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1989 ESTIMATED COSTS OF REESTABLISHING A PEAR ORCHARD IN THE YAKIMA VALLEY, WASHINGTON

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Note

Enterprise costs and returns vary from one farm to the next and over time for any particular farm. Variability stems from differences in the following:

- Capital, labor, and management resources.
- Type and size of machinery complement.
- Cultural practices.
- Size of farm enterprise.
- Crop yields.
- Input prices.
- Commodity prices.

Costs can also be calculated differently depending on the intended use of the cost estimate. The information in this publication serves as a general guide for a modern, well-managed pear orchard in the Yakima Valley. To avoid drawing unwarranted conclusions for any particular farm or group of farms, the reader must closely examine the assumptions used. If they are not appropriate for the situation at hand, adjustments in the costs and/or returns should be made.

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HERBERT HINMAN, BROOKE PETERSON, AND KATHLEEN WILLIAMS[1]

INTRODUCTION

This publication reports on a study estimating the 1989 costs of reestablishing a Bartlett pear orchard in the Yakima Valley area of central Washington.

The Yakima Valley fruit district is the largest tree fruit producing region in Washington, with over 96,000 acres in tree fruits. Although apples are the major tree fruit produced in the area, many growers also produce pears, cherries, and other tree fruits. For many years, pears have been second in tree fruit acreage and in annual crop value. The 1986 pear acreage was approximately 12,000 acres. Bartlett is the main type of pear produced in the Yakima Valley.

Bartlett production in the Yakima Valley was reported to be about 110,088 tons in 1988. Average annual production for the period 1978-1988 was 103,141 tons. However, there have been annual fluctuations in yield due to winter injury, spring frosts, and other environmental factors.

Bartlett trees are seldom planted alone because another pear variety is needed for pollination. Most Yakima Valley growers use D'Anjou pears for that purpose. Some growers graft pollinizer branches in their Bartlett trees to avoid planting pollinizer trees. Thus, the portion of pollinizer trees in individual pear plantings in the Valley vary from none to 15 percent or more.

In 1988, approximately 86 percent of the Yakima Valley Bartlett crop was processed. The remainder was sold on the fresh market. The annual average for the period 1978 to 1988 shows 81.5 percent of the crop was processed and 19.5 percent was sold on the fresh market. The most recent cost of production study for Bartlett pears in the Yakima Valley was published in 1977. That study estimated the production costs to be $162.80 per ton at the 15-ton production level. Since 1977, the costs of hired labor, supplies, property taxes, insurance, interest rates, etc., increased significantly. In addition, many of these orchards are old and obsolete and are no longer economically viable. Therefore, studies were conducted to obtain more recent information on the costs of establishing and producing pears.

The overall objective of this

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study was to estimate the 1989 costs of reestablishing a five-acre pear orchard. The specific objectives were to:

1. Specify the cultural practices needed to establish five acres of pears.

2. Estimate, on a per-planted acre basis, the first five years' annual costs of reestablishing a pear orchard.

An additional publication on the estimated cost of operating a fully established pear orchard that results directly from this overall study will be shortly forthcoming.

It is anticipated that not only fruit growers but others concerned with the pear industry will find the information reported here helpful in estimating both physical and financial requirements. While the acreages and practices are unlikely to fit all conditions, they do represent recent trends.

BUDGET ASSUMPTIONS

This study was conducted with a group of experienced pear growers from the Yakima Valley. The practices and requirements outlined represent what this group considers to be the latest developments in planting techniques to produce pears. Assumptions used were:

1. The pear orchard consisted of 5.5 acres total. One-half an acre was used for roads, ditches, etc. Therefore, 1.1 acres of land was required for each one acre of orchard actually planted.

2. The orchard is located on good soil in nonrocky terrain. The land was previously in orchard; however, the old trees have been removed and the land has been ripped with a subsoiler. The new orchard is part of an existing 80-acre orchard enterprise.

3. The trees were planted on a 9' x 18' spacing. This resulted in 269 trees per acre. Pollinizer trees (D'Anjou) were planted every other row, every 50 feet within the row.

4. Irrigation water was available from a public irrigation district. A permanent under-tree sprinkler irrigation system was installed at a cost of $1,000 per acre. The irrigation system has an estimated life of 30 years.

5. Machinery and buildings were valued at costs incurred if the items were to be replaced. Items were valued at new or used replacement value depending on how they are typically replaced. While this may overstate current production costs, it provides an indication of requirements for the enterprise to generate the earnings needed to replace depreciable assets. Continuing increases in price advances understates the amount of capital required for asset replacement. When an enterprise is evaluated to determine its long-run viability, it is important to consider its ability to replace depreciable assets

on a replacement cost basis.

6. The land, before planting, excluding the irrigation system, was valued at $1,600 per acre.

The planting plan and physical resources used in this study do not necessarily represent what any one fruit grower would do if establishing a new planting. Consensus among the grower committee was used to obtain requirements for physical inputs, use of equipment, materials, chemicals, and labor. Suppliers provided prices for materials, chemicals, and equipment. The tax assessor's office provided information on property taxes. The per-acre costs were developed from these production and price data using standard budgeting procedures.

SUMMARY OF CAPITAL AND ESTABLISHMENT COST

Table 1 presents the estimated capital requirements for the irrigation system and the annual operating expenses as a direct consequence of reestablishing five acres of pears in an existing orchard operation.

Table 1. Summary of Capital Requirements per Year for Reestablishing Five Acres of Pears in the Yakima Valley.[a]

	Year 1	Year 2	Year 3	Year 4	Year 5
	$	$	$	$	$
Requirements (5 yrs.)					
Trees (269)	1,345				
Irrig. System	5,000				
Oper. Exp.[b]	11,815	3,117	3,657	5,263	7,424
Total	18,160	3,117	3,647	5,263	7,424
Receipts (5 acres)					
Pears[c]				1,960	3,920
Net yearly req.	18,160	3,117	3,657	3,303	3,504

[a] Does not include interest on investment.

[b] Includes variable costs, land taxes, and prorated taxes and insurance on equipment and buildings (see "B" Tables 3 through 7).

[c] Production estimated at two tons per acre in year four, and four tons per acre in year five. Returns to grower estimated at $196 per ton.

Since the five-acre planting of pears was reestablished in an existing orchard, the field equipment, buildings, and vehicles required to operate this acreage are likely to be already on hand. Therefore, only inputs purchased as a direct result of orchard replacement were included. Where the situation differs from the above assumptions, adjustments in the figures presented in Table 1 may be necessary. Of course, the actual timing of the outlays will vary, depending on how the various assets are financed.

Annual costs per acre for the five-year development period are summarized in Table 2. As indicated, the total cost of establishing the orchard minus revenues for sale of a partial crop in years four and five, was approximately $9,918 per acre. These costs include annual operating expenses, amortized expenses for capital assets with a useful life in excess of one year (Table 1), and accumulated interest on the investment over the five-year period. Also included as a cost was the interest lost by having capital invested in land rather than an alternative investment (see page 5 for a more complete discussion of land cost).

ANNUAL COSTS DURING ESTABLISHMENT

The estimated costs for each year are shown in two sets of Tables (an A and B set, see Table 3A through 7B). Tables 3A through 7A outline the schedule of field operations and per-acre cost by calendar month, the type of machinery and labor used, and the hours used per acre for the pear orchard for each of the five establishment years. The costs of field operations are divided into two categories: fixed and variable. Fixed costs include annual costs of machinery, building, irrigation equipment, and land ownership. The second category, variable costs, include such

Table 2. Five-Year Establishment Cost per Acre for a Pear Orchard in the Yakima Valley.

Establishment Year	Yearly Costs	Yearly Revenue[a]	Net Yearly Est. Costs	Accumulated Est. Costs
1	3,114.64	.00	3,114.64	3,114.64
2	1,403.96	.00	1,403.96	4,518.60
3	1,664.66	.00	1,664.66	6,183.26
4	2,139.61	392.00	1,747.61	7,930.87
5	2,770.69	784.00	1,986.69	9,917.56

[a] Production estimated at 2 tons in year 4 and 4 tons in year 5. Sale price to the grower estimated at $196 per ton. Pear prices during the 1988 season were $196 per ton for good canned quality pears. Industry estimates in 1989 indicate that this price is a reasonable estimate for the next several years.

costs as those associated with operating machinery, hiring labor, and purchasing services and materials. Total cost is the sum of fixed costs and variable costs.

Machinery, building, and irrigation system fixed costs include depreciation, interest on the average investment, property taxes, and insurance. These costs are incurred whether or not a crop is grown and do not vary, given ownership of a specific equipment and building complement. Per-hour fixed costs for machinery were determined by dividing the total annual fixed cost per machine by the annual hours of machinery use for the representative farm. Machinery fixed costs for a specific field operation were determined by multiplying the machine hours per acre times the per-hour machinery fixed cost figure (see Table 9). Building and irrigation fixed costs per acre were determined by dividing the total annual fixed cost by the number of acres.

Land fixed cost includes taxes and interest foregone on land investment. As used in this publication, the land interest cost is termed an opportunity cost to indicate that it is not an out-of-pocket expense, but rather a return that is foregone by the producer as a result of choosing to invest his capital in land rather than in an alternative investment. This cost of 10 percent of the land value represents the minimum return the owner-operator must have, apart from appreciation of land value, to justify keeping the capital invested in orchard land and continuing to farm the land himself. Of course, for the individual producer, cash costs such as interest payments on loans used to buy land must be identified and treated as cash costs and not as opportunity costs.

Beginning with year two, a fixed cost of 10 percent of the previous year(s) accumulated establishment cost is charged against the investment. This cost represents returns foregone by investing in the pear orchard rather than in an alternative investment that would give immediate returns.

Variable costs change with the number of acres farmed or with the enterprise. These costs include fuel, oil, repairs, fertilizer, chemicals, custom work, overhead (utilities, legal and accounting fees, etc.), and interest (12 percent) on operating capital. Hand labor and machinery operating labor were also included as variable costs.

The second set of tables (3B through 7B) present an itemized list of the costs in each respective "A" table. Most items are self-explanatory or have previously been explained. However, "Machinery Interest," "Building Interest," and "Irrigation Interest," warrant additional explanation. These values represent opportunity costs (returns that are foregone by investing in given equipment, building, and irrigation complement rather than in alternative investments) or interest paid to finance the given equipment, building, and irrigation complement--or both. Since machinery and buildings existed on the orchard prior to the reestablishment of the five

acres of pears and are used on the entire orchard, the total interest cost on these capital purchases was calculated on their averge annual value over their respective years of use. Since the irrigation system is purchased solely for this five-acre investment, the total interest cost on this capital purchase was calculated on its average annual value over the establishment period. The 10 percent interest charge made against these values represents total interest cost. These interest costs are fixed costs and their per-hour and per-acre allocations were calculated in the manner described on page 5 for building, irrigation, and machinery fixed costs.

The practices essential for the establishment of a commercial orchard in the Yakima Valley are summarized below. Table 8 presents the materials and services used per operation, per year.

Year 1 - First growing season.

Preplant preparation involves soil sampling for nutrient levels and fumigation with methyl bromide for avoidance of replant problems. Both of these practices are conducted in the fall before planting. In early spring (March), the ground is disced. Monoammonium phosphate (MAP, 18-46-0) fertilizer is used for the first growing season; positive growth responses are realized with MAP in a replant situation. Also in March, the tree rows are arranged and staked prior to planting.

At planting in March, the trees are headed back 30 inches above the soil line to force lateral branching. The tree trunks are wrapped with paper to provide protection from herbicide applications. The tree wraps are removed in October.

Three herbicide applications May, July, and August) are made with a chemical mowing agent. In-row discing is conducted shortly after the herbicide applications. In November, rodent control consists of soil-applied gopher baits and aerially-applied mouse poisons. Irrigation is applied throughout the growing season, about every 10 days, for a total of 36 acre-inches. The irrigation system is solid set, under-tree sprinklers. Frost control for newly established trees is unnecessary.

Year 2 - Second growing season.

In March, fertilizer is applied with a rotary spreader. Trees are pruned, with scaffold selection the primary objective. It is assumed that approximately three trees per acre will need to be replanted.

As in year one, three herbicide applications (chemical mowing or "burn-down"), followed by discing, are made. Pest control consists of two general insecticide sprays in May and August. Rodent control is continued with soil-applied gopher bait and aerially-applied mouse poison.

Irrigation is applied throughout the growing season, about every 10 days, for a total of 36 acre-inches. Frost control for trees in their second year of growth is unnecessary.

Year 3 - Third year after planting.

In the third growing season, more attention is paid to tree training in terms of limb bending and scaffold placement. An average of three wooden spreaders per tree is placed in the lowest tier of scaffolds. Pruning consists of heading the leader and scaffolds, as well as thinning out vigorous growth. The trees are fertilized and the in-row soil disced in March and June; a split application of fertilizer is recommended for vigor control. Two herbicide applications in March and July are adequate for weed control; discing follows the herbicide applications. Two pest control sprays in March and June are made for insect pests.

In the fall, a perennial grass is seeded between the rows. Also in November, the rodent control program is contined as in years one and two.

Irrigation scheduling is as in years one and two.

Year 4 - Fourth year after planting.

Tree training is a labor intensive component of orchard expenses during year four. An average of three spreaders per tree are placed in the second or third tier of scaffolds. Limb positioning is a critical practice for encouraging early production. The leader and scaffold are headed, and unwanted growth thinned out.

Fertilizer is applied in March and June. The herbicide program consists of a March-applied combination of Surflan and Princep for control of germinating seeds and seedlings, a July application of Gramoxone for chemical mowing.

Pest control involves a dormant spray in March for control of mites, scale, and aphids. A second insecticide application of Agri-Mek is made in June for general control. Rodent control is conducted as in years one through three. The orchard strips are mowed in May, June, and August. Irrigation is applied at approximately 10-day intervals for a total of 36 acre-inches during the growing season. Frost protection is not necessary during year 4. Any fruit that set during year 4 is removed by hand.

Year 5 - Fifth year after planting.

By year five, a modest amount of fruit may be produced. These fruit are destined for the cannery, so fruit thinning is not recommended. Tree training and pruning are continued. Beehives are placed in the orchard during the bloom period for adequate fruit set.

As in year four, a split application of fertilizer is recommended in March and June. The orchard strips are mowed in May, June, and August. A dormant spray is applied in March, and a general insecticide is sprayed in June. In addition, two pear psylla sprays are applied in June and July because of the presence of a crop.

Herbicides are applied in March and July as in year 4. The rodent control program is as in year 1 through 4. As in previous years, irrigation is

applied in 10-day intervals for a total of 36 acre-inches per season.

MACHINERY AND INPUT COSTS

Table 9 identifies the machine complement used to derive the cost estimates, including current purchase prices, annual hours of use, and per-hour fixed and variable costs.

Machinery fixed costs include depreciation and interest on investment, property taxes, and insurance--costs that do not vary with machine use. Note that interest on investment represents a 10 percent opportunity cost to the enterprise. These are earnings foregone by investing money in the machinery complement rather than in the next best alternative. This may also represent the interest paid on funds borrowed to finance machinery purchases.

Machinery variable costs include machine repair, fuel, and lubrication costs--costs that vary with machine use.

Table 10 indicates the prices used for fuel, fertilizer, chemicals, tree stock, and other selected inputs used in deriving these budgets.

CONCLUDING NOTE

Due to the procedures and assumptions used in this study, the results should be used advisedly. It was recognized by the growers and authors that the situation outlined is not characteristic of all orchard or farm opeations. For example, certain economics were gained by reestablishing this acreage on an existing farm operation. Conversely, added costs can be anticipated when the planting represents a separate business enterprise. Furthermore, in planting a given acreage, the dimensions of the field topography, and the need for roads, windbreaks, buildings, and service areas reduces the number of actual acres of orchard.

It is essential that this publication be used merely as a guide in determining reestablishment costs and that considerable judgment be exercised in generalizing cost estimates to situations differing from those outlined above. Moreover, this publication is not intended as a guide to planting practices. Rather, it represents the current technology used in the area.

TABLE 3A: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE OF ESTABLISHING PEARS IN THE YAKIMA VALLEY; YEAR 1.

OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL FIXED COST	VARIABLE COST: FUEL, LUBE, & REPAIRS	VARIABLE COST: LABOR	VARIABLE COST: SERVICE	VARIABLE COST: MATER.	VARIABLE COST: INTER.	TOTAL VARIABLE COST	TOTAL COST
						$	$	$	$	$	$	$	$
SOIL SAMPLE	CUSTOM HIRED	SEP	1988	.00	.00	.00	.00	.00	12.00	.00	.36	12.36	12.36
FUMIGATE	CUSTOM HIRED#	OCT	1988	.00	.00	.00	.00	.00	.00	400.00	8.00	408.00	408.00
DISC (2X)	65HP-WT, 8' DISC	MAR	1989	1.60	1.80	19.35	8.34	11.25	.00	.00	1.76	21.35	40.69
FERTILIZE	35HP-WT, FERTILIZER SPREADER	MAR	1989	.25	.30	1.72	.92	1.88	.00	22.95	2.32	28.07	29.79
LAYOUT & STAKE	35HP-WT, OUTRIGGER	MAR	1989	.67	.80	1.99	1.38	5.00	.00	.50	.62	7.50	9.49
HAUL PLANTS	PICKUP	MAR	1989	1.00	1.20	6.14	4.57	7.50	.00	.00	1.09	13.16	19.30
PLANT	65HP-WT, PLANTER (5 LABORERS)	MAR	1989	1.00	8.00	10.28	4.68	50.00	.00	1345.00	125.97	1525.65	1535.93
PRUNE	HAND LABOR, PRUNING TOOLS	MAR	1989	.00	1.60	.32	.00	10.00	.00	.00	.90	10.90	11.22
WRAP TREES	HAND LABOR	APR	1989	.00	4.50	.00	.00	28.13	.00	7.00	2.81	37.93	37.93
IRRIGATE	SOLID SET, 36 AC. IN.	SEA	1989	.00	3.00	137.00	20.00	18.75	87.00	.00	7.55	133.30	270.30
HERB. APPLIC.	65HP-WT, WEED SPRAYER	MAY	1989	.33	.40	2.40	1.61	2.50	.00	2.15	.44	6.69	9.10
DISC	65HP-WT, 8'DISC	JUN	1989	1.00	1.10	12.09	5.21	6.88	.00	.00	.73	12.81	24.90
HERB. APPLIC.	65HP-WT, WEED SPRAYER	JUL	1989	.33	.40	2.40	1.61	2.50	.00	2.15	.31	6.57	8.97
DISC	65HP-WT, 8' DISC	JUL	1989	1.00	1.10	12.09	5.21	6.88	.00	.00	.60	12.69	24.78
HERB. APPLIC.	65HP-WT, WEED SPRAYER	AUG	1989	.33	.40	2.40	1.61	2.50	.00	2.15	.25	6.51	8.91
DISC	65HP-WT, 8'DISC	AUG	1989	1.00	1.10	7.28	4.88	6.88	.00	.00	.47	12.22	19.50
REMOVE TREE WRAP	HAND LABOR	OCT	1989	.00	1.50	.00	.00	9.38	.00	.00	.19	9.56	9.56
GOPHER CONTROL	65HP-WT, GOPHER MACHINE	NOV	1989	.25	.30	2.29	1.11	1.88	.00	4.60	.08	7.66	9.95
MOUSE CONTROL	CUSTOM AERIAL	NOV	1989	.00	.00	.00	.00	.00	5.00	11.70	.17	16.87	16.87
MISC USE	PICK-UP	ANN	1989	9.00	10.80	55.26	41.14	67.50	.00	.00	6.52	115.16	170.42
MISC USE	SHOP TOOLS	ANN	1989	.00	.00	28.78	25.08	.00	.00	.00	1.50	26.59	55.37
MACH. SHED/SHOP	BUILDINGS	ANN	1989	.00	.00	36.37	3.75	.00	.00	.00	.23	3.97	40.35
OVERHEAD	UTILITIES,LEGAL,ACCT., ETC.	ANN	1989	.00	.00	.00	.00	.00	121.78	.00	.00	121.78	121.78
TAXES	LAND	ANN	1989	.00	.00	43.16	.00	.00	.00	.00	.00	.00	43.16
LAND COST	INTEREST ON INVESTMENT	ANN	1989	.00	.00	176.00	.00	.00	.00	.00	.00	.00	176.00
TOTAL PER ACRE				17.76	38.30	557.35	131.09	239.38	225.78	1798.19	162.85	2557.29	3114.64

#FUMIGATION COSTS INCLUDES APPLICATION.

TABLE 3B: ITEMIZED COST PER ACRE FOR ESTABLISHING PEARS IN THE YAKIMA VALLEY; YEAR 1.

	UNIT	PRICE OR COST/UNIT	QUANTITY	VALUE OR COST	YOUR FARM
VARIABLE COSTS		$		$	
SOIL SAMPLE	ACRE	12.00	1.00	12.00	_____
METHYL BROMIDE #	LBS.	1.00	400.00	400.00	_____
18-46-0 FERT.	LBS.	.17	135.00	22.95	_____
STAKING MATERIL	ACRE	.50	1.00	.50	_____
TREES	TREE	5.00	269.00	1345.00	_____
PAPER	ACRE	7.00	1.00	7.00	_____
GRAMOXONE	PINT	4.88	1.32	6.45	_____
ROZOL	LBS.	1.17	10.00	11.70	_____
STRYCHNINE OATS	LBS	1.15	4.00	4.60	_____
CUSTOM AERIAL	ACRE	5.00	1.00	5.00	_____
WATER CHARGE	ACRE	37.00	1.00	37.00	_____
ELECTRICAL CHG.	ACRE	50.00	1.00	50.00	_____
TRACTOR REPAIR	ACRE	13.59	1.00	13.59	_____
TRACTOR FUEL/LUBE	ACRE	11.90	1.00	11.90	_____
MACHINERY REPAIRS	ACRE	82.60	1.00	82.60	_____
MACHINE FUEL/LUBE	ACRE	23.00	1.00	23.00	_____
LABOR(TRAC/MACH)	ACRE	239.38	1.00	239.38	_____
OVERHEAD COST	ACRE	121.78	1.00	121.78	_____
INTEREST ON OP. CAP.	DOL.	.12	1357.09	162.85	_____

TOTAL VARIABLE COST				2557.29	_____
FIXED COSTS		$		$	
TRACTOR DEPRECIATION	ACRE	18.27	1.00	18.27	_____
TRACTOR INTEREST	ACRE	21.92	1.00	21.92	_____
TRACTOR INSURANCE	ACRE	1.10	1.00	1.10	_____
TRACTOR TAXES	ACRE	3.29	1.00	3.29	_____
MACHINE DEPRECIATION	ACRE	89.89	1.00	89.89	_____
MACHINE INTEREST	ACRE	144.73	1.00	144.73	_____
MACHINE INSURANCE	ACRE	5.66	1.00	5.66	_____
MACHINE TAXES	ACRE	16.95	1.00	16.95	_____
BUILDING DEPREC.	ACRE	9.38	1.00	9.38	_____
BUILDING INTEREST	ACRE	22.50	1.00	22.50	_____
BUILDING INSURANCE	ACRE	1.12	1.00	1.12	_____
BUILDING TAXES	ACRE	3.38	1.00	3.38	_____
LAND TAXES	ACRE	39.24	1.10	43.16	_____
INT. ON LAND	ACRE	160.00	1.10	176.00	_____

TOTAL FIXED COST				557.35	_____
TOTAL COST				3114.64	_____

#FUMIGATION COSTS INCLUDES APPLICATION.

TABLE 4A: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR ESTABLISHING PEARS IN THE YAKIMA VALLEY; YEAR 2.

OPERATION	TOOLING	MTH YEAR	MACH HOURS	LABOR HOURS	TOTAL FIXED COST	VARIABLE COST: FUEL, LUBE, & REPAIRS	VARIABLE COST: LABOR	VARIABLE COST: SERVICE	VARIABLE COST: MATER.	VARIABLE COST: INTER.	TOTAL VARIABLE COST	TOTAL COST
					$	$	$	$	$	$	$	$
PRUNE	HAND LABOR, PRUNING TOOLS	DEC-MAR 1990	.00	4.50	.91	.00	28.13	.00	.00	2.81	30.94	31.85
REPLANT TREES	35HP-WT, TRAILER	MAR 1990	.50	.50	2.47	1.46	3.13	.00	15.00	1.76	21.35	23.82
IRRIGATE	SOLID SET, 36 AC. IN.	SEA 1990	.00	3.00	137.00	20.00	18.75	87.00	.00	7.55	133.30	270.30
FERTILIZE	35HP-WT, FORKLIFT WITH BIN	MAR 1990	.90	3.00	7.96	4.51	18.75	.00	16.10	3.54	42.90	50.86
HERB. APPLIC.	65HP-WT, WEED SPRAYER	APR 1990	.33	.40	2.40	1.61	2.50	.00	2.15	.50	6.76	9.16
APLY INSECTICIDE	65HP-WT, SPRAYER W/HANDGUN	MAY 1990	.75	.85	5.46	3.66	5.31	.00	14.88	1.67	25.52	30.98
HERB. APPLIC.	65HP-WT, WEED SPRAYER	JUN 1990	.33	.40	2.40	1.61	2.50	.00	2.15	.38	6.63	9.03
DISC	65HP-WT, 8'DISC	JUN 1990	1.00	1.10	12.09	5.21	6.88	.00	.00	.73	12.81	24.90
HERB. APPLIC.	65HP-WT, WEED SPRAYER	JUL 1990	.33	.40	2.40	1.61	2.50	.00	2.15	.31	6.57	8.97
DISC	65HP-WT, 8' DISC	JUL 1990	1.00	1.10	12.09	5.21	6.88	.00	.00	.60	12.69	24.78
APLY INSECTICIDE	65HP-WT, SPRAYER W/HANDGUN	JUL 1990	.75	.85	5.46	3.66	5.31	.00	14.88	1.19	25.04	30.50
HERB. APPLIC.	65HP-WT, WEED SPRAYER	AUG 1990	.33	.40	2.40	1.61	2.50	.00	2.15	.25	6.51	8.91
DISC	65HP-WT, 8'DISC	AUG 1990	1.00	1.10	7.28	4.88	6.88	.00	.00	.47	12.22	19.50
GOPHER CONTROL	60HP-WT, GOPHER MACHINE	NOV 1990	.25	.30	2.29	1.11	1.88	.00	4.60	.08	7.66	9.95
MOUSE CONTROL	CUSTOM AERIAL	NOV 1990	.00	.00	.00	.00	.00	5.00	11.70	.17	16.87	16.87
MISC USE	PICK-UP	ANN 1990	9.00	10.80	55.26	41.14	67.50	.00	.00	6.52	115.16	170.42
MISC USE	SHOP TOOLS	ANN 1990	.00	.00	28.78	25.08	.00	.00	.00	1.50	26.59	55.37
MACH. SHED/SHOP	BUILDINGS	ANN 1990	.00	.00	36.37	3.75	.00	.00	.00	.23	3.97	40.35
OVERHEAD	UTILITIES,LEGAL,ACCT., ETC.	ANN 1990	.00	.00	.00	.00	.00	25.67	.00	.00	25.67	25.67
TAXES	LAND	ANN 1990	.00	.00	54.31	.00	.00	.00	.00	.00	.00	54.31
LAND COST	INTEREST ON INVESTMENT	ANN 1990	.00	.00	176.00	.00	.00	.00	.00	.00	.00	176.00
ESTAB. COST	INTEREST ON INVESTMENT	ANN 1990	.00	.00	311.46	.00	.00	.00	.00	.00	.00	311.46
TOTAL PER ACRE			16.47	28.70	864.80	126.11	179.38	117.67	85.75	30.25	539.16	1403.96

TABLE 4B: ITEMIZED COST PER ACRE FOR ESTABLISHING PEARS IN THE YAKIMA VALLEY; YEAR 2.

	UNIT	PRICE OR COST/UNIT	QUANTITY	VALUE OR COST	YOUR FARM
VARIABLE COSTS		$		$	
TREES	TREE	5.00	3.00	15.00	_____
AMMON. NITRATE	LBS	.08	161.00	13.30	_____
GRAMOXONE	PINT	4.88	1.76	8.60	_____
AMITRAZ	LBS.	19.84	1.50	29.76	_____
STRYCHNINE OATS	LBS	1.15	4.00	4.60	_____
ROZOL	LBS.	1.17	10.00	11.70	_____
CUSTOM AERIAL	ACRE	5.00	1.00	5.00	_____
WATER CHARGE	ACRE	37.00	1.00	37.00	_____
ELECTRICAL CHG.	ACRE	50.00	1.00	50.00	_____
TRACTOR REPAIR	ACRE	12.69	1.00	12.69	_____
TRACTOR FUEL/LUBE	ACRE	11.37	1.00	11.37	_____
MACHINERY REPAIRS	ACRE	81.34	1.00	81.34	_____
MACHINE FUEL/LUBE	ACRE	20.70	1.00	20.70	_____
LABOR(TRAC/MACH)	ACRE	179.38	1.00	179.38	_____
OVERHEAD COST	ACRE	25.67	1.00	25.67	_____
INTEREST ON OP. CAP.	DOL.	.12	252.12	30.25	_____

TOTAL VARIABLE COST				539.16	_____
FIXED COSTS		$		$	
TRACTOR DEPRECIATION	ACRE	17.07	1.00	17.07	_____
TRACTOR INTEREST	ACRE	20.48	1.00	20.48	_____
TRACTOR INSURANCE	ACRE	1.02	1.00	1.02	_____
TRACTOR TAXES	ACRE	3.07	1.00	3.07	_____
MACHINE DEPRECIATION	ACRE	85.27	1.00	85.27	_____
MACHINE INTEREST	ACRE	138.39	1.00	138.39	_____
MACHINE INSURANCE	ACRE	5.34	1.00	5.34	_____
MACHINE TAXES	ACRE	16.00	1.00	16.00	_____
BUILDING DEPREC.	ACRE	9.38	1.00	9.38	_____
BUILDING INTEREST	ACRE	22.50	1.00	22.50	_____
BUILDING INSURANCE	ACRE	1.12	1.00	1.12	_____
BUILDING TAXES	ACRE	3.38	1.00	3.38	_____
LAND TAXES	ACRE	49.37	1.10	54.31	_____
INT. ON LAND	ACRE	160.00	1.10	176.00	_____
INT. ON ESTAB.	ACRE	311.46	1.00	311.46	_____

TOTAL FIXED COST				864.80	_____
TOTAL COST				1403.96	_____

TABLE 5A: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR ESTABLISHING PEARS IN THE YAKIMA VALLEY; YEAR 3.

OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL FIXED COST	VARIABLE COST: FUEL, LUBE, & REPAIRS	VARIABLE COST: LABOR	VARIABLE COST: SERVICE	VARIABLE COST: MATER.	VARIABLE COST: INTER.	TOTAL VARIABLE COST	TOTAL COST
						$	$	$	$	$	$	$	$
TRAINING	SPREAD TREES	DEC-MAR	1991	.00	4.50	.00	.00	28.13	.00	40.35	6.85	75.32	75.32
PRUNE	HAND LABOR, PRUNING TOOLS	DEC-MAR	1991	.00	9.00	1.82	.00	56.25	.00	.00	5.63	61.87	63.70
IRRIGATE	SOLID SET, 36 AC. IN.	SEA	1991	.00	3.00	137.00	20.00	18.75	87.00	.00	7.55	133.30	270.30
FERTILIZE	35HP-WT, FERTILIZER SPREADER	MAR	1991	.25	.30	1.72	.92	1.88	.00	21.88	2.22	26.90	28.62
DORMANT SPRAY	65HP-WT, SPRAYER W/HANDGUN	MAR	1991	.75	.85	5.46	3.66	5.31	.00	4.80	1.24	15.01	20.47
HERB. APPLIC.	65HP-WT, WEED SPRAYER	MAR	1991	.33	.40	2.40	1.61	2.50	.00	7.36	1.03	12.50	14.90
DISC	65HP-WT, 8' DISC	MAY	1991	1.00	1.10	12.09	5.21	6.88	.00	.00	.85	12.93	25.02
APLY INSECTICIDE	65HP-WT, SPRAYER W/HANDGUN	JUN	1991	.75	.85	5.46	3.66	5.31	.00	7.55	.99	17.51	22.97
FERTILIZE	35HP-WT, FERTILIZER SPREADER	JUN	1991	.25	.30	1.72	.92	1.88	.00	12.10	.89	15.79	17.52
DISC	65HP-WT, 8'DISC	JUN	1991	1.00	1.10	12.09	5.21	6.88	.00	.00	.73	12.81	24.90
HERB. APPLIC.	65HP-WT, WEED SPRAYER	JUL	1991	.33	.40	2.40	1.61	2.50	.00	2.15	.31	6.57	8.97
DISC	65HP-WT, 8' DISC	JUL	1991	1.00	1.10	12.09	5.21	6.88	.00	.00	.60	12.69	24.78
DISC	65HP-WT, 8'DISC	AUG	1991	1.00	1.10	7.28	4.88	6.88	.00	.00	.47	12.22	19.50
FLOAT	65HP-WT, 8' FLOAT	AUG	1991	1.00	1.10	11.67	5.09	6.88	.00	.00	.48	12.44	24.11
SEED GRASS	35HP-WT, RENTED SEEDER	SEP	1991	.25	.30	.74	.51	1.88	2.50	9.00	.42	14.31	15.05
MOUSE CONTROL	CUSTOM AERIAL	NOV	1991	.00	.00	.00	.00	.00	5.00	11.70	.17	16.87	16.87
GOPHER CONTROL	65HP-WT, GOPHER MACHINE	NOV	1991	.25	.30	2.29	1.11	1.88	.00	4.60	.08	7.66	9.95
MISC USE	PICK-UP	ANN	1991	9.00	10.80	55.26	41.14	67.50	.00	.00	6.52	115.16	170.42
MISC USE	SHOP TOOLS	ANN	1991	.00	.00	28.78	25.08	.00	.00	.00	1.50	26.59	55.37
MACH. SHED/SHOP	BUILDINGS	ANN	1991	.00	.00	36.37	3.75	.00	.00	.00	.23	3.97	40.35
OVERHEAD	UTILITIES,LEGAL,ACCT., ETC.	ANN	1991	.00	.00	.00	.00	.00	30.62	.00	.00	30.62	30.62
TAXES	LAND	ANN	1991	.00	.00	57.09	.00	.00	.00	.00	.00	.00	57.09
LAND COST	INTEREST ON INVESTMENT	ANN	1991	.00	.00	176.00	.00	.00	.00	.00	.00	.00	176.00
ESTAB. COST	INTEREST ON INVESTMENT	ANN	1991	.00	.00	451.86	.00	.00	.00	.00	.00	.00	451.86
TOTAL PER ACRE				17.16	36.50	1021.62	129.57	228.13	125.12	121.49	38.74	643.05	1664.66

TABLE 5B: ITEMIZED COST PER ACRE FOR ESTABLISHING PEARS IN THE YAKIMA VALLEY; YEAR 3.

	UNIT	PRICE OR COST/UNIT	QUANTITY	VALUE OR COST	YOUR FARM
VARIABLE COSTS		$		$	
SPREADERS	SPR.	.05	807.00	40.35	_____
SUPERIOR OIL	GAL	2.40	2.13	5.10	_____
AMMON. NITRATE	LBS	.10	242.00	24.20	_____
BORON	LBS.	3.26	3.00	9.78	_____
PROWL	QT.	7.36	1.00	7.36	_____
AGRI-MEK	OZ.	1.45	5.00	7.25	_____
GRAMOXONE	PINT	4.88	.44	2.15	_____
RENTED SEEDER	ACRE	2.50	1.00	2.50	_____
GRASS SEED	LBS.	.90	10.00	9.00	_____
CUSTOM AERIAL	ACRE	5.00	1.00	5.00	_____
ROZOL	LBS.	1.17	10.00	11.70	_____
STRYCHNINE OATS	LBS	1.15	4.00	4.60	_____
WATER CHARGE	ACRE	37.00	1.00	37.00	_____
ELECTRICAL CHG.	ACRE	50.00	1.00	50.00	_____
TRACTOR REPAIR	ACRE	14.51	1.00	14.51	_____
TRACTOR FUEL/LUBE	ACRE	12.64	1.00	12.64	_____
MACHINERY REPAIRS	ACRE	81.72	1.00	81.72	_____
MACHINE FUEL/LUBE	ACRE	20.70	1.00	20.70	_____
LABOR(TRAC/MACH)	ACRE	228.13	1.00	228.13	_____
OVERHEAD COST	ACRE	30.62	1.00	30.62	_____
INTEREST ON OP. CAP.	DOL.	.12	322.83	38.74	_____

TOTAL VARIABLE COST				643.05	_____
FIXED COSTS		$		$	
TRACTOR DEPRECIATION	ACRE	19.52	1.00	19.52	_____
TRACTOR INTEREST	ACRE	23.42	1.00	23.42	_____
TRACTOR INSURANCE	ACRE	1.17	1.00	1.17	_____
TRACTOR TAXES	ACRE	3.51	1.00	3.51	_____
MACHINE DEPRECIATION	ACRE	88.59	1.00	88.59	_____
MACHINE INTEREST	ACRE	142.00	1.00	142.00	_____
MACHINE INSURANCE	ACRE	5.52	1.00	5.52	_____
MACHINE TAXES	ACRE	16.54	1.00	16.54	_____
BUILDING DEPREC.	ACRE	9.38	1.00	9.38	_____
BUILDING INTEREST	ACRE	22.50	1.00	22.50	_____
BUILDING INSURANCE	ACRE	1.12	1.00	1.12	_____
BUILDING TAXES	ACRE	3.38	1.00	3.38	_____
LAND TAXES	ACRE	51.90	1.10	57.09	_____
INT. ON LAND	ACRE	160.00	1.10	176.00	_____
INT. ON ESTAB.	ACRE	451.73	1.00	451.73	_____

TOTAL FIXED COST				1021.62	_____
TOTAL COST				1664.66	_____

TABLE 6A: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR ESTABLISHING PEARS IN THE YAKIMA VALLEY; YEAR 4.

OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL FIXED COST	VARIABLE COST: FUEL, LUBE, & REPAIRS	VARIABLE COST: LABOR	VARIABLE COST: SERVICE	VARIABLE COST: MATER.	VARIABLE COST: INTER.	TOTAL VARIABLE COST	TOTAL COST
						$	$	$	$	$	$	$	$
TRAINING	SPREAD TREES	DEC-MAR	1992	.00	16.00	.00	.00	100.00	.00	40.35	14.04	154.39	154.39
PRUNE	HAND LABOR, PRUNING TOOLS	DEC-MAR	1992	.00	31.50	6.38	.00	196.88	.00	.00	19.69	216.56	222.95
IRRIGATE	SOLID SET, 36 AC. IN.	SEA	1992	.00	3.00	137.00	20.00	18.75	87.00	.00	7.55	133.30	270.30
FERTILIZE	35HP-WT, FERTILIZER SPREADER	MAR	1992	.25	.30	1.72	.92	1.88	.00	21.88	2.22	26.90	28.62
DORMANT SPRAY	65HP-WT, SPRAYER W/HANDGUN	MAR	1992	.75	.85	5.46	3.66	5.31	.00	4.80	1.24	15.01	20.47
HERB. APPLIC.	65HP-WT, WEED SPRAYER	MAR	1992	.33	.40	2.40	1.61	2.50	.00	37.31	3.73	45.15	47.55
MOW	65HP-WT, 9' ROTARY MOWER	MAY	1992	.50	.55	5.14	2.75	3.44	.00	.00	.43	6.62	11.76
APLY INSECTICIDE	65HP-WT, SPRAYER W/HANDGUN	JUN	1992	.75	.85	5.46	3.66	5.31	.00	7.55	.99	17.51	22.97
FERTILIZE	35HP-WT, FERTILIZER SPREADER	JUN	1992	.25	.30	1.72	.92	1.88	.00	12.10	.89	15.79	17.52
MOW	65HP-WT, 9' ROTARY MOWER	JUN	1992	.50	.55	5.14	2.75	3.44	.00	.00	.37	6.56	11.70
HERB. APPLIC.	65HP-WT, WEED SPRAYER	JUL	1992	.33	.40	2.40	1.61	2.50	.00	10.40	.73	15.23	17.63
MOW	65HP-WT, 9' ROTARY MOWER	AUG	1992	.50	.55	5.14	2.75	3.44	.00	.00	.25	6.44	11.58
HARVEST	35HP-WT, BACKFORK & BIN	SEP	1992	4.00	12.00	13.77	9.53	75.00	.00	.00	2.54	87.07	100.83
MOUSE CONTROL	CUSTOM AERIAL	NOV	1992	.00	.00	.00	.00	.00	5.00	11.70	.17	16.87	16.87
GOPHER CONTROL	65HP-WT, GOPHER MACHINE	NOV	1992	.25	.30	2.29	1.11	1.88	.00	4.60	.08	7.66	9.95
MISC USE	PICK-UP	ANN	1992	9.00	10.80	55.26	41.14	67.50	.00	.00	6.52	115.16	170.42
MISC USE	SHOP TOOLS	ANN	1992	.00	.00	28.78	25.08	.00	.00	.00	1.50	26.59	55.37
MACH. SHED/SHOP	BUILDINGS	ANN	1992	.00	.00	36.37	3.75	.00	.00	.00	.23	3.97	40.35
OVERHEAD	UTILITIES,LEGAL,ACCT., ETC.	ANN	1992	.00	.00	.00	.00	.00	45.84	.00	.00	45.84	45.84
TAXES	LAND	ANN	1992	.00	.00	61.27	.00	.00	.00	.00	.00	.00	61.27
LAND COST	INTEREST ON INVESTMENT	ANN	1992	.00	.00	176.00	.00	.00	.00	.00	.00	.00	176.00
ESTAB. COST	INTEREST ON INVESTMENT	ANN	1992	.00	.00	618.33	.00	.00	.00	.00	.00	.00	618.33
TOTAL PER ACRE				17.41	78.35	1170.05	121.25	489.69	137.84	150.69	63.15	962.61	2132.66

TABLE 6B: ITEMIZED COST PER ACRE FOR ESTABLISHING PEARS IN THE YAKIMA VALLEY; YEAR 4.

	UNIT	PRICE OR COST/UNIT	QUANTITY	VALUE OR COST	YOUR FARM
VARIABLE COSTS		$		$	
SPREADERS	SPR.	.05	807.00	40.35	_____
SUPERIOR OIL	GAL	2.40	2.13	5.10	_____
AMMON. NITRATE	LBS	.10	242.00	24.20	_____
BORON	LBS.	3.26	3.00	9.78	_____
PRINCEP-80W	LB.	3.00	1.25	3.75	_____
SURFLAN	GAL	67.12	.50	33.56	_____
AGRI-MEK	OZ.	1.45	5.00	7.25	_____
GRAMOXONE	PINT	4.88	.44	2.15	_____
ENVY	QT	5.50	1.50	8.25	_____
STRYCHNINE OATS	LBS	1.15	4.00	4.60	_____
ROZOL	LBS.	1.17	10.00	11.70	_____
CUSTOM AERIAL	ACRE	5.00	1.00	5.00	_____
WATER CHARGE	ACRE	37.00	1.00	37.00	_____
ELECTRICAL CHG.	ACRE	50.00	1.00	50.00	_____
TRACTOR REPAIR	ACRE	11.77	1.00	11.77	_____
TRACTOR FUEL/LUBE	ACRE	11.88	1.00	11.88	_____
MACHINERY REPAIRS	ACRE	76.91	1.00	76.91	_____
MACHINE FUEL/LUBE	ACRE	20.70	1.00	20.70	_____
LABOR(TRAC/MACH)	ACRE	489.69	1.00	489.69	_____
OVERHEAD COST	ACRE	45.84	1.00	45.84	_____
INTEREST ON OP. CAP.	DOL.	.12	526.31	63.15	_____

TOTAL VARIABLE COST				962.61	_____
FIXED COSTS		$		$	
TRACTOR DEPRECIATION	ACRE	15.82	1.00	15.82	_____
TRACTOR INTEREST	ACRE	18.99	1.00	18.99	_____
TRACTOR INSURANCE	ACRE	.95	1.00	.95	_____
TRACTOR TAXES	ACRE	2.85	1.00	2.85	_____
MACHINE DEPRECIATION	ACRE	85.00	1.00	85.00	_____
MACHINE INTEREST	ACRE	134.00	1.00	134.00	_____
MACHINE INSURANCE	ACRE	5.12	1.00	5.12	_____
MACHINE TAXES	ACRE	15.34	1.00	15.34	_____
BUILDING DEPREC.	ACRE	9.38	1.00	9.38	_____
BUILDING INTEREST	ACRE	22.50	1.00	22.50	_____
BUILDING INSURANCE	ACRE	1.12	1.00	1.12	_____
BUILDING TAXES	ACRE	3.38	1.00	3.38	_____
LAND TAXES	ACRE	55.70	1.10	61.27	_____
INT. ON LAND	ACRE	160.00	1.10	176.00	_____
INT. ON ESTAB.	ACRE	618.33	1.00	618.33	_____

TOTAL FIXED COST				1177.00	_____
TOTAL COST				2139.61	_____

TABLE 7A: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR ESTABLISHING PEARS IN THE YAKIMA VALLEY; YEAR 5

OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL FIXED COST	VARIABLE COST: FUEL, LUBE, & REPAIRS	VARIABLE COST: LABOR	VARIABLE COST: SERVICE	VARIABLE COST: MATER.	VARIABLE COST: INTER.	TOTAL VARIABLE COST	TOTAL COST
						$	$	$	$	$	$	$	$
TRAINING	SPREAD TREES	DEC-MAR	1993	.00	22.50	.00	.00	140.63	.00	.00	14.06	154.69	154.69
PRUNE	HAND LABOR, PRUNING TOOLS	DEC-MAR	1993	.00	45.00	9.12	.00	281.25	.00	.00	28.13	309.37	318.50
IRRIGATE	SOLID SET, 36 AC. IN.	SEA	1993	.00	3.00	137.00	20.00	18.75	87.00	.00	7.55	133.30	270.30
FERTILIZE	35HP-WT, FERTILIZER SPREADER	MAR	1993	.25	.30	1.72	.92	1.88	.00	20.00	2.05	24.85	26.57
DORMANT SPRAY	65HP-WT, BLAST SPRAYER	MAR	1993	.50	.55	7.12	6.72	3.44	.00	24.09	3.08	37.32	44.45
HERB. APPLIC.	65HP-WT, WEED SPRAYER	MAR	1993	.33	.40	2.40	1.61	2.50	.00	37.31	3.73	45.15	47.55
BEE RENTAL	BEE HIVES (2)	APR	1993	.00	.00	.00	.00	.00	.00	70.00	5.60	75.60	75.60
MOW	65HP-WT, 9' ROTARY MOWER	MAY	1993	.50	.55	5.14	2.75	3.44	.00	.00	.43	6.62	11.76
FERTILIZE	35HP-WT, FERTILIZER SPREADER	JUN	1993	.25	.30	1.72	.92	1.88	.00	20.00	1.37	24.17	25.89
APLY INSECTICIDE	65HP-WT, BLAST SPRAYER	JUN	1993	.50	.55	7.12	6.72	3.44	.00	15.70	1.55	27.41	34.53
PEAR PSYLLA SPY.	65HP-WT, BLAST SPRAYER	JUN	1993	.50	.55	7.12	6.72	3.44	.00	40.94	3.07	54.16	61.28
MOW	65HP-WT, 9' ROTARY MOWER	JUN	1993	.50	.55	5.14	2.75	3.44	.00	.00	.37	6.56	11.70
PEAR PSYLLA SPY.	65HP-WT, BLAST SPRAYER	JUL	1993	.50	.55	7.12	6.72	3.44	.00	40.94	2.55	53.65	60.77
HERB. APPLIC.	65HP-WT, WEED SPRAYER	JUL	1993	.33	.40	2.40	1.61	2.50	.00	10.40	.73	15.23	17.63
MOW	65HP-WT, 9' ROTARY MOWER	AUG	1993	.50	.55	5.14	2.75	3.44	.00	.00	.25	6.44	11.58
HARVEST	35HP-WT, BACKFORK & BIN	SEP	1993	8.00	24.00	27.53	19.06	150.00	.00	.00	5.07	174.13	201.67
MOUSE CONTROL	CUSTOM AERIAL	NOV	1993	.00	.00	.00	.00	.00	5.00	11.70	.17	16.87	16.87
GOPHER CONTROL	65HP-WT, GOPHER MACHINE	NOV	1993	.25	.30	2.29	1.11	1.88	.00	4.60	.08	7.66	9.95
MISC USE	PICK-UP	ANN	1993	9.00	10.80	55.26	41.14	67.50	.00	.00	6.52	115.16	170.42
MISC USE	SHOP TOOLS	ANN	1993	.00	.00	28.78	25.08	.00	.00	.00	1.50	26.59	55.37
MACH. SHED/SHOP	BUILDINGS	ANN	1993	.00	.00	36.37	3.75	.00	.00	.00	.23	3.97	40.35
OVERHEAD	UTILITIES,LEGAL,ACCT., ETC.	ANN	1993	.00	.00	.00	.00	.00	65.94	.00	.00	65.94	65.94
TAXES	LAND	ANN	1993	.00	.00	68.22	.00	.00	.00	.00	.00	.00	68.22
LAND COST	INTEREST ON INVESTMENT	ANN	1993	.00	.00	176.00	.00	.00	.00	.00	.00	.00	176.00
ESTAB. COST	INTEREST ON INVESTMENT	ANN	1993	.00	.00	793.09	.00	.00	.00	.00	.00	.00	793.09
TOTAL PER ACRE				21.91	110.85	1385.85	150.34	692.81	157.94	295.66	88.07	1384.84	2770.69

TABLE 7B: ITEMIZED COST PER ACRE FOR ESTABLISHING PEARS IN THE YAKIMA VALLEY; YEAR 5

	UNIT	PRICE OR COST/UNIT	QUANTITY	VALUE OR COST	YOUR FARM
VARIABLE COSTS		$		$	
SUPERIOR OIL	GAL	2.40	3.50	8.40	_____
BAYTHROID	OZ.	5.47	1.50	8.20	_____
COPPER	LBS	2.17	4.00	8.68	_____
AMMON. NITRATE	LBS	.10	400.00	40.00	_____
PRINCEP-80W	LB.	3.00	1.25	3.75	_____
SURFLAN	GAL	67.12	.50	33.56	_____
BEES	HIVE	35.00	2.00	70.00	_____
GUTHION	LBS	4.47	5.00	22.34	_____
MITAK	LB.	19.84	3.00	59.52	_____
AGRI-MEK	OZ.	1.45	10.00	14.50	_____
GRAMOXONE	PINT	4.88	.44	2.15	_____
ENVY	QT	5.50	1.50	8.25	_____
ROZOL	LBS.	1.17	10.00	11.70	_____
STRYCHNINE OATS	LBS	1.15	4.00	4.60	_____
CUSTOM AERIAL	ACRE	5.00	1.00	5.00	_____
WATER CHARGE	ACRE	37.00	1.00	37.00	_____
ELECTRICAL CHG.	ACRE	50.00	1.00	50.00	_____
TRACTOR REPAIR	ACRE	16.69	1.00	16.69	_____
TRACTOR FUEL/LUBE	ACRE	17.73	1.00	17.73	_____
MACHINERY REPAIRS	ACRE	95.23	1.00	95.23	_____
MACHINE FUEL/LUBE	ACRE	20.70	1.00	20.70	_____
LABOR(TRAC/MACH)	ACRE	692.81	1.00	692.81	_____
OVERHEAD COST	ACRE	65.94	1.00	65.94	_____
INTEREST ON OP. CAP.	DOL.	.12	733.95.	88.07	_____

TOTAL VARIABLE COST				1384.84	_____
FIXED COSTS		$		$	
TRACTOR DEPRECIATION	ACRE	22.44	1.00	22.44	_____
TRACTOR INTEREST	ACRE	26.93	1.00	26.93	_____
TRACTOR INSURANCE	ACRE	1.35	1.00	1.35	_____
TRACTOR TAXES	ACRE	4.04	1.00	4.04	_____
MACHINE DEPRECIATION	ACRE	94.74	1.00	94.74	_____
MACHINE INTEREST	ACRE	140.83	1.00	140.83	_____
MACHINE INSURANCE	ACRE	5.46	1.00	5.46	_____
MACHINE TAXES	ACRE	16.37	1.00	16.37	_____
BUILDING DEPREC.	ACRE	9.38	1.00	9.38	_____
BUILDING INTEREST	ACRE	22.50	1.00	22.50	_____
BUILDING INSURANCE	ACRE	1.12	1.00	1.12	_____
BUILDING TAXES	ACRE	3.38	1.00	3.38	_____
LAND TAXES	ACRE	62.02	1.10	68.22	_____
INT. ON LAND	ACRE	160.00	1.10	176.00	_____
INT. ON ESTAB.	ACRE	793.09	1.00	793.09	_____

TOTAL FIXED COST				1385.85	_____
TOTAL COST				2770.69	_____

Table 8. Materials or Services Applied per Acre by Operation.

Operation	Materials or Services Applied
Year 1:	
Soil Sample (September)	Custom hired @ $12/acre.
Fumigate (October)	400 lbs. of Methyl Bromide @ $1/lb. including application.
Layout and Stake (March)	Staking material @ $.50/acre.
Plant (March)	269 trees @ $5/tree.
Wrap Trees (April)	Wrapping paper @ $7/acre.
Irrigate (Seasonal)	Water charge @ $37/acre. Electrical charge @ $50/acre.
Herbicide Application (June)	.44 pt. of Gramoxone @ $4.88/pt.
Herbicide Application (July)	.44 pt. of Gramoxone @ $4.88/pt.
Herbicide Application (August)	.44 pt. of Gramoxone @ $4.88/pt.
Gopher Control (November)	4 lbs. of strychnine oats @ $1.15/lb.
Mouse Control (November)	Custom applied @ $5/acre. 10 lbs. of Rozol @ $1.17/lb.
Overhead (Annual)	5% of variable costs.
Year 2:	
Replant Trees (March)	3 trees @ $5/tree.
Irrigate (Seasonal)	Water charge @ $37/acre. Electrical charge @ $50/acre.
Fertilize (March)	161 lbs. of ammonium nitrate @ $.08/lb.
Herbicide Application (April)	.44 pt. of Gramoxone @ $4.88/pt.
Insecticide Application (May)	.75 pt. of Amitraz @ $19.84/lb.

Table 8. Continued

Operation	Materials or Services Applied
Herbicide Application (June)	.44 pt. of Gramoxone @ $4.88/pt.
Herbicide Application (July)	.44 pt. of Gramoxone @ $4.88/pt.
Insecticide Application (July)	.75 lbs. of Amitraz @ $19.84/lb.
Herbicide Application (August)	.44 pt. of Gramoxone @ $4.88/pt.
Gopher Control (November)	4 lbs. of strychnine oats @ $1.15/lb.
Mouse Control (November)	Custom aerial @ $5/acre. 10 lbs. of Rozol @ $1.17/lb.
Overhead (Annual)	5% of variable costs.
Year 3:	
Training (Dec.-March)	807 spreaders @ $.05/spreader.
Irrigate (Seasonal)	Water charge @ $37/acre. Electrical charge @ $50/acre.
Fertilizer (March)	121 lbs. of ammonium nitrate @ $.08/lb. and 3 lbs. of boron (borax) @ $3.26/lb.
Dormant Spray (March)	2 gal. of superior oil @ $2.40/gal.
Herbicide Application (March)	1 qt. of Prowl @ $7.26/qt.
Apply Insecticide (June)	.125 gal. of superior oil @ $2.40/gal. and 5 oz. of Agri-Mek @ $1.45/oz.
Fertilizer (June)	121 lbs. of ammonium nitrate @ $.08/lb.
Herbicide Application (July)	.44 pt. of Gramoxone @ $4.88/pt.

Table 8. Continued.

Operation	Materials or Services Applied
Seed Grass (October)	Rental seeder @ $2.50/acre. 10 lbs. of seed @ $.90/lb.
Mouse Control (November)	Custom applied @ $5/acre. 10 lbs. of Rozol @ $1.17/lb.
Gopher Control (November)	4 lbs. of strychnine oats @ $1.15/lb.
Overhead (Annual)	5% of variable costs.
Year 4:	
Training (Dec.-March)	807 spreaders @ $.05/spreader.
Irrigate (Seasonal)	Water charge @ $37/acre. Electrical charge @ $50/acre.
Fertilize (March)	121 lbs. of ammonium nitrate @ $.08/lb. and 3 lbs. of boron (borax) @ $3.26/lb.
Dormant Spray (March)	2 gals. of superior oil @ $2.40/gal.
Herbicide Application (March)	1.25 lbs. of Princep-80 @ $3.00/lb. 1/2 gal. of Surflan @ $67.12/gal.
Apply Insecticide (June)	.125 gal. of superior oil @ $2.40/gal. 5 ozs. of Agri-Mek @ $1.45/oz.
Fertilize (June)	121 lbs. of ammonium nitrte @ $.08/lb.
Herbicide Application (July)	.44 pt. of Gramoxone @ $4.88/pt. 1.5 qts. of Envy @ $5.50/qt.
Mouse Control (November)	Custom applied @ $5/acre. 10 lbs. of Rozol @ $1.17 lb.
Gopher Control (November)	4 lbs. of strychnine oats @ $1.15/lb.

Table 8. Continued.

Operation	Materials and Services Applied
Overhead (Annual)	5% of variable costs.
Year 5:	
Irrigate (Seasonal)	Water charge @ $37/acre. Electrical charge @ $50/acre.
Fertilizer (March)	200 lbs. of ammonium nitrate @ $.08/lb.
Dormant Spray (March)	3 gals. of superior oil @ $2.40/gal. 1.5 ozs. of Baythroid @ $5.47/oz. 4 lbs. of copper @ $2.17/lb.
Herbicide Application (March)	1.25 lbs. of Princep-80W @ $3.00/lb. 1/2 gal. of Surflan @ $67.12/gal.
Bee Rental (April)	2 beehives @ $35.00/hive.
Fertilize (June)	200 lbs. of ammonium nitrate @ $.08/lb.
Apply Insecticide (June)	1/2 gal. of superior oil @ $2.40/gal. 10 ozs. of Agri-Mek @ $1.45/oz.
Pear Psylla Spray (June)	2.5 lbs. of Guthion @ $4.47/lb. 1.25 lbs. of Mitak @ $19.84/lb.
Pear Psylla Spray (July)	2.5 lbs. of Guthion @ $4.47/lb. 1.25 lbs. of Mitak @ $19.84/lb.
Herbicide Application (July)	.44 pts. of Gramoxone @ $4.88/pt. 1.5 qts. of Envy @ $5.50/qt.
Mouse Control (November)	Custom applied @ $5/acre 10 lbs. of Rozol @ $1.17 lb.
Gopher Control (November)	4 lbs. of strychnine oats @ $1.15/lb.
Overhead (Annual)	5% of variable costs.

TABLE 9: MACHINERY COMPLEMENT

MACHINERY	PURCHASE PRICE	YEARS TO TRADE	ANNUAL HOURS	DEPREC-IATION	INTER-EST	INSUR-ANCE	TAXES	HOUSING	TOTAL FIXED COST	REPAIR	FUEL AND LUBE	TOTAL VARIABLE COST	TOTAL COST
	$			COST PER HOUR									
60HP,4WD TRACTOR	18,200.00	12	500	2.28	2.73	.14	.41	.00	5.55	1.69	1.44	3.13	8.68
35HP TRACTOR	9,760.00	12	500	1.22	1.46	.07	.22	.00	2.98	.91	1.15	2.06	5.03
8' DISC	4,300.00	15	100	2.59	2.83	.14	.42	.00	5.98	1.77	.00	1.77	7.75
10'X 16' FLOAT	700.00	15	50	.84	.92	.05	.14	.00	1.95	.31	.00	.31	2.26
TRAILER	1,200.00	15	100	.72	.79	.04	.12	.00	1.67	.66	.00	.66	2.33
SUBSOILER	400.00	15	50	.48	.53	.03	.08	.00	1.11	.44	.00	.44	1.55
FERT. SPREADER	1,300.00	15	50	1.57	1.71	.09	.26	.00	3.62	1.43	.00	1.43	5.05
ROTOTILLER	3,900.00	10	150	2.14	1.84	.09	.28	.00	4.34	2.14	.00	2.14	6.49
100 GAL SPRAYER	1,400.00	10	200	.58	.49	.02	.07	.00	1.17	1.44	.00	1.44	2.61
PTO SPRAYER	9,750.00	10	200	4.01	3.44	.17	.52	.00	8.14	10.00	.00	10.00	18.14
GOPHER MACHINE	1,100.00	15	50	1.33	1.45	.07	.22	.00	3.06	.98	.00	.98	4.05
PICKUP	15,000.00	10	400	2.64	2.91	.15	.44	.00	6.14	2.27	2.30	4.57	10.71
9' ROTARY MOWER	3,750.00	10	150	2.06	1.77	.09	.26	.00	4.18	2.06	.00	2.06	6.24
FORKLIFT	5,000.00	10	150	2.74	2.35	.12	.35	.00	5.57	2.75	.00	2.75	8.32
BACKFORK	150.00	10	150	.08	.07	.00	.01	.00	.17	.12	.00	.12	.29
WIND MACHINE	15,000.00	25	75	8.00	14.88	.60	1.80	.00	25.28	8.71	10.35	19.06	44.34
FLAIL	6,000.00	4	150	6.32	3.28	.16	.49	.00	10.26	11.98	.00	11.98	22.24
PLANTER	600.00	15	20	1.81	1.97	.10	.30	.00	4.18	1.23	.00	1.23	5.41
FLOAT	800.00	15	20	2.41	2.63	.13	.39	.00	5.57	1.64	.00	1.64	7.21
				COST PER ACRE									
HAND SHOVELS	10.00	3	-	.08	.02	.00	.00	.00	.10	.00	.00	.00	.10
IRRIGATION SYSTM	1,000.00	30	-	33.33	91.67	3.00	9.00	.00	137.00	20.00	.00	20.00	135.33
PRUNING TOOLS	20.00	3	-	.17	.03	.00	.00	.00	.20	.00	.00	.00	.20
SHOP TOOLS	5,000.00	5	-	16.85	9.95	.50	1.49	.00	28.78	25.08	.00	25.08	53.86
PICKING SACKS	21.00	5	-	.10	.03	.00	.00	.00	.14	.00	.00	.00	.14
MACH. SHED/SHOP	30,000.00	40	-	9.38	22.50	1.12	3.38	.00	36.37	3.75	.00	3.75	40.12

Table 10. Prices.

Item	Price
Service	
Water charge	$37.00/acre
Electrical charge	$50.00/acre
Soil sample	$12.00/acre
Mouse control	$5.00/acre
Rental grass seeder	$2.50/acre
Bee rental	$35.00/hive
Materials	
Staking material (year 1)	$.50/acre
Methyl Bromide	$1.00/lb.
Trees	$5.00/tree
18-46-0 fertilizer	$.17/lb.
Ammonium Nitrate	$.10/lb.
Wrapping paper (tree trunks)	$7.00/acre
Tree spreaders	$.05/spr.
Gramoxone	$4.88/pint
Boron (borax)	$3.26/lb.
Copper	$2.17/lb
Grass seed	$.90/lb.
Strychnine oats	$1.15/lb.
Princep-80W	$3.00/lb.
Baythroid	$5.47/oz.
Guthion	$4.47/lb.

TABLE 10. Continued.

Item	Price
Mitak	$19.84/lb.
Superior oil	$2.40/gal.
Prowl	$7.36/qt.
Envy	$5.50/qt.
Agri-Mek	$1.45/oz.
Surflan	$67.12/gal.
Rozol	$1.17/lb.
Amitraz	$19.84/lb.
Fuel	
Gasoline	$1.00/gal.
Diesel	$1.00/gal.
LP gas	$1.00/gal.
Land Taxes	
Year 1	$39.24/acre
Year 2	$49.37/acre
Year 3	$51.90/acre
Year 4	$55.70/acre
Year 5	$62.02/acre
Labor	$6.25/hour

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