Move equip., setup & service @ 10% of operating time	.13	.46	--	.05	--	.51
Total	1.40	4.92	7.68	2.82	25.75	41.17
<u>Planting</u>						
Plant	.29	1.02	1.52	.26	--	2.80
Seed 18 lbs @ \$1.12/lb.					20.16	20.16
Starter Fertilizer @ 15 gal/acre @ \$1.60 gal					24.00	24.00
Move equip., setup & service @ 20% of operating time	.06	.21	--	.02	--	.23
Total	.35	1.23	1.52	.28	44.16	47.19
<u>Growing Costs</u>						
Cultivate, furrow & fert.	.25	.88	.81	.35	--	2.04
Fertilizer-75N @ 20¢/lb					15.00	15.00
Cultivate & furrow	.25	.88	.81	.20	--	1.89
Ditch 3X	.15	.53	.83	.15	--	1.51
Irrigate-7X @ 1.5 hrs/ac	10.50					
Labor		31.50	--	--	--	31.50
Water-3 ac ft @ \$5.93/ac ft					17.79	17.79
Herbicide-ground rig	.17	.60	.25	.41	--	1.26
2,4-D amine @ 16 oz.					2.31	2.31
Miticide (custom)						
Application					3.50	3.50
Material					7.48	7.48
Move equip., setup & service @ 15% of operating time	.12	.42	--	.05	--	.47
Total	11.44	34.81	2.70	1.16	46.08	84.75
Total Cultural	13.19	40.96	11.90	4.26	115.99	173.11

Field Corn, cont.	Hours/ Acre	Cash & Labor Costs Per Acre				Total
		Labor	Fuel & Repairs Tractor	Implt.	Materials	
<u>Misc. Operating & Growing Costs</u>						
Misc. Production & Operation costs @ 11% of cultural cost (see page iv)						19.04
Soc. Sec., comp. ins., bonuses, vac. etc. @ 14% of hourly wage						5.73
Pickup & truck use						<u>1.00</u>
Total						<u>25.77</u>
Total Growing Costs						198.88
Management cost @ 5% of Gross Income - 80 cwt @ \$5.50 cwt						22.00
Taxes (land)						<u>17.00</u>
Total Costs Pre-harvest						<u>237.88</u>
<u>Harvest</u>						
Combine	.29	1.02	3.15	1.65	--	5.82
Drying (custom)					14.00	14.00
Soc. Sec., comp. ins., bonuses, vac. etc. @ 14% of hourly wage						.14
Misc. Production & Operation costs @ 11% of harvest cost (see page iv)						.74
Pickup & truck use						<u>.79</u>
Total Harvest Costs						21.49
<u>Post Harvest Costs</u>						
Stubble Disc	.22	.77	1.47	1.39	--	<u>3.63</u>
Total Cultural & Harvest Costs						263.00
<u>Investment Costs</u>						
Land - \$1750 @ 8%						140.00
Buildings						4.48
Irrigation Wells & Equipment						13.68
Tractors & Equipment						<u>25.81</u>
Total Investment Costs						183.97
						Total Costs Per Acre 446.97
						Cost Per 100 wt. 5.59

Grain Sorghum
240 Acres - Following Spring Harvested Sugar Beets
Yield - 6000 lbs

	Hours/ Acre	Cash & Labor Costs Per Acre				Materials	Total
		Cash Labor	Fuel & Repairs Tractor	Implt.			
<u>Seed Bed Preparation</u>							
Disc 2X	.25	.88	1.38	1.72	--	3.98	
Chisel	.40	1.40	2.66	.55	--	4.61	
List or Ridge & Fert.	.30	1.05	1.57	.24	--	2.86	
Rent Tag-a-long @ 75¢/acre					.75	.75	
Fertilizer - 125N @ 20¢/lb					25.00	25.00	
Ditch (open & close)	.05	.18	.28	.05	--	.51	
Pre-irrigate	1.50						
Labor		4.50	--	--	--	4.50	
Water - ½ ac ft @ \$5.93/ac ft					2.97	2.97	
Shape & cultivate beds	.20	.70	.65	1.06	--	2.41	
Move equip., setup & service @ 10% of operating time	<u>.12</u>	<u>.42</u>	<u>--</u>	<u>.05</u>	<u>--</u>	<u>.47</u>	
Total	2.82	9.13	6.54	3.67	28.72	48.06	
<u>Planting</u>							
Plant - sled	.29	1.02	.94	.31	--	2.27	
Seed 15 lbs @ 50¢/lb					7.50	7.50	
Move equip., setup & service @ 20% of operating time	<u>.06</u>	<u>.21</u>	<u>--</u>	<u>.02</u>	<u>--</u>	<u>.23</u>	
Total	.35	1.23	.94	.33	7.50	10.00	
<u>Growing Costs</u>							
Cultivate & furrow-sled	.25	.88	.81	.20	--	1.89	
Ditch 2X	.10	.35	.55	.10	--	1.00	
Irrigate-4X @ 1.5 hr/ac	6.00						
Labor		18.00	--	--	--	18.00	
Water-2 ac ft @ \$5.93/ac ft					11.86	11.86	
Insecticide							
Air application					2.75	2.75	
Material					3.40	3.40	
Herbicide-ground rig	.17	.60	.25	.41	--	1.26	
2,4-D amine @ 12 oz					1.68	1.68	
Move equip., setup & service @ 15% of operating time	<u>.08</u>	<u>.28</u>	<u>--</u>	<u>.03</u>	<u>--</u>	<u>.31</u>	
Total	6.60	20.11	1.61	.74	19.69	42.15	
Total Cultural	9.77	30.47	9.09	4.74	55.91	100.21	
<u>Misc. Operating & Growing Costs</u>							
Misc. Production & Operation costs @ 11% of cultural cost (see page iv)						11.02	
Soc. Sec., comp. ins., bonuses, vac. etc. @ 14% of hourly wage						4.27	
Pickup & truck use						1.00	
Total						16.29	

Grain Sorghum, cont.	Hours/ Acre	Cash & Labor Costs Per Acre			Materials	Total
		Labor	Fuel & Repairs Tractor	Implt.		
Total Growing Costs						116.50
Management cost - @ 5% of Gross Income - 60 cwt @ \$5.00 cwt						15.00
Taxes (land)						<u>17.00</u>
Total Costs - Pre-harvest						148.50
<u>Harvest</u>						
Combine	.29	1.02	3.15	--	--	4.17
Drying (½ acreage, custom)					5.63	5.63
Soc. Sec., comp. ins., bonuses, vac. etc. @ 14% of hourly wage						.14
Misc. Production & Operation costs @ 11% of harvest cost (see page iv)						.56
Pickup & truck use						<u>.79</u>
Total Harvest Costs						11.29
<u>Post Harvest Costs</u>						
Stubble Disc	.22	.77	1.47	1.39	--	<u>3.63</u>
Total Cultural & Harvest Costs						163.42
<u>Investment Costs</u>						
Land - \$1750 @ 8%						140.00
Buildings						4.48
Irrigation Wells & Equipment						11.40
Tractors & Equipment						<u>19.17</u>
Total Investment Costs						175.05
						Total Cost Per Acre 338.47
						Cost per 100 wt. 5.64

Sugar Beets
240 Acres - Following Corn, Wheat, or Tomatoes
Yield - 25 Ton

	Hours/ Acre	Cash & Labor Costs Per Acre				Total
		Labor	Fuel & Repairs		Materials	
			Tractor	Implt.		
<u>Seed Bed Preparation</u>						
<u>Fall</u>						
Plow or Subsoil	.50	1.75	3.25	2.83	--	7.83
Landplane 2X	.40	1.40	2.20	.24	--	3.84
Chisel	.40	1.40	2.66	.55	--	4.61
<u>Spring</u>						
Disc 2X	.40	1.40	2.66	2.79	--	6.85
Springtooth & Roll 2X	.16	.56	1.07	.81	--	2.44
Harrow & Roll	.07	.25	.39	.47	--	1.11
List & Fertilize	.33	1.16	1.73	.26	--	3.15
Fertilizer 10 gal/ac Starter @ \$1.60/gallon					16.00	16.00
Saddle Tanks	.33	--	--	.20	--	.20
Move equip., setup & service @ 10% of operating time	.23	.79	--	.30	--	1.09
Total	2.49	8.71	13.96	8.45	16.00	47.12
<u>Planting</u>						
Sled-Shape, Incorporate Herbicide, apply Insecticide & plant (2 men)	.28	1.96	1.47	.30	--	3.73
Herbicide-6#/ac ÷ 2 = 3# @ \$4.45/lb.					13.35	13.35
Seed-3# @ \$1.80/lb.					5.40	5.40
Insecticide-Temik 10# @ \$1.31/lb.					13.10	13.10
Saddle Tanks	.28	--	--	.17	--	.17
Move equip., setup & service @ 20% of operating time	.06	.24	--	.08	--	.32
Total	.34	2.20	1.47	.55	31.85	36.07
<u>Growing Costs</u>						
Roll	.07	.25	.23	.17	--	.65
Cultivate-Sled	.28	.98	1.47	.22	--	2.67
Thin-mechanical	.10	.35	.52	.69	--	1.56
Hoe-(trim & hoe, hoe pull weeds)	19.80	56.43	--	--	--	56.43
Cultivate & Furrow 3X	.84	2.94	2.72	.66	--	6.32
Fertilize-Sidedress N	.28	.98	1.47	--	--	2.45
Nitrogen-125# N @ 20¢/lb	--	--	--	--	25.00	25.00
Sled & Saddle Tanks	.28	--	--	.39	--	.39
Layby Herbicide	.20	.70	1.05	--	--	1.75
Rolling Cultivator	.20	--	--	.90	--	.90
Saddle Tanks	.10	--	--	.06	--	.06
Herbicide - 3/4# Treflan @ \$8.37/lb.					6.28	6.28
Irrigate - 7X @ 1.5 hours/acre						
Labor	10.5	31.50	--	--	--	31.50
Water 4½ ac ft. @ \$5.93/ac ft.	--	--	--	--	26.69	26.69
Misc. Irrig. equip - pipes, dams, shovels, etc.					.50	.50

Sugar Beets, cont.	Hours/ Acre	Cash & Labor Costs Per Acre				Materials	Total
		Labor	Fuel & Repairs				
			Tractor	Implt.			
<u>Growing Costs - cont.</u>							
Ditch - cut & fill 4X	.20	.70	1.33	.20	--		2.23
Insect Control - Air 2X					5.00		5.00
Cutworm Bait - 40#/Acre @ 28¢/lb.					11.20		11.20
Misc. Insect (mites, crown borer or armyworm) @ \$15/Ac					15.00		15.00
Powdery Mildew Control - air					2.50		2.50
Sulfur dust - 35# @ 6¢/lb					2.10		2.10
Move equip., setup & service @ 15% of operating time	<u>.30</u>	<u>1.04</u>	<u>--</u>	<u>.10</u>	<u>--</u>		<u>1.14</u>
Total	2.27	95.87	8.79	3.39	94.27		202.32

Misc. Growing Costs

Misc, Production & Operation costs @ 11% of cultural costs (see page iv)							31.41
Comp. ins., Soc. Sec., fringe benefits, etc. @ 14% cash wage							14.95
Additional charges for general and seasonal labor (Include camp charges, bussing, supervision, etc.) @ 15% cash wage							8.46
Pickup & truck use							<u>9.08</u>
Total							63.90

Management charges @ 5% of Gross Income
(\$35.00/ton @ 25 Tons)

43.75

Taxes (land)

17.00

Total Production Costs to Harvest

410.16

Cost per Ton

16.40

Harvest Costs

Top & dig @ \$1.50/Ton							37.50
Haul @ \$1.50/Ton							<u>37.50</u>
Total Harvest Costs							75.00

Total Production & Harvest Costs

485.16

Costs per Ton

19.40

Investment Costs

Land - \$1750/acre (developed) @ 8%							140.00
Buildings							4.48
Irrigation Wells & Pumps							20.52
Tractors & Equipment							<u>59.64</u>
Total Investment Cost							224.64
Investment Cost per Ton							8.98

Total Cost Per Acre

709.80

Total Cost Per Ton

28.39

Tomatoes
240 Acres - Following corn or wheat
Yield - 26 Ton

	Hours/ Acre	Cash & Labor Costs Per Acre			Materials	Total
		Labor	Fuel & Repairs Tractor	Implt.		
<u>Seed Bed Preparation</u>						
<u>Fall</u>						
Plow (½ acreage)(.40/2)	.20	.70	1.33	1.13	--	3.16
Subsoil (½ acreage)(.50/2)	.25	.88	1.67	.35	--	2.90
Landplane 2X	.40	1.40	2.20	.24	--	3.84
Chisel $\frac{1}{2}$.40	1.40	2.66	.55	--	4.61
<u>Spring</u>						
Disc 2X	.24	.84	1.60	1.68	--	4.12
Springtooth 2X	.16	.56	1.07	.41	--	2.04
Swede Harrow & Roll 2X	.16	.56	.88	.86	--	2.30
List/Ridge & ap. starter.	.30	1.05	1.57	.24	--	2.86
Fertilizer @ 10 gal/acre @ \$1.60 per gallon					16.00	16.00
Saddle Tanks	.30	--	--	.18	--	.18
Move equip., setup & service @ 10% of operating time	.21	.74	--	.08	--	.84
Total	2.32	8.13	12.98	5.72	16.00	42.85
<u>Planting</u>						
Sled Shape, Incorporate Herbicide & Plant - (2 men)	.30	2.10	1.57	5.22	--	8.89
Herbicide - 8 lbs/ac - 30" Band of 60" row (½ area)					16.80	16.80
Seed - 1#/Acre @ \$18.00/lb					18.00	18.00
Saddle Tanks	.30	--	--	.18	--	.18
Move equip., setup & service @ 20% of operating time	.06	.42	--	.05	--	.47
Total	.36	2.52	1.57	5.45	34.80	44.34
<u>Growing Costs</u>						
Cultivate-Sled & Imp. 2X	.50	1.75	1.62	.39	--	3.76
Thin-mechanical	.25	.88	1.31	1.73	--	3.92
Cultivate & furrow 3X	.75	2.62	3.93	.59	--	7.14
Rolling Cultivate 2X	.40	1.40	1.29	1.79	--	4.48
Hoe (trim & hoe, hoe 2X)	7.3	20.80	--	--	--	20.80
Ditch (open & close) 3X	.15	.52	.99	.15	--	1.66
Irrigate-7X @ 1.5 hrs/ac	10.5					
Labor		31.50	--	--	--	31.50
Water-5 ac ft @ \$5.93/ac ft					29.65	29.65
Misc. Irrigation equipment-shovels, siphons, dams, etc. @ 50¢/ac	.50					.50
Fertilizer - sidedress						
Tractor & sled	.25	.88	1.31	.19	--	2.38
Fertilizer - Nitrogen 80# N/ac @ 20¢/lb.					16.00	16.00
Saddle Tanks	.25	--	--	.15	--	.15
Insect control						
Seedling stage						
Tractor & sprayer 1X	.05	.18	.16	.19	--	.53
Insecticide - 1½ pts @ \$14.25 gallon					2.67	2.67
Worm control - 2½X - air @ \$2.50/ac/time					6.25	6.25
Materials 2 qts/app/ac/treatment @ \$24.00 gallon					30.60	30.60

Tomatoes, cont.	Hours/ Acre	Cash & Labor Costs Per Acre				Total
		Labor	Fuel & Repairs		Materials	
			Tractor	Implt.		
Russet mite - air - @ \$2.50					2.50	2.50
Sulfur Dust @ 35#/ac @ 6¢/lb.					2.10	2.10
Mold Control 2X - 1/3 ac .04	.04	.14	.12	.10	--	.35
Materials 2#/ac @ \$4.88/lb = \$9.76/3 = \$3.25					3.25	3.25
Ethephon 1X - 1/5 of ac. .02	.02	.07	.06	.05	--	.18
Materials .8#/ac @ \$56.68/gal (2# gal)					22.63	22.63
Move equip., setup & service @ 15% of operation time	.39	1.26	--	.05	--	1.31
Total	3.05	62.00	10.79	5.37	116.15	194.31

Misc. Operating & Growing Costs

Misc. Production & Operation costs @ 11% of cultural costs (see page iv)						30.97
Soc. Sec., comp. ins., bonuses, vac. etc. @ 14% of hourly wage						10.17
Additional charges for seasonal & part time labor @ 15% of cash wage (includes transportation, bookkeeping, crew supervision, etc.)						7.81
Pickup & truck use						1.34
Total						50.29
Total Growing Costs						331.79

Management Cost - @ 5% of Gross Income - 26 Ton @ \$60/ton 78.00

Taxes (land) 17.00

Total Costs Pre-harvest 426.79

Pre-harvest cost per Ton 16.41

Harvest Costs

Machine - 4 ac/day	2.5	--	--	33.97	--	33.97
Driver @ \$3.50	2.9	10.15	--	--	--	10.15
Sorters - 14 @ \$2.85	2.5	99.68	--	--	--	99.68
Trailers (3)	2.5	--	--	.60	--	.60
Drivers (3) @ \$3.00	2.7	24.30	--	--	--	24.30
Tractors (3)	2.6	--	30.46	--	--	30.46
Forklift	2.9	--	--	7.10	--	7.10
Driver @ \$3.50	2.9	10.15	--	--	--	10.15
Other Labor						
Swampers 2 @ \$2.85	2.5	14.25	--	--	--	14.25
Mechanics @ \$4 (½ time)	1.3	5.20	--	--	--	5.20
Gen Super. @ \$4.50 (½ time)	1.3	5.85	--	--	--	5.85
Misc equip. (disc, scraper, wash equip, etc.) @ \$30/day						6.00
Misc supplies (drinking water, sodas, goggles, etc.) @ \$25/day						6.25
Toilet facilities - 2 units						1.00
Inspection - @ 16¢/ton - 26 ton						4.16
Misc. dues & charges - Assoc., Mkt order, leafhopper, etc.) @ 15¢/ton						3.90
Rejected loads - 1.2% of harvested - 25% sort out						4.20

Wheat
720 Acres - Following alfalfa, tomatoes or corn
Yield - 5000 lbs.

	Hours/ Acre	Cash & Labor Costs Per Acre				Total
		Labor	Fuel & Repairs Tractor	Implt.	Materials	
<u>Seed Bed Preparation</u>						
Disc 2X	.31	1.09	1.87	2.79	--	5.75
Fertilize	.11	.39	.71	--	--	1.10
Rent Tag-a-long @ 75¢/acre					.75	.75
Fertilizer-Nitrogen - 80# N/acre @ 20¢/lb					16.00	16.00
Harrow	.05	.18	.16	.22	--	.56
Ridge for irrigation	.15	.53	.22	.09	--	.84
Move equip, setup & service @ 10% of operating time	<u>.06</u>	<u>.21</u>	<u>--</u>	<u>.02</u>	<u>--</u>	<u>.23</u>
Total	.68	2.40	2.96	3.12	16.75	25.23
<u>Planting</u>						
Drill	.13	.46	.42	.84	--	1.72
Seed 100 lbs @ \$12.00					12.00	12.00
Move equip, setup & service @ 20% of operating time	<u>.03</u>	<u>.11</u>	<u>--</u>	<u>.01</u>	<u>--</u>	<u>.12</u>
Total	.16	.57	.42	.85	12.00	13.84
<u>Growing Costs</u>						
Herbicide-ground rig	.17	.60	.25	.41	--	1.26
2,4-D amine @ 10 oz.					1.40	1.40
Ditch (open & close)	.05	.18	.28	.05	--	.51
Irrigate @ 1.5 hrs/ac	1.50					
Labor		4.50				4.50
Water - ½ acre ft @ \$5.93/acre					2.97	2.97
Move equip, setup & service @ 15% of operating time	<u>.03</u>	<u>.11</u>	<u>--</u>	<u>.01</u>	<u>--</u>	<u>.12</u>
Total	<u>1.75</u>	<u>5.39</u>	<u>.53</u>	<u>.47</u>	<u>4.37</u>	<u>10.76</u>
Total Cultural	2.59	8.36	3.91	4.44	33.12	49.83
<u>Miscellaneous Costs</u>						
Misc. Production & Operation costs @ 11% of cultural cost (see page iv)						5.48
Soc. Sec., workman's comp. ins., bonuses, vac., etc. @ 14% of hourly wage						1.17
Pickup & truck use						<u>.30</u>
Total						<u>6.95</u>
Total Growing Costs						56.78
Management Cost @ 5% of Gross Income - 2½ ton @ \$120/ton						15.00
Taxes (land)						<u>17.00</u>
Total Costs - Pre-harvest						88.78

Annual Costs of Equipment - Overhead and Cash - Yolo County 1975

Equipment	Size	Acres Per Hour	Orig. Cost	Total All Costs*	Total Hours Use	Costs Per Hour		
						Cash	Fixed	Total
Tracklayer	145 HP	--	\$ 69500	\$ 16174	1263	\$ 6.66*	\$ 6.14	\$12.81
Tracklayer	90 HP	--	40000	8560	743	5.51*	6.01	11.52
4 Wheel Drive	175 HP	--	43000	12843	852	6.49*	8.58	15.07
Wheel (PTO)	150 HP	--	27000	6247	617	5.24*	4.89	10.12
Wheel (PTO)	150 HP	--	27000	6247	617	5.24*	4.89	10.12
Wheel (PTO)	100 HP	--	18000	4299	707	3.24*	2.84	6.08
Wheel (PTO)	100 HP	--	18000	4299	707	3.24*	2.84	6.08
Wheel (PTO)	45 HP	--	9000	2136	766	1.48*	1.31	2.79
Wheel (PTO)	45 HP	--	9000	2136	766	1.48*	1.31	2.79
Subsoiler	8'	2.5	5000	1156	432	1.38	1.30	2.68
Landplane	14'x60'	5.0	7000	1011	576	.60	1.16	1.76
Disc	24'	8.0	11000	3643	346	6.98	3.55	10.53
Disc	18'	5.5	9000	2980	187	10.56	5.37	15.94
Stubble Disc	14'	4.5	11000	3643	383	6.30	3.21	9.51
Springtooth	32'	12.0	4500	1040	211	2.55	2.38	4.93
Spiketooth & Cart	40'	20.0	4500	815	72	4.33	6.99	11.32
Swede Harrow & Cart	30'	14.0	3300	664	101	2.92	3.65	6.57
Roller	32'	14.0	3500	793	168	2.47	2.25	4.72
Rolling Cultivators	16'	5.0	4000	1525	240	4.49	1.86	6.35
Incorporator-tomato	3 row	3.5	9000	2766	67	16.04	25.24	41.28
Incorporator-beet	6 row	3.5	6000	1844	67	10.70	16.82	27.52
Sleds	3 or 6 row	4.0	10000	1911	1008	.79	1.11	1.90
Planters (corn-beet)	--	3.5	1500	242	268	.28	.63	.90
Planter (tomato)	--	3.5	750	122	67	.57	1.25	1.82
Ditcher (medium)	--	25.0	3500	576	240	1.01	1.39	2.40
Grain Drills	14'	8.0	8000	1316	86	6.47	8.84	15.30
Plow (2 way)	4 - 12"	2.0	12000	3373	360	5.65	3.72	9.37
Sprayer (weeds)	--	6.0	1200	318	84	2.43	1.36	3.79
Forklift	--	--	10000	3123	820	2.45*	1.36	3.81
Saddle Tanks	--	--	2400	635	672	.61	.34	.94
Swather	14'	<u>5.0</u>	<u>15000</u>	6709	864	3.51*	4.25	7.77
V Rake	--	<u>15.0</u>	<u>2400</u>	1315	288	1.41	3.15	4.56
Baler	--	<u>7.0</u>	<u>10000</u>	4023	617	3.47*	3.05	6.52
Auto Bale Loader	--	<u>10.0</u>	<u>24000</u>	8041	432	8.17*	10.43	18.61
Combine	18'	3.5	40000	10176	403	10.86*	14.39	25.25
Corn Header	8 row	3.5	11000	2359	134	5.70	11.90	17.60
Tomato Harvester	--	4.0/day	60000	19427	600	13.59*	18.79	32.38
Truck - 2 ton	--	--	8000	2527	3000 mi.	.34/mi*	.50/mi	.84/
Pickup	--	--	4800	2784	20000 mi.	.08/mi*	.06/mi	.14/
Pickup	--	--	4800	2784	20000 mi.	.08/mi*	.06/mi	.14/
Pickup	--	--	4800	2784	20000 mi.	.08/mi*	.06/mi	.14/
Implement Carrier	--	--	3000	403	312	.38	.91	1.29
Drag Scraper	--	3.5	2000	289	67	1.48	2.84	4.31
Thinner Electric Eye	--	15.0	12000	3087	120	6.94	18.78	25.73
Trailers (3) - Tilt	6 bin	--	<u>3600</u>	<u>664</u>	600	.24	.87	1.11
TOTAL	--	--	\$583050	\$163809				

charged under misc. costs

*Includes fuel

Irrigation System - Wells - 127' lift - water pumped per year - 8040 acre ft @ 1725 gpm.								
14 - 75 HP pumps developed								
145' setting @ \$15000	--	--	\$210000	\$64894	25200			
14 - 450' wells @ \$28/ft								
@ \$12600	--	--	<u>176400</u>	<u>19481</u>	25200	\$5.93	\$4.56	\$10.49
TOTAL	--	--	\$386400	\$84375	--	\$5.93	\$4.56	\$10.49

Annual Costs of Equipment - Overhead and Cash - Yolo County 1975

Equipment	Annual Overhead Costs				Cash Costs			Total Cash Costs
	Depreciation	Int. 9%	Total An.	Repairs	Taxes	Total		
	Life Yrs.	Amount Per Yr	of Avg. Value	Overhead Cost	%Orig Cost		Amt. Per Yr	
Tracklayer	15	\$ 4633	\$ 3128	\$ 7761	5	\$ 3475	\$1350.90	\$ 8413
Tracklayer	15	2667	1800	4467	5	2000	777.50	4093
4 Wheel Drive	8	5375	1935	7310	5	2150	835.81	5533
Wheel (PTO)	15	1800	1215	3015	5	1350	524.81	3232
Wheel (PTO)	15	1800	1215	3015	5	1350	524.81	3232
Wheel (PTO)	15	1200	810	2010	5	900	349.88	2289
Wheel (PTO)	15	1200	810	2010	5	900	349.88	2289
Wheel (PTO)	15	600	405	1005	5	450	174.94	1131
Wheel (PTO)	15	600	405	1005	5	450	174.94	1131
Subsoiler	15	334	225	559	10	500	97.19	597
Landplane	20	350	315	665	3	210	136.06	346
Disc	15	734	495	1229	20	2200	213.81	2414
Disc	15	600	405	1005	20	1800	174.94	1975
Stubble Disc	15	734	495	1229	20	2200	213.81	2414
Springtooth	15	300	203	503	10	450	87.47	537
Spiketooth & Cart	15	300	203	503	5	225	87.47	312
Swede Harrow & Cart	15	220	149	369	7	231	63.94	295
Roller	15	220	158	378	10	350	64.94	415
Rolling Cultivators	15	267	180	447	25	1000	77.75	1078
Incorporator - tomato	7	1286	405	1691	10	900	174.94	1075
Incorporator - beet	7	857	270	1127	10	600	116.63	717
Sleds	15	667	450	1117	6	600	194.38	794
Planters (corn-beet)	15	100	68	168	3	45	29.16	74
Planters (tomato)	15	50	34	84	3	23	14.58	38
Ditcher	20	175	158	333	5	175	68.03	243
Grain Drills	20	400	360	760	5	400	155.50	556
Plow (2 way)	15	800	540	1340	15	1800	233.25	2033
Sprayer	20	60	54	114	15	180	23.53	204
Forklift	15	667	450	1117	10	1000	194.38	2006
Saddle tanks	20	120	108	228	15	360	47.05	407
Swather	5	3000	675	3675	15	2250	291.56	3034
V Rake	3	800	108	908	15	360	47.05	407
Baler	7	1429	450	1879	10	1000	194.38	2144
Auto Bale Loader	7	3429	1080	4509	10	2400	466.50	3532
Combine	10	4000	1800	5800	7	2800	777.50	4376
Corn Header	10	1100	495	1595	5	550	213.81	764
Tomato Harvester	7	8571	2700	11271	10	6000	1166.25	8156
Truck - 2 ton	7	1143	360	1503	5	400	273.50	1024
Pickup	5	960	216	1176	5	240	224.10	1608
Pickup	5	960	216	1176	5	240	224.10	1608
Pickup	5	960	216	1176	5	240	224.10	1608
Implement Carrier	20	150	135	285	2	60	58.31	118
Drag Scraper	20	100	90	190	3	60	38.88	99
Thinner Electric Eye	7	1714	540	2254	5	600	233.00	833
Tomato Trailers	10	360	162	522	2	72	69.57	142
TOTAL	--	\$57792	\$26691	\$84483	--	\$43346	\$12034.89	\$79326
Irrigation System								
14 - 75HP pumps developed								
145' setting @ \$15000	20	\$10500	\$ 9450	\$19950	2.5	\$ 5250	\$ 4157.00	\$44944
14 - 450' wells @ \$28/ft								
@ \$12600	20	8820	7938	16758	--	--	2723.00	2723
TOTAL	--	\$19320	\$17388	\$36708	--	\$ 5250	\$ 6880.00	\$47667

Fuel Costs

Fuel costs per hour for tractors and equipment were calculated from the following information provided by Extension Economist A. D. Reed and from AXT-336 - Machinery Costs and Performance.

<u>Fuel</u>	<u>Cost per gallon</u>
Diesel	.35

Fuel consumption calculated from the following:

<u>Tractor type</u>	<u>Gallons fuel per hour per horsepower at 75% of maximum horsepower</u>
Wheel, diesel	.065
Track, diesel	.075

EXAMPLES

Tracklayer
horsepower
144 Draw bar X $\frac{75\% \text{ of Max horsepower}}{.75} = 108$ X $\frac{\text{gals per hour}}{.075} = 8.1$ X $\frac{\text{diesel cost}}{\$0.35} = \frac{\text{Cost/ Hour}}{\$2.835}$
per hr.

Wheel tractor
150 P.T.O. X $\frac{\text{Draw bar H.P.}}{.86} = 129$ X $\frac{75\% \text{ of Max horsepower}}{.75} = 96.75$ X $\frac{\text{gals/hr.}}{.065} = 6.29$ X $\frac{\text{diesel cost}}{\$0.35} = \frac{\text{Cost/ Hour}}{\$2.20}$
per hr.