

Agricultural Workforce in Washington State 2001



Prepared by Dave Wallace, *Economic Analyst*
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Labor Market and
Economic Analysis Branch
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Sylvia Mundy, *Commissioner*

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INTRODUCTION

Although agriculture in the state of Washington has had a difficult time during the past five years or so, it remains a critical industry. The impact of this industry on the state is felt both in terms of the value of its output as well as the number of jobs it provides. The monetary value of the state's agriculture in 2000 was approximately 5.4 billion dollars. If agricultural production, processing, and marketing are added, agriculture generated 29 billion dollars worth of output, or about 20 percent of the total state value of production. In addition the almost 90,000 persons working in the sector, provide more than 3 percent of state-wide employment.

Washington State is the top producer nationally of a number of agricultural products and ranks in the top ten in 36 different commodity groups. No state in the country grew more apples, concord grapes, dry edible peas, hops, lentils, pears, processing carrots & sweet corn, red raspberries, sweet cherries, spearmint oil, and wrinkled seed peas, than did Washington. The state could also boast ranking second in production of all grapes, asparagus, peppermint oil, potatoes, and processing green peas.

Understanding the general impact of agriculture on the economy is made difficult (and interesting) because of a number of peculiar issues and problems it faces. Supply of agricultural produce is complicated by weather, government policy, securing labor, and the long periods it takes growers to respond to market changes. At the same time demand for most agricultural products remain relatively unchanged even as food becomes cheaper and better. With static demand, any increases in produce causes downward pressure on agricultural prices and has the overall effect of shrinking profits for farmers. Thus American farmers are in the ironic position of being penalized for gains in efficiency.

For this reason since the Great Depression, the federal government has tried a number of programs and schemes to keep farmers economically viable. The primary debate from that time on has been between focusing on promotion of export sales versus controlling domestic output. Since the 1996 Freedom to Farm Act, congress has been nominally committed to doing

away with many of the subsidies and output controls. However, this is easier said than done. Congress has recently passed, and the president signed a new farm bill with much higher subsidies and income supports.

There are a number of issues of importance pertaining specifically to agricultural labor and the perspective on them is largely formed by one's standpoint. For example, from a grower's position the foremost labor issue is an adequate and not prohibitively expensive labor force. Consumers value inexpensive food, while workers are concerned with fair pay and safe working conditions. Are all of these goals compatible? Probably not.

Much of the agricultural work in this state is seasonal in nature and therefore much of the work force is migratory. There are a number of issues because of this and the fact that most agricultural migrant workers are foreign born and non-native English speaking. Will there be too much or too little seasonal labor? How will U.S. immigration policy (particularly in light of 9/11) affect this? Is there adequate housing? Who will pay for it? What is the legal status of these workers? Should we change this? Given the limited English language ability of many of these workers, how can we ensure safety standards? Are the children whom accompany many of these workers getting properly educated? How will treatment of these workers affect our relations with their countries of origin? How will NAFTA affect this work force? Of course many of these questions are beyond the scope of this report, but understanding the fundamentals of this group is critical to understanding Washington's agricultural workforce.

The purpose of this report is to examine Washington's agricultural labor force and to assist agricultural employers and employee associations in planning employment needs and infrastructure to accommodate them. For growers the ability to anticipate and to plan for labor needs is critical to ensure that harvesting is accomplished. Seasonal farm workers incur an expense coming here and count on there being enough work. In addition to personal costs for them, it can be expensive for the public to support them if job seekers outnumber available jobs.

The nature of agricultural labor makes timely collection of data a difficult thing. A major source of the data in this report comes from the Washington State Employment Security Department's tax records. This is an important source of data as nearly all agricultural employment is covered. However, it does not include employment and wages for specific activities like apple and cherry picking, which are labor intense. To get a

picture of specific activities and wages, the Department conducts a monthly survey called the *Seasonal Farm Labor Survey*. The information comes from voluntary participation of almost 600 Washington growers. The survey provides estimates of the number of seasonal employees working in specific jobs. Seasonal agricultural employees are defined as individuals who are employed on any one farm for less than 150 days.

AGRICULTURAL PRODUCTION

Overall Production

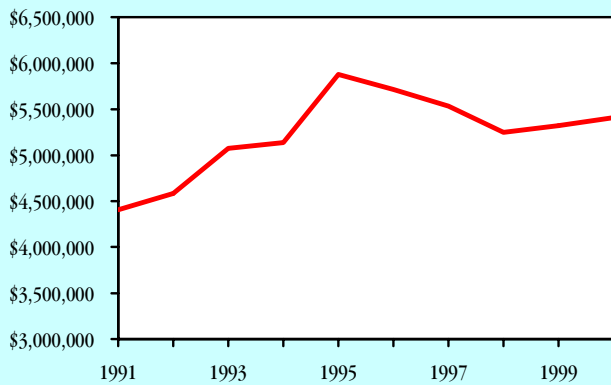
In 2001 overall agricultural output in Washington was down somewhat. The output of selected fruit commodities (as seen in *Figure 1*) was down by 7.3 percent, all vegetables by 3.8 percent, hops by 2.8 percent, wheat by 19.6 percent, and hay by 5 percent and potatoes by 12.6 percent. Fortunately (and in part due to the ironic nature of agricultural economics) for the sector, this fall-off in output was not necessarily matched by declining values.

Overall the value of agriculture in the state has been on the rise since 1998. As *Figure 2* illustrates, between 1991 and 1995 the value of state agriculture rose by 33 percent. However, it declined significantly in the following three years before the current recovery. Among the fruit previously mentioned, peaches were the only commodities to suffer a decline in the value of output in 2001. Although the value of the hop and wheat crops for the year were down slightly, the hay crop was

Figure 1
Total Production of Major Crops in Washington State, 1995-2001

unit	PRODUCTION (utilized)							% Chg 2000-2001
	1995	1996	1997	1998	1999	2000	2001	
	1,000 Tons							
All Fruit	3,280	3,305	3,459	3,859	3,358	3,745	3,471	-7.3%
Apples	2,375	2,750	2,500	3,050	2,500	2,850	2,500	-12.3%
Sweet Cherries	70	67	93	98	67	95	106	11.6%
Grapes (all)	326	144	319	220	265	265	283	6.8%
Wine Grapes	60	35	62	70	70	90	100	11.1%
Winter Pears	240	195	250	230	215	230	250	8.7%
Bartlett Pears	180	105	205	160	210	176	200	13.6%
Peaches	22	6	23	26	26	33	27	-18.5%
Apricots	6.5	3.0	7.1	5.3	5.5	6.5	5.0	-23.1%
	1,000 Cwt.							
Total Vegetables	35,410	32,354	36,957	37,206	37,344	36,457	35,057	-3.8%
Onions	6,525	7,371	9,433	8,755	9,108	8,514	9,088	6.7%
Sweet Corn, processing	16,474	13,614	15,576	16,475	16,466	16,904	17,071	1.0%
Green Peas	2,372	1,646	2,094	2,199	1,969	2,201	1,724	-21.7%
Asparagus	851	828	828	792	704	748	684	-8.6%
	1,000 Lbs.							
Hops	59,101	57,640	55,816	44,719	49,650	52,260	50,780	-2.8%
Red Raspberries	52,510	40,950	59,500	60,300	69,350	72,150	75,050	4.0%
Blueberries	6,300	8,190	8,710	10,700	11,080	12,410	15,000	20.9%
	Units of 1,000							
Sugarbeets (Tons)	*	461,000	595,000	1,192,000	825,000	803,000	261,000	-67.5%
Barley (Bushels)	20,880	27,280	35,520	33,800	28,910	34,300	21,000	-38.8%
Milk (lbs.)	5,305,000	5,279,000	5,305,000	5,326,000	5,535,000	5,593,000	5,514,000	-1.4%
Wheat (bushels))	123,770	182,670	165,120	157,425	124,140	164,880	132,580	-19.6%
Cattle & Calves (head)	1,310	1,270	1,220	1,210	1,170	1,210	1,180	-2.5%
Hay (tons)	3,278	3,140	3,084	3,156	3,059	3,249	3,088	-5.0%
Potatoes (cwt)	80,850	94,990	88,160	93,225	95,200	108,000	94,400	-12.6%
*No production								
Source: Washington Agricultural Statistics Service								

Figure 2
Value of Total State Agriculture, 1991-2000



Source: Washington Agricultural Statistics Service

worth almost 6 percent more than in 2000, and the potato crop was up by more than 20 percent. The value by crop is shown in *Figure 3* and acreage is shown in *Figure 4*.

A number of factors played a role in the declining agricultural output in 2001. The drought the state suffered through affected agriculture in many ways. Irrigation water was rationed in parts of the state during the worst of the drought and even non-irrigating farmers were hurt by the below average rainfall. The Bonneville Power Authority offered to buy back water from farmers who would then put acreage out of production. For many struggling farmers the buy-back program was seen as a great option and they immediately began lining up

Figure 3
Value of Major Crops in Washington State, 1995-2001

	VALUE OF PRODUCTION (\$1000)							Rank	% Chg 00-01
	1995	1996	1997	1998	1999	2000	2001		
State Total	\$5,879,640	\$5,712,639	\$5,533,992	\$5,249,617	\$5,320,890	\$5,409,969	**		
Apples	\$1,021,750	\$912,700	\$821,400	\$700,000	\$856,000	\$750,200	\$919,700	1	22.6%
Sweet Cherries	\$106,519	\$118,940	\$132,694	\$128,801	\$115,860	\$154,725	\$154,992	7	0.2%
Grapes (all)	\$73,676	\$57,744	\$124,410	\$107,004	\$114,400	\$127,460	\$133,071	8	4.4%
Wine Grapes	\$39,240	\$33,180	\$60,264	\$64,510	\$63,700	\$80,910	\$89,700	10	10.9%
Winter Pears	\$76,730	\$86,250	\$69,900	\$61,430	\$73,330	\$61,303	\$76,124	11	24.2%
Bartlett Pears	\$41,436	\$39,518	\$53,770	\$46,456	\$47,874	\$44,692	\$48,480	15	8.5%
Peaches	\$13,994	\$5,100	\$19,335	\$26,776	\$22,653	\$21,096	\$18,547	18	-12.1%
Apricots	\$6,659	\$4,259	\$5,335	\$3,332	\$4,977	\$4,413	\$5,474	21	24.0%
Red Raspberries	\$35,182	\$30,459	\$28,020	\$22,664	\$48,291	\$20,848	\$37,784	17	81.2%
Blueberries	\$3,096	\$5,639	\$7,769	\$6,565	\$7,833	\$9,364	\$11,688	20	24.8%
Total Vegetables*	\$317,143	\$307,635	\$357,558	\$357,016	\$299,306	\$320,095	\$314,471		-1.8%
Onions	\$45,940	\$60,479	\$99,569	\$84,255	\$51,795	\$64,605	\$73,171	12	13.3%
Sweet Corn, proc.	\$64,001	\$51,734	\$58,175	\$61,977	\$60,527	\$63,901	\$60,113	13	-5.9%
Green peas	\$30,246	\$20,408	\$25,342	\$26,921	\$22,588	\$24,638	\$18,148	19	-26.3%
Asparagus	\$58,659	\$63,312	\$64,204	\$61,217	\$51,216	\$54,876	\$48,910	14	-10.9%
Hops	\$99,290	\$93,935	\$89,306	\$73,457	\$79,937	\$95,113	\$92,927	9	-2.3%
Sugarbeets	\$0	\$19,777	\$23,146	\$27,297	\$26,730	\$26,901	\$3		-100.0%
Barley	\$59,299	\$72,019	\$80,630	\$53,404	\$50,882	\$66,199	\$40,950	16	-38.1%
Milk	\$684,172	\$788,075	\$728,143	\$842,541	\$820,245	\$711,168	\$843,642	2	18.6%
Wheat	\$742,500	\$755,680	\$560,608	\$414,218	\$345,299	\$458,568	\$442,680	5	-3.5%
Cattle & Calves	\$449,708	\$407,123	\$468,580	\$458,719	\$454,222	\$560,729	\$492,641	4	-12.1%
Hay	\$328,878	\$371,347	\$361,824	\$312,588	\$307,027	\$354,985	\$375,328	6	5.7%
Potatoes	\$553,823	\$451,203	\$431,984	\$447,480	\$476,000	\$448,200	\$547,520	3	22.2%

**data not yet available

Source: Washington Agricultural Statistics Service

to take advantage of it. Since the region generates so much of its electricity from hydroelectric sources, the drought (and other factors) drove energy prices up sharply. This in turn affected agriculture in diverse ways such as dairy farmers, packing houses, food processors, and the price of fertilizers just to name a few. It also affected the cost of pumping/drawing water from rivers

via wells since most of the pumps run on electricity and some of the wells are quite deep.

There was some effect from the tragedy of September 11. Crop dusters and helicopters were grounded for a period and export and domestic shipments of many kinds of produce were delayed.

Figure 4
Acreeage of Major Crops in Washington State, 1995-2001

	ACREAGE (harvested)							% Chg 2000-2001
	1995	1996	1997	1998	1999	2000	2001	
Total	15,800,000	15,700,000	15,700,000	15,700,000	15,700,000	15,700,000	15,700,000	0.0%
Apples	158,000	164,000	170,000	172,000	172,000	172,000	168,000	-2.3%
Sweet Cherries	16,400	17,200	18,000	18,000	18,000	18,000	22,000	22.2%
Grapes (all)	34,000	35,000	37,000	39,000	41,000	44,000	48,000	9.1%
Wine Grapes				15,000	17,000	20,000	24,000	20.0%
Winter Pears	13,000	13,000	13,200	13,200	13,200	13,200	13,500	2.3%
Bartlett Pears	11,200	11,200	11,200	11,200	11,200	11,200	11,300	0.9%
Peaches	2,500	2,500	2,500	2,500	2,500	2,500	2,700	8.0%
Apricots	1,200	1,200	1,200	1,200	1,200	1,200	1,250	4.2%
Total Vegetables	218,000	196,300	222,600	232,250	228,000	219,100	199,700	-8.9%
Onions	13,500	15,200	18,400	17,850	18,800	15,800	16,800	6.3%
Sweet Corn, processing	82,700	75,300	87,700	98,300	97,400	98,600	95,100	-3.5%
Green peas	57,300	42,200	53,700	55,100	52,300	51,300	48,400	-5.7%
Asparagus	23,000	23,000	23,000	22,000	22,000	22,000	19,000	-13.6%
Hops	30,261	31,678	31,080	26,573	25,076	27,000	26,033	-3.6%
Red Raspberries	5,900	6,300	8,500	9,000	9,500	9,500	9,500	0.0%
Blueberries	1,400	1,300	1,300	1,500	1,600	1,700	2,000	17.6%
Sugarbeets	(out of prod.)	13,000	18,000	35,800	27,400	27,300	7,100	-74.0%
Barley	290,000	440,000	480,000	520,000	490,000	490,000	420,000	-14.3%
Wheat (1,000 bu.)	2,595,000	2,745,000	2,580,000	2,565,000	2,290,000	2,420,000	2,380,000	-1.7%
Hay (1,000 Tons)	760,000	800,000	780,000	750,000	740,000	770,000	790,000	2.6%
Potatoes	147,000	161,000	152,000	165,000	170,000	175,000	160,000	-8.6%

Source: Washington Agricultural Statistics Service

Fruit

In the latter 1990s certain crops became less economically viable and this has led farmers to change from one crop to another. Wine grapes, cherries, and more desirable apple varieties have been planted in recent years but they all take a certain number of years to reach maturity. This has reduced the amount of producing cropland. Nationally, winter wheat acreage was at its

lowest point since 1971 in part due to the 1996 Farm Act which allows switching crops while keeping or even receiving a higher subsidy.

Apples. Although the apple industry in the state has struggled somewhat since 1995, it remains far and away the most important crop both in terms of value of production and the numbers employed. Since 1998 the

value of the apple crop has risen by 31 percent and has had positive growth every year. The value of the most recent crop has been estimated at \$919,700,000. This is more than 76 million above that of the state's second most valuable crop, milk. In the past ten years the apple crop has only been superseded in value once—in 1998.

The year started out looking bleak for apple growers. A box of red delicious apples was going for \$10.61 at one point while the estimated break-even price for apples in general was in the low \$13.00 range. There were a number of apples still on the market, which led to calls for buying the apples to throw away, use for processing, or give away. There was also a move by both the apple and pear industries to form fairly comprehensive growers cooperatives. They were incorporated in March with the intent to gain some control over prices.

By August it was apparent that the 2001 apple crop was going to be significantly smaller than the previous year. A late June hailstorm, tree removals, rising demand, and poor crops elsewhere (particularly in California) led to a rebound in apple prices. By the latter part of the year varieties like Pink Lady and Galas were earning \$16.54 and \$15.83 per box respectively. Overall prices averaged \$15.32 a box up from an average of \$13.02 the previous year. The 2001 crop has been estimated to be worth 22.6 percent more than the 2000 crop.

Cherries. Cherry growers face a degree of uncertainty every year. They can make a lot of money or lose their entire crop. Weather conditions largely determine success or failure. In recent years cherry trees have been a popular replacement for the unprofitable Red Delicious trees to the extent that some predict there may be an oversupply in the near future. Not unusual, the cherry crop had something of a roller coaster ride in 2001. Despite the drought, the cherry harvest was predictably (given the increase in plantings) shaping up to be at near-record levels. It was predicted that for Oregon and Washington the harvest would reach 86,000 tons. As the cherry harvest approached in July grower's fears went from not enough water to too much water. Rain just prior to harvesting can swell the fruit and cause splitting.

A late June storm which also damaged apples, pears, and hops was estimated at the time to cause a loss of

25 to 40 percent of the cherry harvest. However, most of the damage occurred in the lower Wenatchee Valley and the late season crop in places like Okanogan County was largely undamaged. As it turned out this part of the cherry harvest was way above expectations since much of the new acreage is in later varieties such as Lapins and Sweetheart.

Another essential to good cherry production is an adequate supply of labor. Cherry production is the second largest employer of seasonal farm workers in the state. Workers are required to plant, prune, spray, irrigate and do general orchard work. However, the great majority of workers are needed for the relatively short harvest period, usually lasting only several days at individual orchards. The 2001 harvest was smoothed by an estimated adequate supply of 15,000 workers.

The crop came in at a record 106,000 tons but there was a down side. News of the June damage led to a decline in demand as many buyers gave up on Washington cherries. Overall there was almost a 12 percent increase in output over 2000, but the value of the total crop rose by a mere 0.2 percent. The cherry crop was the seventh most valuable crop in the state and the second biggest employer of seasonal labor.

Grapes. Like cherries, wine grapes have become a recent popular alternative crop and like cherries, there are worries of long-run over-supply. Currently though, Washington wine grapes have been unable to meet all the requirements of local wineries. The enthusiasm for growing wine grapes is understandable given the profits earned and the growth in the industry. The 2001 crop was a record, with both the output and value increasing by 11 percent. As a perceived "high-value" crop in a drought year, the impact was minimized as it was given water preference by growers over "lesser-value" crops. Since 1995 the value of wine grapes has risen by 129 percent and by 81 percent for all grapes. In that same period output of wine grapes has risen by two-thirds, due primarily to an increase in acreage of nearly the same proportion. The rising prestige of the state's wine industry was recognized by *Wine Enthusiast* when it named Washington the "Wine Region of the Year."

Due to the mechanization of grape harvesting, the impact of the grape industry on agricultural employment is significantly less than apples and cherries. Due to the fact that employment is year-round, it is the third

largest employing crop in the state. The economic impact on the state is large and rising. An independent economic impact study (Motto Kryla Fisher) determined that the industry generates 2.4 billion in revenue for Washington, and employs more than 11,000 persons annually.

Pears. The outlook for the pear industry at the beginning of the year was like most of the tree fruit industries, not terribly good. The year 2000 had seen the value of the Winter Pear crop fall by 16 percent and Bartlett Pears by 7 percent. The response by the industry was to take advantage of a law dating back to 1922, the Capper-Volstead Act, which allows agricultural growers to market collectively without violating anti-trust laws. The efforts of the cooperative had some success later in the year as pear prices rose.

Rising prices and the successful use of the insecticide Kaolin (a harmless whitener used in toothpaste and ice cream), combined to rescue revenues for the industry. While acreage increased overall by 1.6 percent for both pear varieties, output skyrocketed by almost 18 percent for Bartletts and rose by 4.2 percent for Winter Pears. Although output growth was smaller for Winter Pears, the total value of the harvest shot up by 24 percent compared to an 8.5 percent rise for Bartlett Pears.

Other Fruit. Raspberries are one of the few important Western Washington crops. The past several years have been volatile to say the least for growers. The value of the 2001 raspberry production went up by a phenomenal 81 percent, but this was on the heels of a plummet of 57 percent in the previous year. These changes were due to price changes, as there was no change in acreage and only marginal change in output. The big challenge to raspberry growers of late has come from Chilean importers who have been accused of dumping on domestic markets.

There has been an increase of over 50 percent in the acreage of blueberries since 1997. This has in turn lead to sharp rises in the annual harvests including a 21 percent jump in 2001. This increase in output was more than matched by a 25 percent rise in the market value of the blueberry harvest. The strawberry and cranberry harvests were small but did see increases in both acreage and value of production.

The market value of Washington's peach harvest has fallen by 30 percent since 1998. During the same period bearing acres and production have remained static. Although the state's apricot crop remains less than one-third that of peaches, its value rose by 24 percent between 2000 and 2001. Despite a good bloom for apricots, cold weather during production led to a decrease in output almost equivalent to the increase in value.

Vegetables and Field Crops

Vegetables. Onions, processing corn, and asparagus rank as the 12th, 13th, and 14th most valuable crops in the state in 2001. Of the three, onions were the only commodity to see an increase in harvesting acreage and value of production. Production was almost 7 percent larger than the previous year, while total harvest value improved by 13 percent. The sweet processing corn industry experienced small declines in harvested acreage, production, and value of production.

Even though the asparagus industry has suffered declines in Washington in recent years, it remains important, particularly in terms of employment. Washington is the second largest asparagus producer in the country and the industry is the fourth largest employer of seasonal farm workers in the state. The crop is labor intensive, which accounts for about one-half of growing expenses.

Asparagus is the first major crop harvested each year. The harvest begins slowly in April with typically a few hundred workers and progresses according to typically erratic weather conditions. The amount of labor necessary can vary considerably from day to day, which creates problems for both the growers and the workers.

Planting acreage was down 6 percent from last year and this was reflected by a drop-off in output of 22 percent. The harvested acreage is down in part due to loss of markets to Californian and foreign competition. As part of an effort to require Peruvian farmers to give up growing coca plants, duty-free incentives were offered. The Washington crop comes in at a very distinct time and retailers tend to prefer the year-round crop coming out of Peru. Also profits have fallen as energy and labor costs have risen.

Field Crops. The experience of Washington potato farmers illustrates the unpredictable nature of agriculture. Potato processing plants struggled early in the year, which left many growers with unsold produce and bleak prospects. This was exacerbated when certain Canadian potato processors (where many plants are located) were required to give preference to Canadian grown spuds. Added to this were fears of the toll that the drought would have on income.

In August prices began to rise in response to what was shaping up as a very small crop. In Oregon, Idaho, and Colorado, the crop was estimated to be down by 15-20 percent and even more in California and Mexico. In fact nationally all signs pointed to it being the smallest potato crop since 1951. The harvest in Washington was low but higher than elsewhere, leaving growers in an advantageous position. Harvesting acreage fell by 9 percent, output by 9 percent, but the value of the harvest expanded by 22 percent.

The 94,400 cwt. (per hundredweight) was worth 547.5 million dollars, making it the third most valuable crop in Washington and the best crop since 1995. The state ranks second in the nation in potato output and the industry is the seventh largest employer of seasonal labor.

At one point in the mid-1990s wheat was the second most valuable agricultural commodity. The 2001 harvest was valued at \$442,680,000, which was down 3.5 percent from the previous year and only 60 percent of what it was worth in 1996. Acreage was down slightly from the previous year but since that peak in 1996 it has declined by 13 percent. The biggest change was a drop in the overall wheat output of 20 percent from the previous year. Despite the poor recent showing, wheat does remain the fourth most valuable crop in Washington and the nation's third largest producer.

The reasons for the drop-off in wheat output were primarily weather related. Precipitation below normal, an early frost, a cold spring and then above normal temperatures contributed to the poor harvest for both wheat and barley. Fortunately the small supply drove up prices to \$3.20 to \$3.25 per bushel, which was the best price in four years. In August prices reached \$3.53 per bushel, a dollar more than at the same time one year earlier. Because of this, the 20 percent drop in output amounted to only a 3.5 percent fall in total value. Another reason for the decline in wheat has been changes

in farm policy, which has allowed more planting flexibility on the part of growers.

Since typically 90 percent of Washington wheat is sold abroad, our growers are especially dependent on foreign markets. Most wheat grown in this state is soft white wheat, and it is not generally used for making flour for bread but for ethnic flatbreads, noodles, crackers, and cookies. Therefore foreign production and currency values strongly influence the price Washington growers receive for their wheat. One cause of rising wheat prices was a drought in Australia. A lot of regionally grown wheat is exported to Afghanistan and Pakistan so the conflict in that part of the world may end up impacting sales and prices as well.

Hops were the 8th most valuable crop in 2001, but output, acreage, and value all fell between 2 and 4 percent from the previous year. Hops are expensive to grow since vines must be trained by hand to curl around trellises. These and other necessary tasks such as spraying, irrigating, and fertilizing required almost 1,000 workers in the spring of 2001 and at harvest time 2,347 workers.

Washington is the number one U.S. supplier of hops and about 40 percent of the world's total output comes from this country. This supply was adversely affected by the June storm, which destroyed about 1 million pounds of hops. The decline of the euro relative to the dollar has also hurt exports of U.S. hops. This drove up the price of U.S. hops to the European Union, the top importer of American hops. All in all, the last few years have not been good ones for hop growers.

Due to a reduction in acreage, as well as drought and environmental water cutbacks, output of hay was down by 5 percent. This reduction in supply had the positive result of increasing unit prices to the extent that the value of the total hay harvest rose by 6 percent.

The sugar beet industry which had a production value of \$40,550,000 in 2000, for all practical purposes, shut down in 2001. Production was down by 68 percent, harvested acreage by 74 percent, and the value of production fell to virtually nothing. The Pacific Northwest Sugar Company signed a power buy-back agreement and many growers chose not to plant. After attempting to restructure the company for production this year, its closure was announced in April. The primary problem was simply oversupply and high costs. Planted acreage for the coming year is even lower than in 2001.

Cattle and Dairy

In terms of value of production the cattle industry is very important to the state and ranked fourth overall. The outlook looked good early on as weather helped to contribute to near record wholesale prices. The early months of 2001 were cool and wet, which required more energy to sustain cattle and hence reduced growth. Smaller growth led to smaller supply and higher prices. Unfortunately for cattle operators, the drought drove up feed prices and economic conditions lowered domestic and international demand for beef. The volume of meat exports from Washington was off by 9 percent from 2000. Rising costs and falling profits left many cattlemen losing \$100 to \$150 per head of cattle. The value of cattle and calf production was down by 12.1 percent and production itself fell by 2.5 percent. This left production at 1,180,000 head of cattle, see *Figure 1*, the lowest level depicted except in 1999.

The drought also negatively impacted dairy operations, which had to pay much higher electricity costs. In addition, the colder weather on the west coast and

poor forage on the east coast depressed milk supplies nationally. There was some recovery in milk output but overall, production was down by 1.4 percent. Due to the strained supply prices rose early in the year. Eventually toward the end of the year, dairy prices began to fall, but overall the value of Washington milk output was up by 18.6 percent. Lower cheese and butter prices as well as the economic slump coupled to put downward pressure on milk prices.

The majority of the state cattle are located in Eastern Washington. Eighteen percent were in Yakima, 14 percent in Grant and 7 percent in Walla Walla. Whatcom County in the Western part of the state did have 115,500 head of cattle or 14 percent of the state total. When it comes to dairy cows, the western region plays a much larger role. Twenty-six percent of milk cows resided in Whatcom County, 8 percent in Snohomish and 7 percent in Skagit. Yakima County also had nearly as many milk cows as Whatcom at 25 percent of the 2001 total.

Exports

Export markets tend to be the driving force behind Washington agriculture. In 2000 the state ranked number eight in the nation in terms of the value of agricultural exports. In that same year the state was the second largest exporter of vegetables and the third largest exporter of fruits.

Figure 5 tabulates the top 20 Washington State exports by industry as categorized by customs authorities. The values (in millions of dollars) are tracked from 1996 to 2001. Although this value fell by 15 percent during this period, it rose by the same margin over last year's figures. The driving force behind this improvement was a jump in value of \$225.4 million in miscellaneous grain, seed, and fruit (which includes hay, hops, sugar beets, and herbs). Despite the fact that cereals (which includes wheat, barley, and corn) increased in value by only 1 percent over last year, the category continued to be the largest. Apple and cherry exports are subsumed under edible fruits and nuts, which appreciated by 10 percent. Prepared vegetables, fruits, and nuts includes the pre-

served or prepared form, while in its fresh state vegetables are under the vegetables category.

Figures 6 and 7 depict how the destination of Washington crop exports have changed between 1997 and 2000. What stands out is the decline of exports to the East Asian countries Japan and Taiwan, and the expansion of exports to Mexico. Crop exports to Japan fell by almost 30 percent, to Taiwan fell by almost 50 percent, but sharply increased by 283 percent to Mexico.

The issues affecting agricultural exports in 2001 and beyond range from currency values, state of the world economy, trade policies, emerging markets and competitors, to pesticide and bioengineering usage. Throughout much of the 1990s Asian economies like Japan, Korea, and Taiwan were the most important export markets for Washington produce. However, the economic difficulties that have plagued these countries on-and-off since 1997 have decimated the buying power of the critical middle classes in these economies. There

Figure 5

Value of Top 20 Exports of Washington State Commodities, 1996-2001 (in millions)

	1996	1997	1998	1999	2000	2001	% Chg. 1996-00	% Chg. 2000-01
Total	\$4,926.50	\$4,444.00	\$3,142.30	\$3,250.90	\$3,638.38	\$4,169.43	-15%	15%
Cereals	\$2,254.70	\$1,786.80	\$949.60	\$1,017.40	\$970.00	\$981.64	-56%	1%
Misc. Grain, Seed, & Fruit	\$627.50	\$645.10	\$300.50	\$264.40	\$489.80	\$787.93	26%	61%
Fish and Seafood	\$571.50	\$481.00	\$400.20	\$418.10	\$499.60	\$654.96	15%	31%
Edible Fruit and Nuts	\$351.50	\$399.00	\$362.20	\$376.30	\$409.20	\$448.16	27%	10%
Prepared Vegetables, Fruit, & Nuts	\$230.40	\$223.80	\$230.40	\$258.20	\$271.60	\$269.56	17%	-1%
Meat	\$227.10	\$225.00	\$223.20	\$208.90	\$248.60	\$206.77	-9%	-17%
Prepared Meat, Fish etc.	\$161.90	\$151.40	\$129.90	\$172.50	\$142.40	\$142.38	-12%	0%
Vegetables	\$112.90	\$105.60	\$110.80	\$119.90	\$135.10	\$138.89	23%	3%
Food Waste: Animal Feed	\$74.70	\$109.00	\$108.80	\$95.40	\$111.88	\$119.99	61%	7%
Baking Related	\$29.20	\$27.20	\$33.20	\$45.10	\$57.40	\$64.23	120%	12%
Dairy, Eggs, Honey etc.	\$29.00	\$43.50	\$41.50	\$23.50	\$35.90	\$60.59	109%	69%
Lac, Vegetable Sap, Extract	\$38.50	\$39.00	\$42.00	\$38.10	\$46.70	\$55.97	45%	20%
Spices, Coffee, & Tea	\$21.50	\$23.00	\$31.90	\$31.40	\$40.00	\$54.08	152%	35%
Live Trees and Plants	\$26.10	\$30.70	\$27.70	\$32.10	\$35.40	\$47.39	82%	34%
Misc. Food	\$35.70	\$26.40	\$28.40	\$28.00	\$31.30	\$30.77	-14%	-2%
Beverages	\$46.30	\$43.80	\$42.30	\$45.40	\$31.60	\$29.65	-36%	-6%
Milling, Malt, Starch	\$23.00	\$26.30	\$21.50	\$15.60	\$20.40	\$26.55	15%	30%
Fats and Oils	\$34.70	\$34.10	\$33.70	\$35.40	\$27.30	\$21.23	-39%	-22%
Live Animals	\$10.70	\$9.90	\$11.10	\$15.20	\$21.40	\$17.13	60%	-20%
Other of Animal Origin	\$19.60	\$13.40	\$13.40	\$10.00	\$12.80	\$11.57	-41%	-10%

Source: Washington State Office of Trade and Economic Development

Figure 6
Washington Crop Exports by Country, 1997

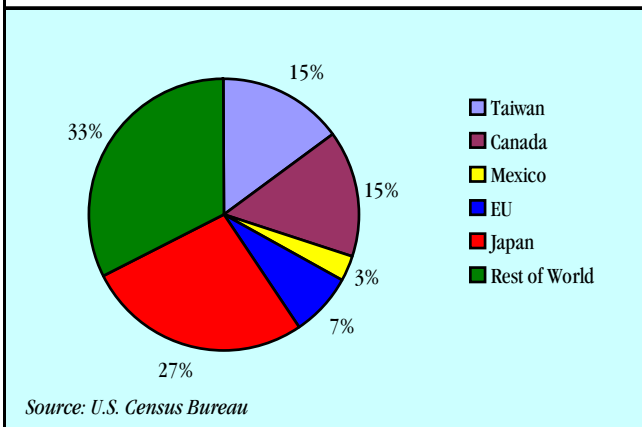
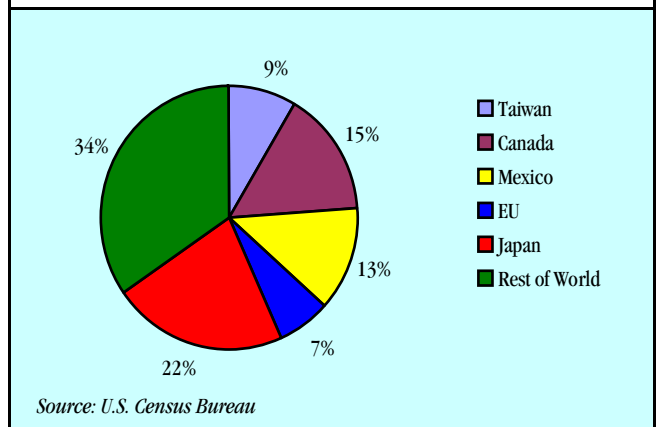


Figure 7
Washington Crop Exports by Country, 2000



appears now a chance that Washington growers may never recover these markets due to the emerging competition from China. China has four times the apple acreage of the U.S. and leads the world in new cherry acreage. They are also a significant producer of hops, pears, and wheat. Despite these changes, it is not all bad news coming out of Asia.

As these Northeast Asian markets have become less important other markets have become more important. One of the visible changes wrought by the North American Free Trade Agreement (NAFTA) is the reduction in trade barriers to Canada and Mexico and the rapid growth of trade with them. Since the lifting of a penalty tariff on American apples in 1997, the Mexican market has risen in importance to become the top importer of U.S. apples. While Taiwan has remained the second biggest market for apples, the other NAFTA partner, Canada is now right behind them.

India, Indonesia, and Vietnam have become important markets for Washington produce in recent years. One of the keys to marketing to these countries (and competing with Chinese produce) has been an emphasis on quality and regional preference for certain varieties.

Chile is now the top exporter of fruit in the southern hemisphere. They have several geographic advantages such as a long coastline which runs north to south giving them a variety of climates and a mountain range which acts as a barrier to introduction of pests and disease. They also have a marketing advantage in having growing seasons opposite to their northern hemisphere competition.

Standards of pesticide and biotech usage vary from country to country and can strongly affect trade patterns. The European Union countries have been particularly outspoken in opposition to U.S. agricultural products that have been genetically altered and have subsequently limited access to their markets. The United States on the other hand has generally higher standards as far as pesticide residue than say Mexico. This can affect both import restrictions but also public perceptions and subsequently consumer demand. For this reason U.S. growers support more country of origin marking on produce. Required labeling along these lines is part of the new farm bill.

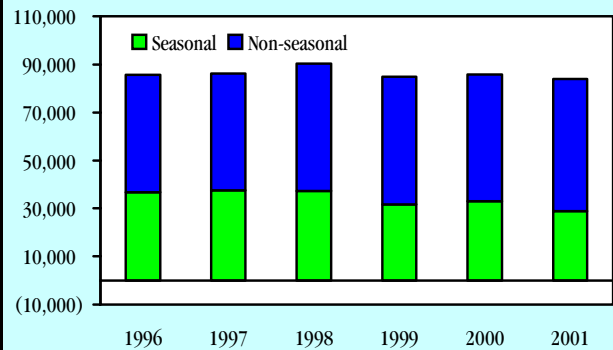
AGRICULTURAL EMPLOYMENT

In 2001 agriculture employed an average of 83,877 individuals including seasonal and year-round hired workers as well as farm operators and unpaid family workers. *Figure 8* shows the total, seasonal, and year-round agricultural employment in Washington since 1996. Total employment is up by a small margin, but the seasonal component has fallen in percentage terms as well as absolute numbers. Thousands of other workers were employed by fruit and vegetable wholesalers, canning and packing of fruits and vegetables, feed and seed distributors, transportation, and other industries whose products and services are essential to grow and market the agricultural commodities produced in the state. In 2000 about 5 percent of Washington workers were employed in the industry classification “Food and Kindred Products.” Of these workers about one-third were involved with processing fruits and vegetables.

Changes in agricultural employment levels over a period of years tend to be erratic because of unpredictable weather conditions and their effect on crop size. While there was little change in agricultural employment in 1997 and 2000 from the year previous, 1998 experienced an increase of about 5 percent, while 1999 and 2001 suffered declines of over 6 percent and 2.3 percent, respectively.

To obtain this seasonal employment information, the Employment Security Department conducts a monthly survey in which approximately 600 growers voluntarily participate, the Seasonal Farm Labor Survey. The monthly survey provides estimates of the number of seasonal employees working in specific jobs such as

Figure 8
Total and Seasonal Agricultural Employment
Washington State, 1996-2001



Adjusted for dual job holders plus noncovered
Source: Employment Security Department

asparagus cutting in a given area and corresponding wage rates. Seasonal agricultural employees are individuals who are employed on any one farm for less than 150 days.

Figure 8 distinguishes between total and seasonal agricultural employment since 1996. The highpoint of seasonal farm labor during this period was 1997 when there were 37,474 workers. Since that period seasonal employment has fallen by 23 percent while overall agricultural employment rose by 4 percent. One explanation for this is a drop in harvested acreage for many of the labor-intensive crops. Hop acreage fell by 16 percent, asparagus by 14 percent, and apples by 2.3 percent since 1997. Pear acreage has been roughly static while cherry acreage grew by 22 percent and wine grape acreage has risen dramatically by 60 percent (since 1998).

Crops

Among seasonal farm crops, apples employed by far the most. Forty three percent of seasonal workers worked in the apple industry with the next closest, cherries employing only 10 percent (*see Figure 9*). *Figure 10* illustrates how monthly employment patterns change for the crops that generate the most seasonal employment and *Figure 11* depicts changes in monthly employment over the past three years.

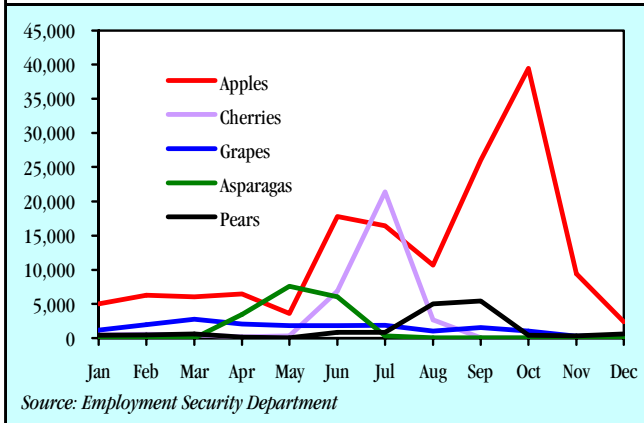
Figure 10 shows employment in the apple industry had an initial peak in June of 17,807 workers, most (83 percent) of whom were involved in thinning of trees. The numbers employed in thinning stays roughly constant through August, but those involved in pruning trees fell a bit in July before rebounding the next month. The biggest jump in apple related labor occurred when 23,097 workers began harvesting in September. The

Figure 9**Washington State Seasonal Workers by Crop, 2001**

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG	Rank	% of total average
STATE TOTALS	10,254	12,622	16,928	20,733	22,489	43,976	58,218	37,800	48,078	50,559	16,164	7,780	28,800		
Apples, Total	4,998	6,239	6,013	6,477	3,608	17,807	16,477	10,665	25,985	39,437	9,393	2,361	12,455	1	43.2%
Cherries, Total	520	552	521	192	338	6,863	21,357	2,702	40	28	84	147	2,779	2	9.6%
Grape Workers	1,200	1,965	2,724	2,008	1,802	1,814	1,920	1,047	1,565	1,052	301	442	1,487	3	5.2%
Asparagus Workers	0	8	17	3,435	7,584	6,030	333	60	89	55	0	0	1,468	4	5.1%
Nursery Workers	1,098	1,347	1,585	2,100	2,254	1,805	1,676	1,049	1,121	719	1,043	796	1,383	5	4.8%
Pears, Total	428	518	607	154	102	813	870	4,992	5,430	388	359	620	1,273	6	4.4%
Potato Workers	412	383	681	1,038	800	399	589	1,919	2,762	4,181	1,023	757	1,245	7	4.3%
Misc. Vegetable Workers	248	231	600	732	1,161	1,197	1,971	1,997	2,342	1,567	644	525	1,101	8	3.8%
Raspberry Workers	451	254	305	327	155	484	4,710	1,273	393	525	1,176	1,087	928	9	3.2%
Onion Workers	298	190	194	670	96	930	1,728	1,345	1,048	614	649	635	700	10	2.4%
Hop Workers	6	138	946	827	987	824	440	1,227	2,347	164	107	24	670	11	2.3%
Blueberry Workers	0	0	14	12	44	30	489	2,987	780	427	317	24	427	12	1.5%
Bulb Workers	41	48	1,345	607	379	128	357	507	359	206	185	170	361	13	1.3%
Strawberry Workers	0	0	5	55	175	1,865	1,749	343	43	10	0	0	354	14	1.2%
Wheat/Grain Workers	38	15	43	88	97	249	448	977	244	71	66	9	195	15	0.7%
Cucumber Workers	0	9	0	0	0	9	167	1,064	570	20	0	0	153	16	0.5%

Source: Employment Security Department

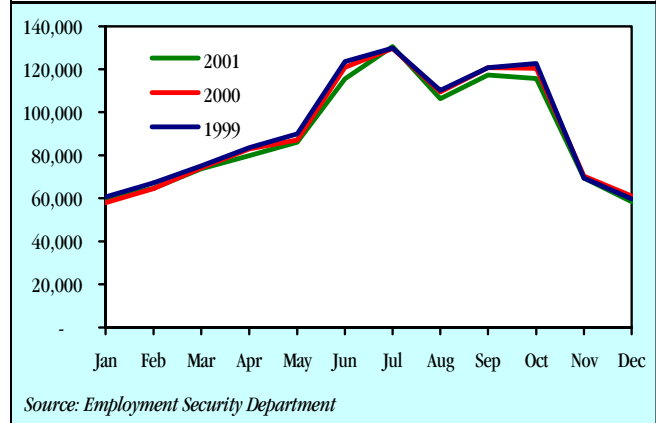
Figure 10
Monthly Employment by Crop, 2001



numbers working the apple harvest continued expanding to 36,266 in October. To a large degree these tree fruit employment patterns are reflected in overall seasonal work patterns as exhibited in *Figure 11* with dual peaks in July and October.

It is interesting to note that despite October being the peak employment month for apples, which were the top employer, July had the overall highest seasonal employment. The reason for this is the sharp rise in workers harvesting cherries. There were some employed harvesting in June and some pruning early in the first three months of the year, but those employed in non-harvesting activities were relatively few in comparison. Raspberries, grapes, strawberries, and onions all had significant levels of workers in July.

Figure 11
Total Monthly Agricultural Employment, 2001



Asparagus is the earliest harvested crop. There were 7,584 workers involved with its harvest in May. Other than the months of April, May, and June there was almost no employment of seasonal farm workers in the asparagus industry. The pear harvest comes in a little earlier than apples with almost 4,000 harvesters employed in August and even more in September. There were on average about 500 persons employed pruning pear trees in the first quarter. The summer months employed close to the same amount in thinning of trees. The mechanization of the grape harvest means that employment is relatively constant throughout the year, but for the most part, smaller than hand-harvested crops.

By Area

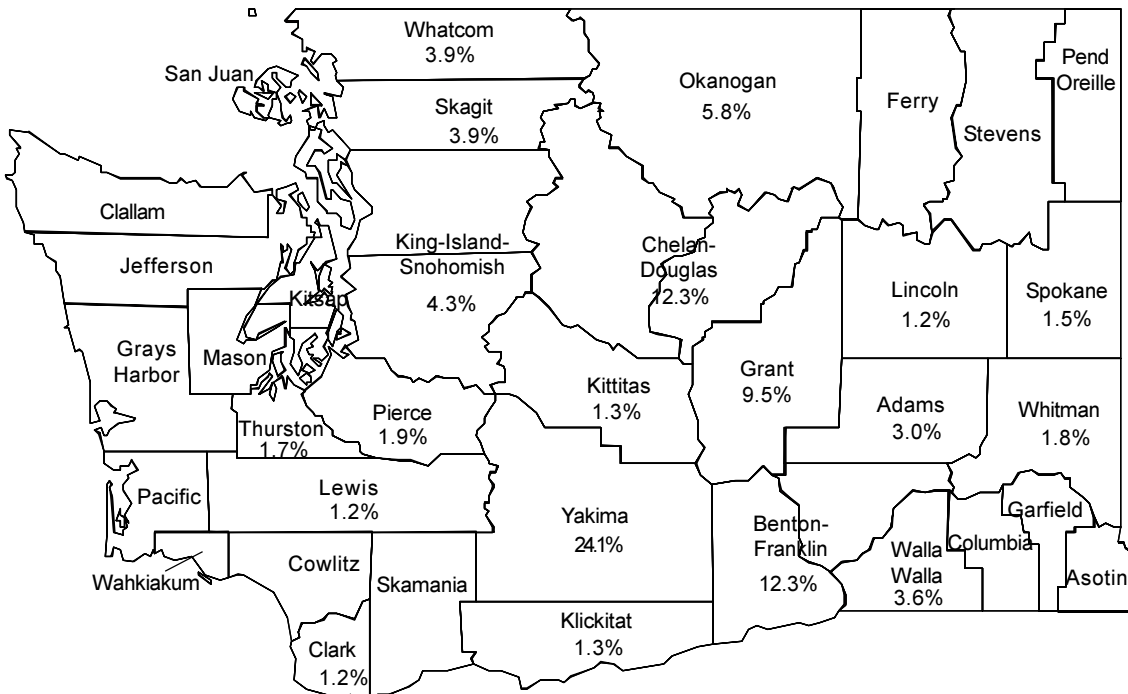
As with the population as a whole, the majority of workers live in the western side of Washington State. While almost 80 percent of state labor is found west of the cascades, the situation reverses when looking at agricultural workers. Well-developed irrigation systems, warm to hot spring and summer weather, and rich volcanic soils in many eastern Washington areas provide an ideal environment to raise a variety of crops. Elsewhere in the eastern part of the state, the dry land areas are a major wheat-producing region of the nation. According to the 1997 Census of Agriculture (the 2002 Census was not yet out at the time of publication), eight of the ten leading counties in total farm sales including the first five are located in eastern Washington. The first two, Yakima and Grant counties, alone accounted for nearly one-third of farm commodity sales in 1997. *Figures 12 and 13* summarize the agricultural numbers by area, percentage employed in agriculture, and percentage of total agricultural employment.

Figure 12
Total Employment and Agricultural Employment,
Washington State and Selected Areas, 2001

Area	Total Emp.	Agri. Emp.	% of Total County Emp.	% of Total State Agri. Emp.
WASHINGTON	2,804,100	89,749	3.2%	100.0%
Western	2,220,220	18,282	0.8%	20.4%
Eastern	583,880	71,467	12.2%	79.6%
Agricultural Area				
Columbia Basin	39,790	11,178	28.1%	12.5%
Adams	7,180	2,667	37.1%	3.0%
Grant	32,610	8,511	26.1%	9.5%
North Central	80,010	17,442	21.8%	19.4%
Chelan & Douglas	48,040	11,022	22.9%	12.3%
Kittitas	13,940	1,171	8.4%	1.3%
Okanogan	18,030	5,250	29.1%	5.8%
South Central	102,960	22,772	22.1%	25.4%
Klickitat	7,160	1,133	15.8%	1.3%
Yakima	95,800	21,639	22.6%	24.1%
South Eastern	111,710	14,333	12.8%	16.0%
Benton & Franklin	87,600	11,062	12.6%	12.3%
Walla Walla	24,110	3,271	13.6%	3.6%
Eastern	249,410	6,575	2.6%	7.3%
Lincoln	4,310	1,070	24.8%	1.2%
Spokane	193,500	1,359	0.7%	1.5%
Whitman	17,940	1,585	8.8%	1.8%
Other Eastern Areas	33,660	2,562	7.6%	2.9%

Source: Employment Security Department

Figure 13 County Percentage of Total Agricultural Employment* Washington State, 2001



*Percentage not shown for areas with less than 1.0 percent of state total.
Source: Washington State Employment Security Department

Figure 14 Map of Agricultural Reporting Areas in Washington State



Counties Within Agricultural Reporting Areas

Area 1 = Clallam, Clark, Cowlitz, Grays Harbor, Island, Jefferson, King, Kitsap, Lewis, Mason, Pacific, Pierce, San Juan, Skagit, Skamania, Snohomish, Thurston, Wahkiakum, Whatcom

Area 2 = Klickitat, Yakima

Area 3 = Chelan, Douglas, Kittitas, Okanogan

Area 4 = Adams, Grant

Area 5 = Benton, Franklin, Walla Walla

Area 6 = Asotin, Columbia, Ferry, Garfield, Lincoln, Pend Oreille, Spokane, Stevens, Whitman

Source: Employment Security Department

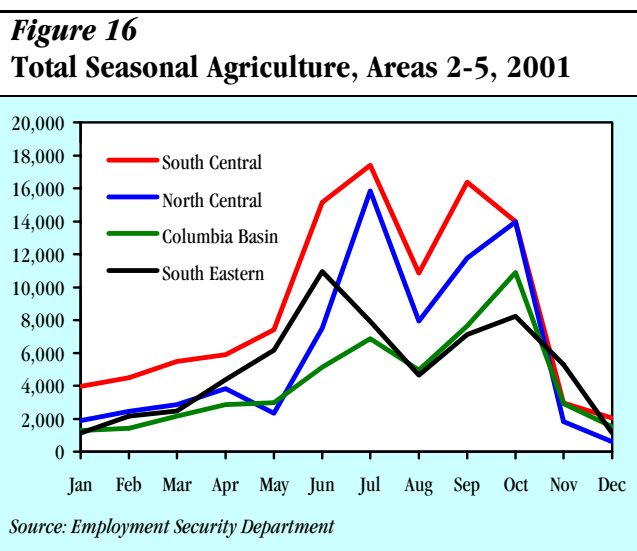
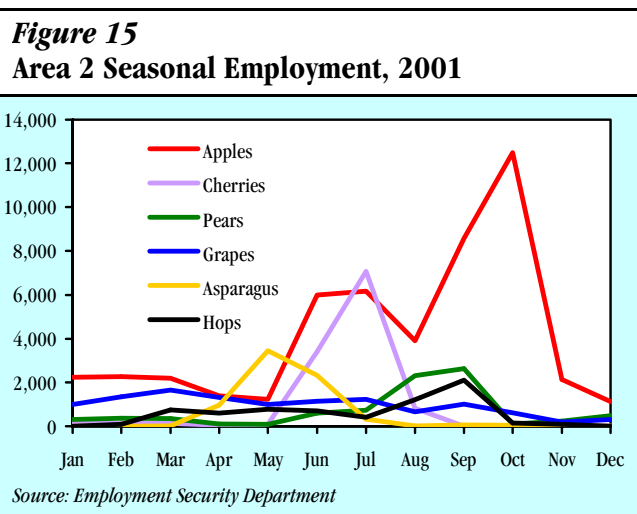
Western (Area 1). In western Washington less than 1 percent were employed in agriculture (compared to over 12 percent in the eastern half). Area 1, the Western region, led the state in blueberry, raspberry, strawberry, and nursery employment. Whatcom and Skagit were the most important agricultural counties in the region, averaging over 3,000 farm-related jobs. The state is broken up into agricultural reporting areas 1-6. *Figure 14 (agricultural reporting area map)* displays the areas and counties in each.

South Central (Area 2). The South Central area which includes Yakima and Klickitat counties, is the most important area in terms of agricultural employment. More than one out of every four Washington agricultural workers was employed in this region in 2001 and Yakima County by itself amounted to 24 percent of the total. The explanation for this is that the area produces a number of labor intensive crops such as apples, cherries, pears, other tree fruits, asparagus, and hops. *Figure 15* shows the seasonal labor throughout the year for apples, cherries, grapes, pears, asparagus, and hops in the South Central area.

Although cherries and apples stand out in this figure, it is interesting to note that the area is not the top employer of laborers working these two crops. From *Figure 15* one can see how seasonal work flows from one crop to another. In the first quarter of the year, apple pruning employed more than any other activity. Briefly in May, the asparagus harvest became the dominant activity. Before the cherry harvest began employing large numbers in July, apple thinning was the top employing agricultural activity. Then as the cherry harvest tapered off in August the harvesting of pears and apples took over as the predominant activity.

On average there were 8,837 seasonal employees from this area in 2001. This was a fall-off from the 9,699 that worked in 2000. The number of seasonal workers involved in apples and cherries saw declines of 22 and 30 percent respectively, which reflected the poor apple harvest and weather damaged cherries. Pear and asparagus employment dropped by 18 and 22 percent respectively, while the seasonal grape employment expanded by 53 percent.

Figure 16 graphs total seasonal agricultural employment for the most important areas—2-5. Yakima and Klickitat do employ more grape and pear workers than



any other region and collectively are the second biggest provider of asparagus, cherry, and apple work. At its peak in September, hop production employed over 2,000 persons. Onion, potatoes, and other miscellaneous vegetables together employed about another 1,000 persons in August.

North Central (Area 3). The North Central area which includes Chelan, Douglas, Kittitas, and Okanogan counties, is the second largest agricultural area in the state in terms of employment with 19 percent of the state's total in 2001. Most of the area's farm workers were employed on orchards growing or harvesting apples, cherries, and pears. More apple and cherry workers were employed in this region last year than any other. Pear employment was second only to the South Central area. The total seasonal work force for the area was 6,069 persons in 2001. Chelan, Okanogan,

and Douglas counties were the second, third, and fourth largest employers of tree fruit labor respectively.

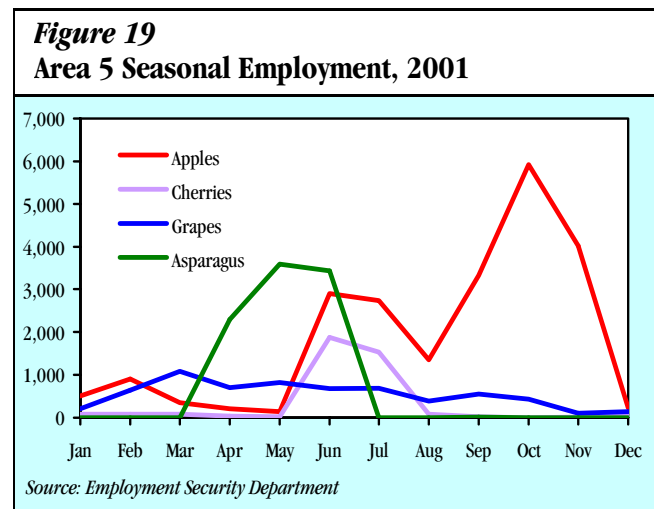
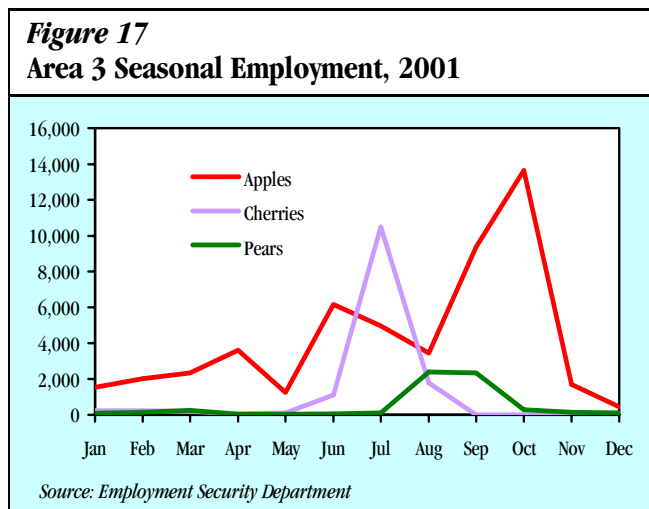
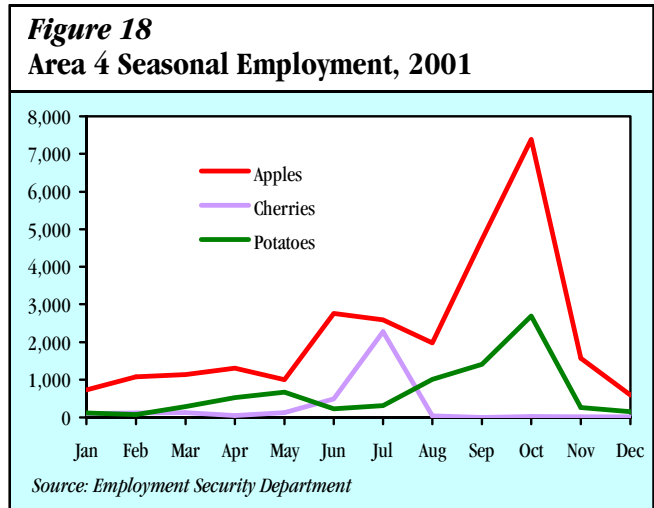
The apple employment activities followed the same patterns and occurred at about the same time. The cherry harvest particularly up in Okanogan did come in a bit later than in the south, which was providential as it did not suffer the June storm damage that the earlier cherries did. *Figure 17* identifies the changes in seasonal employment for the three tree fruits in the North Central area.

The area had an average of 7,514 seasonal workers in 2000 with an estimated 6,063 employed in apples, 1,003 in cherries and 246 in pears. The numbers were lower for apples, but higher for cherries and pears, which mirrored changes in production. Similar to the South Central area, agriculture is the primary industry in the area's economy, and agriculture directly accounted for nearly 22 percent of all employment.

Columbia Basin (Area 4). The average number of seasonal workers in Adams and Grant counties declined by 14 percent in 2001 (to 4,222). The decline was for the most part due to an 18 percent drop in apple workers. On average, work involving potatoes provided the second most seasonal labor in the Columbia Basin. Lower potato acreage and the drought lessened the available work in the industry by 10 percent. As *Figure 18* illustrates the potato harvest was a little behind the apple harvest. The area is top for potatoes and averaged 243 seasonal onion workers, which was second highest in the state. Twenty eight percent of Columbia Basin workers are employed in agriculture and 12.5 percent of all agricultural workers were from this region.

South Eastern (Area 5). Although in percentage terms fewer workers from the South Eastern area worked in agriculture (13 percent) than in the Columbia Basin, the region did provide 16 percent of state-wide agricultural work. The area includes Benton, Franklin, and Walla Walla counties.

While wheat is the primary crop in the area, it is a heavily capital-intensive operation that does not require a large number of hired workers. Just over 1 percent of seasonal workers in 2001 were engaged in wheat growing. Apples were the top-emplying crop of seasonal labor (on average 1,881 workers) in the South Eastern area. Asparagus was the second largest employer on average (778 workers), grapes third (535), miscellaneous vegetables fourth (494), onions fifth (331), cherries sixth (324), and potatoes seventh (261). As illustrated in *Figure 19*, asparagus had an employment peak in May of 3,594 workers. Seasonal apple employment had an ini-



tial peak in June of 2,905 laborers, most of whom were involved in thinning trees. In October the number of farm workers crested at 5,919 as part of the apple harvest.

In 2001 there were 18 percent fewer seasonal apple workers, 9 percent fewer grape workers and 3 percent fewer asparagus workers than in 2000. The number of those involved with cherries did climb by 6 percent.

Eastern (Area 6). In the Eastern area which includes Asotin, Columbia, Ferry, Garfield, Lincoln, Pend Oreille, Spokane, Stevens, and Whitman counties, agriculture is almost exclusively wheat farming. About one-half of the on average 254 seasonal agricultural workers work with wheat while the rest are in nursery or “other” seasonal work.

Projections

Projecting anything in agriculture is a tenuous prospect given the susceptibility to changes in rain, sun, temperature, insects, and disease. Therefore the following employment projections should be taken for what they are, simply an extension of trends altered slightly by a few relevant factors.

The process entailed taking employment figures derived by the Employment Security Department since 1997. These numbers were averaged but a weight was given to more recent years. The idea is that presumably, 2000 and to a lesser degree 1999 employment numbers, are going to be much closer to the 2002 employment figures than the numbers from 1997 and 1998. However, by including the older numbers and averaging, seasonal fluctuations can be smoothed out. A number of further factors were considered, but given the effect on employment of the apple crop, it was selected as the only mitigating factor. Tom Schotzo, a WSU Extension Economist, developed a tentative forecast of a decline in acreage of 2.5 percent and a 2.5 percent rise in production of apples in 2002. Because of this the averaged and weighted numbers for pruning and thinning were lowered by 2.5 percent and the harvest and sorting numbers increased by 2.5 percent. There are data out on planted acreage showing declines, and since 1993, Washington’s apple crop has shown a consistent tendency to alternate between good and bad years.

The projections are located in Appendix III. According to the projected numbers, agricultural employment will grow from between 9 to 21 percent in the major agricultural areas (2-4, which make up about 85 percent of the state total). If accurate, Area 2 (South Central) would see employment rise by almost 13 percent. Except for apple sorting, more workers are projected to be necessary. The North Central employment estimates were up by 21 percent overall. In this area which includes Chelan, Douglas, Kittitas, and Okanogan counties, apple sorting and pear thinning would rise sharply and “other cherry activities” would fall. All apple activities are predicted to expand and all cherry activities to contract in the Grant and Adams counties area. Overall employment would increase by 11 percent if projections were on line. Area 5 (Benton, Franklin, and Walla Walla counties) would have 9 percent more farm workers despite an 18 percent drop-off in apple pruning.

To a certain degree these projections are a function of last year’s deviations from the past five years. It was a down year in terms of agricultural employment and these estimates assume some return to long-run trends. Employment Security estimates for early 2002 have so far come in lower than at the same time last year. This might indicate that the projections will turn out to be a little high.

HOURS AND EARNINGS

Average annual earnings tend to be below that of most industries for a number of reasons inherent to agriculture. In 2000 earnings of hired agricultural workers in Washington State averaged \$20,229 which was only 55 percent of the average \$37,070 for all covered workers (see *Figure 20*). Covered workers are for whom their employers have paid into the Unemployment Insurance program (which represents about 85 percent of total civilian employment). The largest group of non-covered workers is the self-employed, including most farm operators. Wage rates for agricultural workers are relatively low, but the main reason for the disparity is that most farm workers do not work the entire year. Much agricultural work is of course sea-

sonal and even during peak periods many employees may work less than a standard 40-hour week.

Among agricultural jobs there is a wide range of pay scales. Like many sectors, farm earnings are related to the relative scarcity of the job skills required. For example, the highest annual earnings listed in *Figure 20* are for soil preparation services (\$28,561). The work primarily entails land breaking, plowing, applying fertilizer, and improving soil. Work of this variety requires more use of machinery and specialized knowledge than say, picking fruit. Note that working the Irish potato crop is another relatively high paying farm job and most of the work is highly mechanized. Another factor in bringing up annual earnings is whether the job exists

Figure 20

Average Annual Earnings for Covered Agricultural Employment, 2000 Revised

Industry	Annual Average
Total Covered Private Employment	\$37,070
All Agricultural Workers	\$20,229
Agricultural Production Crops	\$14,531
Irish potatoes	\$20,512
General farms, primarily crop	\$19,583
Ornamental nursery products	\$19,275
Field crops, except cash grains, NEC	\$18,119
Cash grains, NEC	\$16,771
Vegetables and melons	\$14,759
Grapes	\$14,312
Deciduous tree fruits	\$12,532
Berry crops	\$10,738
Agricultural Production Livestock	\$21,131
Dairy farms	\$21,550
Agricultural Services	\$20,031
Soil preparation services	\$28,561
Crop preparation services for market	\$18,810
Farm Labor and Management Services	\$15,339

Source: Employment Security Department

year-round and for entire 40-hour shifts. Dairy workers, who averaged the second highest listed pay, typically work all year and full 40-hour weeks. Their average annual earnings were \$21,550. At the other end of the pay scale were berry and deciduous tree (apples, cherries, pears, and etc.) workers who earned \$10,738 and \$12,532 respectively. This type of work is typi-

cally seasonal and paid on a piece rate instead of hourly or salaried. The work is also often subject to favorable weather conditions and in its' absence there is no work. The late June storm that damaged these crops also left workers without jobs. These laborers were by far the most numerous in agriculture so the low earnings had the effect of driving down overall farm earnings.

Individual Earnings and Hours

One problem with looking at overall average earnings is that it assumes all workers worked approximately the same amount of hours in a given year. Typically a year-round employee would be of the higher paying variety and hence would exaggerate overall numbers. It is also inaccurate to assume that say a typical apple picker earned \$12,532 last year because in reality that income might have been shared by two persons.

To get a more accurate picture of what the typical agricultural worker earned we must look at individual records. To get this the Employment Security Department looks at data associated with individual social security numbers from tax records. Henceforth, the term individual workers, refers to those identified by their individual social security number. Once identified as such, we can compare what an individual earned, how much this person worked, whether they had outside jobs, and whether they stayed in agriculture or left it.

In 2001, 150,315 individuals worked at some point in agriculture. This does not mean that at any given point that that many were working in the sector. At any given point, the number was somewhat less. On average, agricultural workers earned \$20,229 in 2000 (the most recent data at the time of this writing). This was well above what the average individual worker earned in the same year— \$8,747. The main reason for this disparity is the number of hours worked. In 2000, Full-time, year-round workers typically averaged about 2,000 hours of work compared to only 889 hours when looking at an individual record.

Agriculture Only Versus Nonagriculture. Given that these hours and income are fairly low it is not surprising that many supplement their income with work outside of agriculture. *Figure 21* displays the numbers

for individual agricultural workers from 1995-2001 and breaks them down between those who remained strictly in agriculture and those who had additional work outside of it. During the years shown, about one-third of all workers supplemented their income with nonagricultural work while the other two-thirds did strictly farm work. In 2001 persons that only worked in the farm sector averaged 729 hours. Agricultural and nonagricultural workers labored on average 1,196 hours, which was 61 percent more than their one-sector counterparts. This extra work translated into an additional \$4,864 annual earnings for those willing and able to secure nonfarm jobs. Typically, these multi-sector workers had close to four employers (3.67) compared to approximately two employers for single-sector workers.

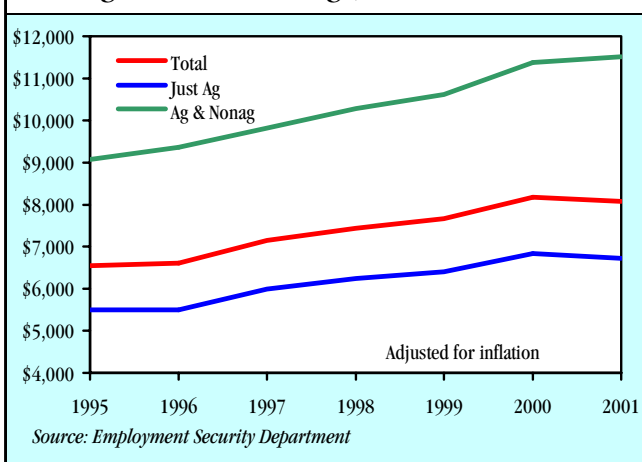
In a seasonal industry like agriculture with its typical breaks in employment, unemployment compensation becomes very important. To qualify for it in Washington State a person must work at least 680 hours in a given year. Assuming a 40-hour workweek, 680 hours would amount to about 4 months, which is longer than any harvest. Therefore, finding supplemental work is critical to earning unemployment compensation. Among workers unable to gain outside employment, only 39 percent qualified for benefits in 2001. For those having outside jobs 69 percent were eligible.

Trends. All individual agricultural workers saw earnings in current dollars rise in 2001, but those who had supplemental income were better off. *Figure 22* graphs these earnings adjusted for inflation using 1996 dollars. As the graph illustrates, real earnings went up consistently, if not dramatically from 1996-2000. When using these inflation-adjusted numbers, earnings in 2001 increased by 1.2 percent for those who had supplemental work but fell by 1.6 percent for those who strictly

Figure 21**Average Hours, Earnings, and Number of Employers, Washington State, 1995-2001**

	1995	1996	1997	1998	1999	2000	2001	% Chg. 2000-01
All Agriculture Workers	149,650	154,870	155,980	161,423	152,474	154,154	150,315	-2.5%
Average Annual Hours	777	788	835	849	859	889	861	-3.1%
Average Annual Earnings Over \$10,000	\$6,411	\$6,606	\$7,294	\$7,649	\$8,018	\$8,747	\$8,803	0.6%
Average Hourly Earnings	\$8.25	\$8.38	\$8.74	\$9.01	\$9.33	\$9.83	\$10.22	4.0%
Average # of Employers				2.62	2.53	2.58	2.49	-3.5%
Workers in Agriculture Only	105,770	110,620	108,870	113,591	106,744	108,552	107,725	-0.8%
Average Annual Hours	658	664	705	720	728	752	729	-3.1%
Average Annual Earnings Over \$10,000	\$5,383	\$5,503	\$6,116	\$6,418	\$6,697	\$7,308	\$7,323	0.2%
Average Hourly Earnings	\$8.18	\$8.29	\$8.68	\$8.91	\$9.20	\$9.71	\$10.04	3.4%
Average # of Employers				2.08	2.01	2.09	2.03	-2.9%
Worked in Ag. & Nonag Industries	43,880	44,250	47,110	47,832	45,730	45,602	42,500	-6.8%
Average Annual Hours	1,062	1,097	1,136	1,154	1,165	1,216	1,196	-1.6%
Average Annual Earnings Over \$10,000	\$8,890	\$9,361	\$10,017	\$10,574	\$11,102	\$12,172	\$12,548	3.1%
Average Hourly Earnings	\$8.37	\$8.53	\$8.82	\$9.16	\$9.53	\$10.01	\$10.48	4.7%
Average # of Employers				3.88	3.74	3.75	3.67	-2.1%

Source: Employment Security Department

Figure 22**Real Agricultural Earnings, 1995-2001**

Source: Employment Security Department

worked agriculture. In other words purchasing power for strictly farm workers was lower in 2001 than in the previous year.

The lack of growth in earnings from 2000 can be traced back to a decline in hours worked in 2001. For all individual agricultural workers, there was a drop of 3.1 percent in hours worked. Workers who were able to find nonagricultural work were able to compensate for lost hours somewhat and only saw a decrease of

1.6 percent. The main cause of lost hours was the smaller apple crop in 2001. In the four biggest agricultural areas (2,3,4, and 5), apple employment fell by an estimated 24 percent. Coupling this large contraction with the fact that apples are the biggest employer of farm labor explains most of the downturn in farm employment. Some lost ground was made up by the cherry crop, which saw a 17 percent rise in employment, grapes with a 13 percent rise, and pears with 9 percent rise. Asparagus employment dropped by 13 percent in the four areas. Since 1995, earnings have gone up 37 percent, annual average hours by 11 percent, and the average number of employees has declined slightly.

By Industry. When looking at all agricultural workers by industry, those who only worked agriculture earned more on an annual and hourly basis when doing farm work than those who found nonfarm work. *Figure 23* summarizes the job and earnings data by industry for persons strictly working agriculture and for persons working agriculture and nonagriculture. The agricultural industries are divided between crops, livestock, and services. This at first glance would appear to contradict formerly mentioned data showing those who

Figure 23**Number of Agriculture Workers and Average Earnings by SIC Code, Washington State, 2001**

SIC Code		Workers Employed in Ag. And Nonag Jobs				Workers Employed in Agriculture Only			
		% of Total Jobs	# of jobs	Annual Average Earnings	Hourly Avg. Earnings	% of Total Jobs	# of Jobs	Annual Average Earnings	Hourly Avg.
	Total	80.2%	120,485	\$4,435	\$10.48	100%	144,890	\$5,444	\$10.04
	Total Workers		42,590				107,725		
01	Agricultural Production, Crops	38.2%	45,987	\$3,054	\$8.89	77.9%	112,827	\$4,830	\$9.67
0175	Deciduous Fruit Trees	17.2%	20,773	\$3,234	\$8.91	41.5%	60,187	\$4,471	\$9.21
0139	Field Crops, Exc. Cash Grains	3.1%	3,754	\$2,884	\$8.71	6.1%	8,775	\$5,000	\$9.61
0161	Vegetables and Melons	3.2%	3,912	\$2,501	\$8.47	5.6%	8,163	\$3,701	\$9.71
0191	General Farms & Other	2.8%	3,333	\$2,482	\$8.95	5.8%	8,421	\$5,004	\$10.45
0181	Ornamental Florict/Nursry Prods	3.8%	4,559	\$4,379	\$9.08	5.1%	7,376	\$9,655	\$11.05
0171	Berry Crops	2.1%	2,485	\$1,994	\$8.20	3.9%	5,634	\$2,596	\$8.57
0172	Grapes	1.7%	2,108	\$2,297	\$7.98	3.4%	4,978	\$4,042	\$8.46
0134	Irish Potatoes	1.7%	2,084	\$3,126	\$8.92	2.7%	3,946	\$5,879	\$11.16
0111	Wheat	1.6%	1,913	\$2,840	\$10.52	2.2%	3,198	\$5,813	\$11.14
0179	Fruits and Tree Nuts	0.3%	411	\$1,047	\$8.58	0.6%	941	\$1,713	\$8.29
0119	Cash Grains, NEC	0.3%	335	\$2,701	\$10.30	0.4%	540	\$5,624	\$10.55
0115	Corn	0.1%	129	\$2,333	\$9.10	0.2%	233	\$4,642	\$11.19
0182	Food Crops Grown under Cover	0.1%	166	\$6,020	\$10.03	0.3%	366	\$16,007	\$10.60
0133	Sugar Beets	0.0%	4	\$4,281	\$14.51	0.0%	46	\$2,710	\$10.33
0173	Tree Nuts	0.0%	16	\$981	\$7.83	0.0%	12	\$13,171	\$20.61
02	Ag Production, Livestock	2.7%	3,266	\$5,372	\$10.76	5.1%	7,382	\$12,915	\$12.19
0241	Dairy Farms	1.2%	1,481	\$6,646	\$10.81	2.9%	4,140	\$13,902	\$11.85
0212	Beef Cattle, Except Feedlots	0.3%	366	\$3,159	\$10.07	0.5%	740	\$6,859	\$11.25
0211	Beef Cattle Feedlots	0.2%	288	\$3,258	\$9.22	0.5%	689	\$11,720	\$12.70
0252	Chicken Eggs	0.3%	400	\$5,364	\$10.19	0.5%	739	\$17,772	\$13.07
0214	Sheep and Goats	0.1%	98	\$1,408	\$9.77	0.1%	159	\$2,708	\$8.60

Figure 23 (Continued)**Number of Agriculture Workers and Average Earnings by SIC Code, Washington State, 2001**

SIC Code		Workers Employed in Ag. And Nonag Jobs				Workers Employed in Agriculture Only			
		% of Total Jobs	# of Jobs	Annual Average Earnings	Hourly Avg. Earnings	% of Total Jobs	# of Jobs	Annual Average Earnings	Hourly Avg.
0254	Poultry Hatcheries	0.0%	22	\$7,386	\$11.05	0.0%	36	\$17,351	\$12.75
0259	Non-chicken Poultry	0.0%	14	\$1,143	\$7.57	0.0%	35	\$4,057	\$11.34
07	Agricultural Services CT229	10.0%	12,064	\$3,157	\$10.50	17.0%	24,681	\$7,259	\$12.03
0723	Crop Prep. for Market	6.9%	8,273	\$3,647	\$8.99	10.7%	15,529	\$8,069	\$10.44
0762	Farm Management Services	1.5%	1,790	\$1,598	\$8.29	3.2%	4,574	\$2,512	\$8.88
0761	Farm Labor Contractors/Crew Leaders	1.3%	1,538	\$1,129	\$8.13	2.7%	3,906	\$1,633	\$8.54
0721	Crop Planting, Cultivating, & Protecting	0.2%	300	\$3,847	\$13.78	0.3%	418	\$8,323	\$16.58
0722	Crop Harvesting by Machine	0.1%	121	\$2,156	\$9.40	0.1%	203	\$4,488	\$10.57
0711	Soil Preparation Services	0.0%	42	\$6,565	\$14.42	0.0%	51	\$18,527	\$17.15
	Nonagriculture Employment	31.9%	38,390	\$5,897	\$11.16				
52-59	Retail Trade	8.7%	10,442	\$4,865	\$9.04				
5148	Wholesale Fresh Fruit and Vegetables	5.6%	6,748	\$2,740	\$8.88				
15-17	Construction	3.5%	4,215	\$6,995	\$14.66				
7363	Temporary Help Agencies	2.8%	3,357	\$2,178	\$8.91				
2033	Canned Fruits and Vegetables	2.3%	2,741	\$4,268	\$9.48				
2037	Frozen Fruits, Vegetables, & Juices	2.0%	2,419	\$5,683	\$9.88				
42	Trucking & Warehousing	1.7%	2,031	\$5,681	\$12.04				
82	Education Services	1.6%	1,934	\$12,265	\$18.13				
80	Health Services	1.2%	1,404	\$9,236	\$12.95				
79	Amusement & Recreation	1.0%	1,200	\$3,451	\$9.42				
24	Lumber and Wood Products	0.8%	954	\$7,868	\$11.19				
83	Social Services	0.8%	945	\$5,531	\$9.37				

Source: Employment Security Department

supplemented their income outside of agriculture tend to earn more. This is overall still the case. But when working in agriculture, they earned less than those who strictly worked in agriculture. There are presumably several explanations for this. One is that specialization in agriculture increases pay. Because much of this work is piece rate, workers who are experienced and fast have higher earnings potential and more reason to stay put. Another explanation is that the first to look for work outside of farming are the ones with the smallest earnings. A third possible explanation is that time spent pursuing work outside of agriculture is time lost trying to gain a job within the sector. It should be noted that the average hourly rate for nonagricultural jobs is above that earned within agriculture by specialists (\$11.16 per hour versus \$10.04 per hour).

Over one-third of all jobs worked by agricultural labor were involved with deciduous trees, primarily apples, cherries, and pears. There was three times the employment in this industry over the next closest crop employer, field crops (which includes alfalfa, hops, mint, and potatoes). Employment among tree fruits was also almost three times the employment in crop preparation for market. This industry is primarily fruit packing and sorting, and was overall the second largest agriculture-related employer.

Only crop employees working with berries, grapes, and nuts earned below the hourly rate of \$8.91 paid to tree fruit workers. Most nonagriculture jobs worked by agricultural employees earned higher hourly rates than were found working the fruit trees. Non-chicken poultry pay at \$7.57 had the lowest remuneration of any livestock job. Among crops, sugar beets (\$14.51 per hour), wheat (\$10.52), and cash grains (\$10.30) were the best paying jobs. Sugar beet employment was the highest paid in agriculture for individual workers, followed by the services industry, soil preparation (\$14.42). The pattern of high pay in higher skilled and mechanized industries and low pay for labor-intensive industries can again be seen. It is interesting to note that sugar beet work paid almost \$4 above the previous year, this in a year when the industry virtually shut down. This is due to the laying off of seasonal workers in the industry.

Most of the off-farm jobs are in work directly related to agriculture. For example, wholesale fruits and vegetables employed 6,748 persons, canned fruits and

vegetables 2,741 persons, and frozen fruits and vegetables 2,419 persons. These jobs tend to be located in agricultural areas and are commonly filled by Hispanics, making relocation unnecessary and reducing language barriers. The most common job outside of agriculture for farm workers is retail. The best pay was found in educational services (\$18.13 per hour) followed by construction (\$14.66 per hour). The bulk of the educational service workers were either teachers who worked in agriculture during the summer months or non-teaching employees who worked on farms at some point. The lowest financial incentives were found working the wholesale fruits and vegetables, then temporary agencies. The jobs that are closely related to agriculture tend to be seasonal in nature as well. For example the wholesale fruit business peaks during and closely following the harvest. This has the unfortunate side effect of bringing down annual earnings for these employees.

Turnover Among Agricultural Workers. The data previously discussed paint a picture of agricultural work which has relatively low wages, seasonal work, minimal benefits, and strong incentives to find higher paying jobs outside of the sector. Given all of that it is not altogether surprising to find that of the 154,154 Washington State farm workers in 2000, only 56 percent were back at it again in 2001. This has been a common pattern; 55 percent returned in 2000 and 54 percent in 1999. So the next question is “where are these workers going?” Of the 67,834 agricultural laborers who did not return to farm work, 29 percent found off-farm jobs in the state. The other 71 percent presumably stayed in their home countries, found work in other states, or used different social security numbers. In percentage terms, the number that didn’t return to agricultural or nonagricultural work was slightly lower than in the previous 2 years.

Just over one-fifth of the year 2000 farm workers who landed off-farm jobs last year, worked in retail. This was the most common such job but it was also one of the lower paying ones. These non-returning workers earned on average \$5,997 in retail last year, which was somewhat higher than their counterparts earned in retail trying to supplement agricultural work (\$4,865). The other common jobs for non-returning workers were services (12 percent of employment), food processing (10 percent), construction (8 percent), manufacturing (7 percent), and wholesale (7 percent). The only in-

dustry that paid former farm workers less than retail was business services (\$4,841) and forestry, fishing, hunting, and trapping (\$5,772). The mining and manufacturing industries had the highest earnings at \$16,753 and \$14,405 respectively. Despite the high earnings in

mining, the economic impact was minimal since there were only 51 ex-farm workers in the industry. *Figure 24* tallies the number of jobs and average annual earnings by industry for persons who worked in agriculture in 2000, but outside of it in 2001.

Figure 24
Employment and Earnings of Former 2000 Agriculture Workers
by Nonfarm Industry, Washington State, 2001

		Total Workers	18,182	% of	Annual
				Workers	Average
SIC Code	Total of All Industries	28,070	100%		Earnings
52-59	Retail Trade	6,076	21.6%		\$5,997
70, 72, 75-79, 81, 83-89	Services (excluding: Business, Education & Health)	3,362	12.0%		\$6,950
20	Food Processing	2,751	9.8%		\$8,941
73	Business Services	2,649	9.4%		\$4,841
15-17	Construction	2,325	8.3%		\$9,476
22,23,25-41,43-49	Other Manufacturing	2,079	7.4%		\$14,405
51	Wholesale Trade - Non Durable	2,055	7.3%		\$9,707
82	Education Services	1,050	3.7%		\$13,084
80	Health Services	1,030	3.7%		\$10,790
42	Trucking & Warehousing	815	2.9%		\$10,043
07	Agricultural Services	689	2.5%		\$8,334
24	Lumber and Wood Products	553	2.0%		\$11,637
60-67	Finance, Insurance, and Real Estate Division	627	2.2%		\$11,519
91-97	Public Administration	694	2.5%		\$14,431
50	Wholesale Trade - Durable	486	1.7%		\$13,016
08-09	Forestry, Fishing, Hunting, & Trapping	247	0.9%		\$5,772
10-14	Mining	51	0.2%		\$16,753

Source: Employment Security Department

Unemployment Claims

Workers in seasonal industries commonly are eligible and take advantage of unemployment benefits. *Figure 25* compares the number of workers in all industries and in agriculture who were eligible and filed for regular unemployment compensation since 1998. The average number of claims for all sectors rose by 38.6 percent in 2001, reflecting the economic downturn. Because agriculture tends to be less dependent on the ups and downs in the economy, the rise in agricultural claims was less than half as much at 16.5 percent.

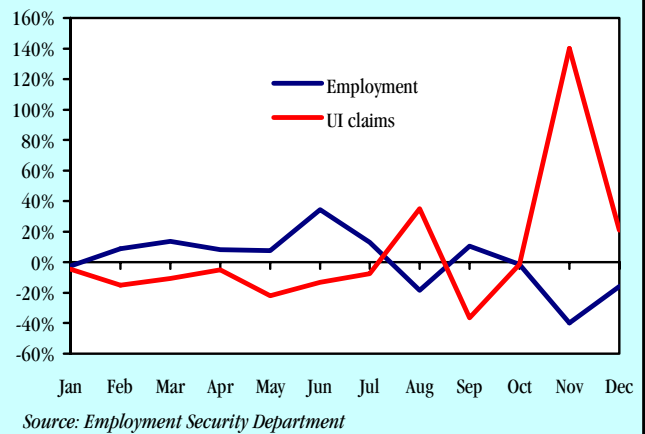
Unemployment claims typically follow certain patterns throughout the year. These patterns typically move counter to seasonal changes in employment numbers, as visually illustrated in *Figure 26*. January tends to

have the highest number of claims as holiday retail drops, tourism related industries such as hotels and recreation are down, and bad weather often prohibits construction and agricultural work. In addition there is little work in industries like fruit packing, which closely followed the harvest. Unlike previous years however, the highest overall number of unemployment claims came at the end of the year as both the local and national economies struggled. This pattern was also mirrored among strictly farm claimants.

Although there is significant seasonal variation among nonagricultural industries, it is to a lesser degree than for agriculture. Farm activity begins to pick up in March and this led to a decline in filings for unemployment.

Asparagus employment peaks in May, but continues to employ large numbers through June. The cherry harvest peaks in July, which in 2001 as other years, led to the highest employment and few unemployment compensation claims. From March to July agricultural filings dropped by 68 percent and from January by 122 percent. This compares to falls of 5 and 7 percent respectively for all sectors during the same months. With cherries and asparagus finishing up, employment fell in August by 24,290, which led to a rise of 1,460 claims. August traditionally sees a drop-off in unemployment and a subsequent rise in claims. Last year was no different when there were 1,460 more claims than in July. It is a lull in employment just prior to the busy apple harvest. The peak of the apple harvest occurred in October and claims fell to their lowest level of the year (3,519). Presumably the reason that claims were lower in October than in July (which had the highest employment) is that those no longer employed would have little forthcoming employment opportunities. Migrant Seasonal Farm Workers (MSFW) would presumably then return to countries of origin or attempt to work out of state crops. Following the month with the lowest number of claims was November, the month with

Figure 26
Monthly Changes in Washington Agricultural Employment and Claims Filed, 2001



the highest jump in claims (4,934). These claims undoubtedly came from among the 46,260 newly unemployed agricultural workers. The amount of claims rose by 140 percent, which more than matched the 40 percent drop in farm employment rolls. The final month of the year witnessed continuing decline in employed of 16 percent and a subsequent increase of 21 percent in claims.

Figure 25
Unemployment Claims for Agriculture and All Other Industries, Washington State, 1998-2001

	1998		1999		2000			2001		% Chg 98-01 All	% Chg 00-01 Ag.
	All Industries	Ag. Only	All Industries	Ag. Only	All Industries	Ag. Only	All Ind.	Ag Only			
Average	94,279	6,245	95,868	6,471	88,711	5,423	122,936	6,319	38.6%	16.5%	
January	128,050	11,041	132,741	10,935	119,057	9,056	124,039	9,206	4.2%	1.7%	
February	107,357	8,294	115,938	8,306	105,617	7,512	120,384	7,818	14.0%	4.1%	
March	101,080	6,775	108,261	7,159	98,470	5,887	120,921	6,981	22.8%	18.6%	
April	95,920	6,422	104,213	6,844	94,372	5,649	127,728	6,630	35.3%	17.4%	
May	90,026	5,117	99,010	5,745	77,369	3,989	112,785	5,172	45.8%	29.7%	
June	79,828	3,134	88,759	4,876	74,698	3,205	110,640	4,494	48.1%	40.2%	
July	79,944	3,104	88,953	4,500	70,307	3,032	115,412	4,155	64.2%	37.0%	
August	83,762	4,801	78,997	5,240	74,830	4,325	110,864	5,615	48.2%	29.8%	
September	71,557	2,597	70,996	3,395	74,303	2,673	107,387	3,566	44.5%	33.4%	
October	82,976	4,155	77,477	4,293	72,707	2,670	118,638	3,519	63.2%	31.8%	
November	96,837	8,827	87,359	8,002	88,940	7,426	140,484	8,453	58.0%	13.8%	
December	114,012	10,674	97,708	8,352	113,867	9,650	165,948	10,214	45.7%	5.8%	

Exclude SICs 074, 075, & 078
Source: Employment Security Department

DEMOGRAPHICS

Farm Worker Demographics

The demographic data discussed in this section are taken from a 10 percent sample of workers covered under the Washington State Unemployment Insurance. The following demographic data are subsets of the sample dealing with agricultural workers. When covered workers file for and receive unemployment compensation, demographic data are collected and also enhanced with a follow-up survey as part of the *Continuous Wage Benefit History (CWBH)*. Figures 27 through 29 summarize certain demographic characteristics of agricultural workers extracted from this longitudinal 10 percent sample of persons covered by Unemployment Insurance (UI) in Washington State. It should be noted that eligibility to receive and the inclination to apply for UI benefits inherently affects the demographic nature of this sample.

According to the sample, farm workers are predominantly male (70 percent), Hispanic (69 percent) and between the ages of 24 and 44 (58 percent). Outside of Hispanics, the only ethnic group of significance is Whites with 27 percent of the total. Over one-third (32 percent) of those surveyed were between the ages of 35 and 44, while another 26 percent were between 25 and 34. When these groups are combined they comprise nearly two-thirds of farm workers. Since 1996 the percentage of females has consistently risen from 21.5 to 30.3. In addition to moving toward a gender balance, the population has aged a little. The percent-

age of the 45-54 year old age group has grown at the expense of the 21-24 year olds.

By far, the most common level of education among agricultural workers is 1-7 years. Forty-two percent of farm workers had this level of education and were more than twice as common as the next group, those with 12 years of schooling (18 percent). If totaled with those reporting no education, they come close to half of the population sampled. Workers with 1-7 years of education dropped a little from previous years and those with 12 years increased incrementally.

Figure 28
Age Dispersion of Washington Agricultural Workers, 2001

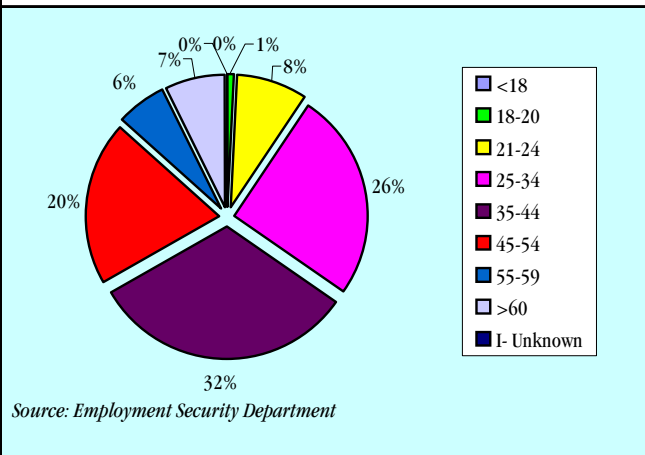


Figure 27
Ethnicity of Washington Agricultural Workers, 2001

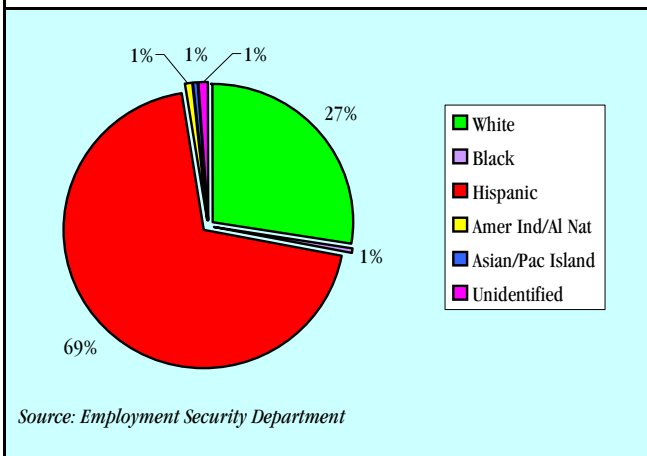
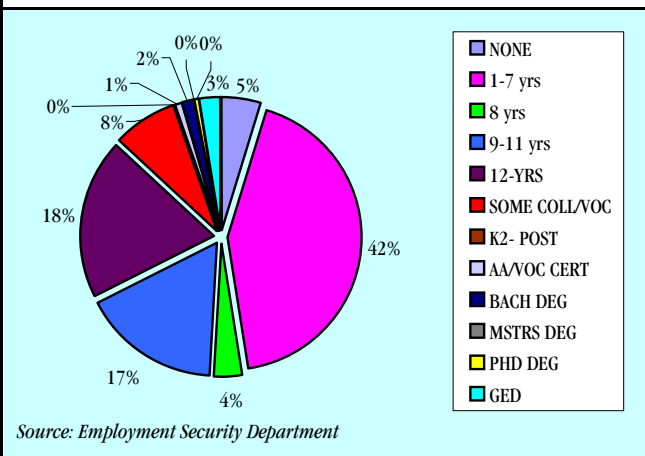


Figure 29
Education Level of Washington Agricultural Workers, 2001



Migrant Seasonal Farm Workers (MSFW)

The National Agricultural Worker Survey (NAWS) of 2000 was commissioned in response to the Immigration and Reform Control Act (IRCA) of 1996. According to this survey, 81 percent of all agricultural workers are foreign born and a strong majority (77 percent) were from Mexico. They tend to be relatively young (average age of 31), male, Spanish speaking, of limited education (average of 6 years), and often have some degree of illiteracy. In some cases, Spanish is not even the first language for migrants coming from Spanish-speaking countries. Although there are highly skilled and well-paying agricultural jobs, most seasonal and harvest work can be learned on the job and the only requirements are the physical ability to work. Since these jobs are relatively low paying, they are not highly sought after by U.S. nationals. However, as these wages compare favorably to earnings in Mexico and Central America, they attract workers from these regions.

In addition there is some evidence of worsening economic conditions for these workers. On average they secured employment for less than half (24 weeks) of the year, which was down from 26 weeks several years earlier. They typically supplement agricultural work with nonagricultural work for five weeks out of the year. When adjusted for inflation migrant workers have seen a decline in hourly wages from \$6.89 to \$6.18. This drop in income is reflected in lower levels of vehicle and home ownership than previously recorded. Workers who use fake social security numbers have taxes deducted but can't legally claim benefits and only 10 percent report receiving WIC (Women, Infants, and Children) benefits. The Social Security Administration has counted \$265 billion in wages it is unable to match to valid social security numbers.

Working Washington's labor-intensive crops entails significant costs and risks. Most come from rural villages in Northern Mexico and follow work opportunities in states such as Texas and California. In addition to the expense and risk involved with crossing the U.S.-Mexico border, simply traveling from say, California to Washington is a comparatively expensive endeavor for many. The work itself is often difficult and tedious such as stooping to divide hop roots and cut individual asparagus or training individual hop vines by hand. In

addition, the work poses certain health risks. Fruit pickers run the risk of eye injuries from branches, which is the top cause of eye injuries east of the Cascades. Exposure to pesticides is a concern in the Yakima Valley (among other areas), where a recent survey found that one-fourth of area farm workers didn't wear protective gear and one-half didn't immediately wash contaminated clothing. There are currently no requirements for Spanish directions of pesticide use.

Another cost to those who travel long distances in pursuit of work is housing. It has been estimated that 60 percent of the state's migrant population is homeless. The critical time as far as MSFW housing needs are concerned is the short, but labor-intensive cherry harvest. Housing has been a very difficult and controversial issue for the state. Government has been concerned with sanitation and living standards in housing provided to workers. Growers have been willing to provide housing as a way of recruiting labor but are concerned with cost and liabilities in doing so. Enforcement of regulations and standards has driven up the cost of providing housing to growers. For many cash strapped growers these housing costs can become prohibitively expensive. Since the highest demand for migrant labor is in warm harvesting months, tent camps have been an alternative. Worker advocate groups have opposed tent camps and successfully protested against state licensing of them in 1999. One solution by the state was the use of ship containers to construct the La Esperanza housing complex in Mattawa in 1999. Another has been a government offer of loans to build housing that only need be paid back if not operational for 10 years and there was a state commitment to spend \$8,000,000 on housing between 1999 and 2001.

These conditions have led to several responses from farm worker advocates. In 1998, Mexican labor unions filed a complaint that Washington violated standards mandated by NAFTA. This was the first time workers have been able to challenge the U.S. under NAFTA rules. In September, the United Farm Workers attempted to impress upon Mexican consumers (who were the top importer of Washington apples) the conditions that their compatriots faced here.

OUTLOOK AND NEW DEVELOPMENTS

The latter half of the 1990s illustrates how the agricultural industries' vulnerability to weather and world market fluctuations make it unstable. After becoming a 5.9 billion dollar industry in 1995, it fell to 5.2 billion three years later before recovering somewhat. So what does this mean for the future of agriculture in Washington? Is it a declining industry? On the rise? What kind of issues will shape its future?

There are three broad categories, which will to a large extent shape agriculture in the future—technology, world markets, and government policy. There are technology issues such as the development of harvest-

ing mechanization and its impact on output and especially seasonal employment. During this past year of drought, developing plant varieties with minimal water usage and water efficient farming techniques came into vogue. Another continuing technology issue which affects trade policy, pesticide use, consumer demand and output is biotechnologically engineered foods. International markets and trade policies will undoubtedly be subject to change and in turn will strongly affect our agricultural economy. Lastly government policy will strongly impact the industry with new farm legislation and at some point changes in immigration laws.

Technology and Research

Historically technology has allowed our agriculture to compete against typically low labor cost countries, by lowering other input costs. In terms of its effect on agricultural labor markets, agricultural mechanization is the critical technological issue. From a grower's perspective, development of this machinery is necessary in the long run to counter labor shortages as well as rising costs and regulations. Hand harvesting traditionally is about one-half of grower costs. The likely result of further mechanization would be lower costs, much less demand for labor (but probably higher pay for those retaining employment), and replacement of small farms with large ones. This is likely since mechanization of tree fruit harvesting (Washington's labor-intensive crops) typically requires replanting and for smaller family-run farms it might not justify the large investment in machinery.

Because of the difficulty that the asparagus industry has encountered in remaining competitive, the United States Department of Agriculture (USDA) gave grant money to research the mechanization of harvesting and processing. A demonstration harvester has been developed which uses laser to identify spears of the appropriate height. Currently the technology is ready for stem-less cherry picking but it would require tree replanting and training. Research has also shown that mechanization of the peach harvest is possible.

The USDA has also been working with wine grape growers to examine plant water intake. It has been determined that a properly regulated water supply leads to a smaller canopy which allows more sunlight and air-flow crucial to reducing mildew. Additionally, in Medford, Oregon, a demonstration project was conducted comparing subsurface irrigation systems to surface irrigation. While the project was intended to preserve fish habitats, subsurface irrigation was found to have better weed control, crop quality, and lower water and fertilizer use.

Biotechnology probably dates back to those that first used microorganisms to make bread, cheese, and wine. The modern era however, began when technology allowed us to move genes from one cell to another. The potential agricultural benefits of such modifications include increased output, less use of insecticides and weed control, and more nutritious food. One study showed a decrease of 1,200 tons of pesticides in a given year and it has been estimated that soybean farmers have saved \$216 million in weed controls. Presumably this might translate into lower food prices and less environmental damage.

The issue has gained notoriety as domestic and particularly foreign consumers have voiced concerns about the safety of biotech foods. The primary health con-

cern has been the possible creation of new allergens and antibiotic-resistant bacteria. Environmentalists are concerned with the unintended spread of modified genes to other varieties, wild relatives, and weeds. Last year, the European Commission's External Advisory Group study found no new risks to humans or the environment beyond that of conventional plant breeding. Several years ago the United States Academy of Sciences came to roughly the same conclusion. Both reports did however, call for regulatory oversight and more large-scale monitoring and economic studies.

International Markets and Trade Policy

In addition to restrictions placed on biotech agriculture, there are a host of other trade issues that will help shape Washington agriculture in the future. For better or worse the world economy continues to become globalized. An example of this was the fall-out that Washington agriculture suffered when the Asian economic crisis occurred in the late 1990s. Within the past few years we have been involved in trade wars with Mexico over apples, Europe over bananas (though neither U.S. or Europe actually grow bananas), and Canada over potatoes and lumber. The Seattle World Trade Organization (WTO) riots of 1999 highlighted a growing backlash against this rising globalism.

The question as far as Washington agriculture and agricultural labor markets are concerned is "what future changes will occur and how will it directly affect us?" Trying to comprehend upcoming changes in international trade is probably best done within a context of the WTO. The WTO, which was established in 1995, has as one of its long-term goals the reforming of agriculture toward more of a market orientation. Any nation which becomes a member of the WTO commits within a certain period of time to allow access to its markets, and to reduce domestic supports and export promotion. The idea is to eliminate trade barriers like quotas and tariffs and to level the playing field by reducing government subsidies to domestic producers. WTO membership also allows for negotiation of Free Trade Agreements (FTA) between specific countries to encourage trade. The up side to increased trade for local growers and farm workers is that more Washington State agricultural products will be purchased by for-

The most important matter ultimately to growers and food processors is the public perception of the issue and its effect on demand for their product. Because of public concern, many European and Asian governments have put restrictions on genetically altered food imports. Given that Washington agriculture is heavily dependent on export sales, foreign perceptions and import restrictions have limited adoption of these potentially beneficial strains.

eign consumers. The downside is the potential loss of markets to foreign growers.

As touched on earlier, changes in Asia have had a strong and for the most part negative impact on Washington agriculture in the past few years. Struggling economies and the emergence of China as a force in the production of agricultural goods have been the main culprits. However, the acceptance of China and Taiwan into the WTO holds open the possibility of increasing exports to Asia. While Chinese growers will have increased access to other markets such as Japan and Korea, U.S. growers will have more access to the world's biggest market. For years grower advocates have pressed for improved trading status with China in recognition of the potential sales. As part of a bilateral agreement with the U.S., in June of 2001, China agreed to forego certain export subsidies for agriculture.

Japan, which for years has resisted lowering its subsidies to domestic agriculture, has recently shown signs of allowing more competition. Japanese officials hope that increased trade may help its economic stagnation and have warned the agricultural sector that it needs to become more efficient to compete. The Association of South East Asian Nations (ASEAN), a regional trading bloc, reached an agreement to develop more economic cooperation with the U.S. and there were discussions of a Free Trade Agreement. If these discussions lead to increased trade with this bloc, it would enhance the growing trade to nations like Indonesia and Vietnam.

Trade of agricultural goods to the European Union (EU) has in percentage terms been stagnant. Unfortunately, with trade disputes on the rise recently and exports hung

up on issues like biotech, things will probably not change drastically in the near future. The EU represents the negative side of regional trade blocs, in that as a non-member, American growers would face higher barriers exporting to say Holland, than would French growers. Apples and pears were on a list recently released by EU officials of items that may become subjected to stiff tariffs. This is apparently in retaliation for increases in U.S. tariffs on steel imports earlier this year.

North, Central, and South America, on the other hand show promise of improvement. A number of changes are becoming apparent as a result of NAFTA. Over the past four years Mexico has become the hot-

test market for agricultural products and Canada remains our biggest trading partner. Another interesting development is the Free Trade Agreement of the Americas (FTAA). First developed in 1994, it is a 34-nation member trade bloc made up of North American, Central American, South American, and Caribbean countries. The most recent meeting was held in April of this year and the FTAA is expected to be complete in 2005. The lowering of barriers to other American economies is potentially a real boon for agricultural exporters for U.S. growers. This is true particularly as it relates to South America as they operate on opposite growing seasons being in the southern hemisphere.

Government Policy

Immigration. Since the foreclosure of many family farms during the Great Depression, the Federal government has been in the business of trying to rescue and shape agriculture. The two issues that are most prominent in terms of their effect on agriculture and the likelihood of future change are immigration policy and farm policy. Immigration policy affects agriculture by altering the flow of MSFW to the fields where growers need them. Farm policy has taken on a number of different formats including loans, guaranteed prices, government purchase of output, acreage set-asides, and subsidies. There have been several proposals and quite a bit of positioning from Congress and the President on both issues before legislation was passed on the Farm Bill.

Particularly for growers of apples and cherries, the steady flow of seasonal labor is critical to bringing the fruit to market. From the perspective of the MSFW, higher wages in the United States are attractive but taking on the work can entail risk of life and limb as well as money. Last year 329 persons died trying to get across the U.S.-Mexico border. The 9/11 tragedy has raised the stakes, but even before then migration from our southern border appeared to be declining. The Immigration and Naturalization Service (INS) reported a drop of 24 percent in border apprehensions from the year prior, which reverses a nearly 10-year trend.

Regardless of the current position, legalization of these workers seems to be the common goal. Legalization

would allow the U.S. government to monitor persons coming into the country and would lessen the demand for certain black market activities such as smuggling and creating false documentation. It would reduce the INS burden and allow them to concentrate on potential terrorists. For workers, legalization would make the transit north much cheaper and safer as well as allowing for benefits and rights. However, opinions diverge over what form this legalization should take and the long-term status of these immigrants. The two general forms legalization would take would be to grant temporary visas versus allowing MSFW the chance to become permanent residents.

The temporary visa-type programs have a long history in this country dating back to the Bracero program, which was a response to WWII labor shortages. Commonly referred to as guest-worker programs, the focus is to match foreign labor to temporary grower needs but ensure that they return to their country of origin. There currently is a guest-worker program labeled as H2-A, bringing in about 40,000 Mexican nationals. Most of these workers are centered in tobacco areas like North Carolina. Few Washington growers use H2-A because of restrictions including the required provision of housing and transportation home. Senator Phil Gramm has introduced a Guest Worker Bill that would allow legal one-year work permits. Part of the proposal would create a fund replacing withholding taxes, part of which would be paid to workers in their home

countries upon return. Alternative bills advanced by Representative Howard Berman and Senator Edward Kennedy would permit unauthorized migrant farm workers to obtain guest worker status and eventually to qualify for legal residency in this country.

With both sides of Capital Hill recognizing the growing political power of Hispanics in this country, it looked as though new immigration legislation would be passed and implemented before too long. After 9/11, that legislation was put on the back burner and the focus has been on security issues. In March of 2002, Presidents

Bush and Fox released details of a U.S.-Mexico Border Partnership Action Plan. The objective of the plan is to coordinate efforts to increase security yet at the same time speed up the legal flow of travelers and goods. In the same month President Bush proposed increasing spending on border security by \$11 billion, including \$380 million to build a state of the art entry and exit system. Eventually there will be changes to alter what is widely perceived as a flawed immigration system. The only question is when and in what form.

Farm Policy

What the U.S. farm policy has in common with immigration policy is a widespread dissatisfaction with the status quo. As alluded to earlier, the root of our current farm policies was an effort to maintain a livable income for farmers in the 1930s. During the Great Depression farms began to fail in alarming numbers and so the government developed programs aimed at reversing the trend. The First World War was considered a period in which farm income in relation to nonfarm income was appropriate. However, once the war-induced demand disappeared, prices fell and this was then followed by the depression and further decline in demand. Therefore policy makers attempted to return farm prices to where they were in relation to other prices and established what came to be known as parity prices. The two basic approaches to achieving higher prices were to either control output or promote exports. Export promotion is the preferred alternative because it allows for less regulation, but it is subject to the whim of international markets and trade policies (and foreign governments who would also like to promote trade). Output control has meant in many cases government determining what crop farmers should produce or whether to produce at all. It has also meant higher prices for consumers and dependence on government for farmers. Another program has been direct income support to farmers, called deficiency payments, which are intended to make up any difference between target and market prices. Like any subsidy, these payments alter market outcomes and are traditionally not popular with farmers who perceive it as a handout.

The 1996 Federal Agricultural Improvement and Reform Act (FAIR), which is known as the Freedom to

Farm Act, was meant to phase out subsidies and price controls. The act introduced Production Flexible Contracts, which were intended to take the place of deficiency payments by this year. The framers of the 1996 legislation believed that by subjecting agriculture to market forces, exports, commodity prices, and farm income would all rise. However since then farm prices have fallen by 40 percent and incomes by 25 percent. Apparently the flawed economic assumption is that farmers like any producer will respond to lower prices by reducing output. In this country and elsewhere output has been on the rise in the face of falling commodity prices, which of course leads to shrinking incomes. Under the new laws, Congress has felt the necessity to provide bailouts in each of the last four years, totaling 30 billion dollars.

So we are back to the drawing board, determined to maintain farming as an industry and a way of life. The new Farm Bill, which is intended to be in place for the next six years, was passed in May of 2002. To some degree it represents a return to more subsidies and income supports. The legislation authorizes 180 billion over the next ten years, most of which is earmarked for grain and cotton crops. The law does give new attention to Washington crops such as apples, cherries, and potatoes. Included is nearly \$100 million dollars for relief to apple growers (of which about 40 percent is expected to go to Washington State growers). It also includes a provision to put Washington apples in school lunches nationwide.

Wheat, corn, and barley are Washington-grown commodities that will be strongly affected by the new legislation. Last year, wheat and barley counties Whitman and Lincoln, received subsidies of over 100 million dollars. In 2000, Whitman County received \$80 million in subsidies, and one farm company got more than \$1 million. Overall in that year, 10 southeastern Washington counties saw subsidies totaling about \$354 million.

Most federal subsidies go to crops such as wheat, barley, corn, sorghum, and rice, but last year some fruit growers did receive some bailout money. About 3,000 apple orchardists, mostly from the North Central area, received an average of about \$14,000 to compensate for losses of previous years. Raspberry farmers in western Washington also received a bailout of \$2.8 million in response to the extreme fall in prices in 2000.

CLOSING

How these issues affect Washington agriculture in coming months and years is of course open to speculation. Some issues will strongly shape the future of agriculture in this state while others will play a smaller role. For example, on the issue of genetically altered agricultural products, farmers are likely to respond to consumer preferences. The public will either choose between perceived “safe food” or lower prices, farmers will oblige and therefore the impact will be minimal. Benefits of the “Green Revolution” of the 1960s primarily went to consumers in the form of lower food prices. The mechanization of harvesting and other activities will strongly reduce the demand for seasonal labor but probably not in the very near future. New varieties of produce may help Washington growers gain markets back

and allow them to compete with countries that have lesser technology.

Trade blocs and treaties will continue to shape trade patterns. How aggressively we pursue these and work at reducing trade barriers will impact our export-oriented agriculture. The new Farm Bill will carry significance with wheat, corn, and barley growers in the state but probably cause little change to farm labor. Changes in immigration laws on the other hand will directly influence the numbers working seasonal crops and costs to growers. How well farmer organizations market their product and take advantage of new grower cooperatives will to some extent determine their livelihoods.

Appendix I - Total Agricultural Employment in Washington State, Statewide, and by Area (Benchmark: March, 2001)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
Washington	59,500	64,760	73,670	79,880	86,010	115,570	130,510	106,220	117,310	115,730	69,470	58,360	89,750
Bellingham MSA	2,620	2,730	3,120	3,180	3,500	3,510	5,670	4,930	3,580	3,340	2,970	2,770	3,490
Bremerton PMSA	180	210	240	250	270	270	270	250	230	220	200	190	230
Olympia PMSA	1,240	1,350	1,430	1,580	1,640	1,690	1,710	1,700	1,640	1,400	1,290	1,310	1,500
Richland-Kennewick-Pasco MSA	6,390	7,610	8,180	10,780	12,470	18,910	15,040	11,500	13,790	13,610	8,220	6,250	11,060
Seattle-Bellevue-Everett PMSA	2,880	3,250	3,620	3,900	4,160	4,430	4,790	4,380	3,980	3,760	3,540	3,130	3,820
Spokane MSA	1,020	1,150	1,320	1,490	1,600	1,650	1,670	1,550	1,430	1,280	1,100	1,040	1,360
Tacoma PMSA	1,310	1,360	1,880	1,660	1,770	2,020	2,260	2,080	1,750	1,460	1,310	1,260	1,680
Chelan-Douglas LMA	7,040	7,650	8,570	8,320	8,220	13,240	20,250	12,360	16,520	15,840	8,030	6,230	11,020
Yakima MSA	14,210	15,100	17,060	17,780	20,150	29,140	30,850	25,630	30,630	30,530	14,920	13,660	21,640
Adams	1,420	1,560	1,850	2,090	2,510	3,300	4,180	3,720	3,490	3,820	2,340	1,730	2,670
Asotin	140	150	180	190	200	230	200	200	220	180	150	140	180
Clallam	220	240	270	300	320	340	350	340	310	280	250	230	290
Clark	750	830	980	990	1,080	1,580	1,990	1,360	1,090	1,060	860	790	1,110
Columbia	190	230	240	270	290	320	320	330	320	260	210	200	260
Cowlitz	390	360	460	450	530	1,160	990	1,060	640	540	480	430	620
Ferry	110	120	130	150	160	170	180	160	150	130	110	110	140
Garfield	180	210	230	260	290	300	310	330	270	220	200	190	250
Grant	5,370	5,680	6,670	7,810	7,900	10,520	11,790	9,700	11,750	12,900	6,790	5,260	8,510
Grays Harbor	250	270	340	330	360	370	390	370	340	390	280	270	330
Jefferson	60	70	80	80	80	90	90	80	80	90	70	60	80
Kittitas	800	880	960	1,490	1,070	1,170	1,310	1,180	1,510	1,860	970	860	1,170
Klickitat	850	960	990	1,020	1,050	1,400	1,720	1,260	1,450	1,090	930	870	1,130
Lewis	830	910	980	1,050	1,120	1,180	1,230	1,140	1,050	1,070	1,010	880	1,040
Lincoln	790	880	990	1,120	1,210	1,280	1,330	1,410	1,210	960	860	810	1,070
Mason	110	120	140	150	150	150	150	150	140	160	150	140	140
Okanogan	3,150	3,150	3,960	4,020	4,360	5,790	8,540	6,350	8,580	8,860	3,560	2,680	5,250
Pacific	200	220	240	250	280	290	300	270	260	260	220	210	250
Pend Oreille	110	120	140	150	170	180	190	170	150	130	120	120	140
Skagit	2,430	2,650	3,310	3,460	3,180	3,560	4,970	5,440	4,400	3,390	2,600	2,510	3,490
San Juan	70	90	100	100	110	120	130	120	110	90	70	70	100
Skamania	30	30	40	50	50	50	60	50	50	40	30	30	40
Stevens	560	640	730	790	870	920	930	870	800	700	630	580	750
Wahkiakum	60	70	80	80	90	90	100	90	80	70	60	60	80
Walla Walla	2,330	2,550	2,700	2,700	3,110	4,300	4,310	3,680	3,610	4,270	3,630	2,060	3,270
Whitman	1,210	1,350	1,500	1,610	1,740	1,860	1,950	2,050	1,730	1,480	1,310	1,230	1,590

Indicated numbers include wage and salary employment as well as owners and unpaid family workers. Then numbers have not been adjusted for multiple job holders (those who work for more than one employer during the reference period.)

Source: Employer Security Department

Appendix II - Employment of Seasonal Workers by Activity in Washington, Statewide and by Agricultural Reporting Areas, 2001

WASHINGTON STATE

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
STATE TOTALS	10,254	12,622	16,928	20,733	22,489	43,976	58,218	37,800	48,078	50,559	16,164	7,780	28,800
APPLES, TOTAL	4,998	6,239	6,013	6,477	3,608	17,807	16,477	10,665	25,985	39,437	9,393	2,361	12,455
APPLE PRUNING	4,325	5,582	3,212	893	1,125	1,458	932	1,447	465	139	675	1,969	1,852
APPLE THINNING	0	0	284	2,049	171	14,796	14,270	1,623	65	0	0	0	2,772
APPLE HARVESTER	0	0	0	0	0	0	0	4,641	23,097	36,266	6,676	0	5,890
APPLE SORT, GRADE, PACK	536	437	475	128	0	212	85	303	539	751	398	271	345
OTHER APPLE ACTIVITIES	137	220	2,042	3,407	2,312	1,341	1,190	2,651	1,819	2,281	1,644	121	1,597
CHERRIES, TOTAL	520	552	521	192	338	6,863	21,357	2,702	40	28	84	147	2,779
CHERRY PRUNING	494	468	413	70	17	98	12	5	10	24	84	66	147
CHERRY HARVESTER	0	0	0	0	0	4,694	13,763	722	0	0	0	0	1,598
OTHER CHERRY ACTIVITIES	26	84	108	122	321	2,071	7,582	1,975	30	4	0	81	1,034
PEARS, TOTAL	428	518	607	154	102	813	870	4,992	5,430	388	359	620	1,273
PEAR PRUNING	382	514	460	14	7	0	123	97	99	0	230	516	204
PEAR THINNING	0	0	0	0	0	489	534	493	0	0	0	0	126
PEAR HARVESTER	0	0	0	0	0	0	0	3,740	4,570	340	5	0	721
OTHER PEAR ACTIVITIES	46	4	147	140	95	324	213	662	761	48	124	104	222
OTHER TREE FRUIT WORKERS	297	294	242	427	1,113	506	797	1,016	1,362	53	43	27	515
GRAPE WORKERS	1,200	1,965	2,724	2,008	1,802	1,814	1,920	1,047	1,565	1,052	301	442	1,487
BLUEBERRY WORKERS	0	0	14	12	44	30	489	2,987	780	427	317	24	427
RASPBERRY WORKERS	451	254	305	327	155	484	4,710	1,273	393	525	1,176	1,087	928
STRAWBERRY WORKERS	0	0	5	55	175	1,865	1,749	343	43	10	0	0	354
BULB WORKERS	41	48	1,345	607	379	128	357	507	359	206	185	170	361
HOP WORKERS	6	138	946	827	987	824	440	1,227	2,347	164	107	24	670
NURSERY WORKERS	1,098	1,347	1,585	2,100	2,254	1,805	1,676	1,049	1,121	719	1,043	796	1,383
WHEAT/GRAIN WORKERS	38	15	43	88	97	249	448	977	244	71	66	9	195
ASPARAGUS WORKERS	0	8	17	3,435	7,584	6,030	333	60	89	55	0	0	1,468
CUCUMBER WORKERS	0	9	0	0	0	9	167	1,064	570	20	0	0	153
ONION WORKERS	298	190	194	670	96	930	1,728	1,345	1,048	614	649	635	700
POTATO WORKERS	412	383	681	1,038	800	399	589	1,919	2,762	4,181	1,023	757	1,245
MISC VEGETABLE WORKERS	248	231	600	732	1,161	1,197	1,971	1,997	2,342	1,567	644	525	1,101
OTHER SEASONAL WORKERS	219	431	1,086	1,584	1,794	2,223	2,140	2,630	1,598	1,042	774	156	1,306

AREA 1	WESTERN												
ACTIVITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
TOTAL	1,894	2,043	3,760	3,525	3,309	4,803	9,776	8,512	4,883	3,388	3,116	2,383	4,283
BLUEBERRY WORKERS	0	0	14	12	44	30	489	2,987	780	427	317	24	427
RASPBERRY WORKERS	451	254	305	327	155	484	4,710	1,273	393	525	1,176	1,087	928
STRAWBERRY WORKERS	0	0	5	49	126	1,821	1,593	49	28	8	0	0	307
BULB WORKERS	41	48	1,345	607	379	128	357	507	359	206	185	170	361
CUCUMBER WORKERS	0	9	0	0	0	9	167	1,064	570	20	0	0	153
POTATO WORKERS	291	268	306	360	101	54	32	202	424	560	570	452	302
MISC. VEGETABLE WORKERS	0	13	43	33	195	190	419	764	1,137	769	121	0	307
NURSERY WORKERS	1,000	1,293	1,402	1,613	1,796	1,351	1,334	693	961	656	672	620	1,116
RHUBARB WORKERS	20	42	75	63	113	156	110	24	7	0	0	9	52
OTHER SEASONAL WORKERS	91	116	265	461	400	580	565	949	224	217	75	21	330
AREA 2	SOUTH CENTRAL												
ACTIVITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
TOTAL	3,975	4,487	5,480	5,891	7,416	15,162	17,414	10,860	16,381	13,983	2,944	2,056	8,837
APPLES, TOTAL	2,234	2,263	2,192	1,382	1,228	5,995	6,166	3,898	8,574	12,489	2,132	1,121	4,140
APPLE PRUNING	1,693	1,911	1,278	234	687	695	105	174	164	139	336	871	691
APPLE THINNING	0	0	258	447	0	4,731	5,330	516	0	0	0	0	940
APPLE HARVESTER	0	0	0	0	0	0	0	1,244	7,209	10,827	718	0	1,667
APPLE SORT, GRADE, PACK	459	277	269	4	0	212	85	280	370	534	315	185	249
OTHER APPLE ACTIVITIES	82	75	387	697	541	357	646	1,684	831	989	763	65	593
CHERRIES, TOTAL	134	127	129	52	87	3,391	7,066	806	10	0	68	23	991
CHERRY PRUNING	108	127	111	4	0	0	0	0	10	0	68	23	38
CHERRY HARVESTER	0	0	0	0	0	1,985	4,235	28	0	0	0	0	521
OTHER CHERRY ACTIVITY	26	0	18	48	87	1,406	2,831	778	0	0	0	0	433
PEARS, TOTAL	301	374	353	119	79	603	730	2,301	2,633	110	235	483	693
PEAR PRUNING	298	370	236	0	7	0	76	70	0	0	230	483	148

AREA 2**SOUTH CENTRAL (Continued)**

ACTIVITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
PEAR THINNING	0	0	0	0	0	428	461	493	0	0	0	0	115
PEAR HARVESTER	0	0	0	0	0	0	0	1,662	2,463	81	0	0	351
OTHER PEAR ACTIVITIES	3	4	117	119	72	175	193	76	170	29	5	0	80
OTHER TREE FRUIT, TOTAL	215	244	132	330	179	472	615	779	1,111	36	9	0	344
OTHER TREE FRUIT PRUNER	180	163	104	121	11	0	21	0	0	0	0	0	50
OTHER TREE FRUIT HARVESTER	0	0	0	0	0	32	298	447	890	0	0	0	139
OTHER TREE FRUIT ACTIVITIES	35	81	28	209	168	440	296	332	221	36	9	0	155
GRAPES, TOTAL	997	1,329	1,641	1,308	982	1,141	1,234	660	1,011	620	197	303	952
GRAPE PRUNING	985	1,242	1,522	828	622	62	0	21	0	0	41	263	466
GRAPE HARVESTER	0	0	0	0	0	0	0	0	200	465	0	0	55
OTHER GRAPE ACTIVITY	12	87	119	480	360	1,079	1,234	639	811	155	156	40	431
ASPARAGUS WORKERS	0	0	14	972	3,446	2,320	333	31	71	51	0	0	603
HOPS, TOTAL	3	84	755	599	773	709	413	1,212	2,100	154	90	8	575
HOP TWINNING & TRAINING	0	0	26	504	665	377	186	0	0	44	7	0	151
HOP HARVESTER	0	0	0	0	0	0	0	690	1,568	22	0	0	190
OTHER HOP ACTIVITY	3	84	729	95	108	332	227	522	532	88	83	8	234
ONION WORKERS	0	0	27	519	85	120	92	333	252	89	0	0	126
POTATO WORKERS	0	0	14	0	0	4	155	229	62	0	0	0	39
MISC. VEGETABLE WORKERS	10	13	102	128	102	154	439	352	310	223	174	106	176
OTHER SEASONAL WORKERS	81	53	121	482	455	253	171	259	247	211	39	12	199

AREA 3**NORTH CENTRAL**

ACTIVITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
TOTAL	1,906	2,447	2,864	3,817	2,329	7,515	15,841	7,929	11,759	13,959	1,840	616	6,069
APPLES, TOTAL	1,530	2,011	2,327	3,590	1,247	6,148	4,976	3,435	9,358	13,640	1,678	428	4,197
APPLE PRUNING	1,415	1,754	955	352	208	135	555	157	13	0	0	326	489
APPLE THINNING	0	0	0	1,602	96	5,531	4,016	102	20	0	0	0	947
APPLE HARVESTER	0	0	0	0	0	0	0	2,744	8,665	12,725	936	0	2,089
APPLE SORT, GRADE, PACK	77	160	206	124	0	0	0	23	169	217	83	86	95
OTHER APPLE ACTIVITIES	38	97	1,166	1,512	943	482	405	409	491	698	659	16	576

AREA 3		NORTH CENTRAL (Continued)											
ACTIVITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
CHERRIES, TOTAL	213	222	193	56	95	1,106	10,486	1,782	7	0	0	33	1,183
CHERRY PRUNING	213	222	158	12	17	0	0	0	0	0	0	33	55
CHERRY HARVESTER	0	0	0	0	0	540	5,796	640	0	0	0	0	581
OTHER CHERRY ACTIVITIES	0	0	35	44	78	566	4,690	1,142	7	0	0	0	547
PEARS, TOTAL	84	144	254	35	23	61	120	2,393	2,342	265	124	110	496
PEAR PRUNING	84	144	224	14	0	0	47	27	99	0	0	33	56
PEAR THINNING	0	0	0	0	0	61	73	0	0	0	0	0	11
PEAR HARVESTER	0	0	0	0	0	0	0	2,078	2,107	259	5	0	371
OTHER PEAR ACTIVITIES	0	0	30	21	23	0	0	288	136	6	119	77	58
OTHER TREE FRUIT WORKERS	79	34	50	49	873	34	182	234	7	17	5	27	133
OTHER SEASONAL WORKERS	0	36	40	87	91	166	77	85	45	37	33	18	60
AREA 4		COLUMBIA BASIN											
ACTIVITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
TOTAL	1,282	1,440	2,164	2,849	2,975	5,135	6,847	4,970	7,661	10,890	2,923	1,530	4,222
APPLES, TOTAL	729	1,068	1,141	1,303	997	2,759	2,599	1,985	4,724	7,389	1,566	586	2,237
APPLE PRUNING	715	1,033	695	232	219	221	261	397	248	0	164	559	395
APPLE THINNING	0	0	26	0	16	2,110	2,267	821	45	0	0	0	440
APPLE HARVESTER	0	0	0	0	0	0	0	277	4,030	6,974	1,244	0	1,044
OTHER APPLE ACTIVITIES	14	35	420	1,071	762	428	71	490	401	415	158	27	358
CHERRIES, TOTAL	98	121	124	54	128	487	2,274	40	3	28	7	10	281
CHERRY PRUNING	98	41	81	39	0	0	12	5	0	24	7	10	26
CHERRY HARVESTER	0	0	0	0	0	418	2,240	14	0	0	0	0	223
OTHER CHERRY ACTIVITIES	0	80	43	15	128	69	22	21	3	4	0	0	32
PEAR WORKERS	43	0	0	0	0	149	20	298	455	13	0	27	84
MINT WORKERS	0	0	69	159	183	272	420	153	89	21	18	0	115
OTHER TREE FRUIT WORKERS	0	7	33	46	8	0	0	3	0	0	19	0	10
ASPARAGUS WORKERS	0	8	0	172	544	281	0	29	3	0	0	0	86
ONION WORKERS	197	102	153	31	11	70	142	68	525	458	594	562	243
POTATOES, TOTAL	117	77	275	525	667	234	308	1,008	1,412	2,693	253	158	644
POTATO HARVESTER	0	0	0	0	0	0	0	45	179	511	42	0	65
POTATO SORT, GRADE, PACK	96	0	76	5	272	34	66	655	513	1,026	78	100	243
OTHER POTATO ACTIVITIES	21	77	199	520	395	200	242	308	720	1,156	133	58	336

AREA 4													
COLUMBIA BASIN (Continued)													
ACTIVITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
WHEAT/GRAIN WORKERS	0	0	14	4	4	11	134	183	22	8	19	9	34
NURSERY WORKERS	98	42	76	258	244	304	259	323	87	35	340	165	186
OTHER SEASONAL WORKERS	0	3	264	205	140	504	370	647	304	220	83	13	229
AREA 5													
SOUTH EASTERN													
ACTIVITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
TOTAL	1,143	2,171	2,480	4,370	6,166	10,936	7,922	4,640	7,119	8,230	5,294	1,153	5,135
APPLES, TOTAL	505	897	353	202	136	2,905	2,736	1,347	3,329	5,919	4,017	226	1,881
APPLE PRUNING	502	884	284	75	11	407	11	719	40	0	175	213	277
APPLE THINNING	0	0	0	0	59	2,424	2,657	184	0	0	0	0	444
APPLE HARVESTER	0	0	0	0	0	0	0	376	3,193	5,740	3,778	0	1,091
OTHER APPLE ACTIVITIES	3	13	69	127	66	74	68	68	96	179	64	13	70
CHERRIES, TOTAL	75	82	75	30	28	1,879	1,531	74	20	0	9	81	324
CHERRY PRUNING	75	78	63	15	0	98	0	0	0	0	9	0	28
CHERRY HARVESTER	0	0	0	0	0	1,751	1,492	40	0	0	0	0	274
OTHER CHERRY ACTIVITIES	0	4	12	15	28	30	39	34	20	0	0	81	22
OTHER TREE FRUIT WORKERS	3	9	27	2	53	0	0	0	244	0	10	0	29
GRAPE WORKERS	203	636	1,083	700	820	673	686	387	554	432	104	139	535
ASPARAGUS WORKERS	0	0	3	2,291	3,594	3,429	0	0	15	4	0	0	778
HOP WORKERS	3	54	191	228	214	115	27	15	247	10	17	16	95
ONION WORKERS	101	88	14	120	0	740	1,494	944	271	67	55	73	331
POTATOES, TOTAL	4	38	86	153	32	107	94	480	864	928	200	147	261
POTATO HARVESTER	0	0	0	0	0	0	27	104	206	242	28	0	51
POTATO SORT, GRADE, PACK	0	0	0	0	0	0	11	305	463	418	99	139	120
OTHER POTATO ACTIVITIES	4	38	86	153	32	107	56	71	195	268	73	8	91
MISC VEGETABLE WORKERS	218	151	365	416	702	633	682	624	851	550	325	410	494
WHEAT/GRAIN WORKERS	6	4	29	56	61	54	139	175	102	28	34	0	57
NURSERY WORKERS	0	0	5	17	13	8	7	5	11	10	10	8	8
STRAWBERRY WORKERS	0	0	0	6	49	44	156	294	15	2	0	0	47
OTHER SEASONAL WORKERS	25	212	249	149	464	349	370	295	596	280	513	53	296

AREA 6		EASTERN											
ACTIVITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
TOTAL	54	34	180	281	294	425	418	889	275	109	47	42	254
WHEAT/GRAIN, TOTAL	32	11	0	28	32	184	175	619	120	35	13	0	104
WHEAT/GRAIN HARVESTER	0	0	0	0	16	9	0	23	0	35	0	0	7
WHEAT/GRAIN EQPMT OPERATOR	0	0	0	14	16	18	102	490	90	0	0	0	61
OTHER WHEAT/GRAIN ACTIVITY	32	11	0	14	0	157	73	106	30	0	13	0	36
NURSERY WORKERS	0	12	102	212	201	142	76	28	62	18	21	3	73
OTHER SEASONAL WORKERS	22	11	78	41	61	99	167	242	93	56	13	39	77

Source: Employment Security Department

Appendix III-Projections by Area

AREA 2 - South Central (Klickitat and Yakima Counties)

ACTIVITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
TOTAL	4,208	4,860	6,105	7,295	8,803	16,604	17,583	12,176	17,462	16,947	3,805	3,210	9,953
APPLES, TOTAL	2,818	2,767	2,692	2,055	1,943	6,312	6,819	4,519	10,101	14,814	2,542	1,881	4,971
APPLE PRUNING	2,428	2,388	1,772	638	496	401	175	214	60	86	247	1,384	857
APPLE THINNING	5	-	244	300	363	5,290	5,182	683	20	-	-	-	1,035
APPLE HARVESTER	-	-	-	-	-	-	443	1,844	9,060	13,441	1,121	-	2,159
APPLE SORT, GRADE, PACK	237	158	144	2	-	93	37	160	260	359	211	167	146
OTHER APPLE ACTIVITIES	148	221	533	1,116	1,084	528	981	1,618	701	928	963	331	773
CHERRIES, TOTAL	122	190	222	109	204	4,159	6,233	340	19	6	34	60	975
CHERRY PRUNING	107	152	103	11	39	-	-	5	4	6	33	58	43
CHERRY HARVESTER	-	-	-	-	-	3,412	4,884	11	-	-	-	-	692
OTHER CHERRY ACTIVITY	15	39	119	98	165	747	1,349	325	16	-	1	1	239
PEARS, TOTAL	352	371	459	320	203	504	676	3,117	2,354	392	349	587	807
PEAR PRUNING	350	367	407	232	125	120	82	54	81	-	323	583	227
PEAR THINNING	-	-	-	-	16	288	451	254	7	-	-	-	85
PEAR HARVESTER	-	-	-	-	-	-	-	2,560	2,142	381	-	-	424
OTHER PEAR ACTIVITIES	2	4	52	88	62	96	144	248	125	11	26	4	72
OTHER TREE FRUIT, TOTAL	149	257	263	365	191	282	594	1,086	728	23	37	41	335
OTHER TREE FRUIT PRUNER	68	175	169	125	13	8	8	18	-	-	-	20	50
OTHER TREE FRUIT HARVESTER	-	-	-	-	-	12	361	918	595	-	-	-	157
OTHER TREE FRUIT ACTIVITIES	81	82	94	240	178	263	225	151	134	23	37	20	120
GRAPES, TOTAL	646	1,082	1,191	861	622	779	929	646	829	723	418	459	765
GRAPE PRUNING	616	985	942	451	322	126	178	153	94	39	76	388	364
GRAPE HARVESTER	-	-	-	-	-	-	-	31	198	410	27	-	55
OTHER GRAPE ACTIVITY	30	97	249	410	300	653	751	462	538	275	314	71	346
ASPARAGUS WORKERS	4	4	173	1,767	3,585	2,812	351	53	62	53	1	3	739
HOPS, TOTAL	28	74	742	821	1,329	1,002	528	934	2,245	404	164	40	692
HOP TWINING & TRAINING	-	-	30	520	1,127	439	129	2	-	17	17	-	190
HOP HARVESTER	-	-	-	-	-	-	-	460	1,836	97	-	-	199
OTHER HOP ACTIVITY	28	74	713	302	202	563	399	472	409	290	147	40	303

Area 2- South Central (Klickitat and Yakima Counties) (Continued)

ACTIVITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
ONION WORKERS	-	-	39	195	32	115	166	361	248	47	-	-	100
POTATO WORKERS	-	-	11	5	1	3	247	298	91	1	-	-	55
MISC. VEGETABLE WORKERS	14	25	115	190	158	301	495	466	370	238	145	55	214
OTHER SEASONAL WORKERS	76	91	198	608	536	336	545	354	415	247	116	85	301

Area 3 - North Central (Chelan, Douglas, Kittitas, and Okanogan Counties)

ACTIVITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
TOTAL	2,428	3,266	3,928	5,145	3,750	9,814	16,481	8,592	13,763	16,254	2,869	1,478	7,326
APPLES, TOTAL	2,095	2,782	3,327	4,632	2,707	6,823	6,629	5,254	11,167	15,598	2,685	1,185	5,419
APPLE PRUNING	1,835	2,334	2,223	1,319	354	309	417	309	153	85	102	799	853
APPLE THINNING	-	-	20	1,341	784	5,790	4,504	1,144	7	-	4	-	1,133
APPLE HARVESTER	-	-	-	-	-	-	86	2,146	9,295	14,294	1,526	-	2,279
APPLE SORT, GRADE, PACK	128	226	255	165	86	31	26	171	215	272	188	135	153
OTHER APPLE ACTIVITIES	131	222	829	1,806	1,484	692	1,596	1,485	1,498	947	865	251	1,002
CHERRIES, TOTAL	143	221	205	138	87	2,306	8,534	1,184	7	3	1	89	1,076
CHERRY PRUNING	143	221	182	57	14	14	-	-	-	-	-	89	60
CHERRY HARVESTER	-	-	-	-	-	1,698	5,892	676	-	-	-	-	689
OTHER CHERRY ACTIVITIES	-	-	23	82	73	594	2,642	508	7	3	1	-	328
PEARS, TOTAL	102	187	231	216	91	164	297	1,746	2,184	496	84	97	491
PEAR PRUNING	92	187	212	129	15	14	41	83	37	-	14	64	74
PEAR THINNING	-	-	-	-	12	130	227	12	-	-	-	-	32
PEAR HARVESTER	-	-	-	-	-	-	-	1,424	1,907	437	2	-	314
OTHER PEAR ACTIVITIES	10	-	19	87	64	21	29	228	240	59	69	33	72
OTHER TREE FRUIT WORKERS	61	21	54	91	419	95	337	251	247	8	40	53	140
OTHER SEASONAL WORKERS	28	56	111	68	447	426	684	157	157	149	59	54	200

Area 4 - Columbia basin (Columbia and Adams Counties)

ACTIVITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
TOTAL	1,638	1,879	2,547	3,341	3,371	6,092	7,208	5,753	8,427	10,860	3,141	1,823	4,674
APPLES, TOTAL	937	1,217	1,345	1,373	1,195	3,001	2,915	2,416	5,239	7,615	1,500	735	2,457
APPLE PRUNING	927	1,145	878	287	246	127	217	302	171	23	100	631	421
APPLE THINNING	-	6	10	39	240	2,539	2,344	747	16	-	-	-	495
APPLE HARVESTER	-	-	-	-	-	-	55	549	4,600	7,066	1,087	-	1,113
OTHER APPLE ACTIVITIES	10	66	458	1,046	709	336	299	818	452	527	314	103	428
CHERRIES, TOTAL	69	76	121	58	67	942	1,690	44	25	11	6	12	260
CHERRY PRUNING	68	47	89	26	-	1	5	2	-	9	3	12	22
CHERRY HARVESTER	-	-	-	-	-	884	1,668	25	23	-	-	-	217
OTHER CHERRY ACTIVITIES	1	35	32	32	67	57	17	17	3	2	4	-	22
PEAR WORKERS	18	9	12	-	38	73	9	221	341	6	1	42	63
MINT WORKERS	1	13	45	97	117	170	268	170	83	10	9	1	82
OTHER TREE FRUIT WORKERS	14	21	33	75	90	38	47	112	80	1	37	-	46
ASPARAGUS WORKERS	-	3	22	402	571	365	25	21	1	-	-	-	117
ONION WORKERS	289	301	269	124	37	186	302	267	547	494	577	499	324
POTATOES, TOTAL	149	142	377	656	558	360	801	1,116	1,530	2,339	291	243	713
POTATO HARVESTER	-	-	-	-	-	-	-	67	287	520	26	-	75
POTATO SORT, GRADE, PACK	101	61	177	265	256	179	481	777	633	902	135	201	347
OTHER POTATO ACTIVITIES	48	81	200	390	302	181	320	273	610	917	130	42	291
MISC VEGETABLE WORKERS	15	14	10	82	110	82	221	228	75	50	60	17	80
WHEAT/GRAIN WORKERS	9	11	57	30	58	144	201	335	96	63	45	10	90
NURSERY WORKERS	104	23	62	248	231	280	241	257	108	59	408	188	184
OTHER SEASONAL WORKERS	33	50	194	198	299	452	489	566	302	213	206	76	256

Area 5 - South Eastern (Benton, Franklin, and Walla Walla Counties)

ACTIVITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
TOTAL	1,559	2,332	3,335	5,548	6,873	12,830	8,750	6,705	8,146	8,979	5,461	1,279	5,610
APPLES, TOTAL	537	892	777	454	401	3,323	2,622	2,422	4,180	6,392	3,875	197	2,021
APPLE PRUNING	478	844	635	224	54	157	35	331	35	-	89	180	227
APPLE THINNING	-	-	-	1	143	2,999	2,454	769	-	-	-	-	476
APPLE HARVESTER	-	-	-	-	-	-	-	1,070	3,920	6,232	3,738	-	1,222
OTHER APPLE ACTIVITIES	58	49	143	228	204	167	132	252	225	160	48	18	96
CHERRIES, TOTAL	85	89	110	78	30	2,830	1,609	44	8	2	7	46	324
CHERRY PRUNING	85	88	94	13	3	37	3	-	-	-	5	5	24
CHERRY HARVESTER	-	-	-	-	-	2,684	1,540	15	-	-	-	-	270
OTHER CHERRY ACTIVITIES	-	2	17	66	27	110	66	29	8	2	2	41	30
OTHER TREE FRUIT WORKERS	25	8	53	13	92	15	68	230	168	38	16	8	47
GRAPE WORKERS	300	644	935	699	714	595	753	450	507	323	200	217	548
ASPARAGUS WORKERS	6	12	117	2,560	3,906	3,665	392	47	19	2	-	-	801
HOP WORKERS	1	23	177	158	198	83	52	42	296	5	15	8	76
ONION WORKERS	199	186	181	241	112	765	1,140	730	411	241	133	134	414
POTATOES, TOTAL	45	87	223	256	157	157	188	581	683	607	254	76	275
POTATO HARVESTER	-	-	-	-	-	-	27	145	150	187	18	-	40
POTATO SORT, GRADE, PACK	22	39	49	153	117	79	80	347	402	241	163	70	145
OTHER POTATO ACTIVITIES	23	48	174	103	40	78	80	89	132	180	73	7	90
MISC VEGETABLE WORKERS	223	230	283	300	534	753	670	825	867	762	564	475	624
WHEAT/GRAIN WORKERS	8	8	44	79	163	100	189	290	98	34	30	18	69
NURSERY WORKERS	35	26	48	77	57	38	104	27	32	20	27	21	50
STRAWBERRY WORKERS	-	-	10	3	48	86	301	180	6	1	-	-	45
OTHER SEASONAL WORKERS	98	127	377	631	461	421	662	839	873	554	341	79	317

Source: Employment Security Department

GLOSSARY

Crop/Livestock Activities - Names of agricultural crops or livestock activities going on during the survey.

Some activity examples are: apple harvesting, apple pruning, asparagus cutting, cherry picking, potato packing, vegetable weeding, etc.

Hired Workers - All hired workers including full-time, part-time, seasonal, and casual employees regardless of age. Paid family members are considered hired workers.

Seasonal Hired Workers - All hired workers employed less than 150 calendar days.

Foreign (H2-A) Contract Workers - All hired workers who reside in foreign countries and are legally contracted by farmers to work temporarily in the United States. Foreign hired farmhands are always considered seasonal workers—even if hired for more than five months of work.

Local Workers - Hired worker who daily commutes from home to the job.

Intrastate Migratory workers - Hired workers whose established residence is within Washington, but who is not within commuting distance of the job.

Interstate Migratory Workers - Hired workers whose established residence is outside Washington and not within commuting distance of the job.

Agricultural employment - Any service or activity defined as agricultural employment in the Fair Labor Standards Act and in the Internal Revenue Code of 1954. In addition, the handling, planting, drying, packing, packaging, processing, freezing, or grading prior to delivery for storage of any agricultural or horticultural commodity in its unmanufactured state are also considered agricultural employment.

Migrant agricultural worker - A person employed in agricultural work of a seasonal or other temporary nature who is required to be absent overnight from his or her permanent place of residence. Exceptions are immediate family members of an agricultural employer or a farm labor contractor, and temporary H-2A foreign workers. (H-2A temporary foreign workers are nonimmigrant aliens authorized to work in agricultural employment in the United States for a specified time period, normally less than one year.)

Seasonal agricultural worker - A person employed in agricultural work of a seasonal or other temporary nature who is not required to be absent overnight from his or her permanent place of residence. Such a worker is covered by Migrant Seasonal Protection Act when the worker is performing fieldwork, or when the worker is employed in a packing or processing operation and is transported by day haul. The same exceptions listed above for migrant agricultural workers apply here.

Migrant Seasonal Farm Worker (MSFW) - A worker defined as both migrant and seasonal.