

U.C. COOPERATIVE EXTENSION

SAMPLE COSTS TO PRODUCE

SUGAR BEETS



Spring Planted and Fall Harvest **IN YOLO COUNTY - 1994**

by

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U.C. COOPERATIVE EXTENSION

GENERAL INFORMATION FOR PRODUCING SUGAR BEETS *Spring Planted and Fall Harvest* Yolo County - 1994

The detailed costs to produce sugar beets in Yolo County of California are presented in this study. The hypothetical farm used in this report consists of 2,900 acres of which 300 acres are in sugar beet 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 Tables 1 and 2, Costs Per Acre To Produce Sugar Beets and Costs And Returns Per Acre To Produce Sugar Beets.

This study consists of **General Assumptions for Producing Sugar Beets** and six tables.

Table 1.	Costs Per Acre To Produce Sugar Beets
Table 2.	Costs And Returns Per Acre To Produce Sugar Beets
Table 3.	Monthly Cash Costs Per Acre To Produce Sugar Beets
Table 4.	Annual Equipment, Investment And Business Overhead
Table 5.	Hourly Equipment Costs
Table 6.	Ranging 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 sugar beets farm advisor in Yolo County.

U.C. COOPERATIVE EXTENSION

GENERAL ASSUMPTIONS FOR PRODUCING SUGAR BEETS *Spring Planted and Fall Harvest* Yolo County- 1994

The following is a description of some general assumptions pertaining to sample costs of spring planted and fall harvested sugar beet production in Yolo County. Practices described should not be considered recommendations by the University of California, but rather represent production procedures considered typical for this crop and area. Some of these costs and practices may not be applicable to your situation or used during every production year. Additional ones not indicated may be needed. Cultural practices for the production of sugar beets vary by grower and region. Variations can be significant. The practices and inputs used in this cost study serve only as a sample or guide. These costs are represented on an annual, per acre basis. *The use of trade names in this report does not constitute an endorsement or recommendation by the University of California nor is any criticism implied by omission of other similar products.*

1. LAND AND SHARE RENT:

This report is based on a 2,900 acre field and row crop farm of which 300 acres are producing sugar beets and 2,600 acres are planted to alfalfa hay, field corn, processing tomatoes, and wheat. Other rotational crops that might also be planted on this same ground in Yolo County farms might include safflower, sunflowers, and dry beans.

Rental contracts and rates for land suitable for sugar beet production can range widely in Yolo County. Land in this study is leased on a share-rent basis with the land owner receiving 16% of the gross returns and the grower keeps the remaining share. The land rented includes an already developed well and irrigation system.

2. CULTURAL PRACTICES AND PRODUCTION INPUTS :

Land Preparation: Primary tillage and planting groundwork operations which include chopping stubble, chiseling, disking, land leveling, and listing beds are performed during October through December in the year preceding planting. These operations are performed with a 250 hp crawler tractor and 110 and 90 hp wheel tractors.

Fertilization: In January a preplant application of nitrogen is made at a rate of 60 pounds of nitrogen per acre in the form of aqua ammonia (20-0-0). In March another application of N (aqua) plus phosphorus (11-52-0) is completed. Nitrogen and phosphorus are sidedressed into the rows at 80 units of N and 40 pounds of 11-52-0. This brings the total annually applied N and P₂O₅ to 145 pounds and 21 pounds per acre, respectively. The sidedressed fertilizers are applied during one of the cultivations.

Weed Control: Weed management is very important for growing sugar beets and begins in January after fertilization. A contact herbicide, Roundup[®], is applied to the beds to control emerged winter weeds. Both Betamix[®] and Poast[®] are sprayed as a layby treatment soon after beet emergence in May to contain a broad spectrum of weeds. Treflan[®] is banded alongside the beet root after thinning in April for late season weed control.

The beets are thinned to stand by a contract hand crew in March and some weeding also occurs

at the same time. Mechanical cultivation occurs three times during the season in March, April, and May. During the March cultivation nitrogen and P₂O₅ are applied.

Irrigation: The beets are furrow irrigated through the growing season. Nine irrigations are scheduled during the season which runs from April through September. The cost of irrigation shown is for the cost of the water and labor.

Insect Pest Management: Major insect pests for sugar beets in Yolo County include green peach (*Myzus persicae*) and black bean (*Aphis fabae*) aphids, armyworms (*Spodoptera ssp.*), several species of cutworms (*Agrotis ssp.*, *Peridroma saucia*, and *Euxoa auxiliaris*), and various leafhoppers (*Circulifer tenellus* and *Empoasca ssp.*).

Both green peach and black bean aphids are important because they vector beet yellows (BYV), beet western yellows (BWYV), and beet mosaic (BMV) viruses. These viruses can cause heavy losses in sugar beets, especially if the diseases are contracted by the beets early in the season. Though green peach aphid is more efficient at transmitting the viruses black bean aphids usually occur in greater numbers which negates the difference in spreading the virus. Since there is no direct control for these viruses, management of aphid populations, beet-free and planting date restrictions, and overwintering hosts are the key elements for lowering the incidence of the diseases. Contact the California Beet Growers Association for more information concerning planting date and beet-free regulations.

Both species of aphids are controlled through three insecticide applications. In this study a preplant treatment of Temik[®] is made in early March followed by an application of Metasystox-R[®] in April. Later in June two treatments of Lannate[®] are administered to the beets. The first three treatments are applied with a tractor and sprayer while one Lannate[®] spray is made by aircraft.

Both armyworms and cutworms can cause defoliation in heavy populations and decrease yields significantly if they occur early enough during the growing season. They are controlled with the last two aphid sprays (Lannate[®]) in June.

Disease Management: As mentioned previously, beets suffer from several viral diseases. Currently there is no treatment for the viruses once the plant has contracted them; control of the vector is the major management tool. Additionally a fungus, powdery mildew (*Erysiphe polygoni*), can appear when conditions are right and the beets are two to six months old. Control of the disease in this study consists of two applications of sulfur dust made in September.

The pesticides and rates mentioned in this cost study are a few of those that are listed in the UC Pest management guidelines, sugar beets. Written recommendations are required for many pesticides and are made by licensed pest control advisors. For information and pesticide use permits, contact the local county Agricultural Commissioner's office. Contact the Yolo County farm advisor for additional production information.

3. HARVEST:

Sugar beets are custom harvested and transported in this study. Topping and digging beets operations are charged at a rate of \$2.00 per gross ton. The beets are hauled from the field by truck for \$1.60 per gross ton. Varying yields and distance to processing plants will generate differences in harvest costs per net ton.

Since the farm has its beets custom harvested, there are no costs incurred for owning harvesting

equipment. If a grower harvested their beets using their own equipment, harvest expense (the custom harvest charge) should be subtracted from harvest costs in Table 1 and all equipment for harvest operations should be added to the investment costs in Table 4. A cash harvesting cost based on owned equipment would then be added to harvest costs in Table 1.

4. YIELDS & RETURNS:

Yields: The crop yield used in this study is 26.5 gross tons per acre. Seven and one half percent of the gross tonnage is lost in screenings and tare, leaving a net yield of 24.5 tons of sugar beets per acre.

Returns: Percent sucrose and net selling price (NSP) of sugar determine the per ton return on sugar beets. This study assumes an average sucrose content of 14% and the NSP at \$23.00 per cwt. An estimated price of a \$32.97 per net ton of beets is used in this study. Returns for different tonnage and sugar percentage levels will vary with current market conditions. Consult contracting sugar companies should you have interest in the price outlook for sugar beets.

5. RISK:

The risks associated with sugar beet production should not be minimized. While this study makes every effort to model a production system based on typical, real world practices, it cannot fully represent financial, agronomic and market risks which affect the profitability and economic viability of sugar beet production.

Risk is caused by various sources of uncertainty which include production, price, and financial. Examples of these are insect damage, a decrease in price, and increase in interest rates. Because of the risk involved, access to a market is crucial. A grower must contract with a processor before any sugar beet production begins in order to sell their crop. Interested parties should contact processors for more information on contracts or prices.

6. LABOR:

Basic hourly wages for workers are \$6.00 and \$4.25 per hour for machine operators and non-machine (irrigators) workers respectively. Adding 34% for SDI, FICA, insurance and other benefits gives the labor rates shown of \$8.04 per hour for machine operators and \$5.70 per hour for non-machine labor. The labor for operations involving machinery are 20% higher than the operation time to account for the extra labor involved in equipment set up, moving, maintenance and repair. Wages for managers are not included as cash cost. However, farms with supervisors or managers, regardless of whether they are the owners, should include their wages in order to account for them as cash cost. Any returns above total costs are considered returns to investment.

7. CASH OVERHEAD:

Cash overhead consists of various cash expenses paid out during the year that are assigned to the whole farm and not to a particular operation. These costs include property taxes, interest on operating capital, office expense, liability and property insurance, and equipment repairs.

Property Taxes: Counties charge a base property tax rate of 1% on the assessed value of the property. In some counties special assessment districts exist and charge additional taxes on property including equipment, buildings, and improvements. For this study, county taxes are calculated as 1% of the average value of the property. Average value equals new cost plus salvage value divided by 2 on a per acre basis.

Interest On Operating Capital: Interest on operating capital is based on cash operating costs and is calculated monthly until harvest at a nominal rate of 7.89% per year. A nominal interest

rate is the going market cost of borrowed funds.

Insurance: Insurance for farm investments varies depending on the assets included and the amount of coverage. Property insurance provides coverage for property loss and is charged at 0.713% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs \$960 for the entire farm or \$0.56 per acre.

Office Expense: Office and business expenses are estimated at \$30 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, road maintenance, etc. Cash overhead costs are found in Tables 1, 2, 3 and 4.

8. NON-CASH OVERHEAD:

Non-cash overhead is comprised of depreciation and interest charged on equipment and other investments. Although farm equipment on typical farm in the Yolo County is often purchased used, this study shows the current purchase price for new equipment adjusted to 60% of new value to indicate a mix of new and used equipment. Annual equipment and investments costs are shown in Tables 1 and 4. They represent depreciation and opportunity cost for each investment on an annual per acre basis.

Depreciation: Depreciation is a reduction in market value of investments due to wear, obsolescence, and age, and is on a straight line basis. Annual depreciation is calculated as purchase price minus salvage value divided by years the investment is held. The purchase price and years of life are shown in Table 4.

Interest On Investment: Interest is charged on investments to account for income foregone (opportunity cost) that could be received from an alternative investment. The investments are assumed to be owned outright. Therefore, interest on investments is a non-cash cost. Investments include land, buildings, and equipment. Interest is calculated as the average value of the investment during its useful life, multiplied by 3.72% per year. Average value for equipment and buildings equals new cost plus salvage value divided by 2 on a per acre basis.

Average Value: The interest rate used to calculate opportunity cost is estimated as a ten year average of the agricultural sector long-run rate of return to production assets from current income. It is used to reflect the long-term realized rate of return to these specialized resources that can only be used effectively in the agricultural sector.

9. EQUIPMENT CASH COSTS:

Equipment costs are composed of three parts; non-cash overhead, cash overhead, and operating costs. Both of the overhead factors have been discussed in previous sections. The operating costs consist of fuel, lubrication, and repairs.

In allocating the equipment costs on a per acre basis, the following hourly charges are calculated first and shown in Table 5. Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by the American Society of Agricultural Engineers (ASAE). Fuel and lubrication costs are also determined by ASAE equations based on maximum PTO hp, and type of fuel used. The fuel and repair cost per acre for each operation in Table 1 is determined by multiplying the total hourly operating cost in Table 5 for each piece of equipment used for the cultural practice by the number of hours per acre for that operation. Tractor time is 10% higher than implement time for a given operation to account for setup time. Prices for on-farm delivery of diesel and gasoline are \$0.85 and \$1.17 per gallon, respectively.

REFERENCES:

1. American Society of Agricultural Engineers. 1992. American Society of Agricultural Engineers Standards Yearbook. St. Joseph, MI.
2. Boehlje, Michael D., and Vernon R. Eidman. 1984. Farm Management. John Wiley and Sons. New York, NY
3. Statewide IPM Project. 1990. UC Pest management guidelines, sugar beets. *In* M. L. Flint (ed.) UC IPM pest management guidelines. Pub. 3339. IPM Education and Pub. Univ. of California, Div. of Agric. and Natural Resources. Oakland, CA.

Table 1.

U.C. COOPERATIVE EXTENSION
 COSTS PER ACRE TO PRODUCE SUGAR BEET
 YOLO COUNTY - 1994

Labor Rate: \$8.04/hr. machine labor
 \$5.70/hr. non-machine labor

Interest Rate: 7.89%
 Yield per Acre: 24.50 Ton

Operation	Operation Time (Hrs/A)	Labor Cost	Fuel, Lube & Repairs	Cash and Labor Material Cost	Costs per Acre Custom/Rent	Total Cost	Your Cost
Cultural:							
Disc - 2X	0.22	2.12	9.00	0.00	0.00	11.12	
Chisel	0.40	3.86	13.51	0.00	0.00	17.37	
Disc	0.11	1.06	4.50	0.00	0.00	5.56	
Triplane - 3X	0.34	3.28	12.03	0.00	0.00	15.31	
List Beds	0.25	2.41	3.77	0.00	0.00	6.19	
Fertilize - Preplant	0.20	1.93	3.76	12.60	2.50	20.79	
Weed Control - Winter	0.20	1.93	2.59	10.25	0.00	14.77	
Plant Sugarbeets	0.33	3.18	7.66	40.00	0.00	50.84	
Ring Roll	0.13	1.25	2.38	0.00	0.00	3.63	
Cultivate & Sidedress Fertilizer	0.30	2.89	4.76	27.00	0.00	34.65	
Hand Hoe & Thin	10.00	57.00	0.00	0.00	0.00	57.00	
Weed Control - Layby Herbicide	0.50	4.82	7.00	144.84	0.00	156.66	
Insect Control - Aphids	0.40	3.86	6.67	68.05	0.00	78.57	
Weed Control - Banded	0.25	2.41	3.97	10.15	0.00	16.53	
Open Ditch - 2X	0.30	2.89	6.28	0.00	0.00	9.18	
Cultivate	0.60	5.79	9.52	0.00	0.00	15.31	
Close Ditch - 2X	0.30	2.89	5.90	0.00	0.00	8.79	
Irrigate - 9X	11.25	64.12	0.00	55.50	0.00	119.63	
Insect Control - Worms 2X	0.00	0.00	0.00	13.38	7.50	20.88	
Insect Control - Worms & Leafhoppers	0.00	0.00	0.00	26.76	7.50	34.26	
Disease Control - Mildew 2X	0.00	0.00	0.00	53.40	15.00	68.40	
Pickup Truck Use	0.10	2.85	2.86	0.00	0.00	5.71	
TOTAL CULTURAL COSTS	26.18	170.57	106.15	461.92	32.50	771.14	
Harvest:							
Topping & Digging	0.00	0.00	0.00	0.00	49.00	49.00	
Haul Beets to Sugar Processor	0.00	0.00	0.00	0.00	39.20	39.20	
TOTAL HARVEST COSTS	0.00	0.00	0.00	0.00	88.20	88.20	
Postharvest:							
Chop Stubble	0.22	2.12	4.02	0.00	0.00	6.15	
Stubble Disc - 2X	0.44	4.25	15.95	0.00	0.00	20.20	
TOTAL POSTHARVEST COSTS	0.66	6.37	19.97	0.00	0.00	26.34	
Interest on operating capital @ 7.89%							31.49
TOTAL OPERATING COSTS/ACRE		176.94	126.13	461.92	120.70		917.17
TOTAL OPERATING COSTS/TON							37.44
CASH OVERHEAD:							
Liability Insurance							0.30
Office Expense							30.00
Field Sanitation							0.52
Share Rent @ 16% Of Gross Returns							138.65
Property Taxes							4.08
Property Insurance							2.91
Investment Repairs							1.30
TOTAL CASH OVERHEAD COSTS							177.75
TOTAL CASH COSTS/ACRE							1094.93
TOTAL CASH COSTS/TON							44.69
NON-CASH OVERHEAD:							
Investment	Per producing Acre	Annual Cost		Depreciation		Interest @ 3.72%	
Fuel Tanks & Pumps	6.26	0.28	0.13	0.41			
Fuel Wagon	0.62	0.06	0.01	0.07			
Shop Building	20.58	0.74	0.42	1.16			
Shop Tools	4.12	0.19	0.08	0.27			
Storage Building	8.30	0.37	0.17	0.54			
ATV - 4WD	2.81	0.51	0.06	0.56			
Closed Mixing System	1.26	0.11	0.03	0.14			
Tool Carrier	4.77	0.29	0.10	0.38			
Siphon Tubes	10.83	0.49	0.22	0.71			
Implement Carrier	3.07	0.18	0.06	0.25			
Equipment	678.67	61.00	13.89	74.88			
TOTAL NON-CASH OVERHEAD COSTS	741.30	64.21	15.17	79.38			
TOTAL COSTS/ACRE							1174.31
TOTAL COSTS/TON							47.93

Table 2.

U.C. COOPERATIVE EXTENSION
COSTS AND RETURNS PER ACRE TO PRODUCE SUGAR BEET
YOLO COUNTY - 1994

Labor Rate: \$ 8.04/hr. machine labor Interest Rate: 7.89%
\$ 5.70/hr. non-machine labor

	Quantity/Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
=====					
GROSS RETURNS					
Sugar beet	24.50	Ton	35.37	866.56	
TOTAL GROSS RETURNS FOR SUGAR BEET				866.56	

OPERATING COSTS					
Fertilizer:					
Aqua Ammonia	160.00	Lb on N	0.21	33.60	
11-52-0	40.00	Lb of P2O5	0.15	6.00	
Rent:					
Injector Rental	1.00	Acre	2.50	2.50	
Herbicide:					
Roundup	1.50	Pint	6.83	10.25	
Betamix	0.85	Gal	129.49	110.07	
Poast	0.23	Gal	151.17	34.77	
Treflan TR-10	7.00	Lb	1.45	10.15	
Seed:					
Seed	2.50	Lb	16.00	40.00	
Insecticide:					
Temik 15 G	10.00	Lb	4.74	47.40	
Metasystox-R	2.50	Pint	8.26	20.65	
Lannate 90 SP	1.50	Lb	26.76	40.14	
Irrigation:					
Water	3.00	AcFt	18.50	55.50	
Custom:					
Air Application	4.00	Acre	7.50	30.00	
Topping & Digging	24.50	Ton	2.00	49.00	
Hauling	24.50	Ton	1.60	39.20	
Fungicide:					
Sulfur	60.00	Lb	0.89	53.40	
Labor (machine)	6.94	Hrs	8.04	55.81	
Labor (non-machine)	21.25	Hrs	5.70	121.13	
Fuel - Gas	0.79	Gal	1.17	0.92	
Fuel - Diesel	51.79	Gal	0.85	44.02	
Lube				6.74	
Machinery repair				74.45	
Interest on operating capital @ 7.89%				31.49	
TOTAL OPERATING COSTS/ACRE				917.17	
TOTAL OPERATING COSTS/TON				37.44	

NET RETURNS ABOVE OPERATING COSTS				-50.61	

CASH OVERHEAD COSTS:					
Liability Insurance				0.30	
Office Expense				30.00	
Field Sanitation				0.52	
Share Rent @ 16% Of Gross Returns				138.65	
Property Taxes				4.08	
Property Insurance				2.91	
Investment Repairs				1.30	
TOTAL CASH OVERHEAD COSTS/ACRE				177.75	

TOTAL CASH COSTS/ACRE				1094.93	
TOTAL CASH COSTS/TON				44.69	

Table 3.

U.C. COOPERATIVE EXTENSION
MONTHLY CASH COSTS PER ACRE TO PRODUCE SUGAR BEET
YOLO COUNTY - 1994

Beginning	OCT 93	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Ending	SEP 94	93	93	93	94	94	94	94	94	94	94	94	94	

Cultural:														
Disc - 2X		11.12												11.12
Chisel		17.37												17.37
Disc		5.56												5.56
Triplane - 3X		15.31												15.31
List Beds		6.19												6.19
Fertilize - Preplant				20.79										20.79
Weed Control - Winter				14.77										14.77
Plant Sugarbeets					50.84									50.84
Ring Roll					3.63									3.63
Cultivate & Sidedress Fert.							34.65							34.65
Hand Hoe & Thin							57.00							57.00
Weed Control - Layby Herb.							156.66							156.66
Insect Control - Aphids							52.66	25.91						78.57
Weed Control - Banded								16.53						16.53
Open Ditch - 2X								4.59	4.59					9.18
Cultivate								7.65	7.65					15.31
Close Ditch - 2X								4.40					4.40	8.79
Irrigate - 9X								13.23	13.23	26.46	27.02	26.46	13.23	119.63
Insect Control - Worms 2X											20.88			20.88
Insect Control - Worms & Leafhoppers												34.26		34.26
Disease Control - Mildew													68.40	68.40
Pickup Truck Use		0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	5.71
TOTAL CULTURAL COSTS		56.03	0.48	36.03	54.94	0.48	301.45	72.79	25.95	26.94	48.37	61.20	86.50	771.14

Harvest:														
Topping & Digging													49.00	49.00
Haul Beets to Processor													39.20	39.20
TOTAL HARVEST COSTS													88.20	88.20

Postharvest:														
Chop Stubble													6.15	6.15
Stubble Disc - 2X													20.20	20.20
TOTAL POSTHARVEST COSTS													26.34	26.34

Interest on oper. capital		0.37	0.37	0.61	0.97	0.97	2.95	3.43	3.60	3.78	4.10	4.50	5.82	31.49
TOTAL OPERATING COSTS/ACRE		56.39	0.85	36.64	55.91	1.45	304.41	76.22	29.55	30.72	52.47	65.70	206.87	917.17
TOTAL OPERATING COSTS/TON		2.30	0.03	1.50	2.28	0.06	12.42	3.11	1.21	1.25	2.14	2.68	8.44	37.44

OVERHEAD:														
Liability Insurance					0.30									0.30
Office Expense		2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	30.00
Field Sanitation								0.52						0.52
Share Rent @ 16% Gross Returns													138.65	138.65
Property Taxes					2.04						2.04			4.08
Property Insurance					1.45						1.45			2.91
Investment Repairs		0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	1.30
TOTAL CASH OVERHEAD COSTS		2.61	2.61	2.61	6.40	2.61	2.61	3.13	2.61	2.61	6.10	2.61	141.26	177.75

TOTAL CASH COSTS/ACRE		59.00	3.46	39.25	62.31	4.06	307.01	79.35	32.16	33.33	58.57	68.31	348.13	1094.93
TOTAL CASH COSTS/TON		2.41	0.14	1.60	2.54	0.17	12.53	3.24	1.31	1.36	2.39	2.79	14.21	44.69
=====														

Table 4.

U.C. COOPERATIVE EXTENSION
WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS
YOLO COUNTY - 1994

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	- Non-Cash Over. -		Cash Overhead -		Total
				Depre- ciation	Interest	Insur- ance	Taxes	
94	110 HP 2WD Tractor	68010	10	6120.90	1391.48	266.70	374.06	8153.14
94	155 HP 2WD Tractor	82904	10	7461.40	1696.21	325.11	455.97	9938.69
94	250 HP Crawler	166238	10	14961.40	3401.23	651.90	914.31	19928.84
94	92 HP 2WD Tractor	52553	10	4729.80	1075.23	206.09	289.04	6300.16
94	Chisel - Heavy 16'	6163	15	369.80	126.09	24.17	33.90	553.96
94	Cultivator-Sled	3183	15	191.00	65.12	12.48	17.51	286.11
94	Cultivator-Sled	3183	15	191.00	65.12	12.48	17.51	286.11
94	Cultivator-Sled	3183	15	191.00	65.12	12.48	17.51	286.11
94	Cultivator-Sled	3183	15	191.00	65.12	12.48	17.51	286.11
94	Disc - Offset 26'	21033	15	1262.00	430.33	82.48	115.68	1890.49
94	Disc - Stubble 14'	11326	15	679.53	231.74	44.42	62.30	1017.99
94	Lister - 6 Row	1565	15	93.87	32.03	6.14	8.61	140.65
94	Mower - Flail 15'	12749	10	1147.40	260.85	50.00	70.12	1528.37
94	Pickup - 1/2 Ton	13125	5	2362.40	268.55	51.47	72.19	2754.61
94	Pickup - 3/4 Ton	16698	5	3005.60	341.64	65.48	91.84	3504.56
94	Planter - 6 Row	15015	10	1351.30	307.22	58.88	82.58	1799.98
94	Rear Blade - 8'	1834	15	110.07	37.52	7.19	10.08	164.86
94	Ringroller - 32'	8211	15	492.67	168.00	32.20	45.16	738.03
94	Saddle Tank 300 Gal	2184	10	196.60	44.68	8.56	12.01	261.85
94	Saddle Tank 300 Gal	2184	10	196.60	44.68	8.56	12.01	261.85
94	Saddle Tank 300 Gal	2184	10	196.60	44.68	8.56	12.01	261.85
94	Spray Boom - 25'	586	10	52.70	12.00	2.30	3.23	70.23
94	Spray Boom - 25'	586	10	52.70	12.00	2.30	3.23	70.23
94	Triplane - 16'	18769	10	1689.20	384.02	73.60	103.23	2250.05
94	Truck - 2 Ton	23200	10	2088.00	474.67	90.98	127.60	2781.25
94	V-Ditcher	4505	15	270.27	92.18	17.67	24.78	404.90
TOTAL		544354		49654.81	11137.51	2134.68	2993.98	65920.98

ANNUAL INVESTMENT COSTS

Yr	Description	Price	Yrs Life	- Non-Cash Over. -		Cash Overhead -		Total
				Depre- ciation	Interest	Insur- ance	Taxes Repairs	
INVESTMENT								
	ATV - 4WD	8150	5	1467.00	166.75	31.96	44.82	1818.53
	Closed Mix System	3649	10	328.40	74.66	14.31	20.07	639.44
	Fuel Tanks & Pumps	18152	20	816.85	371.39	71.18	99.84	1418.26
	Fuel Wagon	1808	10	162.70	37.00	7.09	9.94	268.23
	Implement Carrier	8915	15	534.87	182.41	34.96	49.04	1247.28
	Shop Building	59682	25	2148.56	1221.09	234.04	328.25	4527.94
	Shop Tools	11936	20	537.10	244.22	46.81	65.65	1012.78
	Siphon Tubes	3250	20	146.25	66.50	12.74	17.88	373.37
	Storage Building	24076	20	1083.40	492.60	94.42	132.42	2043.84
	Tool Carrier	13835	15	830.07	283.07	54.26	76.09	1934.49
TOTAL INVESTMENT		153453		8055.20	3139.69	601.77	844.00	15284.16

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Field Sanitation	2900.00	Acre	0.52	1508.00
Liability Insurance	2900.00	Acre	0.30	870.00
Office Expense	2900.00	Acre	30.00	87000.00
Share Rent @ 16%	300.00	Acre	138.65	41595.00

Table 5.

U.C. COOPERATIVE EXTENSION
HOURLY EQUIPMENT COSTS
YOLO COUNTY - 1994

Yr Description	Actual Hours Used	COSTS PER HOUR							Total Oper.	Total Costs/Hr.
		-Non-Cash Depre- ciation	Over- Interest	- Cash Insur- ance	Overhead - Taxes	Repairs	Operating Fuel & Lube			
94 110 HP 2WD Tractor	1189.9	5.14	1.17	0.22	0.31	6.80	6.24	13.04	19.89	
94 155 HP 2WD Tractor	1200.0	6.22	1.41	0.27	0.38	8.29	8.79	17.08	25.36	
94 250 HP Crawler	1199.3	12.48	2.84	0.54	0.76	13.85	14.18	28.03	44.65	
94 92 HP 2WD Tractor	1199.5	3.94	0.90	0.17	0.24	5.26	4.42	9.68	14.93	
94 Chisel - Heavy 16'	166.0	2.23	0.76	0.15	0.20	2.95	0.00	2.95	6.29	
94 Cultivator-Sled	166.0	1.15	0.39	0.08	0.11	1.52	0.00	1.52	3.24	
94 Cultivator-Sled	166.0	1.15	0.39	0.08	0.11	1.52	0.00	1.52	3.24	
94 Cultivator-Sled	166.0	1.15	0.39	0.08	0.11	1.52	0.00	1.52	3.24	
94 Cultivator-Sled	166.0	1.15	0.39	0.08	0.11	1.52	0.00	1.52	3.24	
94 Disc - Offset 26'	166.0	7.60	2.59	0.50	0.70	10.07	0.00	10.07	21.46	
94 Disc - Stubble 14'	166.0	4.09	1.40	0.27	0.38	5.42	0.00	5.42	11.55	
94 Lister - 6 Row	166.0	0.57	0.19	0.04	0.05	0.75	0.00	0.75	1.60	
94 Mower - Flail 15'	200.0	5.74	1.30	0.25	0.35	7.64	0.00	7.64	15.28	
94 Pickup - 1/2 Ton	399.5	5.91	0.67	0.13	0.18	3.98	3.36	7.34	14.24	
94 Pickup - 3/4 Ton	399.5	7.52	0.86	0.16	0.23	5.06	3.36	8.42	17.19	
94 Planter - 6 Row	120.0	11.26	2.56	0.49	0.69	12.55	0.00	12.55	27.55	
94 Rear Blade - 8'	166.0	0.66	0.23	0.04	0.06	0.88	0.00	0.88	1.87	
94 Ringroller - 32'	166.0	2.97	1.01	0.19	0.27	3.93	0.00	3.93	8.38	
94 Saddle Tank 300 Gal	120.0	1.64	0.37	0.07	0.10	1.83	0.00	1.83	4.01	
94 Saddle Tank 300 Gal	150.0	1.31	0.30	0.06	0.08	1.83	0.00	1.83	3.58	
94 Saddle Tank 300 Gal	120.0	1.64	0.37	0.07	0.10	1.83	0.00	1.83	4.01	
94 Spray Boom - 25'	120.0	0.44	0.10	0.02	0.03	0.49	0.00	0.49	1.08	
94 Spray Boom - 25'	120.0	0.44	0.10	0.02	0.03	0.49	0.00	0.49	1.08	
94 Triplane - 16'	250.0	6.76	1.54	0.29	0.41	4.55	0.00	4.55	13.55	
94 Truck - 2 Ton	199.5	10.47	2.38	0.46	0.64	9.30	4.04	13.34	27.28	
94 V-Ditcher	166.0	1.63	0.56	0.11	0.15	2.16	0.00	2.16	4.60	

Table 6.

U.C. COOPERATIVE EXTENSION
RANGING ANALYSIS
YOLO COUNTY - 1994

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE SUGAR BEET							
	YIELD (TON/ACRE)						
	19	21	23	25	27	29	31
OPERATING COSTS/ACRE:							
Cultural Cost	771	771	771	771	771	771	771
Harvest Cost	76	80	85	89	94	99	103
Postharvest Cost	26	26	26	26	26	26	26
Interest on operating capital	31	31	31	31	32	32	32
TOTAL OPERATING COSTS/ACRE	904	909	914	918	923	928	932
TOTAL OPERATING COSTS/TON	47.61	43.29	39.73	36.73	34.18	31.98	30.07
CASH OVERHEAD COSTS/ACRE	178	178	178	178	178	178	178
TOTAL CASH COSTS/ACRE	1082	1087	1091	1096	1101	1105	1110
TOTAL CASH COSTS/TON	56.96	51.76	47.46	43.84	40.77	38.11	35.80
NON-CASH OVERHEAD COSTS/ACRE	79	79	79	79	79	79	79
TOTAL COSTS/ACRE	1162	1166	1171	1175	1180	1185	1189
TOTAL COSTS/TON	61.14	55.54	50.91	47.02	43.71	40.85	38.36

NET RETURNS PER ACRE ABOVE OPERATING COSTS FOR SUGAR BEET							
PRICE (DOLLARS PER TON)	YIELD (TON/ACRE)						
	19	21	23	25	27	29	31
21.00	-505	-468	-431	-393	-356	-319	-281
24.00	-448	-405	-362	-318	-275	-232	-188
27.00	-391	-342	-293	-243	-194	-145	-95
30.00	-334	-279	-224	-168	-113	-58	-2
33.00	-277	-216	-155	-93	-32	29	91
36.00	-220	-153	-86	-18	49	116	184
39.00	-163	-90	-17	57	130	203	277

NET RETURNS PER ACRE ABOVE CASH COSTS FOR SUGAR BEET							
PRICE (DOLLARS PER TON)	YIELD (TON/ACRE)						
	19	21	23	25	27	29	31
21.00	-683	-646	-608	-571	-534	-496	-459
24.00	-626	-583	-539	-496	-453	-409	-366
27.00	-569	-520	-470	-421	-372	-322	-273
30.00	-512	-457	-401	-346	-291	-235	-180
33.00	-455	-394	-332	-271	-210	-148	-87
36.00	-398	-331	-263	-196	-129	-61	6
39.00	-341	-268	-194	-121	-48	26	99

NET RETURNS PER ACRE ABOVE TOTAL COSTS FOR SUGAR BEET							
PRICE (DOLLARS PER TON)	YIELD (TON/ACRE)						
	19	21	23	25	27	29	31
21.00	-763	-725	-688	-650	-613	-576	-538
24.00	-706	-662	-619	-575	-532	-489	-445
27.00	-649	-599	-550	-500	-451	-402	-352
30.00	-592	-536	-481	-425	-370	-315	-259
33.00	-535	-473	-412	-350	-289	-228	-166
36.00	-478	-410	-343	-275	-208	-141	-73
39.00	-421	-347	-274	-200	-127	-54	20