WHEAT

WH-VS-90

1990

SAMPLE COSTS TO PRODUCE DOUBLE CROPPED WHEAT IN THE SAN JOAQUIN VALLEY

U.C.
COOPERATIVE
EXTENSION

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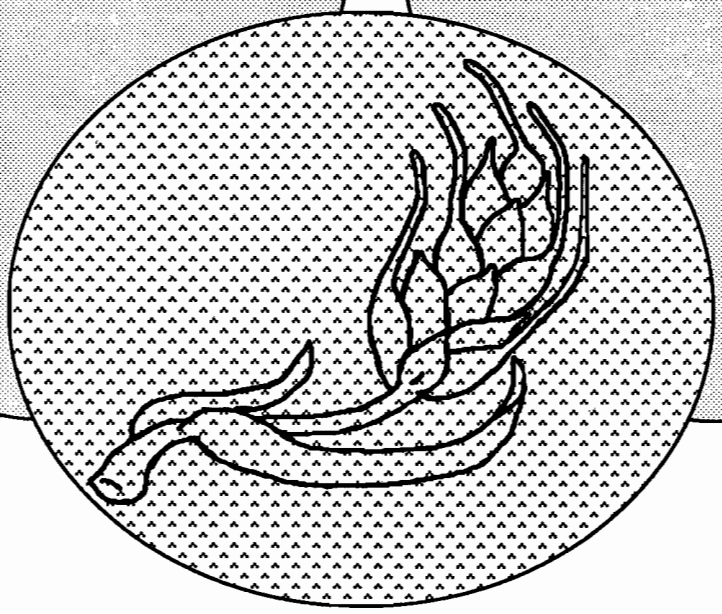

U.C. COOPERATIVE EXTENSION
SAMPLE COSTS TO PRODUCE DOUBLE CROPPED WHEAT IN THE SAN JOAQUIN VALLEY

by

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The detailed costs for double cropped wheat production in the San Joaquin Valley are presented in this study. The hypothetical farm used in this report consists of 1200 acres of which 300 acres are in wheat production. The remainder of the farm is planted to different field crops.

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 1990 figures. Some costs and practices detailed in this study may not be applicable to your situation. This study is only intended as a guide and can be used in making production decisions, determining potential returns, preparing budgets and evaluating production loans. A blank ***Your Costs*** column is provided to enter your actual costs on **Table 1, Costs Per Acre To Produce Double Cropped Wheat.** This study consists of **General Assumptions for Producing Double Cropped Wheat.** and five tables.

Table 1.	**Costs Per Acre To Produce Double Cropped Wheat.**
Table 2.	**Monthly Cash Costs Per Acre to Produce Wheat.**
Table 3.	**Annual Equipment, Investment And Business Overhead Costs.**
Table 4.	**Ranging Analysis.**
Table 5.	**Costs And Returns / Breakeven Analysis.**

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

GENERAL ASSUMPTIONS FOR PRODUCING DOUBLE CROPPED WHEAT

San Joaquin Valley - 1990

U.C. Cooperative Extension

The following is a description of some general assumptions pertaining to sample costs of double cropped wheat production in the San Joaquin Valley.

1. LAND:

This cost of production study is based on a 1,200 acre field and row crop operation of which 300 acres dedicated to growing double cropped wheat. Other crops grown on the same acreage in rotation with wheat might include oat hay, field corn, alfalfa hay, barley, corn silage, cotton, etc.

2. RENT AGREEMENT:

The land used for wheat production in this study is rented on a cash per acre basis. Under this agreement the landowner receives $100 per acre from the tenant. Since the land is double cropped only half of the rent, or $50 per acre, is charged to the wheat. The landowner maintains the irrigation system on the rented land. Interest cost for land and irrigation system is incurred by the landowner. Land is not depreciated.

3. CULTURAL PRACTICES:

The cultural, pesticide and fertilizer inputs for the production of double cropped wheat vary considerably from grower to grower and field to field. In this study primary tillage is done in November and December. A pre-plant fertilizer is applied by custom applicators The seed planted with a grain drill. Fertilizer, herbicides and Russian wheat aphid control (if needed) are custom applied by air. 24 acre-inches of water are utilized in six equal irrigations with fertilizer run through the water during one of the irrigations. Harvest is done by a custom operator. Variations as to cultural practices and inputs can be significant.

4. YIELDS & RETURNS:

The crop yield used in this study is 3 tons per acre. An estimated price of a $120 per ton is used in this study.

5. HARVEST:

It was decided, in this cost study, to use contract price for custom harvesting. A grower doing his own harvesting should inventory the equipment for the required operations , and calculate labor, fuel, depreciation, repairs, interest on investment, etc. as a cost of production.

6. LABOR:

Basic hourly wages for workers are $6.20 and $4.75 per hour for skilled and field workers respectively. Adding 34% for SDI, FICA, insurance and other benefits gives the labor rates shown of $8.31 per hour for machine labor and $6.37 per hour for non-machine labor. The labor for operations using machinery are 10% higher than the machine hours to account for the extra labor involved in equipment set-up, moving, maintenance and repair.

7. OVERHEAD:

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

preparation and maintenance, etc. All overhead expenses are charged at half of the per acre cost to wheat since it is double cropped.

8. INTEREST:

Interest on operating capital is based on cash costs and is calculated monthly, for nine months, until harvest at the rate of 12.5% per year. Interest is also charged on investment at 12% per year to account for income foregone that could be received from an alternative investment (opportunity cost) and is based on the average value of the of the buildings and equipment.

9. EQUIPMENT COSTS:

In allocating the equipment costs per acre, the following calculations were made and shown in **Table 3**: (a) **Original Cost** of equipment is the cost of the new equipment plus sales tax. (b) **Depreciation** is straight line with no salvage value. (c) **Interest** on investment is calculated as one-half of the new cost per acre (the average value of the equipment during its useful life) multiplied by an interest rate of 12%. (d) The **total investment** costs are also calculated as 60% of the depreciation and the interest costs for all new equipment to reflect a mix of the new and used equipment. These values are also used in **Table 1**. Most of this equipment is used on the entire 1200 acre ranch.

10. FUEL & REPAIR:

The fuel and repair cost for each operation is determined by multiplying the total hourly operating cost for each piece of equipment by the number of hours per acre for that operation. On-farm delivery prices for gasoline and diesel are $0.85 per gallon and $1.03 per gallon respectively

Table. 1

U.C. COOPERATIVE EXTENSION
COST PER ACRE TO PRODUCE DOUBLE CROPPED WHEAT
SAN JOAQUIN VALLEY - 1990

Labor Rate: $ 8.31/hr. machine labor Interest Rate: 12.50%
$ 6.37/hr. non-machine labor Yield per Acre: 3.00 ton

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per Acre: Labor Cost	Fuel & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
Cultural:							
Disc stubble	0.14	1.43	3.04	0.00	0.00	4.46	
Chisel light	0.27	2.67	5.14	0.00	0.00	7.81	
Triplane .5X	0.14	1.38	2.04	0.00	0.00	3.42	
Finish disc 2X	0.25	2.45	3.95	0.00	0.00	6.40	
Put up borders	0.02	0.20	0.15	0.00	0.00	0.35	
Pre plant fertilize	0.00	0.00	0.00	12.50	5.16	17.66	
Plant	0.26	2.56	4.30	19.50	0.00	26.36	
Fertilize, custom	0.00	0.00	0.00	16.25	5.16	21.41	
Insecticide, custom	0.00	0.00	0.00	4.08	5.00	9.08	
Herbicide, custom	0.00	0.00	0.00	2.66	5.00	7.66	
Open ditch	0.01	0.10	0.14	0.00	0.00	0.24	
Irrigate & fertilize	0.14	0.89	0.00	17.15	0.00	18.04	
Irrigate	0.56	3.57	0.00	43.58	0.00	47.15	
Close ditch	0.01	0.10	0.13	0.00	0.00	0.23	
AL CULTURAL COSTS	1.79	15.35	18.88	115.72	20.32	170.27	
Harvest:							
Harvest, custom	0.00	0.00	0.00	0.00	30.00	30.00	
TOTAL HARVEST COSTS	0.00	0.00	0.00	0.00	30.00	30.00	
Interest on operating capital @ 12.50%						9.30	
TOTAL OPERATING COSTS/ACRE		15.35	18.88	115.72	50.32	209.57	
TOTAL OPERATING COSTS/TON						69.86	
CASH OVERHEAD:							
Office expense						10.00	
Land rent						50.00	
Property Taxes						0.48	
Equipment Insurance						0.24	
Investment Repairs						0.79	
TOTAL CASH OVERHEAD COSTS						61.51	
TOTAL CASH COSTS/ACRE						271.07	
TOTAL CASH COSTS/TON						90.36	

Table. 1 continued

NON-CASH OVERHEAD:

Investment	Per producing Acre	Annual Cost		
		Depreciation	Interest @ 12.50%	
Buildings	62.50	2.50	3.75	6.25
Siphon tubes	1.42	0.20	0.09	0.29
Fuel tanks & equip	5.83	0.39	0.35	0.74
Shop tools	10.00	0.90	0.66	1.56
Pickup, new	15.00	1.93	0.99	2.92
Pickup, used	3.33	0.60	0.22	0.82
Equipment	81.28	6.67	5.36	12.03
TOTAL NON-CASH OVERHEAD COSTS	179.36	13.19	11.42	24.61
TOTAL COSTS/ACRE				295.68
TOTAL COSTS/TON				98.56

U.C. COOPERATIVE EXTENSION

Table. 2 MONTHLY CASH COSTS PER ACRE TO PRODUCE WHEAT

Beginning NOV 89 / Ending OCT 90	NOV 89	DEC 89	JAN 90	FEB 90	MAR 90	APR 90	MAY 90	JUN 90	JUL 90	AUG 90	SEP 90	OCT 90	TOTAL
Cultural:													
Disc stubble	4.5												4
Chisel light	7.8												8
Triplane .5X	3.4												3
Finish disc 2X		6.4											6
Put up borders		0.3											0
Pre plant fertilize		17.7											18
Plant		26.4											26
Fertilize, custom				21.4									21
Insecticide, custom				9.1									9
Herbicide, custom				7.7									8
Open ditch					0.2								0
Irrigate & fertilize					18.0								18
Irrigate						23.6	23.6						47
Close ditch								0.2					0
TOTAL CULTURAL COSTS	15.7	50.8		38.2	18.3	23.6	23.6	0.2					170
Harvest:													
Harvest, custom								30.0					30
TOTAL HARVEST COSTS								30.0					30
Interest on oper. capital	0.2	0.7	0.7	1.1	1.3	1.5	1.8	2.1					9
TOTAL OPERATING COSTS/ACRE	15.9	51.5	0.7	39.2	19.6	25.1	25.3	32.3					210
TOTAL OPERATING COSTS/TON	5.3	17.2	0.2	13.1	6.5	8.4	8.4	10.8					70
OVERHEAD:													
Office expense								10.0					10
Land rent								50.0					50
Property Taxes						0.2				0.2			0
Equipment Insurance			0.2										0
Investment Repairs	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1					1
TOTAL CASH OVERHEAD COSTS	0.1	0.1	0.3	0.1	0.1	0.3	0.1	60.1		0.2			62
TOTAL CASH COSTS/ACRE	16.0	51.6	1.0	39.3	19.7	25.4	25.4	92.4		0.2			271
TOTAL CASH COSTS/TON	5.3	17.2	0.3	13.1	6.6	8.5	8.5	30.8		0.1			90

U.C. COOPERATIVE EXTENSION

Table. 3 ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS

SAN JOAQUIN VALLEY

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	- Non-Cash Over. - Depre-ciation	Interest	- Cash Overhead - Insur-ance	Taxes	Total
90	130 hp 2wd tractor	66000	10	5940.00	4356.00	181.50	363.00	10840.50
90	200 hp 4wd tractor	94000	10	8460.00	6204.00	258.50	517.00	15439.50
90	80 hp 2wd tractor	42000	10	3780.00	2772.00	115.50	231.00	6898.50
90	Border disc	1065	15	63.87	70.32	2.93	5.86	142.98
90	Chisel, heavy 11'	5300	15	318.00	349.80	14.58	29.15	711.53
90	Disc, finish, 21'	12500	15	750.00	825.00	34.38	68.75	1678.13
90	Disc, stubble, 16'	12500	15	750.00	825.00	34.38	68.75	1678.13
90	Ditcher, 5'	5300	15	318.00	349.80	14.58	29.15	711.53
90	Grain drill	8500	7	1092.86	561.00	23.38	46.75	1723.99
90	Rear blade, 3pt 8'	1900	15	114.00	125.40	5.22	10.45	255.07
90	Triplane, 16'	16000	15	960.00	1056.00	44.00	88.00	2148.00
TOTAL		265065		22546.73	17494.32	728.95	1457.86	42227.86
60% of New Cost *		159039		13528.04	10496.59	437.37	874.72	25336.72

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

ANNUAL INVESTMENT COSTS

Yr	Description	Price	Yrs Life	- Non-Cash Over. - Depre-ciation	Interest	----- Cash Overhead ----- Insur-ance	Taxes	Repairs	Total
INVESTMENT									
	Buildings	75000	25	3000.00	4500.00	187.50	375.00	350.00	8412.50
	Fuel tanks & equip	7000	15	466.67	420.00	17.50	35.00	50.00	989.17
	Pickup, new	18000	7	2314.29	1188.00	49.50	99.00	200.00	3850.79
	Pickup, used	4000	5	720.00	264.00	11.00	22.00	200.00	1217.00
	Shop tools	12000	10	1080.00	792.00	33.00	66.00	100.00	2071.00
	Siphon tubes	1700	7	242.86	102.00	4.25	8.50	50.00	407.61
TOTAL INVESTMENT		117700		7823.82	7266.00	302.75	605.50	950.00	16948.07

Table. 3 continued

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Land rent	300.00	acre	50.00	15000.00
Office expense	1200.00	acre	20.00	24000.00

U.C. COOPERATIVE EXTENSION

Table. 4 RANGING ANALYSIS

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE WHEAT

	YIELD (TON/ACRE)						
	1.5	2.0	2.5	3.0	3.5	4.0	4.5
OPERATING COSTS/ACRE:							
Cultural Cost	170	170	170	170	170	170	170
Harvest Cost	23	25	28	30	33	35	38
Interest on operating capital	9	9	9	9	9	9	9
TOTAL OPERATING COSTS/ACRE	202	205	207	210	212	215	217
TOTAL OPERATING COSTS/TON	134.66	102.26	82.82	69.86	60.60	53.66	48.25
CASH OVERHEAD COSTS/ACRE	62	62	62	62	62	62	62
TOTAL CASH COSTS/ACRE	263	266	269	271	274	276	279
TOTAL CASH COSTS/TON	175.66	133.01	107.42	90.36	78.17	69.03	61.92
NON-CASH OVERHEAD COSTS/ACRE	25	25	25	25	25	25	25
TOTAL COSTS/ACRE	288	291	293	296	298	301	303
TOTAL COSTS/TON	192.07	145.32	117.26	98.56	85.20	75.18	67.39

NET RETURNS PER ACRE ABOVE OPERATING COSTS FOR WHEAT

PRICE	YIELD (TON/ACRE)						
(DOLLARS PER TON)	1.5	2.0	2.5	3.0	3.5	4.0	4.5
84.00	-76	-37	3	42	82	121	161
96.00	-58	-13	33	78	124	169	215
108.00	-40	11	63	114	166	217	269
120.00	-22	35	93	150	208	265	323
132.00	-4	59	123	186	250	313	377
144.00	14	83	153	222	292	361	431
156.00	32	107	183	258	334	409	485

NET RETURNS PER ACRE ABOVE CASH COSTS FOR WHEAT

PRICE	YIELD (TON/ACRE)						
(DOLLARS PER TON)	1.5	2.0	2.5	3.0	3.5	4.0	4.5
84.00	-137	-98	-59	-19	20	60	99
96.00	-119	-74	-29	17	62	108	153
108.00	-101	-50	1	53	104	156	207
120.00	-83	-26	31	89	146	204	261
132.00	-65	-2	61	125	188	252	315
144.00	-47	22	91	161	230	300	369
156.00	-29	46	121	197	272	348	423

NET RETURNS PER ACRE ABOVE TOTAL COSTS FOR WHEAT

PRICE	YIELD (TON/ACRE)						
(DOLLARS PER TON)	1.5	2.0	2.5	3.0	3.5	4.0	4.5
84.00	-162	-123	-83	-44	-4	35	75
96.00	-144	-99	-53	-8	38	83	129
108.00	-126	-75	-23	28	80	131	183
120.00	-108	-51	7	64	122	179	237
132.00	-90	-27	37	100	164	227	291
144.00	-72	-3	67	136	206	275	345
156.00	-54	21	97	172	248	323	399

U.C. COOPERATIVE EXTENSION

Table. 5 COST AND RETURNS / BREAKEVEN ANALYSIS

SAN JOAQUIN VALLEY

COSTS AND RETURNS - PER ACRE BASIS

Crop	1. Gross Returns	2. Operating Costs	3. Net Returns Above Oper. Costs (1-2)	4. Cash Costs	5. Net Returns Above Cash Costs (1-4)	6. Total Costs	7. Net Returns Above Total Costs (1-6)
Wheat	360	210	150	271	89	296	64

COSTS AND RETURNS - TOTAL ACREAGE

Crop	1. Gross Returns	2. Operating Costs	3. Net Returns Above Oper. Costs (1-2)	4. Cash Costs	5. Net Returns Above Cash Costs (1-4)	6. Total Costs	7. Net Returns Above Total Costs (1-6)
Wheat	108000	62871	45129	81322	26678	88705	19295
TOTAL	108000	62871	45129	81322	26678	88705	19295

BREAKEVEN PRICES PER YIELD UNIT

			Breakeven Price To Cover		
CROP	Base Yield (Units/Acre)	Yield Units	Operating Costs	Cash Costs	Total Costs
			$ per Yield Unit		
Wheat	3.0	ton	69.86	90.36	98.56

BREAKEVEN YIELDS PER ACRE

			Breakeven Yield To Cover		
CROP	Yield Units	Base Price ($/Unit)	Operating Costs	Cash Costs	Total Costs
			Yield Units / Acre		
Wheat	ton	120.00	1.7	2.3	2.5