

SAMPLE COSTS TO PRODUCE RICE Butte County

APRIL

1989



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Cooperative Extension**

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1989 SAMPLE COSTS TO PRODUCE RICE
Butte County

by

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This cost study provides detailed information on the sample costs of producing rice in Butte County. Costs are projected for a hypothetical farm with 750 acres planted to rice with 15 non-producing acres for buildings, roads, irrigation and drain ditches, landing strip, truck and bankout parking areas, etc. All fields have been laser leveled with straight levees and irrigation boxes have been set in both ends of levees with rollover pads.

This study contains four tables and a List of General Assumptions. The tables include a Cost of Production Worksheet, a Monthly Summary of Sample Costs, an Equipment List, and a Ranging Analysis showing returns over costs at varying yields and prices. Costs given in this sample study are for those of a typical well-managed farm and are not intended to reflect an average of all farms in Butte County.

Practices listed 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 1989 figures. Some costs or practices listed in this study may not be applicable to every situation. Production costs for rice can vary based on a number of factors including variations in cultural and pest management practices, soils, equipment, weather, management decisions, etc. This study is intended only as a guide and can be used as an aid 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 the Cost of Production Worksheets.

For an explanation of calculations used in this study refer to the attached list of General Assumptions or call Agricultural Economics Extension, University of California, Davis, California, (916) 752-2745, or call the Butte County rice farm advisor (916) 538-7201.

SAMPLE COSTS TO PRODUCE RICE

Butte County - 1989

The following list contains a description of some general assumptions pertaining to the sample costs of producing rice in Butte County.

1. Land cost is covered on a share-rent basis with the gross income from 25% of the harvested crop going to the landlord. This cost is not included as a direct expense, but is reflected in the "Total cost per cwt" which shows a 25% yield adjustment.
2. Labor rates: (includes 27% for SDI, FICA, insurance, and other benefits)

Skilled labor:	\$9.50/hr
Field labor:	\$8.10/hr

To account for extra labor involved in equipment set-up, moving, maintenance and repairs the hours for operations involving machinery are 10% higher than the machine hours.

3. Equipment costs:
Equipment depreciation and interest costs are apportioned on a per acre basis--with the costs being assigned to each crop for which a piece of equipment is used in proportion to the crop's acreage.

In allocating the equipment costs per acre the following calculations were made: (a) "Original Cost" of equipment is the new cost including sales tax. (b) "Depreciation" is straight line with no adjustment for Salvage Value. It is calculated by dividing the new cost per acre by the years to trade. (c) "Interest" on investment is figured at one-half of the new cost per acre multiplied by the interest rate. One-half of the new cost is the average value of the equipment during its useful life. (d) The investment per acre used in the cost study is calculated at 60% of the depreciation and interest costs for all new equipment to reflect a mix of new and used equipment.

4. Fuel and repair costs:
The cost of production worksheets contain numbers in two columns with the headings Tractor/Implement No. and Implement No. which refer to the item number on the equipment table. The far right hand column on the equipment table shows the fuel and repair costs per hour which is multiplied by the hours used per acre for each piece of equipment to obtain the cost per acre for fuel and repairs.
5. Office and business costs include utilities, phone, office supplies, legal, accounting, and bookkeeping fees, liability insurance, rice handling and research fees, etc.

6. County taxes are calculated at 1% of land at acquisition plus 1% of the average assessed value of trees, equipment, buildings and improvements.
7. Equipment insurance is calculated at 0.8% of the average value of the equipment.
8. Pickup costs are based on 15,000 miles/year of operation at \$0.15/mile for a new truck.
9. Supervisory fees are not included in this cost study but can be estimated to be 5% of gross return/acre.
10. Safe chemical and fuel storage is included with the shop building.
11. Irrigation assumptions:
Flood irrigation system. 6 acre feet/year. Irrigation district surface water.
12. Interest on operating capital is based on cultural costs and assumes a 9 month loan at 12%.

SAMPLE COSTS TO PRODUCE RICE

Butte County - 1989

Labor Rate: \$9.50/hr. skilled labor
 \$8.10/hr. field labor

Interest Rate: 12%
Yield dry (cwt/acre): 75.0

Operation	Tractor/ Implement		Hours	Cash and Labor Costs per Acre					Total Cost	Your Cost
	No.	Implement No.		Labor Cost/A	Fuel & Repairs	Material Cost	Custom /Rent			
CULTURAL COSTS:										
Seedbed Preparation:										
Chisel	* 1	9	.16	\$1.67	\$3.07					\$5
Stubble disc	* 2	8	.16	1.67	4.74					6
Disc harrow 2X	* 2	7	.30	3.14	8.82					12
3 wheel plane	2	12	.16	1.67	3.55					5
Laser level - 1 of 3 yrs.							\$20.00			20
Roll (final seedbed)	3	19	.10	1.05	.41					1
Fertilizer Program:										
Pre-starter, aerial/ground 40 lbs. N, 50 lbs. P205 **						\$23.75	6.50			30
Pre-placed, 100# N						15.50	10.00			26
Zinc sulfate, 50#, aerial						5.00	3.00			8
Potassium, 100# KCl, 20%, aerial						1.07	.78			2
Topdress-post, 30# N, 60%, aerial						4.23	2.34			7
Pest Management Program: **										
Weevil control, 60%, aerial						4.32	3.00			7
Shrimp/algae control, aerial						2.10	1.95			4
Grass herb. - aerial app.						24.40	3.65			28
Broadleaf herb.-aerial app.						12.00	4.40			16
Armyworm control, 10%, aerial						.82	4.40			5
Vertebrate control		17	.10	.81	.23	4.00				5
Planting:										
Mtn. drains, levees & box 2		11	.10	1.05	2.09					3
Flood and Irrigate, 6 ac. ft.		17	.75	6.08	1.69	17.04				25
Seeding-135# seed, aerial						15.19	8.64			24
Maintain roads & airstrip	3		.10	1.05	.36					1
Charges for pick-up use					3.00					3
Interest on operating capital @ 12%										17
TOTAL CULTURAL COSTS				1.93	\$18.17	\$27.96	\$129.42	\$68.66		\$261

HARVEST COSTS:

Drain	17	.10	.81			1
Combine	4	.75	7.84	25.82		34
Bankout	6	.50	5.23	7.50		13
Haul to dryer					20.33	20
Dry					55.58	56
Storage					41.25	41
Postharvest management ***	3	16	.24	2.51	1.33	4

TOTAL HARVEST/POSTHARVEST COSTS		1.59	\$16.38	\$34.65	\$117.17	\$168
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CASH OVERHEAD:

Office and business costs						29
Building & Equipment Taxes						3
Equipment Insurance						2

TOTAL CASH OVERHEAD COSTS						\$33
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TOTAL CASH COSTS						\$462
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TOTAL CASH COST PER CWT @ 75 cwt/acre						\$6.17
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INVESTMENT:	Per Acre	----- Annual Cost -----		
		Depreciation	Interest @ 12%	
Equipment & buildings	514.20	46.37	30.85	77

TOTAL INVESTMENT COSTS		\$46.37	\$30.85	\$77
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TOTAL COSTS PER ACRE						\$540
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TOTAL COST PER CWT @ 75 cwt/acre (EXCLUDING LAND COSTS)						\$7.20
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TOTAL COST PER CWT @ 56 cwt/acre (ASSUMING 25% SHARE TO LANDOWNER)						\$9.59
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* tractors 1 and 2 are used simultaneously and are interchangeable

** materials and application rates are variable

*** postharvest operations include tractor, pick-up, and sprayer and/or mower

MONTHLY SUMMARY OF
SAMPLE COSTS TO PRODUCE RICE

Butte County 1989

Operation	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
CULTURAL COSTS:													
Seedbed Preparation:													
Chisel			4.7										5
Stubble disc				6.4									6
Disc harrow 2X				6.0	6.0								12
3 wheel plane					5.2								5
Laser level-1 of 3						20.0							20
Roll (final seedbed)					1.5								1
Fertilizer Program:													
Pre-starter, aerial													
40# N, 50# P2O5					30.3								30
Pre-placed, 100# N					25.5								26
Zinc sulfate, 50#					8.0								8
Potassium, 100# KCl	.3	.3	.3							.3	.3	.3	2
Topdress, 30# N, 60%						3.3	3.3						7
Pest Management Program:													
Weevil control, 60%					7.3								7
Shrimp/algae cntrl					4.1								4
Grass herbicide					28.1								28
Broadleaf herbicide						16.4							16
Armyworm cntrl, 10%								5.2					5
Vertebrate control					2.5			2.5					5
Planting:													
Mtn. drains, levees					3.1								3
Flood & Irrigate				3.7	7.4	6.2	5.0	2.5					25
Seeding-135# seed				3.6	20.3								24
Mtn. roads & airstrip			.7	.7									1
Charges for pick-up	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	3
Int. operating capital			.1	.3	1.8	2.3	2.4	2.5	3.1	4.2			17
TOTAL CULTURAL COSTS	\$1	\$1	\$6	\$21	\$151	\$48	\$11	\$13	\$3	\$5	\$1	\$1	\$261
HARVEST COSTS:													
Drain								.8					1
Combine									11.2	22.4			34
Bankout									4.2	8.5			13
Haul to dryer									6.8	13.6			20
Dry									18.5	37.1			56
Storage									13.8	27.5			41
Postharvest mgmt.										1.3	2.6		4
TOTAL HARVEST COSTS								\$.81	\$55	\$110	\$3	\$0	\$168
CASH OVERHEAD:													
Office and business	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	29
Bldg./equip. taxes				1.3								1.3	3
Equipment Insurance	2.1												2
TOTAL CASH OVERHEAD	\$4	\$2	\$2	\$4	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$4	\$33
TOTAL CASH COSTS	\$5	\$3	\$8	\$25	\$154	\$51	\$13	\$16	\$60	\$117	\$6	\$4	\$462

**EQUIPMENT AND BUILDING LIST FOR RICE
Butte County - 1989**

Interest Rate: 12%

Fuel Cost per Gallon \$.65 diesel
\$.85 gasoline

ITEM #	DESCRIPTION	NEW COST	ANNUAL COST		LIFE (HRS)	YEARS ----OVERHEAD*----			---- HOURLY COSTS --			
			USE (ACRES)	PER ACRE		TO TRADE	DEPREC- IATION	INTEREST*	TAR*	FUEL*	REPAIRS*	TOTAL
Tractors:												
1	Crawler-125 HP	\$125,000	750	\$166.67	12,000	15	\$11.1	\$10.00	100%	\$6.26	\$10.4	\$16.67
2	4WD Wheel-200 HP	103,000	750	137.33	12,000	10	13.73	8.24	100	10.01	8.58	18.59
3	2WD Wheel-40 HP	19,000	750	25.33	12,000	10	2.53	1.52	120	1.74	1.90	3.64
4	SP Combines - 18'	112,000	750	149.33	2,000	10	14.93	8.96	60	.83	33.60	34.43
5	SP Combines - 18'	112,000	750	149.33	2,000	10	14.93	8.96	60	.83	33.60	34.43
6	Bankout, SP-160 cwt	62,500	750	83.33	2,500	8	10.42	5.00	60		15.00	15.00
7	Offset disc harrow - 21'	22,500	750	30.00	2,500	10	3.00	1.80	120		10.80	10.80
8	Offset disc (stubble)-14'	23,000	750	30.67	2,500	10	3.07	1.84	120		11.04	11.04
9	Chisel plow-18'	5,300	750	7.07	2,500	10	.71	.42	120		2.54	2.54
10	Spiketooth harrow 20'	6,000	750	8.00	1,250	15	.53	.48	120		5.76	5.76
11	Disc Ridger	6,400	750	8.53	2,500	10	.85	.51	90		2.30	2.30
12	3 Wheel plane	15,000	750	20.00	2,500	15	1.33	1.20	60		3.60	3.60
13	Tool carrier	9,700	750	12.93	1,000	10	1.29	.78	40		3.88	3.88
14	Dozer blade-8'	4,200	750	5.60	1,000	10	.56	.34	5		.21	.21
	Sprayer	3,000	750	4.00	2,000	10	.40	.24	100		1.50	1.50
	Mower - 7'	4,200	750	5.60	2,000	10	.56	.34	90		1.89	1.89
17	Pick-up	18,000	750	24.00	2,000	7	3.43	1.44	25		2.25	2.25
18	Pick-up	18,000	750	24.00	1,000	7	3.43	1.44	25		4.50	4.50
19	Rice roller - 24'	6,500	750	8.67	5,000	15	.58	.52	36		.47	.47
	Shop tools	12,000	750	16.00		10	1.60	.96				
	Buildings	84,000	750	112.00		30	3.73	6.72				
TOTAL COST		\$771,300		\$1,028			\$92.74	\$61.70				
50% OF NEW COSTS*		\$385,650		\$514.20			\$46.37	\$30.85				

*** DEFINITIONS:**

- YEARS TO TRADE----- The projected life of the machine in years adjusted for excessive annual use.
- OVERHEAD ----- Per acre per year.
- DEPRECIATION ----- "COST PER ACRE" divided by "YEARS TO TRADE"
- INTEREST----- ("COST PER ACRE" X "INTEREST RATE") divided by 2 = average interest cost per acre per year.
- TAR----- Total accumulated repairs. The total cost of repairs during the machine's life expressed as a percent of "NEW COST". Calculated from equations based on equipment type and annual use.
- HOURLY COST OF FUEL----- Diesel fuel, oil and lube costs per hour = HP x cost of diesel fuel/gal X 0.0667.
Gasoline fuel, oil and lube costs per hour = HP x cost of gasoline/gal X 0.0889.
- HOURLY COST OF REPAIRS-- ("NEW COST" X "TAR") divided by ("LIFE IN HOURS").
- 50% OF NEW COSTS ----- Used to reflect a mix of new and used equipment.

COST TO PRODUCE RICE AT VARYING PRICES AND YIELDS

	YIELD (Cwt/acre)						
	60	65	70	75	80	85	90
Cultural Costs	261	261	261	261	261	261	261
Harvest Costs	145	153	160	168	176	184	192
Cash Overhead	33	33	33	33	33	33	33
Cash cost/acre	439	447	455	462	470	478	486
Cash cost/cwt	7.32	6.87	6.49	6.17	5.88	5.62	5.40
Investment cost	77	77	77	77	77	77	77
TOTAL COST/ACRE	516	524	532	540	547	555	563
TOTAL COST*/CWT	11.47	10.75	10.13	9.59	9.12	8.71	8.34

PER ACRE INCOME ABOVE CASH COSTS AT VARYING PRICES AND YIELDS

Dollars per Cwt	YIELD (Cwt/acre)						
	60	65	70	75	80	85	90
5.50	-109	-89	-70	-50	-30	-11	9
6.00	-79	-57	-35	-12	10	32	54
6.50	-49	-24	0	25	50	74	99
7.00	-19	8	35	63	90	117	144
7.50	11	41	70	100	130	159	189
8.00	41	73	105	138	170	202	234
8.50	71	106	140	175	210	244	279

PER ACRE INCOME ABOVE ALL COSTS* AT VARYING PRICES AND YIELDS

Dollars per Cwt	YIELD (Cwt/acre)						
	60	65	70	75	80	85	90
5.50	-269	-256	-243	-230	-217	-205	-192
6.00	-246	-232	-217	-202	-187	-173	-158
6.50	-224	-207	-191	-174	-157	-141	-124
7.00	-201	-183	-164	-146	-127	-109	-91
7.50	-179	-158	-138	-118	-97	-77	-57
8.00	-156	-134	-112	-90	-67	-45	-23
8.50	-134	-110	-86	-62	-37	-13	11

* ASSUMING 25% SHARE TO LANDOWNER

PER ACRE INVESTMENT COSTS AT VARYING FARM SIZES

FARM SIZES (acres)	300	400	500	600	700	750	800
INVESTMENT (\$/ac.)	193	145	116	97	83	77	72