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1985 Red Raspberry Production Costs and Returns, Western Washington

Farm Business Management Reports

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1985 RED RASPBERRY PRODUCTION COSTS AND RETURNS, WESTERN WASHINGTON

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INTRODUCTION

This publication presents projected costs and returns for establishing and producing red raspberries in western Washington. This information will be helpful to producers, lenders, and others interested in making better farm management decisions, including profit planning, financing, marketing, and resolving numerous related farm business management problems.

This budget does not represent a particular farm. Instead, it represents costs and returns under the specific assumptions outlined in this budget. Individual growers should use the blank spaces provided to adjust the budget tables to their individual farm circumstances. Also, local Cooperative Extension agents and fieldmen should be consulted for recommendations on field operations and operating inputs.

SOURCES OF INFORMATION

Personal interviews of selected area producers served as the basis for identifying the field operations and machinery complements commonly used. These producers were considered to be representative of well-managed farms. The quantities and types of material, i.e., plants, fertilizer, herbicides, and insecticides, used in the budgets were based on recommended and widely used practices. Local farm suppliers were contacted to obtain price information on materials and other services commonly used by farmers. Machinery costs were based on recent purchase prices and rates of annual use considered typical. Farmers wishing to substitute costs for their own machinery may find EB 1055, "Costs of Owning and Operating Farm Machinery in Washington," useful in making cost estimates.

OPERATING ASSUMPTIONS

1. Ten acres of land are devoted to red raspberry production.
2. All fruit is hand harvested.
3. Fruit is sold in both the fresh market (20%) and to processors (80%).
4. The crop is irrigated with a hand move, overhead system.
5. The yield for full production is 8,000 pounds per acre.

DISCUSSION OF BUDGET INFORMATION

Red raspberry enterprise data are divided into three separate budgets. The first is for the establishment year and includes land preparation, planting, and other plant development activities. The second budget is for the second

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establishment year. During this second year, a partial crop, approximately 50% of full yield is harvested. The third budget is full production. All three budgets are developed for a 10-acre farm totally devoted to raspberry production.

Raspberry enterprise budgets are presented in four tables. The first is a schedule of field operations and selected costs. The second table is a summary of costs and breakeven commodity prices. The first and second tables are provided for all three budgets. Two additional tables are provided for the full production budget. The third table is a summary of receipts, costs, and profitability per acre. Both Tables 2 and 3 provide space for individual farm adjustments. The fourth table summarizes cash costs and labor requirements by month. Also included are hourly machine ownership and operating costs.

Schedule of Operations and Summary of Variable Production Cost Per Acre - Table 1

This table outlines the schedule of field operations by calendar month, the type of machine used, and the number of times used per acre. The variable costs for field operations associated with operating machinery, hiring labor, and purchasing services and materials are listed.

Summary of Production Costs and Breakeven Prices - Table 2

Table 2 summarizes variable and fixed production costs, and for full production estimates breakeven prices necessary to cover variable and total costs.

Variable costs vary directly with the crop grown and the number of units or acres produced. Variable costs include fuel, oil and repairs, and all inputs such as fertilizer, chemicals, and custom work. Machine operating labor is also included in variable costs.

Machinery fixed costs include depreciation and interest on investment, taxes, and insurance. These costs do not vary with the crops produced, given the ownership of a specific machinery complement, and are incurred whether or not a crop is grown. The land charge under fixed costs is based on 12% of estimated net market costs. Net market value is gross sales price less selling costs and capital gains taxes.

Breakeven prices are estimated by dividing costs by units of production (from Table 3). Breakeven prices for both variable and total costs are calculated. Breakeven prices to cover variable costs are the minimum product price necessary to cover all out-of-pocket costs identified in the budget. When total costs are divided by units of production, the result is the minimum price necessary to cover all production costs including machinery, operator labor, and land charges.

Summary of Receipts, Costs, and Profitability per Acre - Table 3

This table summarizes per acre returns, costs, and various measures of profitability. The first measure of profitability is return over variable costs, which is calculated by subtracting total variable costs from total receipts.

A second measure of profitability, returns to land and management, is calculated by subtracting machine fixed costs and prorated establishment costs from returns over variable costs. The result is the payment for owners' risk and return to land.

Gross returns to land are calculated by subtracting a management charge from the returns to land and management. The management charge is estimated at 5% of gross receipts. The net returns to land can be estimated by subtracting real estate taxes from the gross returns to land. Rate of return on the land investment can be estimated by dividing net returns to land by the current land market value.

Monthly Summary of Direct Cash Expenses and Labor Requirements - Table 4

This table contains some supporting details for the costs outlined in the schedule of operations. Direct cash operating expenses (at the top of the table) include outlays for materials, hired labor including harvesting, fuel and lubrication, and machinery repairs. The righthand side of the table provides unit prices and quantities for each operating input. Farmers and lenders attempting to estimate monthly operating costs should use the total cost figures at the bottom of this section. Note that machinery labor costs and interest on operating capital are not included. In the lower third of the table, there is a summary of monthly labor requirements.

Returns Over Total Costs at Various Yields and Prices - Table 5

This table presents returns over total costs for ranges of yield and price. The combinations that provide positive returns are to the right of the heavy black line, those to the left show returns below total production costs. Yield and price combinations falling on the line itself represent breakeven combinations, i.e., gross returns equal total costs. Total production costs for each yield level are adjusted for harvest costs.

This information can be used to estimate the impact of yield and/or price changes on returns. It can also be used to estimate yield and price combinations necessary to produce a specified dollar return over total costs. For example, prices of 75 cents or greater combined with yields of 9,000 pounds or greater will generate \$1,100 or more over total costs.

Establishment Costs - Table A

The cost of establishing the raspberry stand must be recovered over its useful life. The process involves carrying forward at interest the total production costs for the first year, plus the total production costs for the second year less income produced in the second year. Interest on the establishment investment is identified as a fixed cost item in Table 2 for year two; this is for interest on year one establishment costs. The establishment costs are outlined in Table A, below. The total establishment costs for both years (\$4,609.70) are amortized over the useful life of the raspberry stand (12% for 8 years). Prorated establishment costs are identified under fixed costs in Table 2, page 10.

TABLE A - ESTABLISHMENT COSTS TO BE AMORTIZED OVER THE RASPBERRY STAND'S USEFUL LIFE

YEAR	PRODUCTION COST	RETURNS/ACRE ^{b/}	NET ESTABLISHMENT ^{c/} COST/ACRE
1	\$3727.40	\$ 0	\$3727.40
2	3482.30 ^{a/}	2600.00	882.30
TOTAL			\$4609.70

^{a/} Production cost from Table 2 includes interest on the establishment investment.

^{b/} Yield in year two is approximately half of full production (4,000 pounds). It is assumed that 20% is sold fresh market and 80% is sold to processors and that the weighted average price is 65 cents per pound.

^{c/} Net establishment costs are the sum of year one production cost, plus total production costs for year two less the value of production in year two.

RED RASPBERRY ESTABLISHMENT COSTS, YEAR ONE
 WESTERN WASHINGTON DATA, 10 ACRE ENTERPRISE - 1985

TABLE 1--SCHEDULE OF OPERATIONS AND SUMMARY OF VARIABLE PRODUCTION COST PER ACRE

OPERATION	TOOLING	MONTH	MACH. HOURS	LABOR HOURS	VARIABLE COST				TOTAL VARIABLE COST
					FUEL,OIL, LUBE,AND, REPAIRS	MACH. LABOR	SERVICE	MATERIALS	
					\$	\$	\$	\$	\$
TESTS	SOIL & NEMATODE TESTS	AUG					5.00	0.0	5.00
APPLY LIME	30HP, SPREADER	AUG	0.60	0.72	1.79	3.62	0.0	97.50	102.91
APPLY HERBICIDE	30HP, SPRAY SOIL**	SEPT	0.82	0.99	2.84	4.95	0.0	64.50	72.29
DISK	CUSTOM 2X	NOV					70.00	0.0	70.00
PLOW	CUSTOM	FEB					35.00	0.0	35.00
FERTILIZE	30HP, FERTILIZER SPREADER	FEB	0.60	0.72	1.79	3.62	0.0	44.00	49.41
DISK	CUSTOM 3X	FEB					105.00	0.0	105.00
MARK OUT	30HP, 4' RENTED CULTIVATOR	FEB	1.00	1.20	2.57	6.00	10.00	0.0	18.57
FURROW	30HP, RENTED 1 BTM MB PLOW	FEB	1.00	1.20	2.57	6.00	7.50	0.0	16.07
PLANT	HAND-15 HRS	FEB					75.00	480.00	555.00
ROTOVATE	30HP, 4' ROTOVATOR	MAR	1.96	2.38	5.61	11.88	0.0	0.0	17.49
FERTILIZE	30HP, FERTILIZER SPREADER	APR	0.75	0.90	2.22	4.53	0.0	44.00	50.74
APPLY HERBICIDE	30HP, SPRAY SOIL**	APR	0.82	0.99	2.84	4.95	0.0	22.16	29.95
ROTOVATE	30HP, 4' ROTOVATOR	APR	1.96	2.38	5.61	11.88	0.0	0.0	17.49
CULTIVATE	30HP, 5' FIELD CULTIVATOR	APR	1.47	1.78	4.24	8.91	0.0	0.0	13.15
WEED	HAND-6 HRS	MAY					30.00	0.0	30.00
ROTOVATE	30HP, 4' ROTOVATOR	MAY	1.96	2.38	5.61	11.88	0.0	0.0	17.49
CULTIVATE	30HP, 5' FIELD CULTIVATOR	JUNE	1.47	1.78	4.24	8.91	0.0	0.0	13.15
IRRIGATION	FUEL & REPAIRS	JUNE			40.33				40.33
IRRIGATION	LABOR	JUNE					15.00		15.00
HOE	HAND-4 HRS	JULY					20.00	0.0	20.00
SET GUY WIRES	HAND - 6 HOURS	JULY					30.00	314.00	344.00
DIG POST HOLES	30HP, RENTED DIGGER	JULY	1.60	1.92	4.08	9.60	5.00	0.0	18.68
SET POSTS	HAND-7 HRS	JULY					35.00	814.00	849.00
IRRIGATION*	FUEL & REPAIRS	JULY			40.33				40.33
IRRIGATION*	LABOR	JULY					15.00		15.00
OVERHEAD	MISC. EXPENSES	ANNUAL					131.89		131.89
INTEREST	OPERATING CAPITAL	ANNUAL					78.25		78.25
TOTAL PER ACRE			16.02	19.35	126.67	96.73	667.64	1880.16	2771.20

* Groundwater is used for irrigation, applied at a rate of 4" per month during June and July, using a hand move irrigation system.

** Spray applications are either applied to foliage (FOL.) or to the soil (SOIL).

RED RASPBERRY ESTABLISHMENT COSTS, YEAR ONE
 WESTERN WASHINGTON DATA, 10 ACRE ENTERPRISE - 1985

TABLE 2--SUMMARY OF PRODUCTION COST PER ACRE

	UNIT	PRICE OR COST/UNIT	QUANTITY	VALUE OR COST	YOUR FARM
VARIABLE COSTS					
CUSTOM DISK	ACRE	35.00	5.00	\$175.00	_____
CUSTOM PLOW	ACRE	35.00	1.00	35.00	_____
DEVRIKOL 50%WP	LBS.	8.30	2.67	22.16	_____
DOLOMITE LIME	TONS	97.50	1.00	97.50	_____
FERT. 10-20-20	LBS.	0.11	800.00	88.00	_____
HAND HOE	HR.	5.00	4.00	20.00	_____
HAND PLANT	HR.	5.00	15.00	75.00	_____
HAND WEED	HR.	5.00	6.00	30.00	_____
HOLE DIGGER RENT	ACRE	5.00	1.00	5.00	_____
NAILS & CLIPS	LBS.	0.56	25.00	14.00	_____
OVERHEAD	DOL.	0.05	2637.77	131.89	_____
RASPBERRY PLANTS	100	24.00	20.00	480.00	_____
RENT 1BTM PLOW	ACRE	7.50	1.00	7.50	_____
RENT 4' ROW CULTIVATOR	ACRE	10.00	1.00	10.00	_____
ROUNDUP	QT.	21.50	3.00	64.50	_____
SET POSTS	HR.	5.00	7.00	35.00	_____
SOIL & NEMATODE TESTS	ACRE	5.00	1.00	5.00	_____
STEEL CENTER POSTS	EACH	2.50	220.00	550.00	_____
WIRE #9 & #12	CWT.	60.00	5.00	300.00	_____
WIRING LABOR	HR.	5.00	6.00	30.00	_____
WOOD END POSTS	EACH	6.00	44.00	264.00	_____
MACHINERY REPAIR	ACRE	1.81	1.00	1.81	_____
TRACTORS REPAIR, FUEL, LUBE	ACRE	44.20	1.00	44.20	_____
IRRIGATION FUEL, REPAIR	ACRE	80.66	1.00	80.66	_____
LABOR(TRACTOR & MACHINERY)	HOUR	5.00	19.35	96.73	_____
LABOR(IRRIGATION)	HOUR	5.00	6.00	30.00	_____
INTEREST ON OP. CAP.	DOL.	0.14	558.93	78.25	_____
TOTAL VARIABLE COST				\$ 2771.20	_____
FIXED COSTS				\$	_____
MACHINERY	ACRE	200.75	1.00	200.75	_____
TRACTORS	ACRE	77.09	1.00	77.09	_____
IRRIGATION	ACRE	103.77	1.00	103.77	_____
TAXES (LAND)	ACRE	100.00	1.00	100.00	_____
LAND	ACRE	0.12	4000.00	480.00	_____
TOTAL FIXED COSTS				\$ 956.20	_____
TOTAL COSTS				\$ 3727.40	_____

RED RASPBERRY ESTABLISHMENT COSTS, YEAR TWO
 WESTERN WASHINGTON DATA, 10 ACRE ENTERPRISE - 1985

TABLE 1--SCHEDULE OF OPERATIONS AND SUMMARY OF VARIABLE PRODUCTION COST PER ACRE

OPERATION	TOOLING	MONTH	MACH. HOURS	LABOR HOURS	VARIABLE COST				TOTAL VARIABLE COST
					FUEL,OIL, LUBE,AND, REPAIRS	MACH. LABOR	SERVICE	MATERIALS	
					\$	\$	\$	\$	\$
PRUNE	HAND - 20 HRS	JAN					100.00	0.0	100.00
TIE CANES	HAND - 20 HRS	JAN					100.00	11.00	111.00
ROTOVATE	30HP, 4' ROTOVATOR	FEB	1.96	2.38	5.40	11.88	0.0	0.0	17.28
APPLY FUNGICIDE	30HP, AIR BLAST SPRAY, FOL.**	FEB	0.82	0.99	3.25	4.95	0.0	27.90	36.10
FERTILIZE	30HP, FERTILIZER APPLICATOR	MAR	1.49	1.81	4.17	9.04	0.0	66.60	79.81
HOE SHOOTS	HAND - 8 HOURS	APR					40.00	0.0	40.00
APPLY HERBICIDE	30HP, AIR BLAST SPRAY, SOIL**	APR	0.82	0.99	3.25	4.95	0.0	14.42	22.62
ROTOVATE	30HP, 4' ROTOVATOR	MAY	1.96	2.38	5.40	11.88	0.0	0.0	17.28
APPLY INSECT.	30HP, AIR BLAST SPRAY, FOL.**	MAY	0.82	0.99	3.25	4.95	0.0	3.31	11.51
APPL FUNG	30HP, AIRBLAST, 2X FOL.**	MAY	0.82	0.99	3.25	4.95	0.0	60.00	68.20
CULTIVATE	30HP, 5' FIELD CULTIVATOR	JUNE	1.47	1.78	4.03	8.91	0.0	0.0	12.94
APPLY INS/FUNG	30HP, AIRBLAST, FOL.**	JUNE	0.82	0.99	3.25	4.95	0.0	14.30	22.50
IRRIGATION*	FUEL & REPAIRS	JUNE			40.33				40.33
IRRIGATION*	LABOR	JUNE				15.00			15.00
TRAIN CANES	HAND	JULY					10.00	0.0	10.00
HARVEST 2 T/AC	HAND AT \$.165 PER POUND	JULY					660.00	136.50	796.50
HARVEST	LABOR	JULY					300.00	0.0	300.00
HAUL FRUIT	1.5 TON TRUCK	JULY	10.00	12.00	69.04	60.00	0.0	0.0	129.04
CHEMICAL TOILET	RENT/ACRE	JULY					0.0	25.55	25.55
TRAIN CANES	HAND	AUG					10.00	0.0	10.00
IRRIGATION	FUEL & REPAIRS	AUG			40.33				40.33
IRRIGATION	LABOR	AUG				15.00			15.00
OVERHEAD	MISC EXPENSES	ANNUAL					97.59		97.59
INTEREST	OPERATING CAPITAL	ANNUAL					33.08		33.08
TOTAL PER ACRE			20.17	24.31	184.95	156.46	1350.67	359.58	2051.66

* Groundwater is used for irrigation, applied at a rate of 4" per month during June and July, using a hand move irrigation system.

** Spray applications are either applied to foliage (FOL.) or to the soil (SOIL).

RED RASPBERRY ESTABLISHMENT COSTS, YEAR TWO
 WESTERN WASHINGTON DATA, 10 ACRE ENTERPRISE - 1985

TABLE 2--SUMMARY OF PRODUCTION COST PER ACRE

	UNIT	PRICE OR COST/UNIT	QUANTITY	VALUE OR COST	YOUR FARM
VARIABLE COSTS					
PREHARVEST				\$	
B.T.	QT.	5.15	2.00	10.30	_____
BALER TWINE	BALE	55.00	0.20	11.00	_____
CAPTAN 50%WP	LBS.	2.00	2.00	4.00	_____
FERT 10-20-10	LBS.	0.111	600.00	66.60	_____
GUTHION	PT.	3.31	1.00	3.31	_____
HAND HOE	HR.	5.00	8.00	40.00	_____
LIME-SULFUR	GAL	4.65	6.00	27.90	_____
PARAQUAT	PT.	6.76	1.33	8.99	_____
PRUNE	HR.	5.00	20.00	100.00	_____
RONILAN	LBS.	20.00	3.00	60.00	_____
SIMAZINE 80%WP	LBS.	3.25	1.67	5.43	_____
TIE CANES	HR.	5.00	20.00	100.00	_____
TRAIN CANES	HR.	5.00	4.00	20.00	_____
OVERHEAD	DOL.	0.05	1949.55	97.48	_____
MACHINERY REPAIR	ACRE	5.92	1.00	5.92	_____
TRACTORS FUEL, LUBE, REPAIR	ACRE	29.32	1.00	29.32	_____
IRRIGATION ELEC. & REPAIR	ACRE	80.66	1.00	80.66	_____
LABOR(TRACTOR & MACHINERY)	HOUR	5.00	13.30	66.48	_____
LABOR(IRRIGATION)	HOUR	5.00	6.00	30.00	_____
INTEREST ON OP. CAP.	DOL.	0.14	236.28	33.08	_____
SUBTOTAL, PRE-HARVEST				\$ 800.56	_____
HARVEST COSTS				\$	
CHEM TOILET	ACRE	25.55	1.00	25.55	_____
FLATS & CUPS	EACH	1.05	130.00	136.50	_____
HAND PICK	TONS	330.00	2.00	660.00	_____
LABOR HARV.	HR.	5.00	60.00	300.00	_____
MACHINERY	ACRE	69.04	1.00	69.04	_____
LABOR(TRACTOR & MACHINERY)	HOUR	5.00	12.00	60.00	_____
SUBTOTAL, HARVEST				\$1251.09	_____
TOTAL VARIABLE COST				\$2051.66	_____
FIXED COSTS				\$	
MACHINERY	ACRE	161.88	1.00	161.88	_____
TRACTORS	ACRE	137.69	1.00	137.69	_____
IRRIGATION MACHINERY	ACRE	103.68	1.00	103.68	_____
TAXES (LAND)	ACRE	100.00	1.00	100.00	_____
LAND	ACRE	0.12	4000.00	480.00	_____
INTEREST ON ESTABLISHMENT COSTS		0.12	3727.40	447.29	_____
TOTAL FIXED COSTS				\$1430.64	_____
TOTAL COSTS				\$3482.30	_____

RED RASPBERRY PRODUCTION COSTS - YEARS 3-10
 WESTERN WASHINGTON DATA, 10 ACRE ENTERPRISE - 1985

TABLE 1--SCHEDULE OF OPERATIONS AND SUMMARY OF VARIABLE PRODUCTION COSTS PER ACRE

OPERATION	TOOLING	MONTH	MACH. HOURS	LABOR HOURS	VARIABLE COST				TOTAL VARIABLE COST
					FUEL,OIL, LUBE,AND, REPAIRS	MACH. LABOR	SERVICE	MATERIALS	
					\$	\$	\$	\$	\$
PRUNE	HAND-20 HRS	SEPT					100.00	0.0	100.00
SUBSOIL	CUSTOM	SEPT					7.50	0.0	7.50
PLANT COVER CROP	30HP, RENT 40"DISK DRILL	SEPT	1.00	1.20	2.45	7.20	1.50	12.00	23.15
ROTOVATE	30HP, 4' ROTOVATOR	SEPT	1.96	2.38	5.38	14.26	0.0	0.0	19.64
TIE CANES	HAND-20 HRS	JAN					100.00	11.00	111.00
APPLY FUNGICIDE	30HP, AIR BLAST SPRAY, FOL.**	FEB	0.82	0.99	2.71	5.94	0.0	40.50	49.15
FERTILIZE	30HP, FERTILIZER APPLICATOR	MAR	1.49	1.81	4.17	10.85	0.0	66.60	81.62
TOP CANES	HAND-6 HRS	MAR					30.00	0.0	30.00
ROTOVATE	30HP, 4' ROTOVATOR	MAR	1.96	2.38	5.38	14.26	0.0	0.0	19.64
APPLY HERBICIDE	30HP, AIR BLAST SPRAY, SOIL**	MAR	0.82	0.99	2.71	5.94	0.0	22.96	31.61
PRIMOCANE BURN	30HP, AIR BLAST SPRAY, FOL.**	APR	0.82	0.99	2.71	5.94	0.0	4.97	13.63
ROTOVATE	30HP, 4' ROTOVATOR	MAY	1.96	2.38	5.38	14.26	0.0	0.0	19.64
APP INSECTICIDE	30HP, AIR BLAST SPRAY FOL.**	MAY	1.64	1.98	5.40	11.88	0.0	6.62	23.91
APPLY FUNG	30HP, AIRBLAST SPRAY 2X FOL.**	MAY	0.82	0.99	2.71	5.94	0.0	60.00	68.65
HOE SHOOTS	HAND-8 HOURS	MAY					60.00	0.0	60.00
APPLY INS/FUNG	30HP, AIR BLAST SPRAY, FOL.**	JUNE	0.82	0.99	2.71	5.94	0.0	14.30	22.95
CULTIVATE	30HP, 5' FIELD CULTIVATOR	JUNE	1.47	1.78	4.05	10.70	0.0	0.0	14.75
IRRIGATION*	FUEL & REPAIRS	JUNE			40.32				40.32
IRRIGATION*	LABOR	JUNE				15.00			15.00
TRAIN CANES	HAND - 2 HOURS	JULY					10.00	0.0	10.00
HARVEST 4 TON/A	HAND @ \$.165/LB	JULY					1320.00	0.0	1320.00
HAUL FRUIT	1.5 TON TRUCK (USED)	JULY	16.00	19.20	110.50	115.20	0.0	0.0	225.70
CHEMICAL TOILET	RENT/ACRE	JULY					0.0	25.55	25.55
HARVEST	LABOR	JULY					400.00	273.00	673.00
TRAIN CANES	HAND - 2 HOURS	AUG					10.00	0.0	10.00
IRRIGATION	FUEL & REPAIRS	AUG			40.32				40.32
IRRIGATION	LABOR	AUG				15.00			15.00
OVERHEAD		ANNUAL					155.74		155.74
INTEREST	OPERATING CAPITAL	ANNUAL					46.74		46.74
TOTAL PER ACRE			31.59	38.05	236.90	258.32	2241.48	537.51	3274.21

*-----
 * Groundwater is used for irrigation, applied at a rate of 4" per month during June and July, using a hand move irrigation system.

** Spray applications are either applied to foliage (FOL.) or to the soil (SOIL).

RED RASPBERRY PRODUCTION COSTS - YEARS 3-10
 WESTERN WASHINGTON DATA, 10 ACRE ENTERPRISE - 1985

TABLE 2--SUMMARY OF PRODUCTION COST PER ACRE AND BREAKEVEN SELLING PRICES PER UNIT

	UNIT	PRICE OR COST/UNIT	QUANTITY	VALUE OR COST	YOUR FARM
VARIABLE COSTS					
PREHARVEST				\$	
B.T.	QT.	5.15	2.00	10.30	_____
BALER TWINE	BALE	55.00	0.20	11.00	_____
CAPTAN 50%WP	LBS.	2.00	2.00	4.00	_____
CUSTOM SUBSOIL	ACRE	7.50	1.00	7.50	_____
DINOSEB	QT.	3.50	1.00	3.50	_____
40" DISK DRILL RENT	ACRE	1.50	1.00	1.50	_____
FERT. 10-20-10	LBS.	0.111	600.00	66.60	_____
GUTHION	PT.	3.31	2.00	6.62	_____
HAND PRUNE	HR.	5.00	20.00	100.00	_____
HOE SHOOTS	HR.	5.00	12.00	60.00	_____
LIME-SULFUR	GAL	6.75	6.00	40.50	_____
PARAQUAT	PT.	12.87	1.33	17.12	_____
RONILAN 3X	LBS.	20.00	3.00	60.00	_____
RYE SEED	LBS.	0.40	30.00	12.00	_____
SIMAZINE 80%WP	LBS.	3.50	1.67	5.85	_____
SPRAY OIL	GAL	2.95	0.50	1.47	_____
TIE CANES	HR.	5.00	20.00	100.00	_____
TOP CANES	HR.	5.00	6.00	30.00	_____
TRAIN CANES	HR.	5.00	4.00	20.00	_____
OVERHEAD	DOL.	0.05	3114.84	155.74	_____
MACHINERY REPAIR	ACRE	4.20	1.00	4.20	_____
TRACTORS FUEL, LUBE, REPAIR	ACRE	41.59	1.00	41.59	_____
IRRIGATION ELEC. & REPAIR	ACRE	80.64	1.00	80.64	_____
LABOR(TRACTOR & MACHINERY)	HOUR	6.00	18.85	113.12	_____
LABOR(IRRIGATION)	HOUR	5.00	6.00	30.00	_____
INTEREST ON OP. CAP.	DOL.	0.14	333.89	46.74	_____
SUBTOTAL, PRE-HARVEST				\$1029.99	_____
HARVEST COSTS				\$	
HAND PICK	TONS	330.00	4.00	1320.00	_____
HARV. LABOR	HR.	5.00	80.00	400.00	_____
FLATS & CUPS (FRESH MARKET)	EACH	1.05	260.00	273.00	_____
CHEM TOILET	ACRE	25.55	1.00	25.55	_____
MACHINERY (HAULING)	ACRE	110.47	1.00	110.47	_____
LABOR(HARVEST & HAULING)	HOUR	6.00	19.20	115.20	_____
SUBTOTAL, HARVEST				\$2244.22	_____
TOTAL VARIABLE COST				\$3274.21	_____
BREAKEVEN PRICE, VARIABLE COSTS AT 8,000 LBS/ACRE				.409	_____
FIXED COSTS				\$	
MACHINERY	ACRE	267.74	1.00	267.74	_____
TRACTORS	ACRE	195.36	1.00	195.36	_____
IRRIGATION	ACRE	103.77	1.00	103.77	_____
TAXES (LAND)	ACRE	100.00	1.00	100.00	_____
PRORATED ESTAB. COST	ACRE	4609.70	0.20	921.94	_____
LAND	ACRE	0.12	4000.00	480.00	_____
TOTAL FIXED COSTS				\$2068.81	_____
TOTAL COSTS				\$5343.02	_____
BREAKEVEN PRICE PER LB. OVER TOTAL COSTS AT 8,000 LB/ACRE				.668	_____

RED RASPBERRY PRODUCTION COSTS - YEARS 3-10
 WESTERN WASHINGTON DATA, 10 ACRE ENTERPRISE - 1985

TABLE 3--SUMMARY OF RECEIPTS, COSTS, AND PROFITABILITY PER ACRE

	UNIT	AVERAGE PRICE	QUANTITY	VALUE OR COST	YOUR FARM
GROSS RECEIPTS FROM PRODUCTION					
RASPBERRIES	LBS.	.65	8,000	\$5200.00	_____
1. TOTAL RECEIPTS				\$5200.00	_____
LESS: TOTAL VARIABLE COST				\$3274.21	_____
2. RETURNS OVER VARIABLE COST				\$1925.79	_____
LESS: MACHINERY FIXED COST				\$ 566.87	_____
PRORATED ESTAB. COST				\$ 921.94	_____
3. RETURNS TO LAND AND MANAGEMENT				\$ 436.98	_____
LESS: RETURNS TO MANAGEMENT (5% OF RETURNS)				\$ 260.00	_____
4. GROSS RETURNS TO LAND				\$ 176.98	_____
LESS: REAL ESTATE TAXES				\$ 100.00	_____
5. NET RETURNS TO LAND INVESTMENT				\$ 76.98	_____
6. RATE OF RETURN ON CURRENT MARKET VALUE OF LAND (4000. PER ACRE)				% 1.78	_____

RED RASPBERRY PRODUCTION COSTS - YEARS 3-10
 WESTERN WASHINGTON DATA, 10 ACRE ENTERPRISE - 1985

TABLE 4--MONTHLY SUMMARY OF DIRECT CASH EXPENSES

CATEGORY	UNIT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	PRICE	UNITS	TOTAL VALUE
OPERATING INPUTS:																
HAND PRUNE	HR.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	5.00	20.00	100.00
40"DISK DR RENT	ACRE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	0.0	0.0	1.50	1.00	1.50
CUSTOM SUBSOIL	ACRE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	0.0	0.0	7.50	1.00	7.50
RYE SEED	LBS.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.40	30.00	12.00
TIE CANES	HR.	20.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.00	20.00	100.00
BALER TWINE	BALE	0.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.00	0.20	11.00
LIME-SULFUR	GAL	0.0	6.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.75	6.00	40.50
TOP CANES	HR.	0.0	0.0	6.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.00	6.00	30.00
HOE SHOOTS	HR.	0.0	0.0	0.0	0.0	12.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.00	12.00	60.00
SIMAZINE 80%WP	LBS.	0.0	0.0	1.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.50	1.67	5.85
PARAQUAT	PT.	0.0	0.0	1.33	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.87	1.33	17.12
DINOSEB	QT.	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.50	1.00	3.50
SPRAY OIL	GAL	0.0	0.0	0.0	0.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.95	0.50	1.47
GUTHION	PT.	0.0	0.0	0.0	0.0	2.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.31	2.00	6.62
RONILAN	LBS.	0.0	0.0	0.0	0.0	3.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.00	3.00	60.00
HAND PICK	TONS	0.0	0.0	0.0	0.0	0.0	0.0	4.00	0.0	0.0	0.0	0.0	0.0	30.00	4.00	1320.00
FERT. 10-20-10	LBS.	0.0	0.0	600.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.11	600.00	66.60
OVERHEAD	DOL.	0.0	0.0	0.0	0.0	0.0	3114.84	0.0	0.0	0.0	0.0	0.0	0.0	0.053	3114.84	155.74
HARV. LABOR	HR.	0.0	0.0	0.0	0.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0	5.00	80.00	400.00
TRAIN CANES	HR.	0.0	0.0	0.0	0.0	0.0	0.0	2.00	2.00	0.0	0.0	0.0	0.0	5.00	4.00	20.00
CAPTAN 50%WP	LBS.	0.0	0.0	0.0	0.0	0.0	2.00	0.0	0.0	0.0	0.0	0.0	0.0	2.00	2.00	4.00
B.T.	QT.	0.0	0.0	0.0	0.0	0.0	2.00	0.0	0.0	0.0	0.0	0.0	0.0	5.15	2.00	10.30
FLATS & CUPS	EACH	0.0	0.0	0.0	0.0	0.0	0.0	260.00	0.0	0.0	0.0	0.0	0.0	1.05	260.00	273.00
CHEM TOILET	ACRE	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0	0.0	25.55	1.00	25.55
TRACTOR FUEL COST	ACRE	0.0	2.18	11.41	2.18	11.79	6.12	0.0	0.0	7.91	0.0	0.0	0.0			41.59
EQUIP FUEL,LUBE, & REPAIR COST	ACRE	0.0	0.51	0.81	0.51	1.65	0.61	110.47	0.0	0.12	0.0	0.0	0.0			114.67
IRRIG FUEL,REPAIR	ACRE	0.0	0.0	0.0	0.0	0.0	40.32	0.0	40.32	0.0	0.0	0.0	0.0			80.64
TOTAL MONTHLY COST	ACRE	111.00	43.19	131.78	7.67	140.06	217.09	2139.02	50.32	129.03	0.0	0.0	0.0			2969.15
LABOR REQUIREMENTS BY MONTH																
MACHINERY LABOR	HR.	0.0	0.99	5.18	0.99	5.35	2.77	19.20	0.0	3.59	0.0	0.0	0.0			38.06
IRRIGATION LABOR	HR.	0.0	0.0	0.0	0.0	0.0	3.00	3.00	0.0	0.0	0.0	0.0	0.0			6.00
TOTAL LABOR	HR.	0.0	0.99	5.18	0.99	5.35	5.77	19.20	3.00	3.59	0.0	0.0	0.0			44.06
IRRIGATION WATER	INCH	0.0	0.0	0.0	0.0	0.0	4.00	4.00	0.0	0.0	0.0	0.0	0.0			8.00

TABLE 5--RED RASPBERRY RETURNS OVER TOTAL COSTS AT VARIOUS YIELDS AND PRICES

C E N T S P E R P O U N D

YIELD LBS.	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	1.00
3,000	-2591	-2441	-2291	-2141	-1991	-1841	-1691	-1541	-1391	-1241	-1091	-941
4,000	-2422	-2222	-2022	-1822	-1622	-1422	-1222	-1022	-822	-622	-422	-222
5,000	-2253	-2003	-1753	-1503	-1253	-1003	-753	-503	-253	-3	246	496
6,000	-2084	-1784	-1484	-1184	-884	-584	-284	15	315	615	915	1215
7,000	-1915	-1565	-1215	-865	-515	-165	184	534	884	1234	1584	1934
8,000	-1746	-1346	-946	-546	-146	253	653	1053	1453	1853	2253	2653
9,000	-1577	-1127	-677	-227	222	672	1122	1572	2022	2472	2922	3372
10,000	-1408	-908	-408	91	591	1091	1591	2091	2592	3091	3591	4091
11,000	-1239	-689	-139	410	960	1510	2060	2610	3160	3710	4260	4810
12,000	-1070	-470	129	729	1329	1929	2529	3129	3729	4329	4929	5529
13,000	-901	-251	398	1048	1698	2348	2998	3648	4298	4948	5598	6248
14,000	-732	-32	667	1367	2067	2767	3467	4167	4867	5567	6267	6967

APPENDIX TABLE A - MACHINERY COMPLEMENT

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>LIST PRICE</u>	<u>HOURS USED ANNUALLY</u>	<u>TOTAL COST/ ^{1/} HOUR USE</u>
1	AIR BLAST SPRAYER	\$ 2,000.00	60	\$ 6.53
2	FERTILIZER APPLICATOR	540.00	15	6.51
3	FIELD CULTIVATOR	500.00	40	2.28
4	ROTOVATOR	1,650.00	40	7.37
5	30HP DIESEL TRACTOR	14,000.00	200	13.82
6	TRUCK, 1.5 TON (USED)	5,000.00	80	18.02

^{1/}Total costs include ownership costs such as depreciation and interest and annual operating costs for fuel, lubrication, and repairs.

APPENDIX TABLE B - IRRIGATION EQUIPMENT

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>INVESTMENT COST</u>
1	SPRINKLER HEADS, LATERAL PIPE, MAIN LINE & RISERS	\$2,034.00
2	PUMP AND MOTOR	3,092.00
3	WELL	<u>2,500.00</u>
	TOTAL	\$7,626.00