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A Case Study in Agricultural Labor: Tree Fruit Production in Oregon's Hood River Valley

Agricultural Experiment Station
Oregon State University

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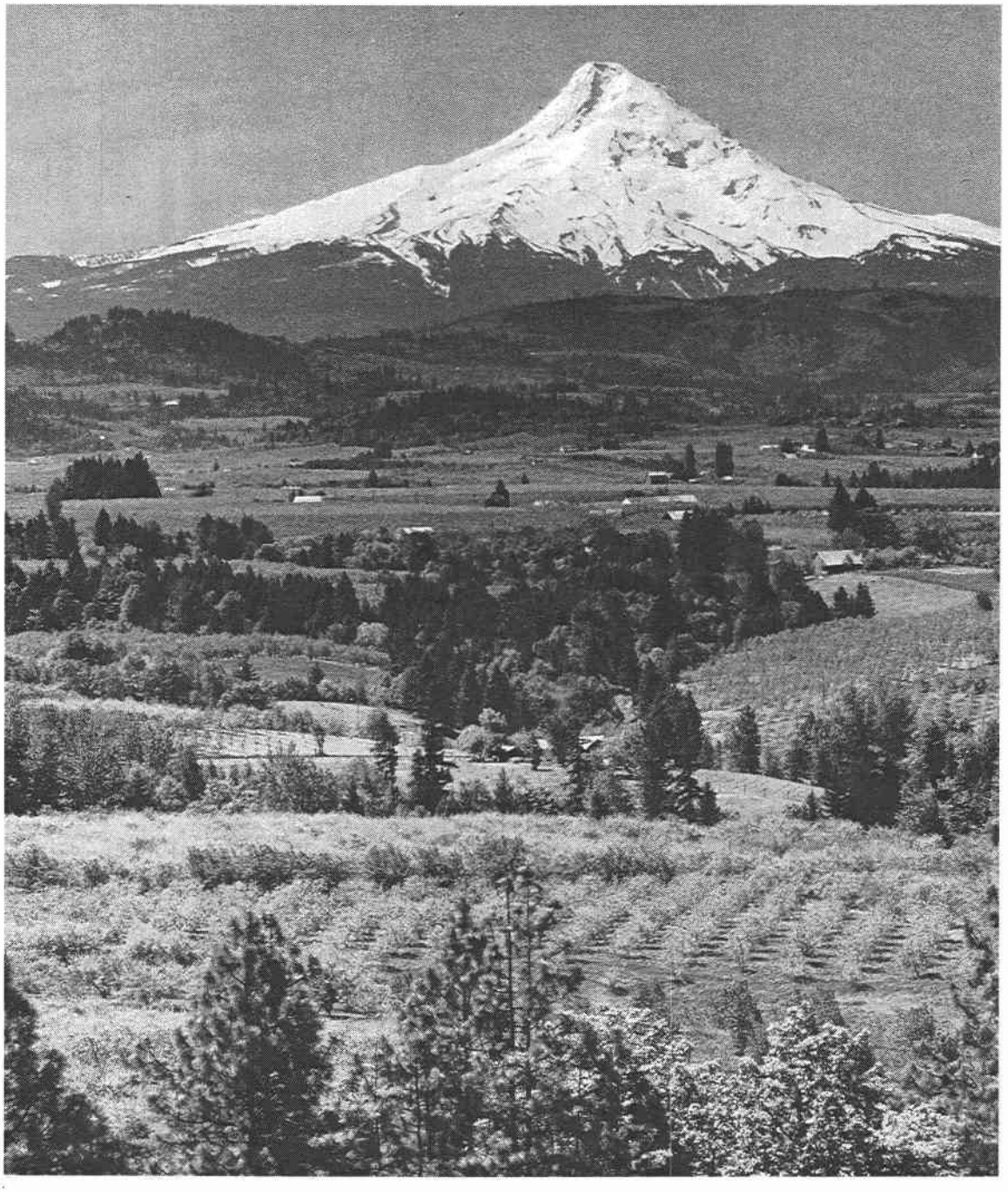

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Oregon State University

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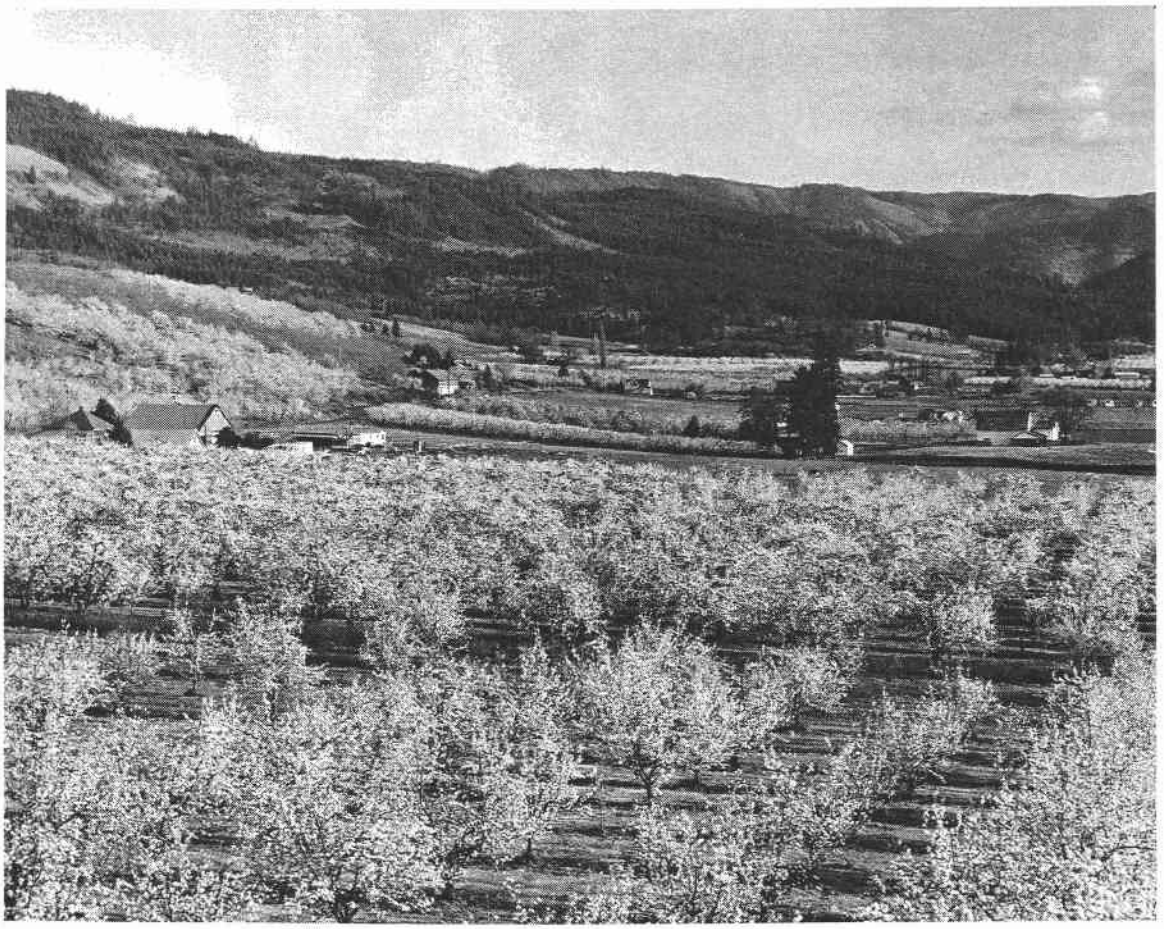

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Preface

This report on labor in Hood River tree fruit operations is drawn from a larger study of farm labor in Oregon crops that also included the nursery, Christmas tree, and strawberry industries in the Willamette Valley. The Oregon study was sponsored by the U.S. Commission on Agricultural Workers whose objective was to analyze the impacts of the U.S. Immigration Reform and Control Act of 1986. It is published along with studies from other states in Appendix I, *Case Studies and Research Reports Prepared for the Commission on Agricultural Workers 1989-1993, To Accompany the Report of the Commission,* pp. 137-220.

Twelve growers were identified as representative of the Hood River area. All 12 agreed to participate, but due to time constraints, only 11 interviews were completed. Thirty-three workers were interviewed; most were employed by these same 11 growers. A bilingual interviewer, specially trained for the study, questioned the workers, using a survey instrument approved by the research director of the U.S. Commission on Agricultural Workers. (A copy of the survey form can be obtained from Robert Mason, Survey Research Center, Oregon State University.) Most worker interviews were scheduled off the work site. All interviews took place in fall 1991.

Acknowledgments

Robert Mason, Survey Research Center, Oregon State University, was the principal investigator of the Oregon farm labor study, including this Hood River portion.

Carole Nuckton, visiting associate professor in Agricultural and Resource Economics, Oregon State University, researched the background information and wrote up the survey results.

Helena Ormando, a bilingual interpreter, was hired from the local employment office to conduct the worker interviews.

Thom Nelson, Hood River Growers and Shippers Association, encouraged cooperation among the growers interviewed.

Diego Leon provided office space at the Employment Division and helped coordinate the worker interviews.

Thom Nelson, Manager, Hood River Grower-Shippers Association, made helpful comments on an earlier version of the report.

Phil Martin, Department of Agricultural Economics, University of California, Davis, and Joe Stevens, Department of Agricultural and Resource Economics, Oregon State University, reviewed the manuscript which was revised according to their suggestions.

Carol Savonen, Agricultural Communications, Oregon State University, provided helpful editorial suggestions.

Background

History and Geography

Hood River County, in north-central Oregon, is bordered on the north by the Columbia River, on the west by Multnomah County, on the south by Clackamas and Wasco counties, and on the east by Wasco County. It is the second smallest county in Oregon, with 533 square miles. In 1908, it was carved out of the once-gigantic Wasco County, a county that once stretched from the Cascades to Yellowstone National Park.

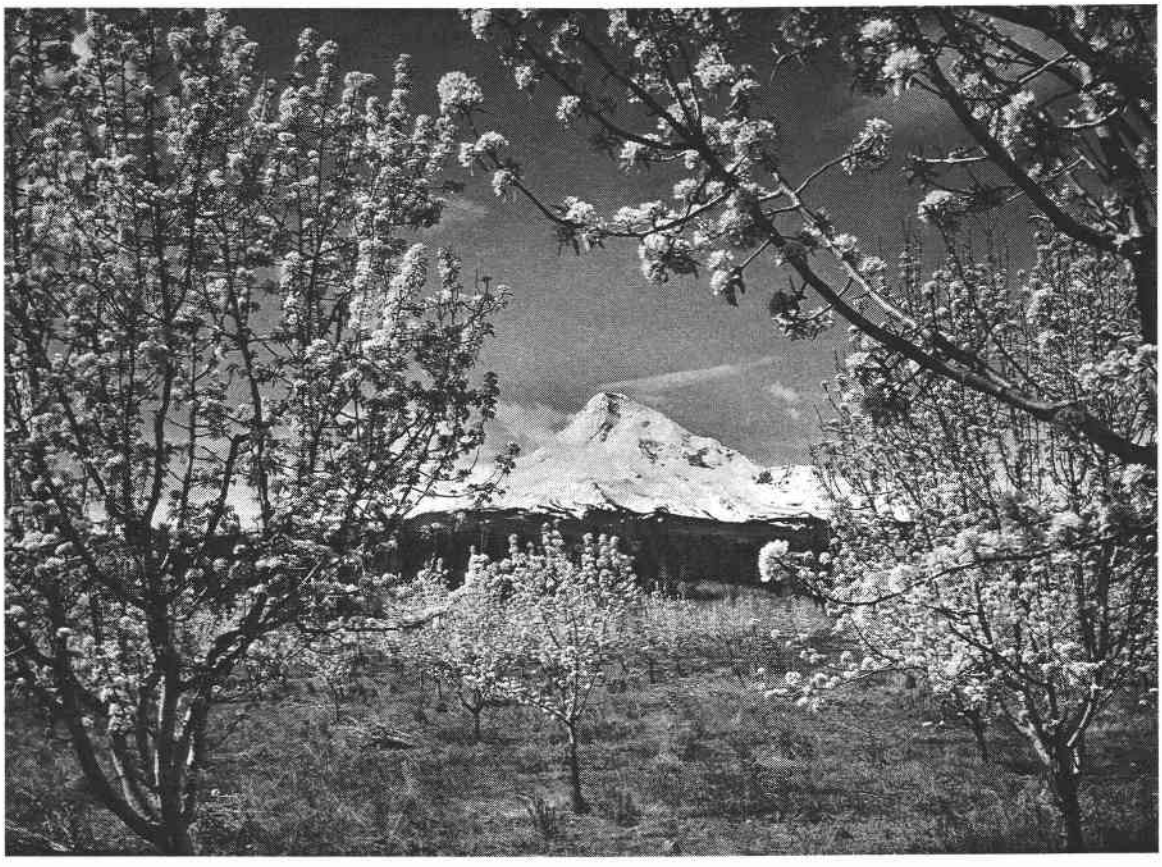
The county's elevation ranges from 80 feet above sea level at the Columbia River to 11,235 feet at the summit of Mt. Hood. The county is largely forested, except for the beautiful, long narrow Hood River Valley carved by glaciers and covered with volcanic soils, that stretches and climbs south from the Columbia River toward Mt. Hood. The Hood River Valley is a unique and excellent environment for tree fruit production (Macht). Most of the county's people live and all of the fruit production occurs in the Hood River Valley.

Annual precipitation in the county varies by location and elevation, averaging just over 30 inches at the city of Hood River, to 46 inches up the valley at Parkdale, to over 100 inches on the slopes of Mt. Hood. Precipitation also increases from east to west across the county. More of the precipitation occurs as snow at higher elevations, but some snow also falls lower in the valley. The snowpack on Mt. Hood generally keeps the stream flow abundant in the valley, where crops are irrigated during the warm summer months.

In the town of Hood River, at the mouth of the valley, the elevation is 500 feet, and the average temperatures range from 33.1°F in January to 66.8°F in July. Higher up in the valley at Parkdale, the elevation is 1,740 feet, and the temperatures range from 31.1°F to 65.°F.

When the first white settlers arrived in 1840, the valley was heavily forested. The first fruit trees were planted by Nathanial Coe in 1854, and E.L. Smith planted the first commercial orchard (30 acres of apples) in 1876 (Hood River News). More and more fruit trees were planted as the timber in the valley was removed.

Fruit production soon became the main economic force in the county. Apple orchards, peaches, prunes, and strawberries were planted on the east side of the valley. The Hood River Fruit Company began in 1893. With irrigation on the west side of the valley, the fruit industry, especially apple production, expanded rapidly in the first decade of the 20th Century. The Hood River Experiment Station, now the Mid-



Columbia Research and Extension Station, started in 1912 and became a center for tree fruit innovation, including the development of new pear, apple, and cherry varieties. The Apple Growers Association of Hood River, a cooperative established in 1914, continues to this day as Diamond Fruit Growers.

The Columbia River highway was completed from Portland to Hood River in 1916, paved in 1920, and extended to The Dalles in 1922, relieving some of the isolation experienced by early valley residents (Hood River News). A severe freeze in 1919 was a setback for the young tree fruit industry. Replanting was with frost-resistant varieties of apples and pears.

Historic events in the valley include the opening of the Columbia Gorge Hotel in 1921; the completion of two bridges spanning the Columbia in 1924 and 1926; a construction boom associated with the Bonneville Dam, completed in 1933; and the freeway construction along the Columbia that began in 1948, now called Interstate 84.

In the mid-1980s, a new sporting sensation occurred in the Hood River Valley; sailboard enthusiasts discovered the forceful winds along the Columbia River. For five months of the year, wind surfers come to Hood River in droves, radically changing the summertime character of this once-quiet town.

Demographics and Economics

The population of Hood River County increased 28 percent over the period 1970-1990 (Table 1). Like the rest of Oregon, the area grew faster in the 1970s than in the 1980s, slowed by the recession in the early 1980s. Recently, population growth has picked up, as support services for wind surfing and tourism have become more permanent and retirees have discovered the beautiful valley.

Table 1. Population, Hood River County, 1970-1990

1970	13,187
1980	15,800
1982	15,870
1987	16,500
1990	16,903

Sources: 1970, Portland State University, Center for Population Research and Census; 1980s, JTPA reports; 1990, U.S. Bureau of the Census, *1990 Census of Population*.

The main industry in the county centers around tree fruit. Growing, handling, marketing, and shipping employs some 5,000 full- and part-time workers. The tree fruit industry pumped $75 million of household income into the local economy in 1990 (Macht). Because of employment opportunities in the area's fruit industry, Hispanics represent a much higher proportion of the total population (16.3 percent) than they do in most other parts of Oregon (Table 2).

The per capita income of the county is somewhat above the statewide average (Table 3). Besides agriculture, other important industries are timber harvesting and manufacturing of lumber and wood products, recreation, tourism, and production and sales of fishing lures, electrical accessories, sailboard equipment and accessories, computer software, Hispanic foods, malt beverages, wine, and liquor (Hood River News). Many small sawmills in the area were combined to form one large company, Hanel (in three locations), employing 300 with a payroll of about $10 million. Hanel produces 130 million board feet of lumber, mostly for the U.S. housing market. Dee Forest Products manufactures hard board products and employs some 80 people. There are several other smaller wood products firms in the area. The Lava Nursery in Parkdale specializes in conifer seedlings for reforestation and for wholesaling to Christmas tree farms.

Table 2. Population by Ethnicity, Hood River County, 1990

	Hood River		State	
	number	%	number	%
Total	16,903		2,842,321	
Hispanic	2,752	16.3	112,707	4.0
Non-Hispanic:				
White	13,628	80.6	2,579,732	90.8
Black	36	0.2	44,982	1.6
Native American	186	1.1	35,749	1.3
Asian	284	1.7	67,422	2.4
Other	17	0.1	1,729	0.1

Source: U.S. Bureau of the Census, 1990 Census *of Population*.

Table 3. Total and Per Capita Income, Hood River County, 1989

	Hood River	State
Total ($1000)	253,005	45,129,472
Per Capita ($)	16,687	16,009

Source: Oregon Economic Development Department data, obtained from the U.S. Bureau of Economic Analysis.

Table 4. Unemployment Rate, Hood River County and Oregon, 1983-1991

Year	Hood River	State
1983	13.2%	10.8%
1984	12.9%	9.4%
1985	13.2%	8.8%
1986	13.6%	8.5%
1987	8.9%	6.2%
1988	9.1%	5.8%
1989	8.2%	5.7%
1990	7.8%	5.5%
July 1991	6.9%	5.6%

Source: Oregon Employment Division, Research and Statistics Section; 1991, First Interstate Bank, *Oregon Economic Indicators*, September 1991.

Because of the area's dependence on seasonal industries like agriculture, lumber, and tourism, there is a sharp upswing in employment in the summer and a sharp decline in the fall. Lack of employment in the winter months raises the county's annual unemployment rate several points above the average for the state (Table 4). Although the rate dropped in July 1991 from the previous annual average, it still was over one percentage point above the state average.

The importance of farming to the county's economy can be seen in Table 5. Nearly 16 percent of the county's total employment is in the farm sector. This contrasts sharply with other counties, particularly those in the Willamette Valley, where farming is very important but does not represent a large share of total employment. Statewide, 3.9 percent of workers are employed in the farm sector.

Table 5. Employment by Industry, Hood River County, 1989

	Hood River	State
Total	10,501	1,573,746
Farm	1,649 (15.7%)	61,776 (3.9%)
Nonfarm	8,852 (84.3%)	1,511,970 (96.1%)
Agricultural services, forestry, fisheries, other	372	30,713
Mining	0	2,132
Construction	355	74,666
Manufacturing	1,284	231,419
Transportation & utilities	645	74,246
Wholesale	683	80,956
Retail	1,668	272,662
Finance, insurance, and real estate services	405	112,733
Services	2,283	406,458
Government, federal, state, and local	1,154	225,985

Source: Oregon Economic Development Department, obtained from the U.S. Bureau of Economic Analysis.

Overview of Farming

Of the 573 farms in Hood River County, 280 (48.9 percent) are very small, selling less than $10,000 of product in 1987; together they accounted for only 1.7 percent of the total cash receipts that year. Meanwhile, 124 larger farms, those with sales of $100,000 and over, sold 78.2 percent of the total. Although the average farm size is only 50 acres, because of the high-value crops grown, it is worth an average of $4,763 per acre (Table 6). Seventy-two percent of the county's land in farms is in cropland, and 88 percent of the cropland is harvested. Most of the rest of the cropland is in young orchards, not yet bearing. Ninety-three percent of the cropland (both bearing and nonbearing) is irrigated. Livestock represent only a very small part of the county's agricultural sales; over 96 percent of total sales was from crops, mostly tree fruit.

Table 7 and in Figure 1 offer a better picture of the county's crop mix. Ninety-four percent of Hood River's total farm sales were in the census category tree fruit, grapes, and nuts, compared to just under 6 percent statewide. As can be seen in the figure, the main crop of Hood River County is pears.

The preponderance of tree fruit in the county's crop mix means labor-intensive agricultural production. Table 8 summarizes sample costs of producing winter pears, Bartlett pears, and Delicious apples. Labor's share of total variable costs and of total costs for these crops is presented in Table 9. Labor costs represent around half the variable costs of a typical Hood River tree fruit operation.

Table 6. Farming Characteristics, Hood River County, 1987

	Hood River	State
Number of farms	573	32,014
Land in farms, acres	28,611	17,809,165
Average size, acres	50	556
Cropland, acres	20,617	5,236,393
Harvested cropland, acres	18,109	2,832,663
Irrigated cropland, acres	19,088	1,648,205
Value of land and buildings, $/acre	4,763	542
Market value of agricultural products sold, $1000	41,074	1,846,067
Market value of crops sold, $1000	39,491	1,048,616
Number of farms with sales <$10,000	280	20,306
Number of farms with sales >$100,000	124	3,845
Number of operators whose principal occupation is farming	329	15,359
Number of operators whose principal occupation is not farming	244	16,655

Source: U.S. Bureau of the Census, *1987 Census of Agriculture.*

Table 7. Gross Farm Sales by Commodity Group, Hood River County, 1990

	Hood River	State
	$1000	
Grains	0	186,760
Hays and silage	147	96,670
Grass and legume seeds	0	215,644
Field crops	0	246,784
Tree fruits, wine grapes, and nuts	63,058	156,733
Berry crops	244	68,955
Vegetable crops	54	194,928
Specialty horticulture	1,780	598,658
All crops	65,283	1,765,172
Cattle and calves	659	452,097
Dairy products	304	215,129
Eggs and poultry	544	97,779
Miscellaneous animals	263	90,553
All animal products	1,770	855,558
Total gross sales	67,053	2,620,730

Source: Oregon State University Extension Service, *1990 Oregon County and State Agricultural Estimates*, Special Report 790, Revised January 1990.

Table 8. Sample Costs to Produce Winter Pears, Barletts, and Apples, Hood River Valley, 1992

Winter Pears

Variable costs, $/acre

	Labor	Machinery	Materials	Total
Prune and train	290.20	0	0	290.20
Removal/replacement (4 trees)	17.25	6.11	67.00	90.36
Fertilizer/pesticides	37.65	38.34	522.71	598.70
Harvesting costs	545.50	67.81	0	613.31
Other costs[a]	113.48	113.53	215.49	441.50
Total variable costs	1,004.08	225.79	805.20	2,034.07
Fixed costs, $/acre[b]				1,396.26
Total costs, $/acre				3,430.33

Bartlett Pears

Variable costs, $/acre

	Labor	Machinery	Materials	Total
Prune and train	290.20	0	0	290.20
Thinning	227.50	0	0	227.50
Removal/replacement (4 trees)	17.25	6.11	67.00	90.36
Fertilizer/pesticides	37.65	38.34	522.71	598.70
Harvesting costs	479.50	67.81	0	547.31
Other costs[a]	113.48	113.53	218.69	444.70
Total variable costs	1,165.58	225.79	808.4	2,198.77
Fixed costs, $/acre[b]				1,396.57
Total costs, $/acre				3,595.34

Apples, Delicious

Variable costs, $/acre

	Labor	Machinery	Materials	Total
Prune and train	230.50	0	0	230.50
Hand thin	110.50	0	0	110.50
Removal/replacement (4 trees)	13.50	3.05	60.00	75.55
Fertilizer/pesticides	33.05	35.87	329.49	398.41
Harvesting costs	520.00	54.25	150.00	724.25
Other costs[a]	68.01	102.15	203.15	373.31
Total variable costs	975.56	195.32	742.64	1,912.52
Fixed costs, $/acre[b]				1,234.15
Total costs, $/acre				3,146.67

[a]Raking and brush shredding; hive rental; flailing, rodent control; frost protection; irrigation and water charge; ladders, pruning, and picking equipment; pickups, trucks, and ATVs; utilities, repairs and maintenance of housing facilities; operating capital expense; miscellaneous.
[b]For example, insurance, taxes, depreciation.

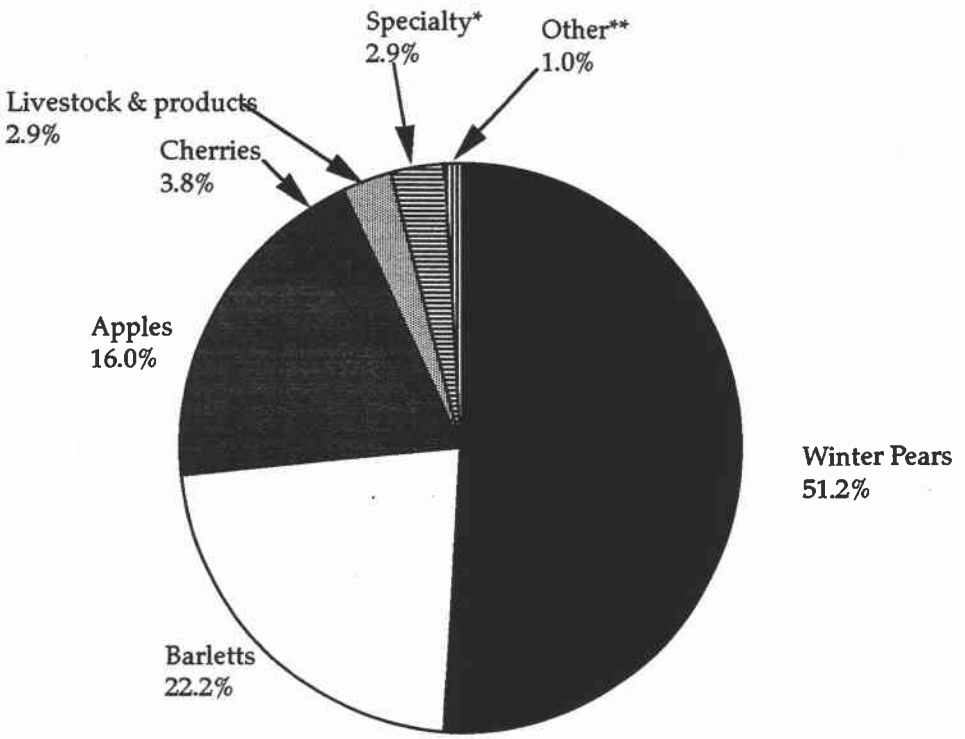
Source: Oregon State University Extension Service, Enterprise Budgets, EM 8485, EM 8484, EM 8491, respectively, January 1992. The more detailed enterprise budgets are available from the Extension Service.

Table 9. Labor's Share of Production Costs for Winter Pears, Barletts, and Apples, Hood River Valley, 1992

	Variable costs	Total costs
Winter pears	49.4%	29.3%
Bartletts	53.0%	32.4%
Delicious Apples	51.0%	31.0%

Source: Table 8.

Figure 1. Hood River County Commodity Sales, 1990



*Includes nursery and Christmas tree production
**Other includes Asian peaches, Asian pears, hay and forage, berries, and vegetables.

Source: Oregon State University, Extension Service, Hood River County.

Fruit Production in the Hood River Valley

The Hood River tree fruit industry is composed mainly of winter pears, Bartlett pears, and apples. Referring to Figure 1, 51.2 percent of total farm gate sales in 1990 were accounted for by winter pears, 22.2 percent by Bartletts, and 16.0 percent by apples.

According to the 1987 Census of Agriculture, 10,092 U.S. farms harvested 1.74 billion pounds of pears on 84,247 acres. There were 11.8 million pear trees in the nation in 1987; of these, nearly two million were not yet bearing. California is the leading state in pear acreage and production, followed by Washington and then Oregon (Table 10). Other states with significant production in 1987 include New York (26.2 million pounds), Michigan (11.1 million), and Pennsylvania (10.9 million).

Of the 19,346 pear acres in Oregon, 10,966 acres (56.7 percent) were in Hood River County and 7,371 acres (38%) were in Jackson County (U.S. Bureau of the Census). Together, these two counties accounted for almost 95 percent of the state's pear acreage. There were also 92 acres in Wasco County (adjacent to Hood River County), 230 in Douglas and Josephine counties (adjacent to Jackson County), 477 acres in the Willamette Valley, and 240 acres in other counties in 1987.

Table 10. U.S. Pear Production: Harvested Acreage, Number of Trees, Pounds Harvested, by Leading States, and U.S. Totals, 1987

State	Harvested acreage	# Trees	Harvest
	acres	million	million lbs.
California	28,144	4.40	695
Washington	25,300	3.68	576
Oregon	19,346	2.68	399
U.S.	84,247	11.75	1,741

Source: U.S. Bureau of the Census, 1987 Census of Agriculture.

Table 11. Acreage by Pear Variety, Hood River County, 1986

Variety	Total acres	Planted before 1970	Planted before 1980
Bartlett	3,250	2,560	3,045
Red Bartlett	300	20	75
Winter pears			
Anjou	4,860	3,540	4,310
Red Anjou	95	0	0
Comice	110	30	60
Red Comice	15	0	0
Bosc	790	290	560
Seckel	10	0	0
Forelle	60	20	45
Other & unknown	60	15	25
Total	9,550	6,475	8,120

Source: Oregon Agricultural Statistics Service and U.S. Department of Agriculture, *1986 Oregon Fruit Tree Survey.*

There are two basic types of pears: Bartletts and winter pears. A 1986 fruit tree survey gives a breakdown of acreage by variety for Hood River County (Table 11).

Table 11 also shows that much of Hood River County's pear acreage is quite old; two-thirds of the total standing in 1986 was planted before 1970. In the 1986 survey, 35 percent of the pear trees standing were planted before 1955 and were then over 30 years old. Growers (in some cases, the third generation in pear production) are now facing replanting decisions. Older pear trees began to bear commercially about seven years after planting, reached full production in 13 to 15 years, and produced at peak levels for around 25 years, then began to decline.

With newer varieties and technology, trees begin to bear in four years, reach full production in 10 years, and stay at peak levels until they are at least 35 years old. Besides replacing aging trees, another impetus for replanting is the trend toward planting more densely to achieve higher yields per acre. One way Hood River growers have been getting higher density is by interplanting new trees among the older ones.

Calculating density (number of trees per acre) by age group from the 1986 survey data shows that Hood River trees planted before 1955 averaged 108 trees/acre; between 1955-1964, 115 trees/acre; between 1965-69, 123 trees/acre; between 1970-74, 131 trees/acre; between 1975-79, 135 trees/acre; and between 1980-85, 173 trees/acre. Hood River's overall density was 125 trees per acre, compared to Jackson County's 147 trees per acre and California's 156 trees per acre (U.S. Bureau of the Census). Thus, Hood River County's acreage may be yielding less than its potential not only because of aging trees but also because plantings are less dense plantings than other production areas.

Note also in Table 11, that most (94 percent) of the older acreage was in Bartletts or Anjous. It was not until 1980 and after that diversification into other varieties, including the reds, occurred. Presumably, as growers replace older acreage, this trend toward diversification will continue.

Varieties

The information is from Walheim and Stebbins (1981) and Mid-Columbia Growers and Shippers (1991).

Bartletts:

- Bartlett pears originated in England. In Hood River, Bartletts are ready to harvest in late July or early August. The medium-large, bell-shaped fruit is green when picked and yellow when ripened to maturity. Its white flesh is sweet and juicy. It holds its shape well when baked, poached, or canned and is excellent for eating fresh.
- Red Bartlett is a bud sport of Bartlett, maturing 12 to 15 days later than its parent. Its high red blush makes the fruit particularly attractive.

Winter pears:

- Anjou pears originated in Belgium. In Hood River, Anjous are harvested in October. The fruit is large, nearly egg-shaped, with a short stem and thin, edible skin. It is light green at harvest and cream to green after ripening. The Anjou ripens after a month's storage under refrigeration and is eaten fresh. The flesh is fine textured, mild, juicy, and "spicy." The red Anjou is a red-skinned variation.

- Bosc pears, which also came from Belgium, are harvested in Hood River in September. The fruit is large and green to dark yellow with russeting. Its narrow, symmetrical shape and long neck distinguish it from other pear varieties. Its white flesh is tender, juicy, and sweet. The Bosc is excellent for cooking, baking, or eating fresh.
- Comice pears originated in France. They are harvested beginning in October. The plump, rounded, short-stemmed fruit is greenish-yellow when mature, yellow with russet dots when ripe, and sometimes highlighted with a crimson blush. Its flesh is buttery, sweet, tender, juicy, and aromatic. It is superb for fresh eating and is often used as a dessert pear.
- Forelle pears are smaller and bell-shaped with a sweet juicy flesh. They are harvested in October. As the fruit ripens, its freckles turn bright crimson and the skin a golden yellow. Forelles are excellent when eaten fresh.
- Seckel pears, which came from New York, are also harvested in October. The fruit is small and reddish-brown over yellow-brown with russet. Its creamy white, sweet flesh has an excellent flavor when eaten fresh or in preserves.

Hood River also has 15 acres of Asian pears, out of a state total of 90 acres.

Data on shipments of fresh pears by variety for 1990-91 are shown in Table 12. Although over one-third of the county's pear acreage is in Bartletts (Table 11), only 11.7 percent of the association's fresh shipments are Bartletts. A large part of the Bartlett crop, and smaller sizes of some of the other varieties, go to processing. According to OSU Extension Service, 71 percent of Oregon's Bartlett crop was processed in 1990 (typically, three-fourths of Washington's and California's Bartlett crops are processed). Hood River Bartletts are processed by Truitt in Salem and in Vancouver and Yakima, Washington.

Winter pear production has generally trended upward since the mid-1970s (Figure 2), with tonnage exhibiting considerable fluctuation about the trend, as is common with all tree fruit. Part of this upward trend is the practice of interplanting newer trees in old orchards. The trend line for Bartlett production (Figure 3) shows a slight decline over the 1975-1990 period, and there is even greater variation from year to year for Bartletts than for winter pears. Hood River apple production has declined over 25 percent since the mid-1970s (Figure 4).

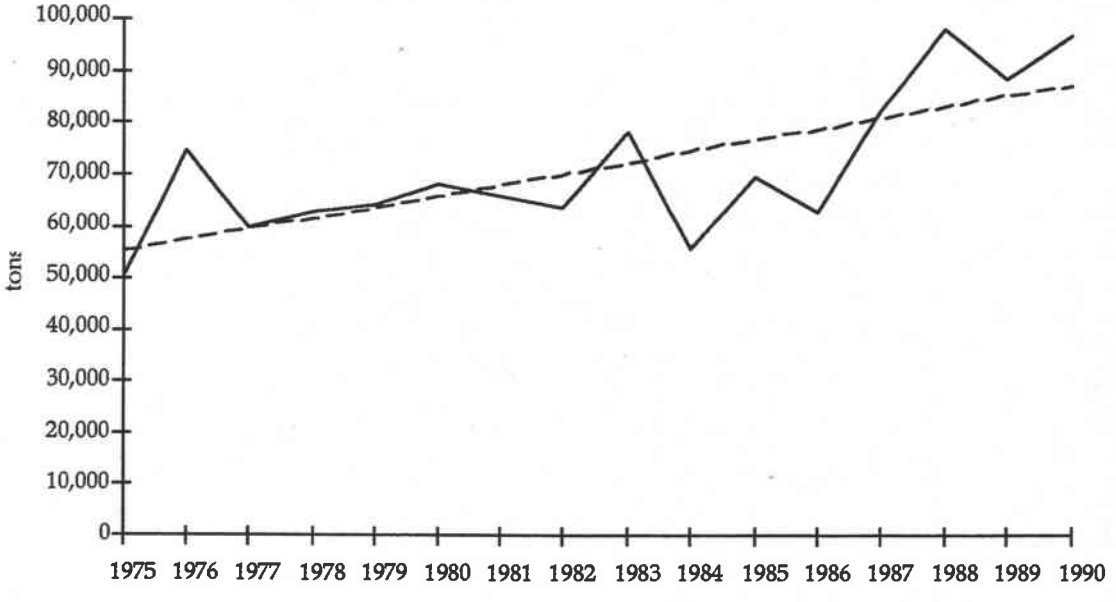
Since production is acreage times yield, increased production may be due to more acreage and/or technological

Table 12. Shipments of Apples and Pears by Variety, Hood River, Oregon, 1990-91

	# Boxes	% of total shipments
Apples:		
Pippins	486,142	47.8
Red delicious	404,424	39.8
Golden delicious	85,718	8.4
Miscellaneous	39,799	3.9
Pears:		
Bartletts	579,730	11.7
Anjous	3,874,889	78.3
Bosc	408,249	8.2
Comice	53,890	1.1
Forelles	20,703	0.4
Miscellaneous	10,338	0.2

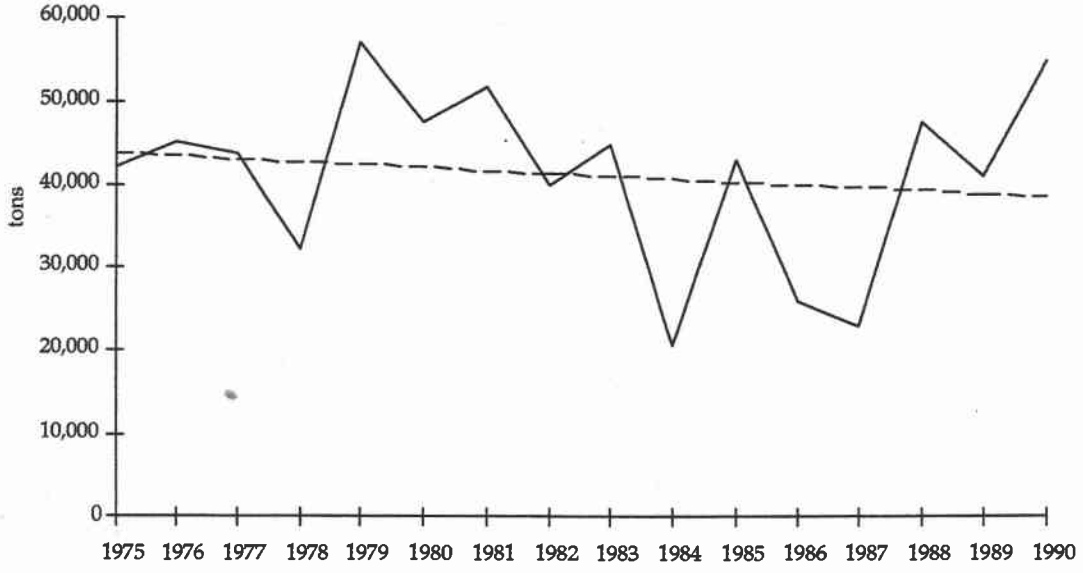
Source: Hood River Grower-Shipper Association, Odell, Oregon, October 1991.

Figure 2. Hood River Winter Pear Production, 1975-1990



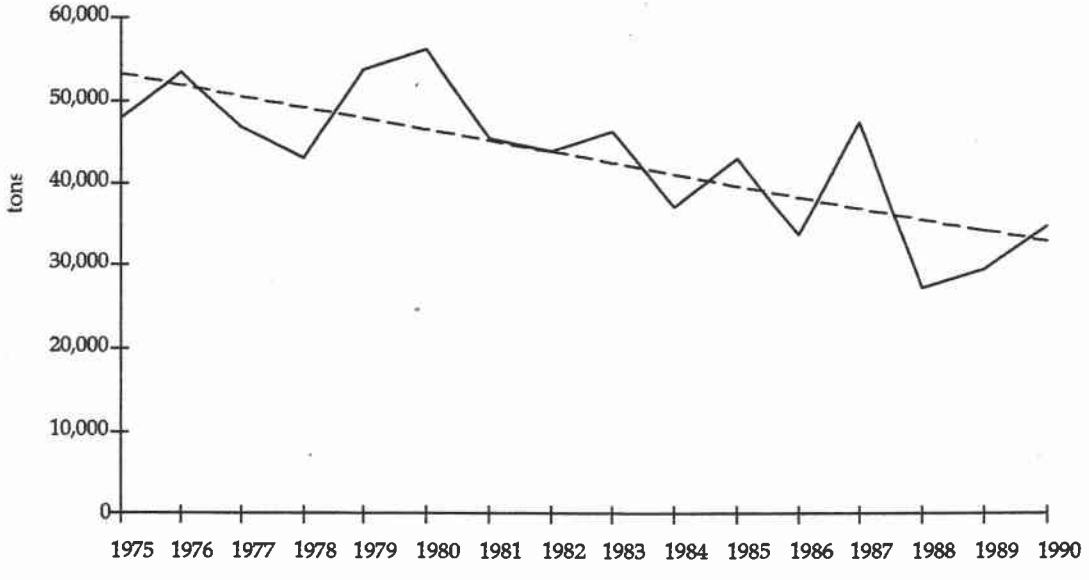
Source: OSU Extension Economic Information Office, Commodity Data Sheet, Pears, March 1991 and other issues.

Figure 3. Hood River Bartlett Pear Production, 1975-1990



Source: OSU Extension Economic Information Office, Commodity Data Sheet, Pears, March 1991 and other issues.

Figure 4. Hood River Apple Production, 1975-1990



Source: OSU Extension Economic Information Office, Commodity Data Sheet, Apples, March 1991 and other issues.

Table 13. Hood River Apple and Pear Acreage, 1980-1991

Year	Apples	Bartlett pears	Winter pears
		acres	
1980	4,700	4,400	5,200
1985	4,900	3,600	5,500
1990	3,200	3,300	5,600
1991	3,100	3,300	5,700

Source: OSU Extension Economic Information Office, unpublished data.

improvements—for example, more trees per acre. However, decreases usually reflect acreage removals. Acreage data show increased winter pear acreage since 1980, and decreased apple and Bartlett pear acreage (Table 13). In the Hood River Valley, orchardists have been replacing some apple acreage with winter pears.

Handlers

Besides on-farm employment for orchardists and orchard workers, the tree fruit industry provides considerable employment with the county's commercial fruit handlers. Packing houses offer full- and part-time jobs for many workers, including family members of orchard workers. They also offer some opportunity for continued employment after the harvest work is done. Hood River's fruit packing houses range from large cooperatives and corporations to small family enterprises.

The following descriptions of nine packing houses are from a special publication of the *Hood River News* (Macht). Besides these, there are a few other family-owned and -operated packers who sell through the major houses. And another packing house, Underwood, located across the Columbia, also handles and ships some Hood River fruit.

- Diamond Fruit Growers, a 79-year-old cooperative, is the valley's largest packer. Diamond packs from 2.5 to 3 million bushels a year and exports almost 30 percent of its total pack. The co-op employs 85 year-round workers and takes on as many as 500 more during the peak period from September on into November. Its annual sales reach $37 million; its payroll is more than $5 million.
- Duckwall-Pooley Fruit Company, the second largest handler, packs between 1.3 and 1.5 million bushels annually. The company resulted from a 1970 merger of Duckwall Fruit Co., founded in 1919, and Pooley Packers, founded in the 1920s. Duckwall-Pooley has recently opened a second packing house northeast of Odell, allowing it to reduce the amount of fruit contracted to other valley packers. It also exports about 30 percent of its total pack.

- Stadelman Fruit Company, based in Yakima, Washington, has almost all of its pear operation in Odell. Its Hood River division packs about 857,000 bushels a year, amounting to sales of $11 million. Stadelman employs 14 year-round workers and up to 75 seasonal workers in the fall at its Odell packing house and cold storage plant.
- Walter Wells and Sons is now a third-generation growing, packing, and shipping operation. Its *Viewmont* label has been used since 1930. Ninety percent of the fruit packed is grown on the family's farm and consists of about two-thirds apples and one-third pears. About one-fourth of the farm is now in young trees, not yet bearing.
- Moore Orchards, Inc., is another family-held business, now run by a third generation. This operation handles all its own fruit plus some from other growers (about 275,000 bushels) and markets it through Stadelman.
- Lage Orchards Cold Storage packs about 250,000 bushels a year. The Lages began packing fruit in the 1920s and now operate as a Stadelman satellite.
- Walton Orchards is a very new house, which began with cherries in 1985 and expanded to pears and apples in 1989. The company packed 120,000 boxes of fruit in 1990.
- Columbia Gorge Organic Fruit Co., formerly Stewart Orchards, packs 65,000 bushels of apples and pears and custom packs Golden Delicious apples for Duckwall-Pooley.
- Bickford Orchards Cold Storage reopened its packing house in 1989 after not using it for 25 years. The Bickfords, who are third-generation orchardists, pack their own and other growers' fruit under the Stadelman label, plus some organic fruit under the *Made in Nature* label.

Agricultural Labor in Hood River Pears

In the spring, orchard workers prune the trees for almost a four-month period (3.7 months, according to our survey). During this same time, for 2.4 months, workers spread and space the branches and train leaders, striving for a good open canopy. During bloom (1.8 months), workers thin by stripping blossoms. Especially in the upper valley, around Parkdale, frost protection is often necessary; wind fans and smudge pots are used.

Trees are irrigated mostly by under-tree sprinklers, for about four months in the summer. Irrigation provides needed moisture and cools the developing fruit. In some areas, water is diverted by canals above the orchards, so there is no power cost. Other areas must pump water but their water rights cost less than those for surface water. In either

case, water is relatively inexpensive. However, in some cases, better irrigation management is needed in order to avoid overwatering young trees. Water may become more of a problem in the future if restrictions are placed on usage so as to allow more water flow into the Columbia.

Spraying and fertilizing take place over a period of four months. General orchard maintenance is almost continual.

Picking begins in mid-August with the Bartlett crop. Harvest crews keep employed over two and one-half months by moving on to apples and then to later varieties of pears, but also by moving up to higher elevations in the valley. Fruit is picked, put into picking bags, and dumped into bins that measure 37 inches by 37 inches by 2 feet. Workers are paid by the bin, so bins at the end of the rows are identified individually. As bins are loaded onto trucks bound for the packing house, bin checkers collect tickets to credit workers for the bins picked. Bin checkers also control quality.

Some growers arrange for some on-farm, size-sorting by the harvest crews. These workers pick only fruit of a certain size at a time, returning to the trees to pick another size later. However, more often fruit of various sizes is picked into bags and placed in bins where it is sorted by size into other bins.

Farming operations in the Hood River Valley are somewhat isolated from other farming regions in the state and from urban areas where workers can find housing on the local economy. Hence, most orchard operators in the valley have historically provided housing for their workers.

Survey Results

The Employer Survey

General Information about the Growers' Operations

The 11 growers interviewed had been managing their orchards an average of 20 years (minimum 3 years, maximum 45 years), but the average age of the operation itself was 65 years, with a range of 45 years to 86 years. In 1990, the growers interviewed had a total of 942 acres in winter pears, 327 in Bartletts, 253 in apples, 17 in cherries, and 5 in other crops. Five of the 11 had increased their acreage in fruit trees an average of 34 acres each, for a total increase of 172 acres over the past five years. The others had maintained their acreage at the same level.

Ten of the 11 orchards were family operations; one was incorporated. Also, 10 of the 11 supervised their operations themselves; one had a foreman supervisor. Nine of the 11 orchard owners bore the major management decisions entirely themselves; two shared this responsibility with family members. Only one grower subcontracted a major job in the orchard operation, hiring a contractor for budding/grafting.

Marketing

One of the 11 growers reported packing his own fruit; the others sent their harvest to one or more of the packer-shippers in the area including a large cooperative (see Section 2 for details). All interviewed said they shipped statewide, nationally, and internationally (through their shipper) in 1990. Some product was sent to a canner. Three of the 11 also sold some product locally at fruit stands.

All respondents said that competition from orchard crop imports had increased within the last five years, but that export opportunities had also increased. Both responses reflect growers' increased awareness of the international marketplace. Growers have recently been exporting more apples and pears to Mexico, and, in the climate of discussion about the North American Free Trade Agreement, they anticipate expanded export opportunities there.

Three of the 11 said they had changed their approach to marketing in recent years, and the same number said their marketing strategy would continue to change in the next five to 10 years. Of those who foresaw changes in marketing strategy, more direct marketing and selling more fruit locally were mentioned. Another grower mentioned that marketing opportunities for lower-grade fruit had improved.

Costs

All interviewed claimed that their nonlabor production costs (e.g., equipment purchases, chemicals) had increased over the last five years. The average for the group was a 45 percent increase in these costs. One grower said that nonlabor costs had doubled.

Labor Demand and Supply

When asked whether machines might replace some hand labor in the foreseeable future, over half of those surveyed said "no." The five who did see some change coming mentioned different methods of irrigation, pruning, and thinning (using chemicals). Because these practices rely on less hand labor than harvesting does, it is unlikely that significant changes in labor demand will occur due to mechanization.

Growers were divided on the question of their per acre labor demand. Six of the 11 said they used the same number of orchard workers per acre as they did five years ago; four said they used more workers; and one used fewer.

On average, the group employed 6.7 year-round orchard workers (range: 0 to 25) and 27 seasonal workers (range: 4 to 300). The average hourly wage paid to year-round workers was $6.24 (range: $5.00 to $7.00); the average paid to seasonal workers was $7.76 (range: $5.25 to $10.10). Although year-round workers' wage rates are lower on average, their annual earnings are higher because they are employed a longer time. Also, many seasonal workers' hourly-equivalent wage is raised by piece-rate wages. Year-round workers were most commonly paid either weekly or twice monthly. Although two growers paid their seasonal workers weekly and two paid twice monthly, seasonal workers' pay periods varied more than year-round workers' pay periods. Some seasonal workers were paid daily, some on demand, and some at completion of a job. Growers mentioned that wage rates had increased, as had the frequency of wage payments. (More wage information is given when we report results of the worker survey.)

Table 14 summarizes the benefits provided by the 11 growers interviewed. Note that every grower surveyed provided some housing for workers. Farming operations in the Hood River Valley are somewhat isolated from other farming regions in the state and from urban areas where workers can find housing on the local economy. Hence, valley orchard operators have historically provided housing for their workers. The average annual grower cost of maintaining these existing housing units is just over $18,000 per year.

Table 14. Benefits Provided by Grower Interviewed in 1991, Hood River Valley, Oregon

Benefit	#Growers	Received by:			1990 cost	# Years provided
		year-round	seasonal	both	average	average
Housing	11	1	1	9	$18,391	23
Bonuses	9	5	0	4	$6,563	14
Profit sharing	1	1	0	0	$8,600	12
Paid education	5	3	0	2	na	na
Child care	0	0	0	0	0	0
Health insurance	4	4	0	0	$7,275	19
Paid vacation/sick leave	5	5	0	0	na	na
Transportation	4	2	0	2	na	na
Work equipment	11	0	1	10	$1,833	19
Other[a]	4	0	0	4	na	na

[a]picking party, medical expenses, food, clothing, etc.

Growers reported that 97 percent of their year-round orchard workers in 1990 were Hispanic. The other 3 percent was made up of local adult workers. One grower said the percentage of Hispanics in his year-round work force had increased by 30 percent, one didn't know, and the other nine said it had remained about the same during the last five years.

Their seasonal work force was composed of 94 percent Hispanics, 3 percent U.S. migrant farmworkers, 2 percent local youth (between 12 and 16 years of age), and 1 percent local adults. Only one grower said that the percentage of Hispanics in his seasonal work force had increased (by 15 percent); the others said it was about the same. Ten of the 11 said that Hispanic males, particularly between the ages of 20 and 40 were most productive workers. Nine of the 11 preferred to hire Hispanics; two said it didn't make much difference. Reasons given for preferring Hispanics included their higher productivity and greater willingness to work. The fact that no other types of workers apply was also mentioned by a few.

All of the growers said they had seasonal workers who returned year after year. Seven got their recruits by word of mouth from other employees, two used the state employment office, and only one hired walk-ons.

Ten of the 11 said that more workers applied than they were able to hire. Seven claimed to do some screening before hiring. As far as training or experience requirements, eight wanted workers to have previous experience. All growers said that they provided some training; eight did the training entirely themselves, two had someone else do it, and one shared training with others. Workers are mainly trained on the job,

but the use of videos was mentioned. It was stated that tractor operation and pruning/thinning require special instruction.

Seven did not think that worker turnover had changed much over the last five years; three felt that turnover had decreased, while one didn't know. On average, about 5 percent of a grower's work force had to be replaced during a typical week in 1990; one grower had replaced as much as 30 percent in a week. Because nearly all of the workers were Hispanic, they also tended to be the ones who had to be replaced. Good housing, good pay, and end-of-season travel bonuses were mentioned by growers as ways to reduce worker turnover.

Nine used their workers in more than one task but kept them in the same crew during a task transfer. Eight of the 11 switched workers with other local orchards. Table 15 reports work assignments, length of tasks, average number of workers per crew, and the total number of workers (reported in the survey) who performed a particular task.

Table 15. Growers' Breakdown by Worker Task, Hood River Valley, Oregon, 1991

Task	#Respondents	#Months (ave.)	Workers/crew	Total workers
Pruning	11	3.8	13.5	148
Training	8	2.9	6.5	52
Thinning	11	1.8	17.7	195
Irrigating	8	4.3	3.0	24
Spray/fertilize	4	5.0	3.0	12
Picking	11	2.6	31.0	338
Other	4	3.5	12.8	51

Seven growers worked with other employers in the area when recruiting and/or trying to improve retention of orchard workers. Three of these worked with others "a little"; two, "quite a bit"; and two, "a lot." In working together, employers cooperated in providing and/or upgrading housing and by exchanging workers to lengthen their season or even to provide them year-round employment.

Only two growers knew of any labor organization or union activity in orchards during the past five years. Of the little activity reported, it was apparently not successful. Three growers had been checked by either the U.S. Department of Labor (DOL) or the Immigration and Naturalization Service (INS). One had a spot check by INS, another experienced routine spot checks, while a third had a DOL official come to discuss changes in child labor laws.

During the years since the Immigration Reform and Control Act (IRCA) was passed in 1986, the growers

we interviewed reported that they had helped a total of 353 workers become legalized under the Special Agricultural Workers (SAW) program (an average of 32 workers per grower). One grower hadn't provided this help, but one had helped 90 workers. All believed that legalized SAW workers in the area had been leaving agriculture for nonfarm jobs. They said that, on average, about 7 percent of SAW workers find jobs in service industries (restaurants, hotels, landscaping, construction), logging and forest products, manufacturing, nurseries (considered as "nonfarm" by some), and packing houses. The valley's fruit packing houses provide an intermediate step from the farm to the nonagricultural workplace.

When asked about the impact of IRCA on worker recruitment, seven said they had been affected in some way. Among the positive effects mentioned: They can use the state employment office to recruit now; more workers are available year round; and they don't get raided anymore. On the negative side, others complained about the increased paperwork (such as completing I-9 forms) and the fact that it takes more time now to hire new workers.

Three of the 11 growers had experienced a shortage of orchard labor sometime during the past five years. Most growers saw no difference in the ease or difficulty of recruiting new orchard workers over the past five years. One said recruitment was easier, mentioning that the state employment office was now available for this purpose. Another said it was more difficult to get workers directly from Mexico.

Six worried that labor shortages might occur during the next five to ten years, while the other five didn't think so. A few noted that their current workers are aging and will sooner or later retire or find less manually-demanding employment, adding to the threat of a shortage. Some said that building more housing might attract new workers and avert a shortage; training workers' children in farmwork would also help. Another suggestion was to develop smaller (easier-to-pick) trees. (Recall from Section 2 that some of the older Hood River orchards are being replaced.) Three growers thought that mechanical alternatives to hand work could be developed should labor shortages occur in the future; one said this was only somewhat likely. Only three thought it was somewhat likely that they would reduce orchard acreage or switch to other crops in the event of future labor shortages.

All 11 growers said that they planned to remain in the orchard business. When asked if they would like to tell the Commission on Agricultural Workers about the importance of temporary or

foreign workers in their orchard operations, growers were very definitive:
"They are absolutely essential."
"Without them, our industry is gone."
"There are no mechanical options."

The Worker Survey

General Information about the Workers Interviewed

Ninety-seven percent of the 33 pear workers interviewed were born in Mexico; one indicated a birthplace "other," but not in the United States. Thirty-two workers were Hispanic, and one was white. There was one female worker. All had entered the United States before 1986 when IRCA was enacted. In fact, over 18 percent had entered the United States before the end of the Bracero program in 1964.

Thirty-two of the 33 spoke Spanish at home; one spoke English. Two-thirds of the group still considered Mexico their home, while one-third called the United States home. Ten of these made their home in Hood River.

While five of the group interviewed had not left the United States during 1990, 28 said they did spend considerable time outside the United States. Twenty-seven went to Mexico; one, to Canada. They spent anywhere from one to eight months away, with the average stay from three to four months.

The workers' average age was 34; the youngest was 18 and the oldest 63. They had completed an average of 4.2 years of schooling, but four of the 33 had no schooling at all (or didn't give an answer). Among those who had some schooling, the average was 4.8 years (a range of one to 11 years).

Twenty-six of the group were married, six were single, and one was divorced. Twenty-two of the married workers and the divorced one had a total of 55 children 14 years old or younger, ranging from one child to five per family. Just over half of the group's children lived with their parents in Oregon.

Comparing these worker characteristics to those from a survey of 93 Mexican migrants in Hood River in 1978 (Cuthbert), shows that workers are older now and more likely to bring their families with them to Oregon than in 1978. In 1978, most of those interviewed were young, single males: Their average age was 26.7 (compared to 34 in 1991); 38 percent were married (compared to 79 percent); of those who were married, 66 percent had children (compared to 85 percent); and 39 percent of these parents had their children with them in Oregon (compared to over half of the 1990 parents). However, the workers' level of schooling apparently has not increased: The 1978 group had an average of 4.2 years of formal schooling (± 0.3 years), while those in our survey had 4.2 years.

In our survey we asked workers

about their relatives with them in the United States, including their children 15 years of age or older. Information about these relatives was recorded in the order that the respondents talked about them. Table 16 summarizes the information given.

By adding across the X-axis of Table 16, we can make a few generalizations about this group of relatives. Eighty percent of the relatives mentioned were in Oregon with the respondents. Seventy-one percent of these relatives were in farm work; 8.8 percent were in nonfarm work; 12.2 percent were not working; and 6.6 percent were in school. The workers mentioned at least 20 of the 90 relatives they talked about (22 percent) were in the United States illegally.

Table 16. Information about Workers' Family Members in the United States, Hood River Valley, 1991

	1st[a]	2nd	3rd	4th	5th	Total
Relative						
Spouse	9	3	2	—	—	14
Child - 15	3	6	7	5	1	22
Sibling	7	11	9	9	8	44
Parent	7	3	—	—	—	10
Total	26	23	18	14	9	90
Relative's location						
In Oregon	21	23	12	11	5	72
In other states	5	—	6	3	4	18
Relative's employment						
Farmwork	18	18	13	8	7	64
Nonfarm work	2	1	1	2	2	8
Not working	6	3	1	1	—	11
In school	—	1	3	2	—	6
Total	26	23	18	13	9	89
Relative's legal status						
Not legal	8	4	2	5	1	20

[a]First relative mentioned by respondent.

Information about Their Jobs

Eighty-eight percent of the workers interviewed were in U.S. farmwork before 1986 when IRCA was passed. One had been doing farmwork here since 1958. The most recent entry to U.S. farmwork was in 1988. The average date for farmwork entry for the group was 1978. The 33 workers had worked an average of seven months in 1990 doing U.S. farmwork (a range of zero to 10 months).

Twenty-two of the 33 worked under

a grower in 1990, seven were with one crew leader, two had several different crew leaders, one was directed by a crew leader/grower combination, and one didn't know. All the workers were employed directly by a grower.

Twenty-one of the 33 had been referred to their job by a friend or relative, nine had applied for the job on their own, two had been referred by the employment service, and one had been recruited by the employer. No worker reported paying a fee to anyone for lining up their particular job.

Their pay periods varied widely among the group. Two were paid daily, three weekly, three every two weeks, two monthly, 12 by some other schedule, and five didn't know how often they were paid.

When asked about their most important crop and task performed during the last week of their present or most recent farm job, most (85 percent) named pears. However, two said apples, one said cherries, one answered vegetable row crops, and one said general orchard work. Among the tasks they considered most important that week, 85 percent were picking fruit. Two were pruning/shearing/thinning, one was staking, and one worked as an equipment operator.

At the time of their interviews (from August through October 1991), all 33 were in the Hood River area; one was in adjacent Wasco County. Thirty-two were doing farmwork when interviewed; one was looking for work. They were asked further about the crops they work with and the tasks they perform on the farm, in order of importance. Most (28) were working in pears. Two said "seasonal crops," one said "orchard," one was in caneberries, and one worked in row vegetable crops. Their farm tasks, by order of importance during their current work period (i.e., their first activity), are listed in Table 17.

Table 17. First Activity, Farmwork: Number of Workers Ranking Various Tasks, Hood River Valley, 1991

	Task 1	Task 2	Task 3
General farmwork	4	30	33
Picking/harvesting	21	2	—
Pruning/shearing/thinning	4	—	—
Dig/ball/packing/loading/baling	1	—	—
Irrigation	2	1	—
Cannery work	1	—	—

Thirty of those interviewed also told about their location and activity just prior to their current one. Twenty-four were in Hood River, and three were in Wasco County. One was in Mexico, two were in California, and three were somewhere else. Seventeen were doing farmwork, nine were looking for work, three were waiting for the season to start, one was doing nonfarm work, one was on vacation, and two were doing something else. Among the 17 doing farmwork, 10 were picking/harvesting as their first farm task, two were tying/training, and one each was doing general farmwork, planting/transplanting, pruning/thinning, irrigating, and unskilled labor. Of the four who mentioned a second task, two were picking and two were pruning. Eleven were working in pears, four in cherries, one in nursery, and one in general farmwork.

Thirty described their activity preceding the one just described. Twenty-two were in Hood River; four were in Wasco County; two were in Mexico; and two were in California. Twenty-three listed farmwork as their activity, one was doing nonfarm work, two were on vacation, and two were waiting for the season to start. Thirteen were working in pears, eight in cherries, one in row vegetable crops, and one in "orchards."

Twenty-five workers reported on what they were doing three activities previous to the current period. Seventeen were in Hood River; one in Wasco County; one was in Umatilla County; and one was in Clackamas County. Three were in Mexico and one each in Washington state and California. Fifteen of the 25 were doing farmwork; ten were in pears, two were in row vegetables, and one each was in strawberries, cherries, and ranch work.

Twenty-five also told about their fourth activity prior to their current one. Five were in California, four in Mexico, one in Michigan, and one in Idaho. Fourteen workers were in Hood River or nearby Wasco County. Seventeen were doing farmwork, five were on vacation, two were looking for work, one was not working, one was waiting for the season to start, and one was doing nonfarm work. Again, most of those doing farmwork were working in pears at that time.

In their current farmwork job, the group worked an average of 8.8 hours per day with a range from six to 10 hours. Thirty-one were paid individually, one was paid as a crew of two persons, and one didn't know. Forty-six percent (15 workers) were paid an hourly wage; 54 percent (18 workers) were paid on a piece-rate basis.

Among 14 of those reporting hourly wages, the lowest-paid worker earned

$5.00 per hour and the highest-paid worker earned $7.25 per hour, with a mean hourly wage for the group of $5.63. Piece-rate wages ranged from $7.00 per 1,000 lb. bin to $13.00 per bin with a mean of $10.33 per bin. The large piece-rate range is due in part to the fact that when special care is needed in filling the bins, workers are asked to slow down but are paid more per bin. To convert piece rates to hourly wages, we asked about the number of bins picked per day. Eliminating one outlier (who claimed to pick 40 bins per day), the greatest number of bins picked per day was 19; the least, five. The hourly equivalent was $9.30 per hour on average; the hourly minimum was $4.75 and the hourly maximum $22.56.

We made another wage calculation based on the most recent pay period and the most recent pay check received, for the 26 answering these questions. Eliminating two outliers ($1.60 per hour and $21.25 per hour), the average hourly pay, after deductions for Social Security, Worker's Compensation, etc., gives a mean hourly wage of $5.27 with a range of from $2.31 to $8.48.[1]

Table 18. Summary of Information on Workers' Pay, Hood River Valley, 1991

	Hourly	Piece rate	
Most recent pay check,		(hourly equivalent)	after deductions
range	$5.00-$7.25	$4.75-$22.56	$2.31-$8.48
mean	$5.63	$9.30	$5.27

In addition, eight of the workers were paid a bonus for "faithful service," and six others were paid a bonus to stay the season. Bonuses by the bin averaged $.93 per bin with a range from $.50 to $1.50. One-time bonus payments to seven workers ranged from $100 to $500 with a mean of $268.

The group was quite well informed about their benefits, including workers' compensation. Eighty-five percent said they were covered by medical insurance if injured on the job; two said they weren't covered; and three didn't know. However, only one of the group was covered by medical insurance if sick or injured when not on the job. Only two were provided with paid vacations.

[1] Comparing this wage information with that from the Cuthbert study of Mexican migrants in Hood River in 1978, we conclude that wages are not very different now in real terms. In 1978, when the minimum wage was $2.30/hour, the average hourly wage for harvest labor was $4.76 ± $.24 (N = 91), and they worked an average of 8.5 hours per day.

The group had worked an average of 6.5 years for their present employer (a range from one year to 20 years). Twenty-eight of the 33 were seasonal workers; five were full-time workers.

Fifteen of the respondents kept in contact with their employers while not working for them. Only one said that the employer kept in touch by mail. The others either didn't stay in contact or didn't know. Four of the workers said they would be given an advance transportation payment by the grower to return the next season.

Free housing was provided to most of the workers: Fourteen received housing for themselves; 13, for themselves and their families. Among the others, three rented housing from someone other than the employer (one rented from the government), two considered themselves homeless, and one did not indicate his housing arrangement.

Twelve of the workers lived in houses, three in flats or apartments, seven in mobile homes or trailers, nine in labor camps, and two were homeless. Twenty-six of the 33 lived on the farm where they were employed. No one paid fees for rides to work or charged others for providing rides.

The workers all said that their employer provided all the work equipment, drinking water, wash water, and toilets. (Only one said there was no toilet at the work site.)

Many (46%) felt that wages and the work situation had remained about the same over the last three to five years. The 16 who thought things had improved cited better wages, including the increase in the minimum wage; less discrimination; better working conditions; and steadier, fuller employment. Two who thought things had gotten worse mentioned that there was less work available and too many workers.

When asked if there were any farm jobs they had quit or would like to quit, 30 percent responded in the affirmative. They mentioned not liking the work or that they couldn't make a living at it, that pay was low or they were getting less than was promised, that the employer or foreman was cheating or holding back pay, or that the employers were taking advantage of the workers. Three workers cited dangerous work conditions; two of these mentioned exposure to chemicals.

All but three planned to do farmwork in the United States next year. Seventy-three percent (24 workers) said they would work in pears; three said they would do general orchard work; and three planned to work in apples, cherries, and row crops.

Five of the workers described efforts to join with other workers to try to improve their situation. Three who had

jointly asked for more money were told to go somewhere else if they didn't like their employment situation. One had joined with other workers in an attempt to increase their hours.

Of the five workers who had been associated with a union, four had been with the teamsters and one had been with a fruit packers union; all were related to packing house employment, not farmwork.

When asked to comment about their jobs, some made very positive remarks while others had complaints:

"My present employer treats everyone who works here very well. She puts on a big fiesta when harvest season ends with a barbecue and a dance."

"I feel good about being able to make a decent living and support my wife, daughter, and two sons."

"For the most part, my farm experience in Oregon has been good. I am happy to have found seasonal work. My employer likes my work, and I do my best to serve him well."

"Unlike some other workers, I never have to worry about where I'm going to work because I know I will always have work with my present employer as long as I continue to serve him well."

"My only real complaint is about my living conditions. Also, the grower consistently holds back checks, and when they finally come, they are always short."

"I'm concerned about not being able to return next year, if I am not able to provide proper documents."

"The work doesn't last as long as it used to. Work that in the past took two weeks, now takes only one. Work that used to last a week now takes only three days. This is because there are too many workers."

"I wish there were a way for it to be legally possible for my whole family to be together. I hope that this will someday happen."

Hood River Tree Fruit—A Unique Labor Market

Given the location and concentration of tree fruit production in the Hood River Valley, the labor market differs markedly from other labor markets in the state. Based on our survey results, we draw some general conclusions about this unique labor market.

Employers and workers consistently report current wages at least $5.00 per hour. Wage rates have risen over the last five years, but probably not because of IRCA. A major cause is the increase in Oregon's minimum wage to $4.75 per hour on January 1, 1991. Because agricultural employees now fall under minimum wage guidelines, employers increased piece-rate wages to allow workers to earn at least the new higher minimum. Another factor in rising wages is employers' desire to hire and retain a skilled, productive work force. Enhanced productivity justifies higher wages in employers' minds.

Contrary to common belief, harvesting tree fruits requires a number of skills that justify higher wages than those for unskilled labor. Our study found that employers reported paying seasonal workers average hourly wages of $7.76 (before deductions). Piece-rate harvest earnings reported by workers averaged $9.30 per hour, and hourly-based wage rates averaged $5.63 per hour. Based on their most recent pay check, we calculated $5.27 per hour after deductions. These harvest wage rates reflect the physical demands of the task, its indispensability to the orchard operation, and the need to maintain high postharvest fruit quality.

Some of the workers we interviewed said that working conditions in agriculture have improved over the last five years. While most associated these improvements with higher wages, other factors, such as lengthened employment periods and reduced discrimination, were also mentioned. A majority of workers expressed satisfaction with their jobs and the working conditions in Hood River. Several expressed a feeling of rapport with their employers. An indication of their general satisfaction with working conditions is the high percentage of workers who return each year to the same employers. The workers were employed an average of six and one-half seasons with the same growers.

Of course, there were some who were much less positive. A few complained about low wages, safety problems including exposure to chemicals, and shortened employment periods due to excess workers in the area.

This phenomenon of workers' returning year after year to the same operations can be explained in part by

the fact that Hood River orchard owners are also the farm managers. They do not depend on labor contractors for their labor needs, but manage the labor directly. Only one orchard owner we interviewed hired a foreman supervisor. Given this situation, workers establish direct lines of communication with owners, creating at least some degree of mutual trust and cooperation. Problems associated with line personnel managers are largely eliminated. Owners are interested in their workers' welfare because it will determine the quality of their work force in the coming years. This owner-worker relationship differs from other states with larger-scale orchard operations (such as Washington and California), where middle managers handle most labor crews so that owners have little direct contact with workers.

We found little evidence of labor union activity in the Hood River Valley. Five of the workers interviewed had belonged to a union, but their membership was related to packinghouse employment, not farmwork. Acceptable working conditions and adequate wage rates dampen potential enthusiasm for unionization.

Although some workers mentioned that less work is available now, due to large numbers of workers in the area, unemployment does not appear to be a significant problem. A large labor pool may well lead to underemployment of some workers, but most we interviewed did not complain about un- or underemployment. However, our survey sample was, for the most part, based on workers who were currently employed by the employers whom we interviewed, making it unlikely that we would find high levels of unemployment among those we surveyed. We do have further evidence that unemployment is not a serious problem: When we asked the workers about their family members, very few were unemployed.

Of the workers we interviewed, 91 percent plan to continue doing farmwork in Oregon, and most of these intend to continue working in the Hood River Valley. Employee turnover is quite low among pear workers. The employers we surveyed estimated average rates of turnover at 5 percent per week during the several-week harvest season. Of the 9 percent of pear workers not planning to continue farmwork, about half indicated plans to return to Mexico; the other half planned to seek nonfarm employment. This suggests that about 5 to 10 percent of the seasonal pear work force will leave agriculture annually.

Age is an important factor eventually forcing workers to leave agriculture. Workers and employers both agree that the most productive workers in piece-rate jobs are those between the ages of 20 and 40 years. As existing seasonal

workers become older, their productivity declines, as do the associated earnings, thus encouraging their exit, especially from hand labor jobs. Some remain in the tree fruit industry, moving into supervisory roles, some retire to Mexico, and others stay in the United States and move into nonfarm employment. Departure from the work force because of age is no different for seasonal agricultural occupations than for many other occupations except that it tends to occur at a much earlier age.

The average age of the pear workers we interviewed was 34 years, suggesting a fairly large proportion of workers who are approaching the age to retire from hand labor. This could mean a shortage of skilled workers in the next five to seven years, as existing workers grow older. Programs to train family members of current workers may be useful in securing new workers for the future.

Growers unanimously agreed that temporary or seasonal workers are essential to their operations. The supply of pear workers is apparently adequate; most employers reported that more workers apply than are hired. Pear employers, who seek trained, skilled workers to meet their labor needs, have worked within their industry to improve recruitment and retention of qualified workers. Employers cooperate in housing projects and coordinate hand labor tasks during the year. Helped by the geography of the area, it is common for pickers to move up the valley as the season progresses with pruning, thinning, and harvesting operations; employers cooperate to facilitate this movement. Employers work together to lengthen the period of available employment, and some diversify their operations to accommodate a longer-term work force.

Labor supplies have increased as families of SAW workers join them in the United States. These family members are sometimes employed in agriculture after they arrive, since the skills they bring are usually related to agricultural production. Based on the family matrix portion of our survey instrument, it appears that about 20 percent of these family members are present illegally in the United States.

Although these workers are Hood River residents much of the year, they still have strong ties to Mexico. About 82 percent of those we interviewed return to Mexico each year and stay for an average of three to four months.

Only three of the 11 growers surveyed mentioned visits by inspectors from the U.S. Department of Labor or the Immigration and Naturalization Service. These visits were of a routine nature, and employer sanctions are not common among orchardists in the area. Some growers felt that INS raids had

decreased since IRCA was passed in 1986. While INS raids may have diminished in Hood River, a host of other regulatory agencies are becoming more involved with agricultural employment, including state agencies, such as the Bureau of Labor and Industries and the Department of Insurance and Finance, as well as county agencies associated with labor housing, land-use planning, and zoning.

Many growers face a dilemma when hiring workers. On one hand, they are afraid of hiring illegal workers and being fined; on the other, they fear they could be accused of discrimination if they don't hire a particular worker. IRCA has increased the frustration growers feel towards the "red-tape" associated with agricultural employment, especially the burden of more paperwork. Yet, if a stronger and more effective policy of border enforcement and employer sanctions were implemented, growers worry that their labor supply could dry up. Employers emphasized their complete dependence on Hispanic laborers to remain successful in production.

Many employers are attempting to improve their labor management. Health insurance, bonuses, paid vacation and sick leave, and family housing are examples of some benefits being offered by employers to recruit and retain workers. For example, 27 of 33 workers received free housing for themselves and their families. Incentive pay systems were in place on nine of the 11 orchards in the form of season-end bonuses. Every grower interviewed provided housing for workers.

One sign that labor management practices need improvement is the fact that during the last five years, three growers experienced labor shortages, in spite of an apparently ample supply of labor. Some of these shortages may have been due to economic circumstances, a locational disadvantage, or weather-related abnormalities (such as fruit ripening too rapidly in one part of the valley while pickers were employed in a different part of the valley). However, in other cases the shortages more likely reflect a need for improved management. Also, growers often compete with one another for labor at certain times of the year, resulting in labor shortages for some.

Because more families are in the United States with SAW and other legal workers, costs of providing worker housing have increased. A labor housing unit that previously housed four workers may now house only one worker and his family. Therefore, more housing is needed. In response, many employers are increasing their available housing to attract and ensure an adequate labor supply.

About half the growers surveyed would adopt mechanical alternatives, if available, in order to diminish their need for hired labor. There is little prospect for mechanical innovations in harvest operations, but new orchard planting practices (i.e., shorter, more densely planted trees) could eventually reduce their labor needs. Also, new pruning tools (mechanized pruning saws) are being developed.

Hood River Valley tree fruit growers face a special challenge in attracting and retaining a seasonal work force. Almost all seasonal workers are Hispanic, from Mexico. Workers must be enticed to travel the many hundreds of miles to Oregon; then growers must attract them to continue on to Hood River, while discouraging them from traveling further north to Washington and beyond. To establish this draw, Hood River growers keep their wages very competitive and offer attractive benefits, especially housing.

Final Comments

IRCA's purpose is to achieve, without harming producers, an adequate supply of legal workers who benefit from improved wages and working conditions. Our data show that, at best, IRCA has only partially achieved that goal. Wages are higher than for unskilled nonfarm workers; these wages are higher not because of IRCA but because of the physical demands of the tasks, workers' indispensability to the orchard operation, and growers' need to maintain excellent postharvest fruit quality. SAW workers have benefited by protection from deportation, and growers generally have enough workers. However, IRCA has created a false-document industry that seriously undercuts the integrity of the law by flooding the state with workers carrying deceptively legal-looking papers. Growers now must assume part of the enforcement burden through the costly paperwork the law requires. The threat of punishment is very real, since employers are faced with sanctions not on the books in pre-IRCA days.

Hood River growers and other Oregon producers of labor-intensive crops will continue to need a large supply of workers. Our analysis shows that there is room for agriculture to improve its labor management of both year-round and seasonal workers to attract a supply of legal workers. However, even with improved management, a dependable labor supply is by no means assured. SAWs may sooner or later disappear from agriculture, yet no viable replacement program is in place. Ultimately, all segments of the state's agriculture that hire labor may be confronted with shortages of legal workers. Therefore, changes in the current law may be

needed. Highly productive Hispanic migrants are willing to come great distances to work in the state, and growers are willing to employ them at equitable wages. The problem is how to continue to match productive workers to available jobs, and how to do it within the law.

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