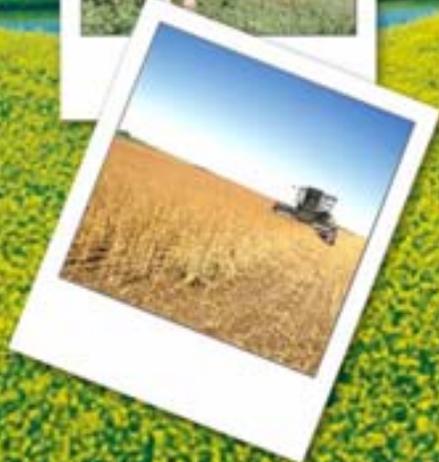
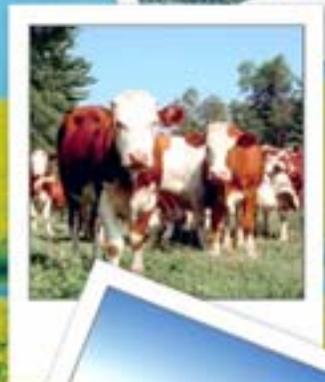
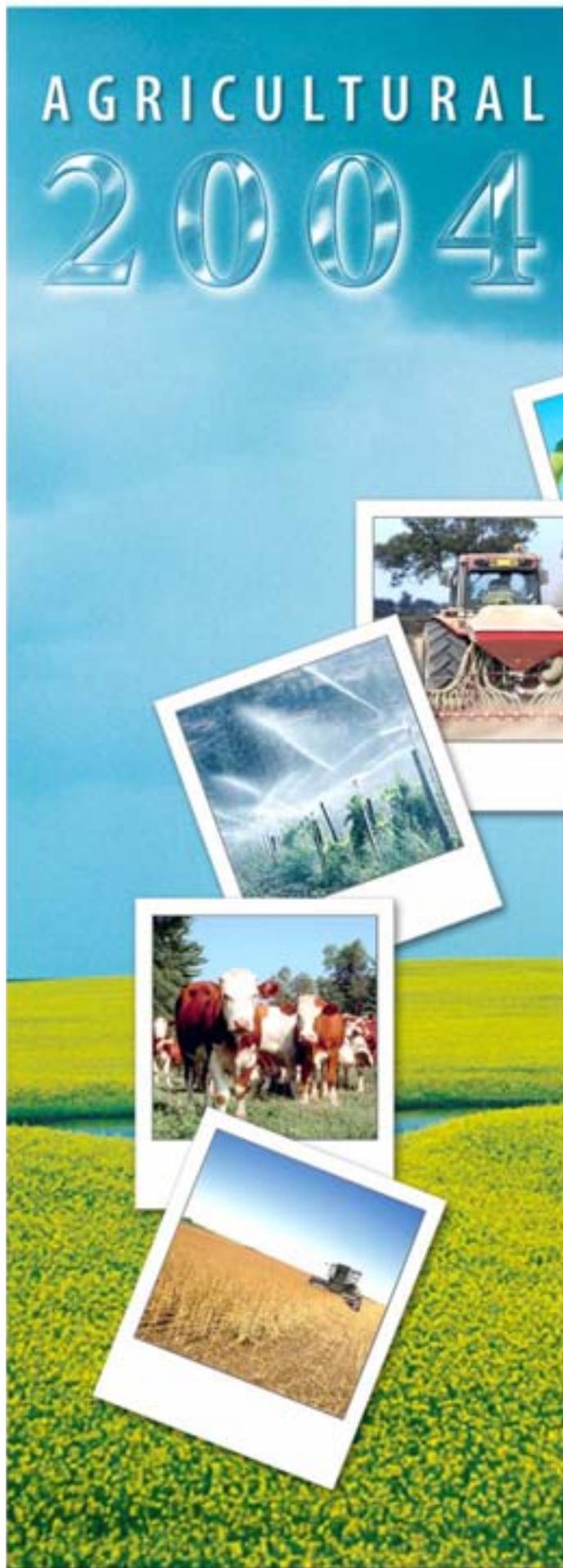


AGRICULTURAL 2004

WORKFORCE IN WASHINGTON STATE



**Labor Market and
Economic Analysis Branch**
Greg Weeks, Director

**Washington State
Employment Security Department**
Karen Lee, Commissioner



Agricultural Workforce in Washington State 2004



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Economic Analysis Branch
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Washington, with its unique mix of agricultural production, is an important supplier of food to the nation and the rest of the world. The state has advantages that few others in the United States share. Its regions are distinct microclimates and diverse growing areas, affording each a competitive advantage in specific commodities. Moreover, with its coastal seaports, Washington has easier access and less costly transportation to Asia and the Pacific Rim, providing the state's agricultural producers with inroads to the global marketplace. In many instances, however, agricultural production is quite labor intensive and producers cannot tap into these advantages without an adequate supply of labor, particularly during peak production periods. Even though these workers account for just a small part of Washington's wage and salary employment (about 4.6 percent in 2003), their contributions make the state's agricultural economy viable.

Accurately anticipating labor force needs each year helps Washington's agricultural producers maintain their competitive edge—an edge that contributes significantly to the state's overall economic well-being. Therefore, understanding aspects of the agricultural workforce in the state from year to year, across regions, and by commodity, is crucial for farm operators and other agribusinesses to assess past production performance and plan for their needs in the current and coming years.

However, Washington's agricultural workers cannot be neatly classified into one homogeneous group. Rather, these workers have widely varying characteristics. In the course of a year, some workers stay in one area while others move about the state (or to other states) to find work; some work in agriculture during production periods and in entirely different industries at other times; some dovetail their work in agriculture with employment in related food manufacturing industries. These varying employment characteristics are strongly associated with workers' abilities and affect their wages. In general, agricultural workers' wages are less than the state's economy-wide average, their employment is highly seasonal, and their participation in the labor market is limited.

What happens in agriculture and agricultural employment has strong social and economic consequences for these workers and their families. Lack of agricultural jobs can lead these workers to rely more heavily on state-provided services such as the Unemployment Insurance Program and social and health services.

Likewise, what happens with workers—their availability for work during peak production periods, how long they stay resident in communities, whether they bring families with them—has social and economic consequences for agriculture-intensive areas. The economic vitality of these areas is highly dependent on growers staying in business, and growers can only stay in business if they have an adequate supply of labor to prepare and harvest their crops. Moreover, these workers and their families spend their wages locally and, if they decide to stay in an area, may invest further in the community by renting or buying homes and/or opening businesses.

Introduction

Given these profound economic implications, it is in the interest of policy-makers, as well as business leaders and workers, to understand evolving conditions in Washington's agriculture workforce. Legislation that changes the minimum wage rate or migrant worker programs, for example, has important consequences for both the socioeconomic well-being of agricultural workers and the profitability of farm operators. The purpose of this report is to help foster an understanding of Washington's agricultural workforce in the context of the state's dynamic agricultural situation.

The primary source of employment information for this report comes from the Washington State Employment Security Department's (ESD) tax records. Employers provide this information as part of their regular state reporting on paid wages for employment covered by the Unemployment Insurance Benefit Program. This is the most reliable and complete information available for hired agricultural workers. This data, however, is not without its shortcomings. For example, farm owner-operator employment is not covered under this program. Neither are some types of specific job activities performed by hired agricultural workers. In some cases, the information is simply not sufficiently detailed to perform thorough analysis.

To supplement the tax and wage data, and to gain a better understanding of seasonal employment, ESD conducts monthly surveys with agricultural employers to gather more detailed information on crops (for example, tree fruits can be broken out into apples, cherries, pears, etc.), workers' activities (such as fruit tree pruning, fruit picking, weeding, etc.), and wages (hourly and piece rate). Information gleaned through these monthly surveys is also included in this report, which provides a more thorough understanding of the state's agricultural employment and workers.

Chapter 1—Agricultural Production

Overall Production



Changes in the acreage of land available or the productivity of land in agriculture will greatly influence the need for agricultural workers.

Agricultural employment in Washington in any given year is dependent on the demand associated with Washington's agricultural commodities, the number of acres needed to be harvested, and the costs associated with production. Farm operators allocate their resources (such as land and labor) based on profits and production goals. Changes in the acreage of land available or the productivity of land in agriculture will greatly influence the need for agricultural workers. If agricultural acreage shifts from production of one commodity to another more seasonal and labor-intensive commodity, then farm operators will seek more seasonal workers. If land shifts out of agricultural production, or to less labor-intensive commodities, then there will be less need for agricultural workers.

Washington has become increasingly dependent on export markets for consumption of agricultural commodities, so Washington farm operators must also react to foreign export markets. Thus, knowledge of current foreign export markets and of the tastes and preferences of specific countries' consumers (which help to drive and to shift consumer demand) is important to understanding production changes in agriculture. Thus, increasing sales to specific export markets will also indirectly influence the need for agricultural workers in Washington.

Great interdependencies exist between sub-sectors of the economy as well; farm operators today are highly reliant on the existence of processing and manufacturing industries so that commodities may be sold to fresh markets *and* to food processing firms. Warehousing, climate-controlled storage, refrigerated storage, and shipment containers improve the longevity of commodities to be sold to fresh produce markets, and for processing later or in the off season. So, processing adds value that not only meets consumer demand for a transformed product, but also allows for longer post-harvest preservation of perishable commodities and the transporting of these products over long distances, or even globally. Greater consumer demand of transformed food products has added significantly to food manufacturers' business. Analysis of food manufacturing and manufacturing employment can help to explain their contribution to agriculture production, and helps explain farm operator choices of production and structural shifts in employment.



Farmers in Washington have seized opportunities to improve productivity of land by using high quality inputs implementing improved irrigation systems...

Over time, farmers in Washington, like those in the rest of the U.S., have seized opportunities to improve productivity of land by using high quality inputs (such as fertilizers, new and improved seed varieties, or genetic stock), implementing improved irrigation systems, and increasing or improving mechanization. Such innovations have enhanced agricultural productivity, allowing the same amount of land to produce greater quantities of food output. Analysis of output value, planted acreage, and production trends for commodities in Washington agriculture can help to explain the variations in agriculture worker employment over the year, to depict employment peaks and valleys, and to forecast next year's labor needs.

Chapter 1—Agricultural Production

Information on production and agriculture is compiled from the 2004 Washington Annual Bulletin (Washington Agricultural Statistics Service, 2004). In 2003, the value of Washington's agricultural production reached \$5.79 billion (*Figures 1 and 2*), just shy of the \$5.88 billion record set in 1995. The 2003 value was 3.7 percent above 2002's agricultural value of production. The field crops category (including wheat, potatoes, and hay) tops the list in value of production at \$1.7 billion, down (-3.2 percent) from 2002. The fruits and nuts category (with apples, sweet cherries, and all grapes) ran a close second with \$1.6 billion in value, up 11.1 percent from 2002. Livestock commodities (cattle and calves, and milk) contributed almost \$1.45 billion in value in 2003, an increase of 3.7 percent from the previous year.

Leading Commodities for 2003 by Value of Production

Figure 3 depicts how total values of commodity groups have changed from 1995 to 2003. Field crops noticeably trended downwards over the nine year period (1995 to 2003), while tree fruits lost value then turned generally upwards, and livestock commodities hovered around the \$1.5 billion mark. Berries and vegetables had minor fluctuations from their mean levels. This nine-year perspective indicates that the value of fruits, especially in the 1998 to 2003 period, to some extent made up for lost production value of livestock.

Apples were the leading commodity in 2003, in terms of production value, and measured at \$1.16 billion. This was a 12.9 percent increase over apple production values in 2002 (*Figure 1*), following an increase of 13.8 percent the previous year. Milk production, valued at \$675.3 million, ranked second in the state, up 4.3 percent from 2002. But this increase followed a significant decline of 21.7 percent the previous year. Wheat, valued at \$521.1 million (after an increase of 4.9 percent over the year), ranked third. Potatoes were valued at \$489 million, having experienced declines of 6.9 percent in 2002 and 4.6 percent in 2003. Cattle and calves held fifth at \$475.5 million, representing an increase of 5.4 percent in 2003.

Other fruits produced on a smaller scale also saw increases in production value in 2003 (*Figure 1*); production values of sweet cherries (+18.1 percent), berries (+5.4 percent), winter pears (+4.2 percent), and wine grapes (+2.1 percent) *increased* in 2003. However, peaches (-31.2 percent), apricots (-2.2 percent), and all grapes (-2.6 percent) saw *declines* in production values in 2003. Vegetable production (consisting of onions, sweet corn, green peas, and asparagus) *increased* in value 15.9 percent from 2002 to 2003. This increase was mostly due to increases in the production value of onions (+25.1 percent). Values of green peas (+48.1 percent) and sweet corn (+6.4 percent) were also up in 2003. Asparagus, ranking 20th among commodities, saw a decrease in value of production of 3.6 percent, to \$43.3 million, in 2003. Production values of asparagus have experienced constant declines since 1997.



The field crops category (including wheat, potatoes, and hay) tops the list in value of production at \$1.7 billion...



Apples were the leading commodity in 2003, in terms of production value, and measured at \$1.16 billion.

Chapter 1—Agricultural Production

Figure 1

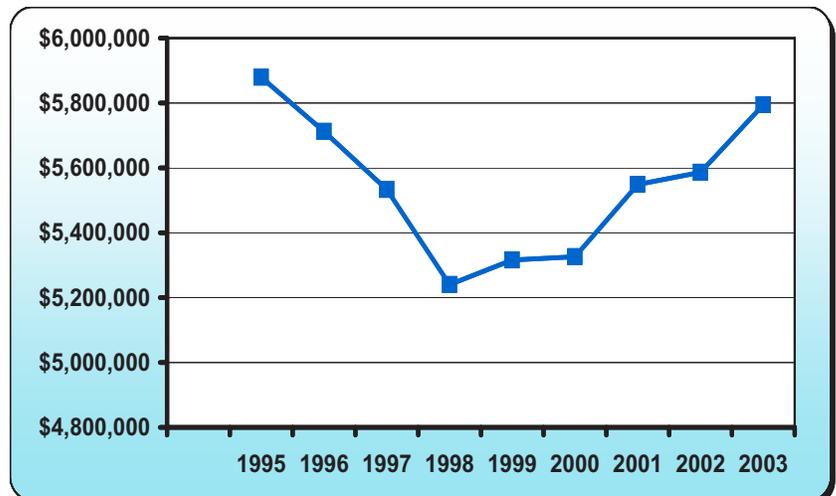
Value of Major Crops in Washington State, 1995-2003
 Value of Agriculture Production (\$1000s) Percent Change
 Source: Washington Agriculture Statistics Service

	1995	1997	1999	2001	*2002	2003	Overall Rank 2003	Change 2001-2002	Change 2002-2003	Mean 1995-2003
Total Agriculture	\$5,879,575	\$5,535,454	\$5,327,548	\$5,549,212	\$5,585,846	\$5,794,737		0.2%	3.7%	\$5,556,056
Fruits & Nuts	\$1,351,311	\$1,235,820	\$1,233,033	\$1,315,186	\$1,450,754	\$1,612,247		10.9%	11.1%	\$1,296,236
Apples	\$1,021,750	\$821,400	\$856,000	\$900,250	\$1,023,000	\$1,155,000	1	13.8%	12.9%	\$904,478
Sweet Cherries	\$106,519	\$132,694	\$115,860	\$144,072	\$143,226	\$169,122	8	-0.6%	18.1%	\$134,884
Grapes (all)	\$73,676	\$124,410	\$114,400	\$138,195	\$134,605	\$131,112	9	1.2%	-2.6%	\$111,798
Wine Grapes	\$39,240	\$60,264	\$63,700	\$89,700	\$100,970	\$103,040	13	12.6%	2.1%	\$70,613
Winter Pears	\$76,730	\$69,900	\$73,330	\$62,704	\$66,995	\$69,827	14	20.1%	4.2%	\$69,830
Bartlett Pears	\$41,436	\$53,770	\$47,874	\$45,923	\$49,442	\$59,325	19	7.7%	2.0%	\$47,604
Peaches	\$13,994	\$19,335	\$13,897	\$11,387	\$13,420	\$9,228	35	19.5%	-31.2%	\$12,861
Apricots	\$6,659	\$5,335	\$4,674	\$4,072	\$5,509	\$5,387		35.3%	-2.2%	\$4,971
Berries	\$53,159	\$50,183	\$66,252	\$61,534	\$62,378	\$65,740		-1.4%	5.4%	\$55,647
Red Raspberries	\$35,182	\$28,020	\$48,291	\$37,784	\$36,985	\$36,554	24	-2.1%	-1.2%	\$33,536
Blueberries	\$3,096	\$7,769	\$7,833	\$11,688	\$9,741	\$12,068	31	-23.4%	23.9%	\$8,196
Vegetables	\$317,143	\$357,558	\$299,306	\$310,235	\$361,775	\$419,470		11.7%	15.9%	\$339,978
Onions	\$45,940	\$99,569	\$51,795	\$67,497	\$112,538	\$140,763	12	57.7%	25.1%	\$81,261
Sweet Corn, proc.	\$64,001	\$58,175	\$60,527	\$60,113	\$65,115	\$69,256	18	8.3%	6.4%	\$61,644
Asparagus	\$58,659	\$64,204	\$51,216	\$48,910	\$44,893	\$43,277	20	8.2%	-3.6%	\$54,507
Green peas	\$30,246	\$25,342	\$22,588	\$18,148	\$13,804	\$20,439	26	23.9%	48.1%	\$22,504
Field Crops	\$2,121,180	\$1,869,686	\$1,573,746	\$1,752,420	\$1,798,986	\$1,741,430		4.2%	-3.2%	\$1,811,335
Wheat	\$742,500	\$560,608	\$345,299	\$423,681	\$496,873	\$521,163	3	17.3%	4.9%	\$522,599
Potatoes	\$553,823	\$431,984	\$476,000	\$552,240	\$512,487	\$489,038	4	-6.9%	-4.6%	\$484,501
Hay	\$328,878	\$361,824	\$307,027	\$375,328	\$375,366	\$343,610	6	1.5%	-8.5%	\$347,914
Hops	\$99,290	\$89,306	\$80,930	\$91,911	\$83,288	\$73,510	16	-8.0%	-11.7%	\$86,691
Barley	\$59,299	\$80,630	\$50,882	\$41,160	\$49,504	\$38,756	23	16.0%	-21.7%	\$56,873
Sugarbeets	***	\$23,146	\$26,730	\$10,247	\$5,824.00	\$5,699	40	-47.9%	-2.1%	\$18,203
Livestock/Related	\$1,396,058	\$1,444,960	\$1,550,806	\$1,604,115	\$1,396,461	\$1,448,187		-14.7%	3.7%	\$1,484,399
Milk	\$684,172	\$728,143	\$820,245	\$827,100	\$647,400	\$675,301	2	-21.7%	4.3%	\$747,127
Cattle & Calves	\$449,708	\$468,580	\$454,222	\$492,641	\$451,016	\$475,522	5	-8.4%	5.4%	\$468,696

* Preliminary data made available August 2003
 ** 2002 final "Crop Values," Feb 2004
 *** No value estimates made

Figure 2

Total State Agriculture Production Value (\$1000s)
 Source: Washington Agriculture Statistics Service



Chapter 1—Agricultural Production

Washington's other important field crops, based on value of production, were potatoes (ranked 4th), hay (6th), hops (16th), and barley (23rd) (*Figure 1*). Potato production values were slightly down (-4.6 percent) to \$489 million from 2002. Hay production values decreased significantly (-8.5 percent) to \$343 million. Hops values were down significantly (-11.7 percent) to \$73.5 million. And, barley hit a record-low value of \$38.7 million, having decreased -21.7 percent.

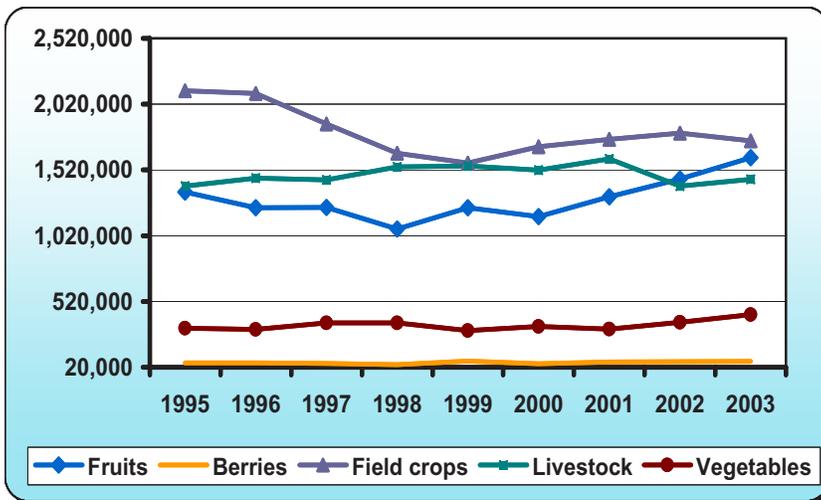


Washington's other important field crops, based on value of production, were potatoes, hay, hops, and barley.

Figure 3

Agriculture Production Value, Washington (\$1000s)

Source: Washington Agriculture Statistics Service



Is agricultural production changing? Are farm acreages in transition?

The changes in production values over time suggest that farming is in transition and that land may be shifting towards increased production of tree fruits (tree fruit and nuts), fruits, and vegetables. These commodities represent a larger share of total production value in 2003, while seed and cereal crops, and livestock-based industries account for a lesser share of output value.

(Note, however, that the value of production takes into account both quantities produced and price of the output, so if price was higher than normal for a commodity and quantities stayed the same, then the total value of production would be greater.)

Further assessing whether agricultural industries are changing entails evaluating *quantities produced* annually and calculating *levels of acreage* devoted to specific commodities. Quantities of a commodity produced (or harvested) can fluctuate due to other factors such as weather variations from year to year, changes in inputs that improve the yield, or to changes in acreage devoted to that certain commodity in a given year. If acreage and quantities are decreasing simultaneously and steadily each year, growers may be transitioning out of the commodity. Likewise, if production values are high, compared to a mean, and if acreages and quantities are increasing, then growers could be transitioning into a certain commodity. Quantities of output would also be dependent on the general outlook of commodity prices. Free trade agreements have

Chapter 1—Agricultural Production



Apples boast the highest production and acreage-share among tree fruits produced in the state.

opened trade with other countries who produce some agricultural commodities for less and are selling these same commodities in the U.S. at more competitive prices. Washington farmers may decide that the most rational option may be to no longer produce that commodity or to produce at smaller quantities.

Figure 4 displays the production levels of Washington's commodities grouped by production unit (used to describe volume of sales). Figure 5 depicts the number of harvested acres for each commodity. This data is used to track production and acreage changes over time, to see if trends are apparent in the different commodity categories.

Tree Fruit Situation

Although the *value* of tree fruit production was up in 2003, the actual *quantity of production* decreased (-6.7 percent) in 2003. The below-average

Figure 4
Production Quantities of Major Agricultural Commodities
Washington State - 1995-2003
Source: Washington Agricultural Statistics Service

Production (Utilized)	1995	1996	1997	1998	1999	2000	2001	2002	2003	Percent Change 2001-02	Percent Change 2002-03	9-Year Mean
1,000 Tons												
All Fruit & Nuts	3,245	3,287	3,419	3,806	3,300	3,821	3,405	3,414	3,185	0.3%	-6.7%	3,431
Apples	2,375	2,750	2,500	3,050	2,500	3,000	2,525	2,550	2,250	1.0%	-11.8%	2,611
Sweet Cherries	70	67	93	98	67	95	106	87	118	-17.9%	35.6%	89
Grapes (all)	326	144	319	222	265	265	283	332	344	17.3%	3.6%	278
Wine Grapes	60	35	62	70	70	90	100	115	112	15.0%	-2.6%	79
Winter Pears	240	195	250	230	215	230	242	231	237	-4.5%	2.6%	230
Bartlett Pears	180	105	205	160	210	176	201	158	185	-21.4%	17.1%	176
Peaches	22	5.5	23	17	17	22	18.5	23	20	24.3%	-15.2%	19
Apricots	6.5	3	7.1	5.3	5.5	6.5	5.2	4.9	5	-5.8%	0.0%	5
1,000 Cwt.												
Total Vegetables	35,410	32,354	36,957	37,206	37,344	37,207	36,393	38,064	39,892	4.6%	4.8%	36,759
Onions	6,525	7,371	9,433	8,755	9,108	9,064	9,638	10,476	10,778	8.7%	2.9%	9,016
Sweet Corn, proc.	16,474	13,614	15,576	16,475	16,466	16,904	17,071	17,984	18,011	5.3%	0.2%	16,508
Green Peas	2,372	1,646	2,094	2,199	1,968	2,201	1,724	1,500	1,967	-13.0%	31.1%	1,963
Asparagus	851	828	828	792	704	748	684	629	608	-8.0%	-3.3%	741
1,000 Lbs.												
Hops	59,101	57,640	55,816	44,791	49,650	52,260	50,780	43,379	39,951	-14.6%	-7.9%	50,374
Red Raspberries	52,510	40,950	59,500	60,300	69,350	71,250	75,050	74,100	67,200	-1.3%	-9.3%	63,357
Blueberries	6,300	8,190	8,710	10,700	10,880	12,410	15,000	13,650	13,200	-9.0%	-3.3%	11,004
Units of 1,000												
Sugarbeets (Tons)	*	461	595	1,192	825	803	253	140	161	-44.7%	15.0%	554
Barley (Bushels)	20,880	27,280	35,520	33,800	28,910	34,300	21,000	19,040	14,570	-9.3%	-23.5%	26,144
Milk (lbs.)	5,304,000	5,279,000	5,305,000	5,326,000	5,535,000	5,593,000	5,514,000	5,620,000	5,552,000	1.9%	-1.2%	5,447,556
Wheat (bushels)	153,770	182,670	165,120	157,425	124,140	164,880	132,580	129,770	139,345	-2.1%	7.4%	149,967
Cattle/Calves (head)	1,310	1,270	1,220	1,210	1,170	1,210	1,180	1,130	1,100	-4.2%	-2.7%	1,200
Hay (tons)	3,278	3,140	3,084	3,156	3,059	3,249	3,088	3,336	3,603	8.0%	8.0%	3,221
Potatoes (cwt)	80,850	94,990	88,160	93,225	95,200	105,000	94,400	92,340	93,150	-2.2%	0.9%	93,035

*No production estimate made

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annual quantity of tree fruits produced in 2003 was greatly blamed on cold weather. Fruit damage, especially to pears and apples, was reported in some areas and partially associated with freezing temperatures in February. Frost control measures were implemented as late as April, yet tree fruits in general were ahead of schedule until May when cool weather again hit and brought snow to Eastern Washington. The rest of the spring and summer was warm, hitting record high temperatures with extremely low moisture. Even though temperatures were high, there was little sun damage during summer months. With weather cooperating into the fall, a large quantity of fruits was successfully harvested. Overall yield was still generally lower than the previous year's yield, despite increases in acres harvested with tree fruits.



Acres of winter pears and Bartlett pears increased, while acreage for most other tree fruits remained unchanged.

Although apples boast the highest production and acreage-share among tree fruits produced in the state, their production levels decreased (-11.8 percent) in 2003. The number of acres devoted to apples (*Figure 5*) increased by 4.5 percent in 2003, following a decrease (-3.1 percent) the previous year. Acres of winter pears (+3.7 percent) and Bartlett pears (+1.8 percent) increased, while acreage for most other tree fruits remained unchanged. Quantities produced of Bartlett pears increased 17.1 percent, but this followed a significant decrease (-21.4 percent) in 2002.

Figure 5
Acres Harvested of Major Agriculture Commodities
Washington State - 1995-2003
Source: Washington Agriculture Statistics Service

	1995	1996	1997	1998	1999	2000	2001	* 2002	2003	% Chg 2001-02	% Chg 2002-03	Chg in Acres 2002-03
Total	15,800,000	15,700,000	15,700,000	15,700,000	15,700,000	15,700,000	15,400,000	15,350,000	15,300,000	-0.3%	-0.3%	-50,000
Apples	158,000	164,000	170,000	172,000	172,000	168,000	160,000	155,000	162,000	-3.1%	4.5%	7,000
Sweet Cherries	16,400	17,200	18,000	19,000	20,000	22,000	24,000	26,000	26,000	8.3%	0.0%	0
Grapes (all)	34,000	35,000	37,000	39,000	43,000	48,000	51,000	52,000	52,000	2.0%	0.0%	0
Wine Grapes			13,000	15,000	19,000	24,000	27,000	27,000	27,000	0.0%	0.0%	0
Winter Pears	13,000	13,000	13,200	13,200	13,200	13,200	13,500	13,500	14,000	0.0%	3.7%	500
Bartlett Pears	11,200	11,200	11,200	11,200	11,200	11,200	11,300	11,300	11,500	0.0%	1.8%	200
Peaches	2,500	2,500	2,500	2,500	2,500	2,600	2,700	2,900	2,900	7.4%	0.0%	0
Apricots	1,200	1,200	1,200	1,200	1,200	1,200	1,250	1,250	1,200	0.0%	-4.0%	-50
Hops	30,621	31,678	31,080	26,573	25,076	26,980	26,339	20,333	19,492	-22.8%	-4.1%	-841
Red Raspberries	5,900	6,300	8,500	9,000	9,500	9,500	9,500	9,500	9,200	0.0%	-3.2%	-300
Blueberries	1,400	1,300	1,300	1,500	1,600	1,700	2,000	2,100	2,200	5.0%	4.8%	100
Total Vegetables	218,000	196,300	222,600	232,250	228,000	220,100	199,800	200,900	212,700	0.6%	5.9%	11,800
Onions	13,500	15,200	18,400	17,850	18,800	16,800	17,800	19,100	19,400	7.3%	1.6%	300
Sweet Corn, proc.	82,700	75,300	87,700	98,300	97,400	98,600	95,100	95,300	98,300	0.2%	3.1%	3,000
Green peas	57,300	42,200	53,700	55,100	52,300	49,100	38,400	36,800	44,300	-4.2%	20.4%	7,500
Asparagus	23,000	23,000	23,000	22,000	22,000	22,000	19,000	17,000	16,000	-10.5%	-5.9%	-1,000
Sugarbeets	**	13,000	18,000	35,800	27,400	27,300	7,100	4,000	4,000	-43.7%	0.0%	0
Barley	290,000	440,000	480,000	520,000	490,000	490,000	420,000	340,000	310,000	-19.0%	-8.8%	-30,000
Wheat	2,595,000	2,745,000	2,580,000	2,565,000	2,290,000	2,420,000	2,350,000	2,390,000	2,345,000	1.7%	-1.9%	-45,000
Hay	760,000	800,000	780,000	750,000	740,000	780,000	790,000	820,000	810,000	3.8%	-1.2%	-10,000
Potatoes	147,000	161,000	152,000	165,000	170,000	175,000	160,000	162,000	162,000	1.3%	0.0%	0

* Preliminary from Washington AGRI-FACTS (WASS)

** No acreage estimate made

Chapter 1—Agricultural Production



The number of acres devoted to grapes had steadily increased over the nine-year period from 34,000 to 52,000.

The quantity produced of sweet cherries increased substantially (+35.6 percent) in 2003. And, although acreage devoted to sweet cherries remained unchanged in 2003, this followed a steady increase of acres committed to sweet cherries of almost 60 percent.

Production quantities of all grapes, on the other hand, followed a 17.3 percent increase in 2002 with an increase of 3.6 percent in 2003. The number of acres devoted to grapes (all) had steadily increased over the nine-year period from 34,000 to 52,000.

Figure 6

Production Quantities of All Tree Fruits and Grapes
Washington State - 1995-2003

Source: Washington Statistical Service, 2004

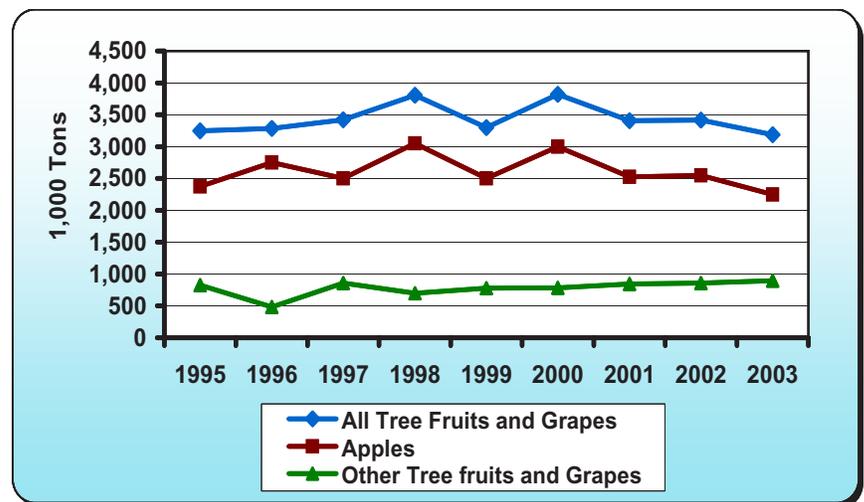
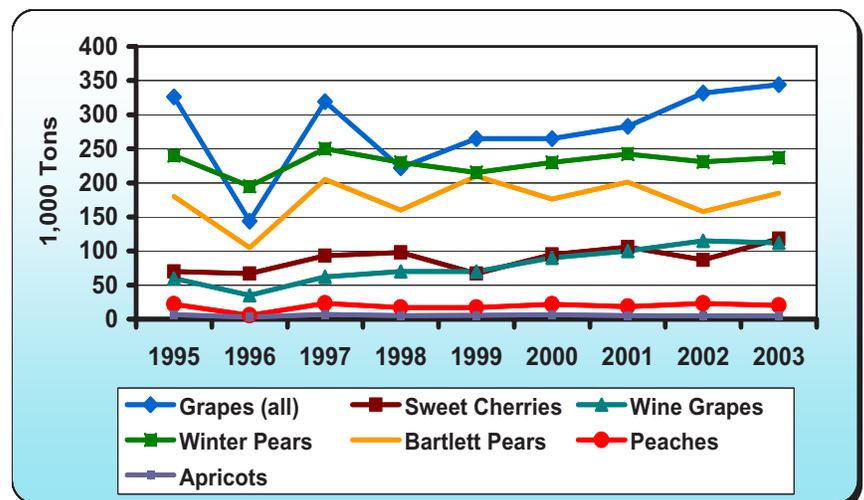


Figure 7

Production Quantities of Tree Fruits and Grapes
Washington State - 1995-2003

Source: Washington Statistical Service, 2004



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The steady increases in acreage of sweet cherries and all grapes (including wine grapes) indicate that growers may be in transition to produce these commodities in larger quantities. Pears experienced increased quantities produced and increased value of production, although there was relatively little change in acreage harvested (+700 acres).

Wheat, Grains, and Other Field Crops Situation

Wheat, hay, and barley cover the greatest number of acres of all crops grown in Washington State—together covering nearly one quarter of all acres devoted to crops. Most of this acreage is located in Eastern Washington, in the eastern and south central districts. But, these three commodities also lost the greatest number of harvested acres in 2003 (*Figure 5*), together losing 85,000 harvested acres.

Some of these crops also experienced some of the largest losses of quantities produced (*Figure 4*). Barley saw three years of steady losses in production, including a significant decline of 23.5 percent in 2003. Acreage devoted to barley has drastically declined from its 1998 peak (520,000 harvested acres) to 310,000 acres in 2003. Hay production was up in 2003 (+8.0 percent), while the acres devoted to hay fell 1.2 percent in 2003. In general, hay production fluctuated around the nine-year mean of 3,221 thousand tons, while acreage ranged from 740,000 acres in 1999 to 820,000 in 2002. This suggests that acreage is moved relatively easily into and out of hay production.

Wheat production was up by 7.4 percent in 2003, but both long-run production and numbers of harvested acres have fluctuated over the last decade without an apparent trend. According to Washington Agricultural Statistics Service, in 2003 wheat prices decreased 8 cents per bushel (-2.1 percent), while yields per acre increased, implying that the increased value of wheat production may be attributed to the increased quantities produced. Favorable temperature and moisture conditions from January to June in 2003 were generally conducive to enhancing early growth and emergence of seed heads. Also, an unusually dry summer and early fall conditions improved grain quality and helped yield average to above-average yields.

Acres in wheat, dry legumes, and other grains, primarily in Eastern Washington, can fluctuate year to year simply from production management practices, such as alternating farm land that will remain fallowed (that is land that is plowed, but not seeded, in order to conserve moisture) or that will be seeded with an alternative legume crop (which maintains nitrogen levels for improved soil conditions). Availability of government payments, export programs, and access to conservation reserve programs (CRP) or grazing programs can also impact the amount of land used in a certain crop's production in a given year. Lastly, shifting production from one grain crop to another is relatively straightforward and does not require much investment.



Wheat production was up by 7.4 percent in 2003...



Acres in wheat, dry legumes, and other grains, primarily in Eastern Washington, can fluctuate year to year simply from production management practices...

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Hops and Berries

Hops are primarily produced in central Washington. Producers in this area are shifting away from hops production, indicated by steady decreases of both production levels and acreage devoted to hops in each reported year (*Figures 4, 5, and 8*). Hops accounted for fewer than 20,000 harvested acres in 2003, and its harvest yield decreased 7.9 percent in 2003, after a decrease of 14.6 percent in 2002.



Berries, grown primarily in western Washington (where there is higher annual rainfall), have a relatively high value per bearing-acre.

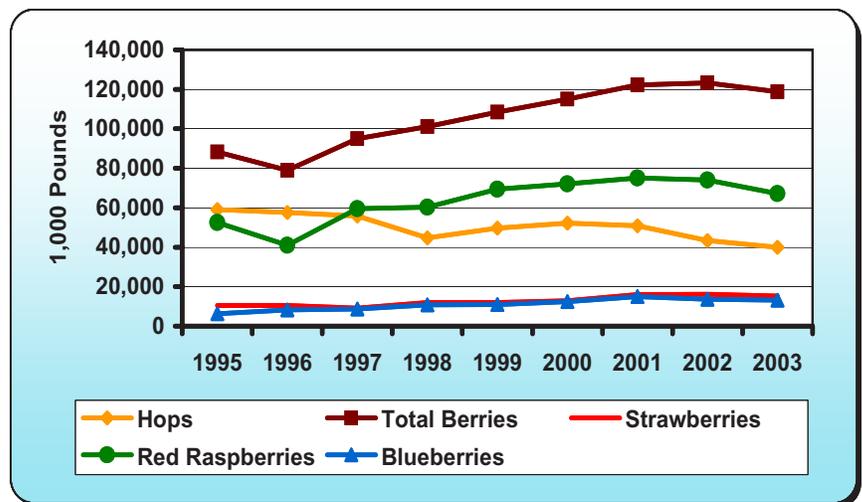
Berries, grown primarily in Western Washington (where there is higher annual rainfall), have a relatively high value per bearing-acre. This has attracted producers indicated by the increases in quantities produced of total berries (*Figure 8*). Quantities of berries produced increased up through 2001 and then tapered off with a slight decline in 2003. Red raspberries account for the largest share of berry production, but red raspberry acres harvested and quantities produced declined in 2003. Acres of blueberries harvested increased nearly 5 percent, while production declined in 2002 and 2003. Blueberry acreage has steadily increased since 1997, due to increased price per pound (28 percent) to 91.4 cents and relatively high value per bearing acre (\$5,485). Blueberries' prices are considerably higher than raspberries' 54.4 cents per pound and \$4,269 per acre values.

Figure 8

Production Quantities of Hops and Berries

Washington State - 1995-2003

Source: Washington Statistical Service, 2004



Vegetable Crop Situation

Vegetable producers in 2003 saw increases of acreage devoted to vegetables (+5.9 percent) and quantities produced (+4.8 percent) as indicated in *Figures 4 and 5*. Sweet corn, the leading vegetable by acres harvested and production levels, saw slight increases in production levels (+0.2 percent) and modest increases in acres harvested (+3.1 percent).

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Onions, second in production, saw an increase of 2.9 percent in production and of 1.6 percent in harvested acres in 2003. Onions have a relatively high value per acre produced (\$6,848). Most onions produced in Washington are *storage* onions. However, *non-storage* onions, such as the Walla Walla Sweet variety, command significantly higher prices (more than double) because of their unique taste.

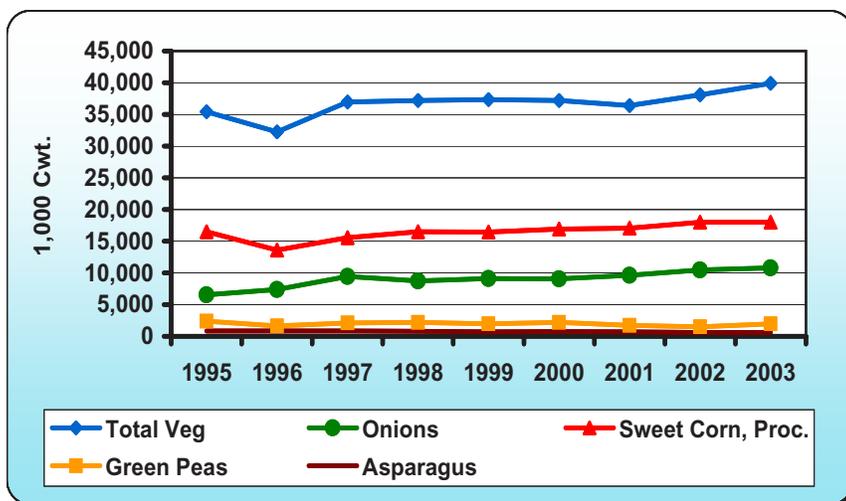
The importance of asparagus in Washington has steadily waned over the last decade. The value of asparagus production in 2003 was just above two-thirds what it had been in 1995, and the acres committed to the crop steadily declined. Acres decreased in 2003 (-5.9 percent) following a decline in 2002 (-10.5 percent), and production saw continuous losses since 2000. The industry, already threatened, was dealt another hard blow with news that the last remaining asparagus processing and canning plant in Washington will cease to operate in the coming year. This processing plant in Dayton, Washington annually employed 75 percent of Columbia County's manufacturing workers. The plant's closing will reduce growers' incentives and abilities to produce a marketable form of the commodity and to maintain market share. The facility's machinery was purchased and will be transported to a processing plant in Peru.¹

Other vegetable crops important to Washington's processing industry are green peas and carrots. Both the production of green peas (+31.1 percent) and the acreage (+20.5 percent) committed to green peas, increased in 2003 from 2002. Fresh vegetables (carrots, lettuce, and sweet corn) are produced in Washington in smaller quantities than vegetables for processing.



Sweet corn, the leading vegetable by acres harvested and production levels, saw slight increases in production levels and modest increases in acres harvested.

Figure 9
Production Quantities of Major Vegetables
Washington State - 1995-2003
Source: Washington Statistical Service, 2004



¹ Article by Steve Wilhelm. "Fallen produce: State food processors succumb". Puget Sound Business Journal. March 4, 2005.

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Livestock production of milk and cattle and calves ranks 2nd and 5th, respectively, in terms of production value in Washington...

Washington is a Primary Commodity Producer for the Nation and the World

Washington State ranked seventh in the nation in the production of all crops in 2003. Also, the Pacific Northwest state was the leading state for the production of 26 commodities, including hops, lentils, apples, sweet cherries, pears and carrots for processing in 2003 (*Figure 10*). And in 2003, Washington farmers were responsible for at least half of all U.S. production of the following commodities: hops, spearmint oil, wrinkled seed peas, apples, concord grapes, sweet cherries, and red raspberries. For production of cattle and calves, and for dairy products, the state ranked 19th and 10th, respectively, in the United States.²

The following are highlights of Washington agriculture in 2003:

- Apples were the most valuable commodity in Washington State with a production value of \$1.2 billion, or 20 percent of the state's total value of agriculture production. Washington ranks first in the nation for apple production, producing 52 percent of all U.S. apples in 2003.
- Livestock production of milk and cattle and calves ranks 2nd and 5th, respectively, in terms of production value in Washington, and 9th and 29th, in terms of state ranking of total production value.
- Although the red raspberries commodity ranks 24th in total value of production in Washington, the state's farmers produced better than 92 percent of all the nation's red raspberries in 2003.
- Potatoes rank 4th in Washington for value of production, but Washington produced 23 percent of all U.S. potatoes, ranking second in the nation by value of production.
- Although hops acreage and production were both in decline in 2003, at 40 million pounds, Washington was still the leading hops producer in the nation, producing 73 percent of the nation's hops.
- Washington is the nation's capital for lentil production, harvesting 37 percent of the nation's lentils.
- Wrinkled seed peas had the 2nd highest value per acre produced, at \$7,038, and Washington was the leading producer, accounting for 76 percent of the nation's production of wrinkled seed peas.
- Washington ranks 5th in the nation for wheat production. Wheat ranks third of all agricultural commodities in the state by production value.
- Washington ranks number one in the U.S. in the production of carrots for processing.
- Although Washington ranks number one in the U.S. for sweet cherry production, sweet cherries rank 8th in Washington for production value. Sweet cherries had a high value per acre produced, \$6,505.



Washington ranks number one in the U.S. for sweet cherry production.

² United States Department of Agriculture electronic report. www.ers.usda.gov/data/farmincome

Chapter 1—Agricultural Production

Figure 10

Washington's Leading Commodities Compared to Rest of Nation - 2003

Source: Washington Statistical Service, 2004 Annual Bulletin

Commodity	WA's Rank Among Rest of Nation	Rank in WA by Value of Production	WA's Production as Percent of U.S.	Value Per Acre Produced
Crops				
Hops	1	16	73.2%	\$3,771
Spearmint Oil ¹	1	21	75.5%	\$1,482
Wrinkled Seed Peas	1	37	75.8%	\$7,038
Lentils	1	28	37.3%	\$182
Peppermint Oil	2	21	36.5%	\$1,164
Dry Edible Peas	2	32	23.6%	\$125
Potatoes, Fall	2	4	22.6%	\$3,019
Barley	4	24	5.2%	\$125
Wheat, All	5	3	5.9%	\$222
Haylage, All	7	6	NA	\$366
Fruit				
Apples, All	1	1	52.2%	\$7,130
Grapes, Concord ²	1		49.4%	\$1,123
Sweet Cherries	1	7	47.4%	\$6,505
Pears, All ³	1	11	45.7%	\$5,073
Grapes, Niagara ²	2		27.9%	NA
Apricots	2	NA	5.0%	\$4,489
Grapes, All	2	10	5.3%	\$2,521
Tart Cherries	1	NA	8.9%	NA
Vegetables				
Carrots, Proc.	1	33	34.4%	\$2,040
Sweet Corn, Proc	2	14	27.6%	\$2,548
Asparagus	2	20	29.8%	\$2,705
Green Peas, Proc.	2	26	21.0%	\$461
Onions, All Summer	3	9	17.0%	\$6,848
Berries				
Red Raspberries	1	24	92.5%	\$3,973
Livestock				
Trout, Value Fish Sold	3	13	8.3%	NA
Milk Production	9	2	3.3%	NA
Cattle and Calves	29	5	1.2%	NA

¹ native spearmint

² included in grapes, all

³ average of winter and Bartlett pears

NA = not available



Washington is the nation's capital for lentil production, harvesting 37 percent of the nation's lentils.



Washington ranks number one in the U.S. in the production of carrots for processing.

Chapter 1—Agricultural Production



Washington farms decreased in acreage from 416 acres per farm in 1994 to 393 acres per farm in 2000, and then increased to about 431 acres per farm in 2003.

Total Farm Land, Number of Farms, and Farm Size in Washington

The number of farms in Washington declined (6.6 percent), from 38,000 farms in 1994 to 35,500 farms 2003. This is a quicker decline than the nation as whole, which experienced a 3.2 percent decline in the number of farms overall. *Figure 11* shows that the *number of farms*, since 1989, has declined in a stepwise fashion, while the *land in farms* (or total amount of farm land) declined in 1990 and then increased steadily until 2000, dropped drastically in 2000, and continued to decrease to 2003.

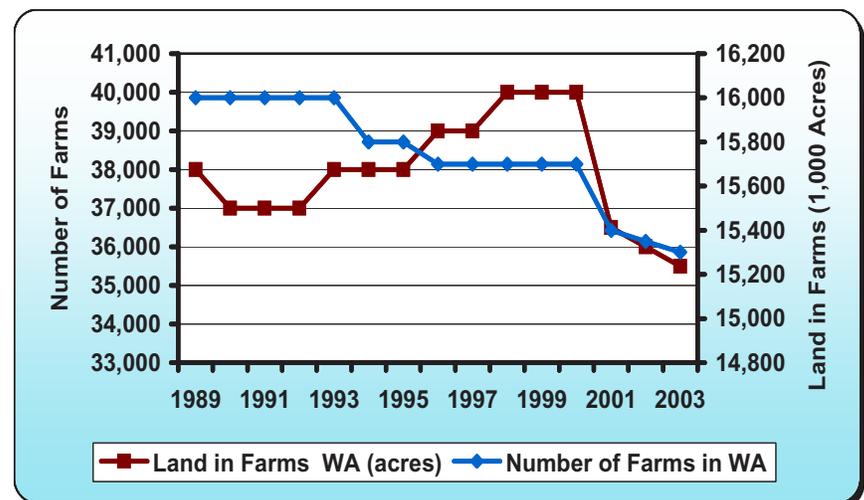
Nationally, the number of acres per farm has stayed relatively constant, at around 437 acres per farm. Washington farms, however, have been more dynamic, decreasing in acreage from 416 acres per farm in 1994 to 393 acres per farm in 2000, and then increasing to about 431 acres per farm in 2003 (*Figure 12*).

The smallest economic class size of farms is \$1,000 to \$9,999 in sales. About 19,700 farms, or about 55.5 percent of all farms, in 2003 fit in this category; these farms average 56 acres of land per farm. The number of farms in the next economic class size, those with \$10,000-\$99,999 in annual sales, increased about 18.7 percent, to 8,900 farms. The average acreage for this class dropped from 360 acres to 303 acres. The number of farms with larger sales (over \$100,000) increased in numbers, by 100 farms (1.5 percent) from 1999 to 2003. This largest class size of farms consists of farms averaging 1,667 acres per farm, and made up 19 percent of Washington's farms in 2003. The farms in this largest class are responsible for the largest portion of agricultural output.

Figure 11

Number of Farms and Land in Farms
Washington State - 1989-2003

Source: Washington Agricultural Statistics Service, 2004

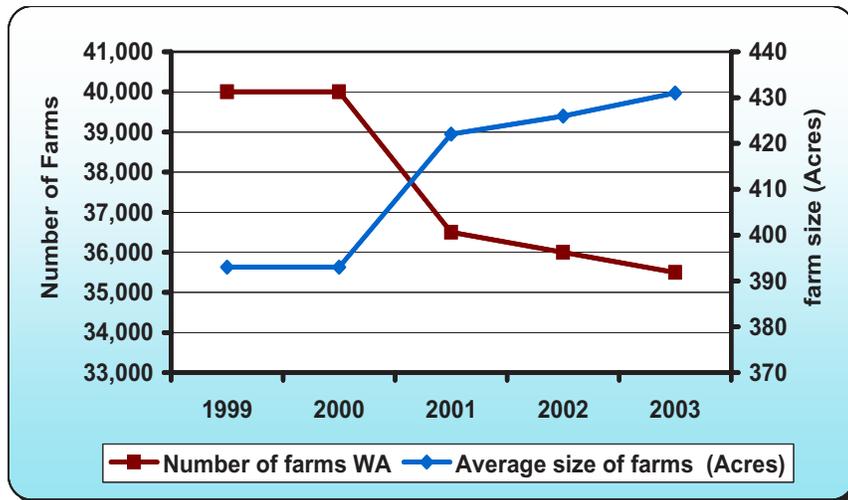


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Figure 12

Number of Farms and Average Size of Farms
Washington State - 1999-2003

Source: Washington Agricultural Statistics Service, 2004



Summary

Washington agriculture in 2003 remained a viable part of the state's economy. Washington also continued to be a leading state in the supply of many agricultural commodities, and therefore remained an important asset to the national economy and the food supply. From 2002 to 2003, agricultural output in Washington had a larger share of acreage allocated to tree fruits, fruits, and vegetables; production values of these commodities also increased. Monitoring these changes will help anticipate the need for hired agricultural workers throughout the state. The increased acreage devoted to labor intensive crops, improved yields, and the greater output of these crops in 2003, imply the need for a larger workforce (for crop preparation activities prior to harvest, and for completing the harvest) in 2003. However, the state has seen declines in some crops, such as asparagus and hops, for which the state is the leading producer. In 2005, the last asparagus processor will cease operation, reducing producers' options for marketing their asparagus in the state. Jobs will be lost in both production of agriculture and food manufacturing in this particular area. Stakeholders, such as commodity commissions, regional processors, and growers of vegetables, fear that other Washington producers, having to compete in less-protected international markets (as under current trade policies) may also face this situation in the future. Although agricultural production of fruits and vegetables is strong now, the future of Washington agriculture has become less certain.

Increased production values, increased employment in agricultural production, and increased production levels of labor-intensive crops, suggests that in 2004 and 2005 there will be an even greater need for agricultural workers in Washington than in 2003.



Washington continued to be a leading state in the supply of many agricultural commodities, and therefore remained an important asset to the national economy and the food supply.

Chapter 2—Agricultural Employment

Agricultural Employment



This monthly survey enables ESD to provide estimates of the number of total and seasonal agricultural workers by crop, activity, and area.

Examining historical trends is useful for anticipating Washington's agricultural employment needs for the upcoming year. This examination may yield clues as to how many jobs will likely be available, in which commodities and what seasons, and in what regions of the state the jobs may be found. Agricultural employment data reported under Washington State's Unemployment benefits program provides a useful tool to evaluate the agricultural workforce and the wages paid. However, there is a time lag as to when this data is available. Furthermore, this data is for employment covered under the unemployment benefits program. It does not include data on self-employed farm operators and unpaid family workers, a segment that can be important to understanding agricultural employment trends in the state.

Surveys of growers are the primary means by which *timely* employment information can be obtained. This timely employment information is critical because farmers, by and large, make decisions for the current year based on the previous year's prices and employment needs. To help fulfill this information need, the Employment Security Department (ESD) conducts a survey of approximately 600 growers each month throughout the year. This monthly survey enables ESD to provide estimates of the number of total and seasonal agricultural workers by crop, activity, and area.¹ The industry categories (or SIC codes) represented in this survey are agricultural crop production (SIC 01), agricultural livestock production (SIC 02), and agricultural services (SIC 07 minus 3 sub-codes that are not classified as "pure ag"—veterinary services [074], animal services [075], and landscape and horticultural services [078]). While food processing and other value-added processing are a part of the larger agricultural economy in Washington, these activities are not included in the analysis of agricultural employment in Chapter 2.

The seasonal employment trends discussed in this chapter are based on the estimates generated from the monthly grower survey results.



Understanding agricultural employment trends is useful for anticipating the need for seasonal workers at critical times throughout the growing season...

While the agricultural workforce in Washington was just 3.2 percent of the state's total in 2004, it is essential to the economic health of the state. This is especially true in those areas of the state where agricultural labor is proportionally higher. Understanding agricultural employment trends is useful for anticipating the need for seasonal workers at critical times throughout the growing season in key labor-intensive commodities produced in Washington.

There were an average of 91,253 *workers* employed in Washington during 2004, including seasonal and year-round hired workers, self-employed farm operators, and unpaid family workers. However, many of these workers hold more than one agricultural job. When the data is adjusted to account for multiple job holders, the total number of *jobs* in agriculture was higher, 97,154. Between 1997 and 2004, the number of workers holding more than

¹ The survey also collects information on wages paid to these workers. (Seasonal agricultural employees are individuals who are employed on any one farm for less than 150 days).

Chapter 2—Agricultural Employment

one job in agriculture ranged from 4,300 in 1997 to as high as 8,000 in 1999. In 2004 there were roughly 5,900 such workers. Annually the number of multiple job holders represents 5 percent to 9 percent of the agricultural workforce (*Figures 13 and 14*).

Agricultural employment increased in both 2003 and 2004. However, the gains in 2004 were extraordinary, leaving total agricultural employment close to the peak level experienced in 1998. There was a slight increasing trend in agricultural employment from 1991 to 1997, estimated to be around 2 percent each year (*Figures 13 and 14*). In 1998, the number of workers employed in agriculture jumped 4.8 percent, to 90,456. Then in 1999 there was a larger than average *decline* of 6.4 percent, followed by slight decreases annually for the next three years, 2000-2002. The trend then reversed course with a 4 percent increase in 2003 followed by a 6.3 percent rise in 2004,



Annually the number of multiple job holders represents 5 percent to 9 percent of the agricultural workforce.

Figure 13

Agricultural Employment, Adjusted versus Unadjusted

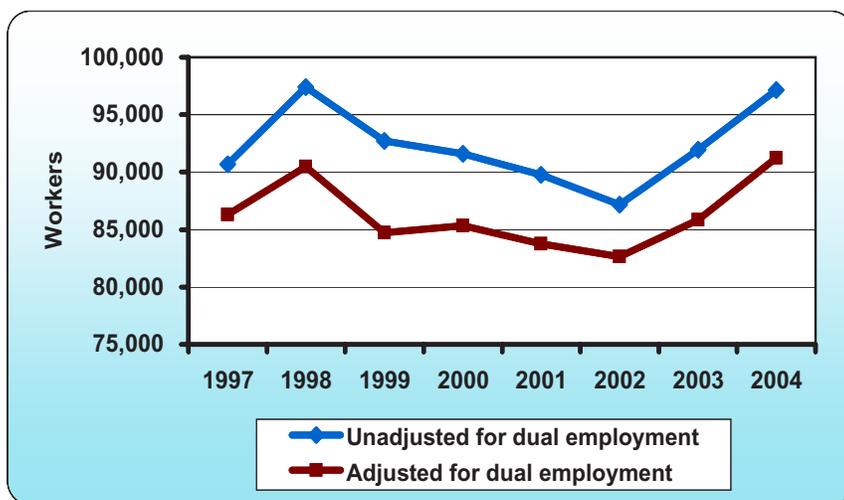
Source: Authors' calculations based on data provided by ESD

Year	Total Agriculture Employment Unadjusted	Percent Change in Total Employment (Unadjusted)	Agriculture Employment Adjusted For Dual Job Holders	Percent Change In Total Agriculture Employment (Adjusted)	Seasonal	Non-Seasonal
1996			84,300		36,644	48,985
1997	90,700		86,327	2.4	37,474	48,853
1998	97,400	7.39%	90,456	4.8	37,280	53,176
1999	92,700	-4.83%	84,701	-6.36	31,774	52,927
2000	91,610	-1.18%	85,356	0.77	32,897	52,459
2001	89,750	-2.03%	83,780	-1.85	28,800	54,980
2002	87,150	-2.90%	82,628	-1.38	27,113	55,515
2003	91,960	5.52%	85,820	3.86	28,295	57,525
2004	97,154	5.65%	91,253	6.30	31,149	60,104

Figure 14

Total State Agriculture Employment

Source: Authors' calculations based on data provided by ESD

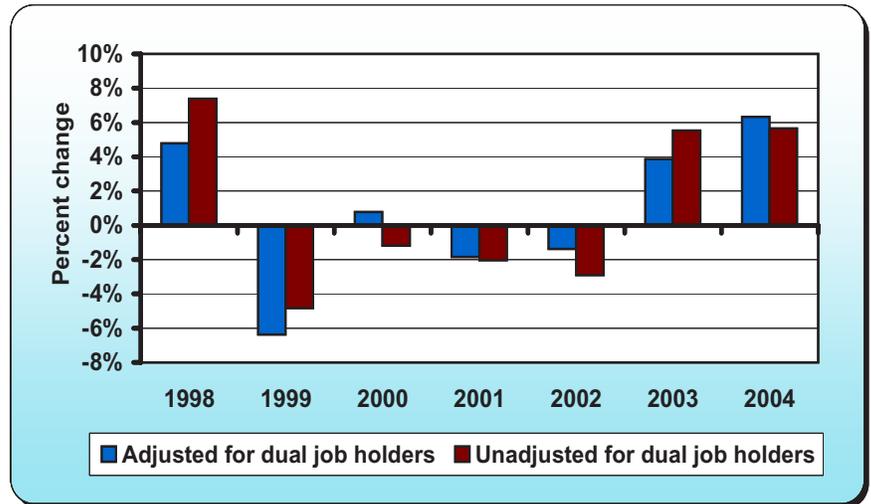


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Figure 15

Percent Change in Agriculture Employment

Source: Authors' calculations based on data provided by ESD



leaving the number of workers employed in agriculture at 91,253 (*Figures 13 and 14*). The trend in the adjusted job totals follows the same general pattern (*Figures 14 and 15*).

Changes in weather conditions, energy prices, market values, and supply and demand conditions for various agricultural commodities contribute to the yearly variations in the number of agricultural workers. In terms of actual numbers, there were 7,828 fewer agricultural workers in 2002, on average, than there were in 1999. However, that number rebounded in 2003 and 2004 so that the net change in the number of workers from 1999-2004 was an additional 797 workers (*Figure 13*).

Seasonal Versus Non-Seasonal Employment

Many of Washington's key agricultural commodities—apples, cherries, and some field crops for example—are quite labor intensive. And these crops peak at different times of the year. Producers, therefore, rely on a base of year-round workers to tend to the crops *and* a stable of seasonal workers to help out during the crop's seasonal peak. Seasonal employment is that which is temporary or consists of less than 150 calendar days, which may or may not require a person to be absent overnight from his or her permanent place of residence.

Trends in seasonal versus non-seasonal labor are an important aspect of understanding agricultural employment trends in Washington State. The nature of Washington's agriculture is changing with more growers diversifying their crops and animal production efforts. For example, shifts from Red Delicious apple and asparagus production to grape production reduced the need for seasonal employees overall. Furthermore, the harvested acreage for many labor-intensive crops has dropped, like hops, asparagus, and apples. Nonetheless, the diversification of crops has extended the time that farmers need seasonal labor (*Agricultural Workforce in Washington State, 2002*).



...the harvested acreage for many labor-intensive crops has dropped, like hops, asparagus, and apples.

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However, at the same time it has reduced the ranks of seasonal workers. In 1996, seasonal labor accounted for 43.5 percent of Washington’s total agricultural workers. By 2002, only 32.8 percent of agricultural workers were seasonal, a percentage that has changed little since (*Figures 16 and 17*).

In terms of actual numbers, the annual average for seasonal workers dropped 9,531 between 1997 and 2002 (*Figure 18*). Then, after two years of increases, the annual average for seasonal agricultural workers rebounded by 4,036 in 2004. Overall, between 1997 and 2004, the annual average for seasonal workers declined by 5,495. During this same period, the total number of agricultural workers (including both seasonal and non-seasonal) increased 6,953 workers, largely reflecting gains in the number of non-seasonal workers (*Figure 18*).

Figure 16
Seasonal and Nonseasonal Agricultural Employment in Washington
Source: Authors’ calculations based on data provided by ESD

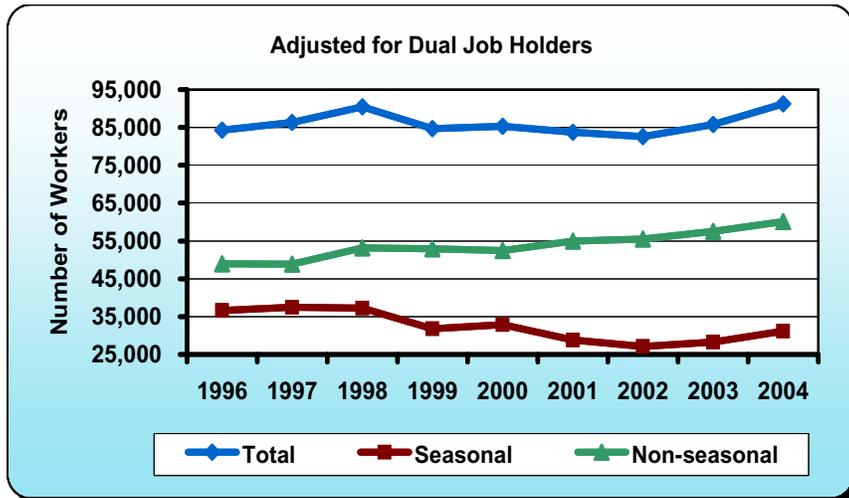
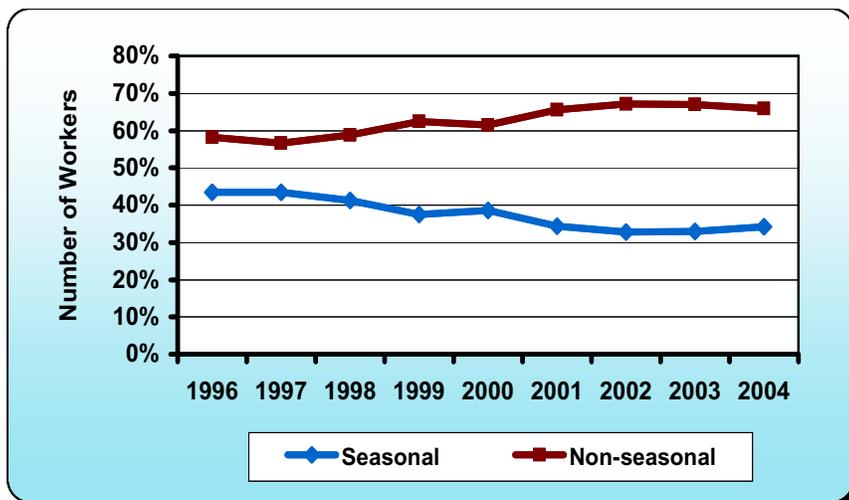


Figure 17
Seasonal and Nonseasonal Agricultural Employment in Washington
Source: Authors’ calculations based on data provided by ESD



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Figure 18

Seasonal and Nonseasonal Agricultural Employment in Washington

Source: Authors' calculations based on data provided by ESD

Year	Total Adjusted Agricultural Employment	Change in Number of Agricultural Workers	Percent Change in Agricultural Workers	Seasonal Workers	Non-Seasonal Workers	Seasonal Percent of Total	Non-Seasonal Percent of Total	Change in Number of Seasonal Workers	Percent Change in Seasonal Workers
1996	84,300			36,644	48,985	43.5%	58.1%		
1997	86,327	2,027	2.4	37,474	48,853	43.4%	56.5%	830	2.2%
1998	90,456	4,129	4.7	37,280	53,176	41.2%	58.7%	-194	-0.5%
1999	84,701	-5,755	-6.3	31,774	52,927	37.5%	62.4%	-5,506	-14.7%
2000	85,356	655	0.7	32,897	52,459	38.5%	61.4%	1,123	3.5%
2001	83,780	-1,576	-1.8	28,800	54,980	34.4%	65.6%	-4,097	-12.4%
2002	82,628	-1,152	-1.3	27,113	55,515	32.8%	67.1%	-1,687	-5.8%
2003	85,820	3,192	3.8	28,295	57,525	33.0%	67.0%	1,182	4.3%
2004	91,253	5,433	6.3	31,149	60,104	34.1%	65.8%	2,854	10.0%

By Area

The vast majority of the state's agricultural employment is concentrated in Eastern Washington, comprised of Agricultural Reporting Areas 2 through 6 (*Figure 19*). In 2004, 78 percent of agricultural workers labored on the east side of Washington, down from 83 percent in 2003 and 80 percent in 2002 (*Figure 20*). The shift in 2004 represents a 5 percent increase in the proportion of agricultural employment taking place in Area 1, or Western Washington, from 17 percent in 2003 to 22 percent in 2004.

Between 2002 and 2004, the average number of agricultural workers in Western Washington increased 22 percent compared to an increase of just 9 percent in Eastern Washington. In actual numbers, those percentages translate into 3,936 and 6,069 workers, respectively.

In 2004 agricultural employment represented slightly less than one percent of all employment in Western Washington (Area 1), but 11 percent of total employment in Eastern Washington (Areas 2-6) (*Figure 24*). The bulk of agricultural employment in Eastern Washington, as well as in the state, is concentrated in the South Central and North Central areas. These two areas combined represent 46 percent of the state's total agricultural employment (*Figure 22*). Thus, the higher proportion of agricultural workers has significant implications for the general economies of these regions.

In a county level comparison, three counties had a quarter or more of their employment concentrated in agriculture—Adams (32.5 percent), Okanogan (31 percent), and Grant (25 percent) (*Figure 24*). But Yakima County had the most agricultural workers in 2004, nearly 23,000, accounting for 23.4 percent of the statewide total (*Figure 23*). As a result of its high concentration in the industry, Yakima's economy is more likely to be impacted by changes and shifts in agricultural conditions.



Yakima County had the most agricultural workers in 2004...

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Figure 19

Map of Agricultural Reporting Areas in Washington State

Source: Employment Security Department



Figure 20

Agricultural Employment by Reporting Area

Source: Authors' calculations based on data provided by ESD

Area	Total Employment 2004	Nonagricultural Employment 2004	Agricultural Employment 2004	Agriculture Percent of Total Employment 2004	Nonagricultural Percent of Total Employment 2004	Percent of Statewide Agricultural Employment 2004	Percent Agricultural Employment For Eastern Region 2004
Washington		3,032,300	2,935,146	97,154	3.2%	96.8%	100.0%
Western	2,369,940	2,348,373	21,567	0.9%	99.1%	22.2%	
Columbia Basin	42,570	31,251	11,319	26.6%	73.4%	11.7%	15.0%
North Central	103,250	83,305	19,945	19.3%	80.7%	20.5%	26.4%
South Central	115,310	90,798	24,512	21.3%	78.7%	25.2%	32.4%
South Eastern	134,130	119,339	14,791	11.0%	89.0%	15.2%	19.6%
Eastern	267,100	262,081	5,019	1.9%	98.1%	5.2%	6.6%
						100.0%	100.0%
Western Washington (Area 1)	2,369,940	2,348,373	21,567	0.9%	99.1%	22.20%	
Eastern Washington (Areas 2-6)	662,360	586,773	75,587	11.4%	88.6%	77.80%	

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Figure 21

Agricultural Employment in Washington State, 2002-2004

Source: Authors' calculations based on data provided by ESD

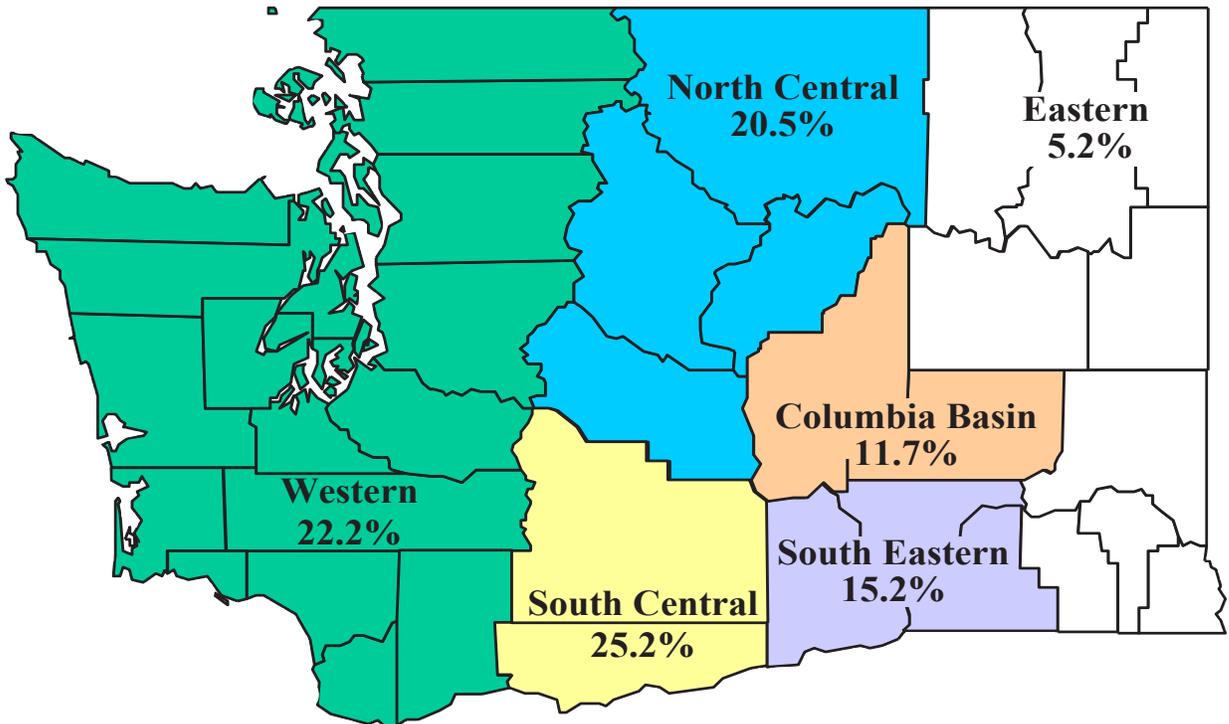
Area	Agriculture Employment 2004	Percent of State Agricultural Employment 2004	Agriculture Employment 2002	Percent of State Agricultural Employment 2002	Percent Change 2002-2004	Change in Number of Workers 2002-2004
WASHINGTON	97,154	100.0%	87,149	100.0%	10%	10,005
Western	21,567	22.2%	17,631	20.2%	22%	3,936
Columbia Basin	11,319	11.7%	10,807	12.4%	5%	512
North Central	19,945	20.5%	16,697	19.2%	19%	3,248
South Central	24,512	25.2%	22,406	25.7%	9%	2,106
South Eastern	14,791	15.2%	13,934	16.0%	6%	857
Eastern	5,019	5.2%	5,674	6.5%	-12%	-655
Western (Area 1)	21,567	22.2%	17,631	20.2%	22%	3,936
Eastern (Areas 2-6)	75,587	77.8%	69,518	79.8%	9%	6,069

The vast majority of the state's agricultural employment is concentrated in Eastern Washington...

Figure 22

Distribution of Agricultural Employment in Washington State, 2004

Source: Employment Security Department

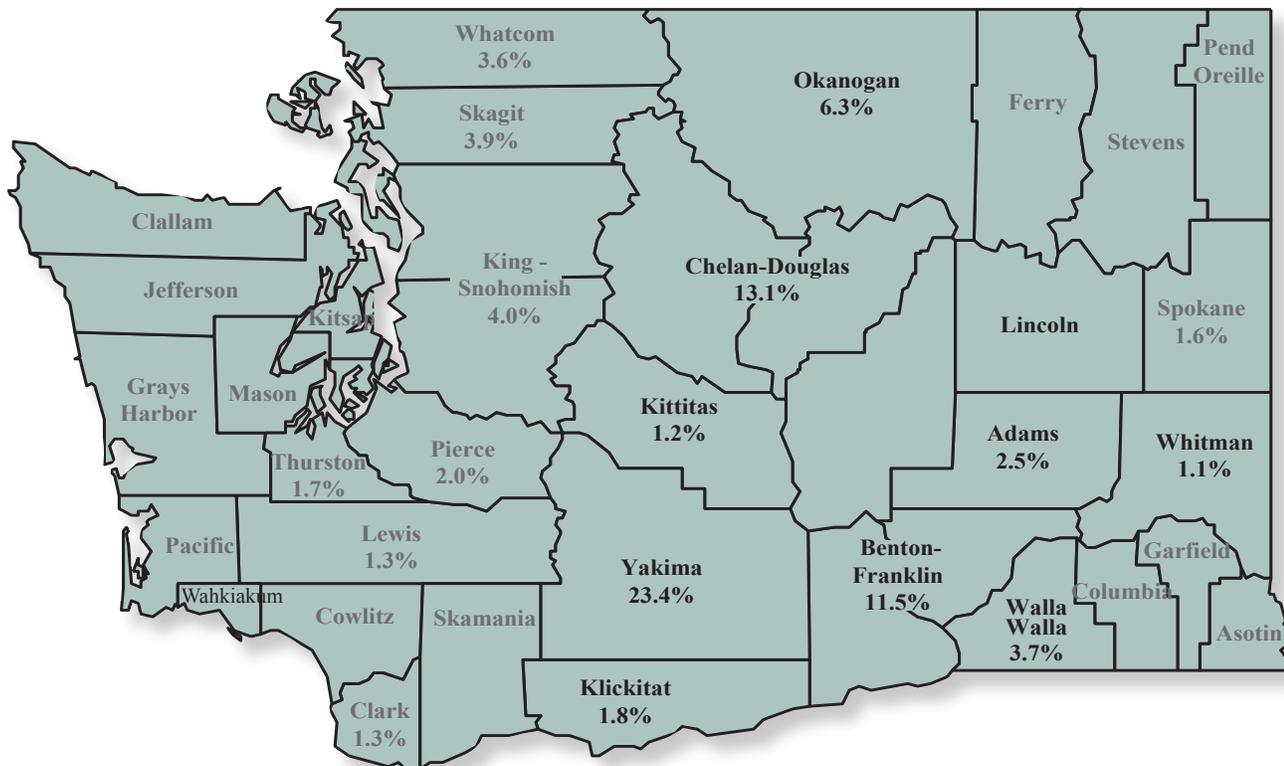


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Figure 23

Percent of Statewide Agricultural Employment
Washington State, 2004

Source: Employment Security Department



Patterns of Seasonal Employment by Crop and Area

Annually, a sharp rise in seasonal workers occurs in the summer because of labor-intensive crop activities that take place during these months. In most years the highest monthly seasonal count occurs in July. As previously mentioned, however, 2004 was not an ordinary year. The cherry harvest peaked in June last year, earlier than it had in previous years. As a result, the peak in seasonal employment occurred a month sooner than it would have otherwise. Seasonal agricultural employment hit 60,140 in June 2004, before edging down to 59,467 in July (*Figure 27a*).

Apples, cherries, grapes, and nursery products ranked in the top five commodities in terms of seasonal employment. Moreover, these commodities ranked in the top ten in terms of the state's value of production. Together, these four commodities comprised nearly one-third of the state's total value of production in 2003. Asparagus ranked third in terms of seasonal employment, and was ranked 20th with respect to the state's value of production (*Figures 27a-d*).

All but two of the top seasonal employing commodities in each of the 6 agricultural reporting areas are in the top 20 commodities in the state in terms of value of production. The remaining two commodities are in the top forty

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Asparagus ranked third in terms of seasonal employment...

Figure 24

Total Employment and Agricultural Employment
Washington State and Selected Areas, 2004

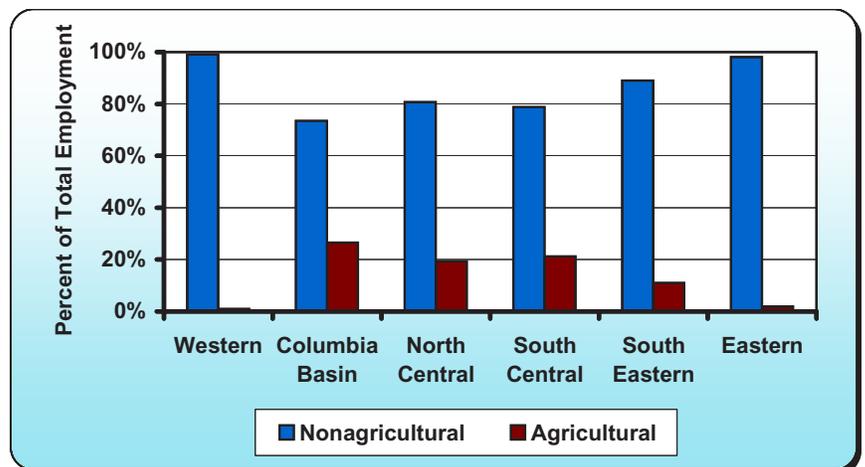
Source: Authors' calculations based on data provided by ESD

Area	Total Employment	Agricultural Employment	Agriculture Percent of Total Employment	Area's Percent of Statewide Agricultural Employment
Washington	3,032,300	97,154	3.2%	100.0%
Western	2,369,940	21,567	0.9%	22.2%
Eastern	662,360	75,587	11.4%	77.8%
Agricultural Area on East Side				
Columbia Basin	42,570	11,319	26.6%	11.7%
Adams	7,600	2,470	32.5%	2.5%
Grant	34,970	8,849	25.3%	9.1%
North Central	103,250	19,945	19.3%	20.5%
Chelan and Douglas	65,950	12,718	19.3%	13.1%
Kittitas	17,710	1,123	6.3%	1.2%
Okanogan	19,590	6,105	31.2%	6.3%
South Central	115,310	24,512	21.3%	25.2%
Klickitat	8,700	1,747	20.1%	1.8%
Yakima	106,610	22,765	21.4%	23.4%
South Eastern	134,130	14,791	11.0%	15.2%
Benton and Franklin	106,440	11,203	10.5%	11.5%
Walla Walla	27,690	3,589	13.0%	3.7%
Eastern	267,100	5,019	1.9%	5.2%
Lincoln	4,350	719	16.5%	0.7%
Spokane	207,560	1,551	0.7%	1.6%
Whitman	19,400	1,092	5.6%	1.1%
Other Eastern Areas	35,790	1,657	4.6%	1.7%

Figure 25

Nonagricultural and Agricultural Percent of Total Employment, 2004

Source: Authors' calculations based on data provided by ESD



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Figure 26

Seasonal Agricultural Employment
Washington State

Source: Authors' calculations based on data provided by ESD

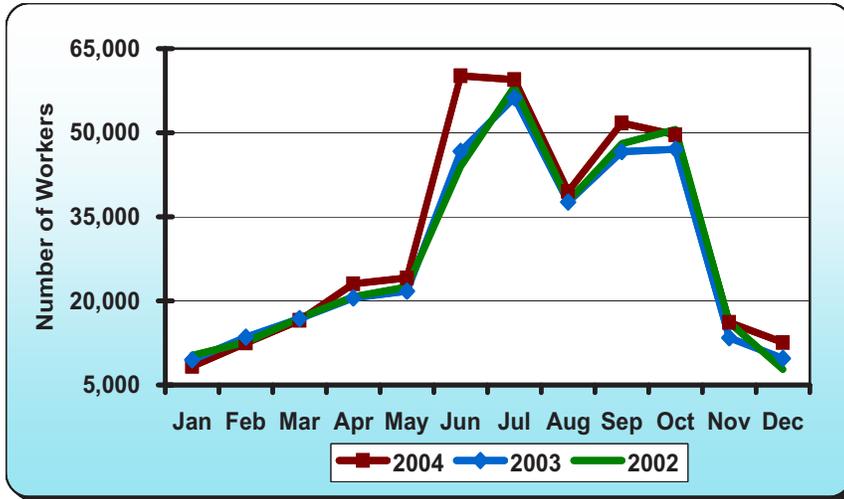


Figure 27a

Washington State Seasonal Workers by Crop, 2004

Source: Authors' calculations based on data provided by ESD

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG	Rank	Percent of Total Average
STATE TOTALS	8,322	12,460	16,503	23,065	24,128	60,140	59,467	39,525	51,760	49,650	16,179	12,585	31,149		
Apples, Workers	4,735	6,685	7,903	7,776	8,736	17,339	20,642	19,046	34,960	39,348	10,363	7,739	15,439	1	49.6%
Cherries, Workers	216	557	973	631	561	26,554	18,222	1,202	131	26	51	581	4,142	2	13.3%
Asparagus, Workers	0	0	14	5,202	6,217	4,080	234	47	11	68	0	0	1,323	3	4.2%
Grape Workers	434	1,223	1,556	1,500	1,803	1,787	2,083	1,500	1,241	1,134	690	588	1,295	4	4.2%
Nursery Workers	647	981	1,165	1,458	2,212	1,680	1,714	1,099	854	352	1,268	591	1,168	5	3.8%
Raspberry Workers	515	158	281	425	403	966	5,736	942	443	908	854	941	1,048	7	3.4%
Potato Workers	200	163	364	763	696	564	934	1,648	2,296	2,630	606	318	932	8	3.0%
Pears, Workers	402	459	344	172	132	612	321	2,814	2,951	858	514	448	836	9	2.7%
Onion Workers	458	618	828	1,171	164	898	1,231	1,543	1,287	781	354	82	785	10	2.5%
Misc Vegetable Workers	34	162	147	701	455	1,344	2,322	2,901	2,134	1,668	566	159	1,049	6	3.4%
Blueberry Workers	104	320	8	24	0	99	1,416	924	486	283	39	109	318	11	1.0%
Hop Workers	0	10	664	284	635	158	110	105	1,729	10	10	0	310	12	1.0%
Bulb Workers	107	345	1,164	534	85	38	341	222	118	108	95	99	271	13	0.9%
Strawberry Workers	0	0	127	94	254	2,018	639	46	30	24	0	0	269	14	0.9%
Wheat/Grain Workers	19	28	125	139	166	169	445	847	319	277	90	59	224	15	0.7%
Cucumber Workers	11	26	0	6	7	29	150	551	230	0	0	0	84	16	0.3%

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Figure 27b

Average Number of Seasonal Workers in Washington State, 2004

Source: Authors' calculations based on data provided by ESD

STATE TOTALS	Average Number of Seasonal Workers in 2004	Ranked By Number of Workers	Ranked by Value of Production
Apples, Total	15,439	1	1
(Milk)	NA	NA	2
Wheat/Grain Workers	224	16	3
Potato Workers	932	8	4
(Cattle)	NA	NA	5
(Hay)	NA	NA	6
Nursery Workers	1,168	5	7
Cherries, Total	4,142	2	8
Onion Workers	785	10	9
Grape Workers	1,295	4	10
Pears, Total	836	9	11

Figure 27c

Top Seasonal Employing Crops per Area

Source: Authors' calculations based on data provided by ESD

Area	Percent of Ag Employment In the State	Ag Reporting Area	Top Seasonal Employing Crops (Employing 300 or more)
1	22.2%	Western	Raspberries, Nursery, Misc. Vegetables, Blueberries
2	11.7%	South Central	Apples, Cherries, Grapes, Pears, Asparagus
3	20.5%	North Central	Apples, Cherries
4	25.2%	Columbia Basin	Apples, Potatoes, Cherries
5	15.2%	South Eastern	Apples, Asparagus, Onions, Grapes, Cherries, Misc. Vegetables
6	5.2%	Eastern	(Wheat/Grain, Nursery and Other Seasonal)
State			State's Top Seasonal Employing Crops (employing 1,000 or more) Apples Cherries, Asparagus, Grapes, Nursery



Raspberries and blueberries

are ranked in the top forty commodities.

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Figure 27d

Commodities Ranked by Seasonal Employment and Value of Production

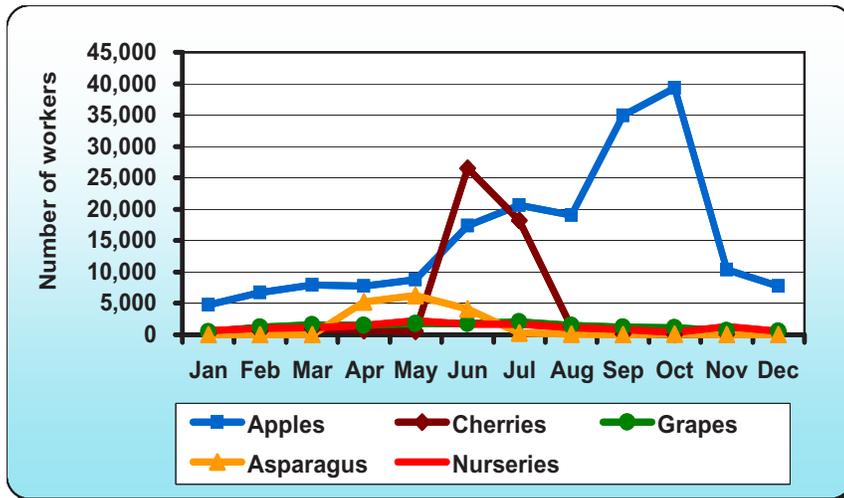
Source: Authors' calculations based on data provided by ESD

Commodity	Rank in Terms of Seasonal Employment	Rank in Terms of Value In Production	Percent of State's Total Value of Production in 2003
Apples	1	1	19.93%
Cherries	2	8	15.20%
Asparagus	3	20	0.75%
Grapes	4	10	11.35%
Nursery	5	7	5.40%
Misc. Vegetables	6	NA	NA
Raspberries	7	24	0.63%
Potatoes	8	4	8.44%
Pears	9	11	2.23%
Onions	10	9	2.43%
Blueberries	11	31	0.21%
Wheat/Grain	15	3	8.99%

Figure 28

Commodities with Highest Number of Seasonal Workers, 2004

Source: Authors' calculations based on data provided by ESD

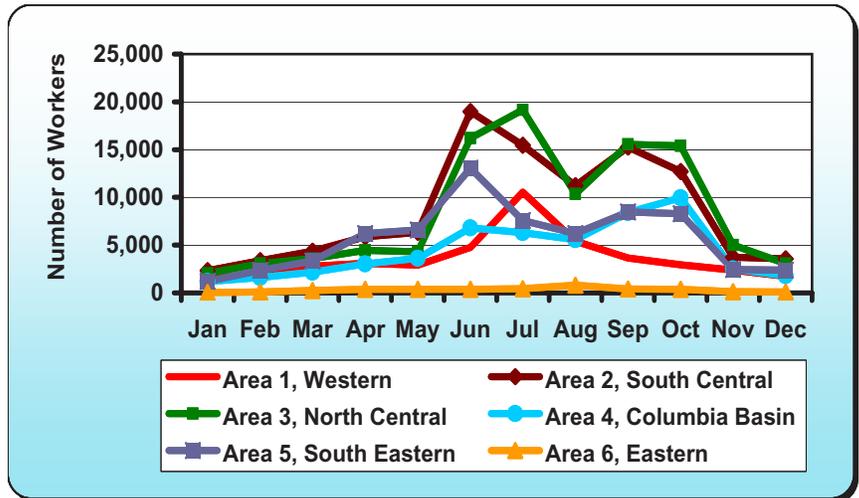


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Figure 29

Seasonal Employment by Area, 2004

Source: Authors' calculations based on data provided by ESD



(raspberries are ranked 24th and blueberries are ranked 31st). Thus, anticipating and planning for the seasonal labor needs at the critical times in the crop production cycles and ensuring those seasonal workers are available in the various agricultural regions in the state at the right time is vital to the agricultural output of the state.

From year to year, apples and cherries consistently employ the highest number of seasonal employees. Subsequently, these commodities also contribute significantly to overall trends in monthly seasonal employment for the state. Cherry harvest typically occurs in June through July and contributes significantly to the first peak in monthly employment. Activities related to apple thinning, raspberry and strawberry harvests, and onion harvest typically occur mid-summer as well, increasing the demand for seasonal help. This first peak is followed by a decline of roughly one-third in seasonal employment.

A second peak occurs in September to October, dominated by employment related to the apple harvest. However, pear and potato harvests also contribute to the second peak, which is generally not as pronounced as the first.

The peaks in employment for cherries and apples occur most dramatically in the South Central and the North Central regions (Regions 2 and 3) and, to a lesser extent, the Columbia Basin and the South Eastern regions (Regions 4 and 5). The raspberry harvest in the Western region peaks in July, thus contributing to the first employment peak (*Figure 30*). Seasonal employment trends related to the other top employing commodities include the asparagus harvest, which peaks in April through June and occurs most dramatically in the South Eastern region (Region 5). The need for workers in grapes is more constant throughout the growing season reflecting activities related to pruning, trellising, irrigation, leaf pulling, and harvest. Detailed data on labor-intensive crop activities and their use of seasonal employment are included in Appendix II at the end of this report.



Activities related to apple thinning, raspberry and strawberry harvests, and onion harvest typically occur mid-summer, increasing the demand for seasonal help.

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Western Region (Area 1). In the Western region, raspberries, blueberries, vegetables and nursery products dominated the seasonal employment trends in 2004. The highest employment peak occurred in July and coincided with the raspberry and blueberry harvests (*Figure 30*). Of the Western region's 10,541 seasonal agricultural workers (or 18 percent of the statewide total) in July 2004, there were 5,736 raspberry and 1,416 blueberry workers.



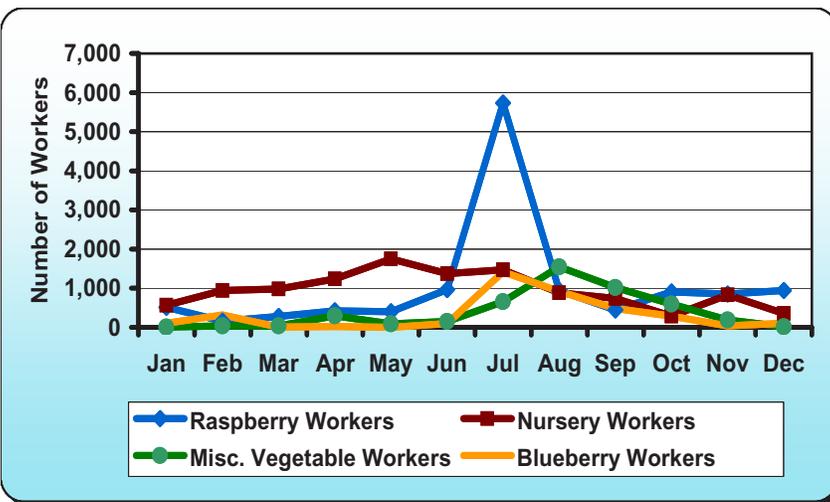
There was a slight increase in seasonal workers in the Western region for nursery products earlier in the year...

There was a slight increase in seasonal workers in the Western region for nursery products earlier in the year, around May with 1,749 workers and June with 1,376 workers and a slight increase again to 1,472 nursery workers in July. Seasonal workers for the vegetable harvest peaked in August with 1,544 workers out of the 5,396 seasonal workers in the Western region during this month, which represent 14 percent of the seasonal labor for the state in August 2004. Overall, there was a slight loss (239) in seasonal workers in this area from 2003 to 2004; but as noted earlier there has been an overall gain in agriculture jobs in agriculture in the Western region, indicating that the growth has occurred in non-seasonal agricultural jobs.

Figure 30

Western (Area 1) Seasonal Employment in 2004

Source: Authors' calculations based on data provided by ESD



South Central Region (Area 2). Across all commodities with seasonal employment in the South Central region, the highest peak in seasonal employment was in June with 18,971 seasonal workers. This represents 31.5 percent of the state's seasonal employment in June 2004. Cherries and apples dominated the seasonal employment needs in the South Central region in 2004 and competed with the North Central region for the top slot in the state's need for workers in cherries and apples. In 2004, the cherry harvest occurred slightly earlier in the South Central region, peaking in June with 8,561 workers, compared to the June through July peak in the North Central region.

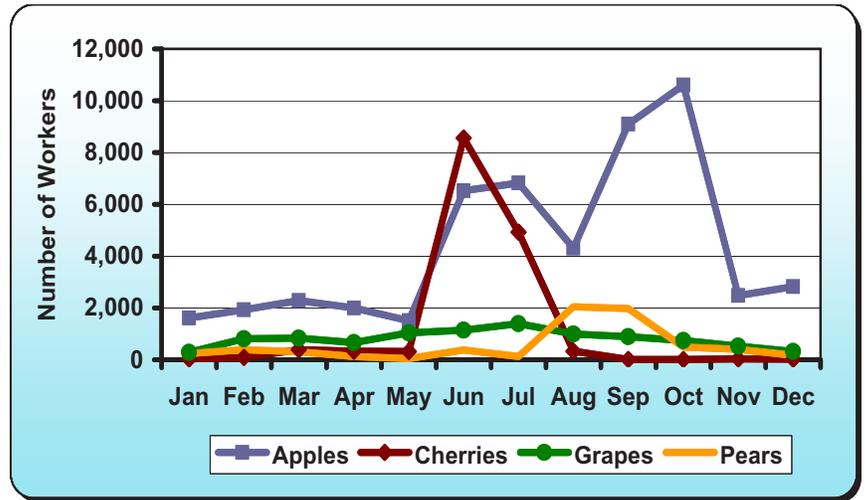
Seasonal workers in apples in the South Central region in 2004 first peaked moderately in June and July for apple thinning, with 6,522 and 6,825 workers respectively, and then peaked more dramatically in September through Octo-

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Figure 31

South Central (Area 2) Seasonal Employment in 2004

Source: Authors' calculations based on data provided by ESD



ber for the apple harvest, with 9,097 and 10,607 workers respectively (*Figure 31*). The employment peak for apple harvest in this area was slightly earlier, in September, in comparison to the other apple regions in the state. Seasonal employment in pears peaked with 2,044 workers in August and 1,976 workers in September. There was steady seasonal employment in grapes from May (with 1,044 workers) through September (with 891 workers) with its highest peak in July (with 1,390 workers). The South Central region had an overall gain of 636 seasonal workers across commodities in 2004.



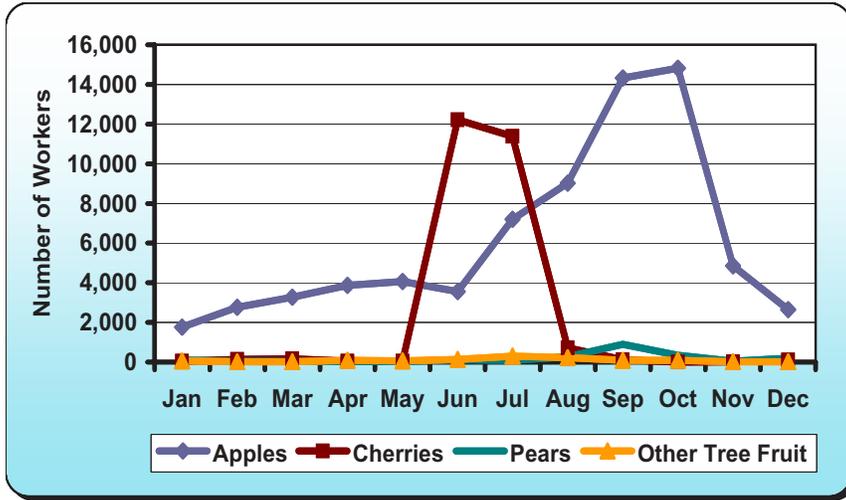
Cherries and apples dominated the seasonal employment needs in the South Central region in 2004 and competed with the North Central region for the top slot in the state's need for workers in cherries and apples.

North Central Region (Area 3). Across all commodities with seasonal employment in the North Central region, the highest peak in seasonal employment was in July with 19,167 seasonal workers. This represents 32.2 percent of the state's seasonal employment for July 2004. Similar to the South Central region, cherries and apples dominated the 2004 seasonal employment needs in the North Central region. Seasonal employment in cherries peaked in June with 12,224 seasonal workers, and stayed relatively high through July with 11,387 seasonal workers (*Figure 32*). This pattern represents a longer window of employment in this area in comparison to the South Central region. Seasonal employment for apples increased steadily from 7,196 in July to a peak of 14,827 in October. In contrast to previous years and in comparison to other apple producing areas in the state, there was not a noticeable peak for apple thinning activities in June and July. Seasonal employment for pears peaked at 889 in September. The number of seasonal workers in this area increased by 1,354 in 2004, following an increase of 1,536 in 2003.

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Figure 32

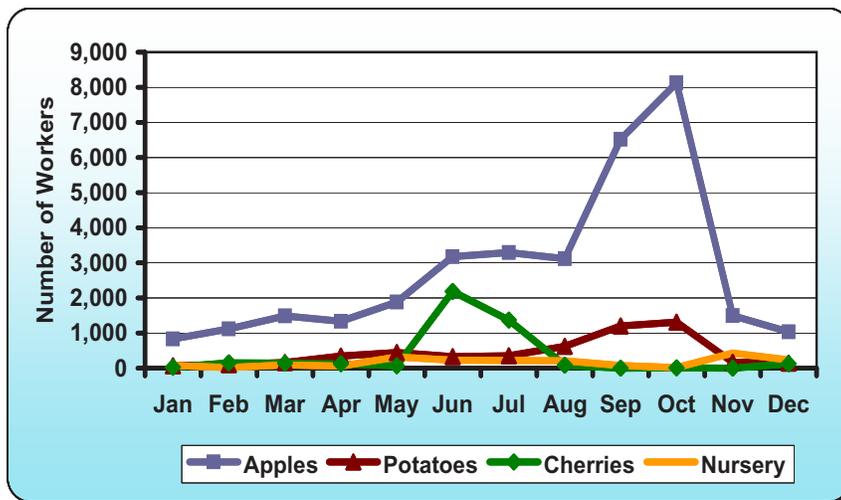
North Central (Area 3) Seasonal Employment in 2004
 Source: Authors' calculations based on data provided by ESD



Columbia Basin (Area 4). Seasonal employment across all commodities in the Columbia Basin region peaked in October at 9,948. Most of these workers were employed in apples and potatoes. This represents 20 percent of the state's seasonal employment for that month. The top seasonal employing crops in the Columbia Basin in 2004 were apples, potatoes, cherries, and nursery products. As in the other areas already discussed, seasonal employment in cherries peaked in June, with 2,187 seasonal workers. Employment in apples peaked in October, with 8,127 seasonal workers (*Figure 33*). Seasonal employment for activities in potatoes remained steady from April through July and increased for activities in sorting, grading, and packing harvested potatoes in September and October, with 6,522 and 8,127 seasonal workers, respectively. Similar to the North Central area, the number of seasonal workers in the Columbia Basin has grown in the last 2 years though somewhat less dramatically; the growth represents an increase of 334 seasonal workers from 2003 to 2004.

Figure 33

Columbia Basin (Area 4) Seasonal Employment in 2004
 Source: Authors' calculations based on data provided by ESD



Chapter 2—Agricultural Employment



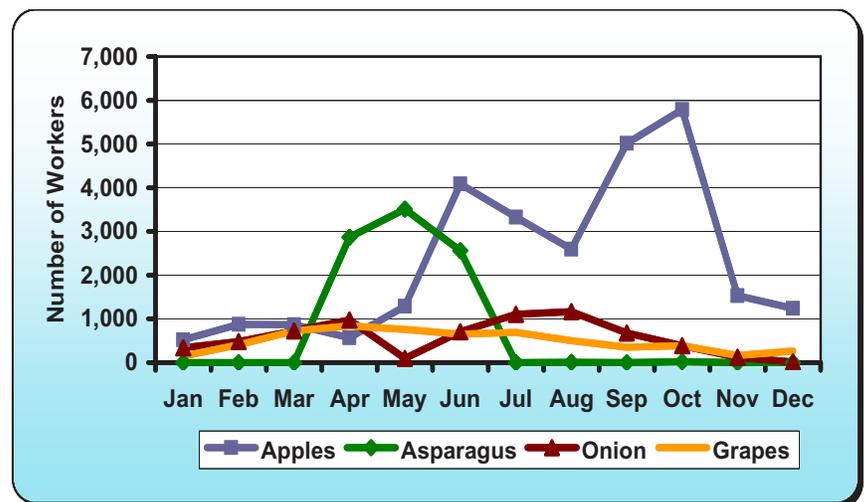
The top seasonal employing crops in the South Eastern area are apples, asparagus, onions, and grapes.

South Eastern (Area 5). Seasonal employment in the South Eastern region peaked in June with 13,036 seasonal workers. This represents 22 percent of the state's seasonal labor for that month in 2004. The top seasonal employing crops in the South Eastern area are apples, asparagus, onions, and grapes (*Figure 34*). Similar to the other apple-producing areas, seasonal employment peaked in June with 4,086 workers for apple thinning, and then increased to a second peak in September (5,017 workers) and October (5,787 workers) for apple harvest. Seasonal employment in asparagus increased dramatically in April, from 2 workers in March to 2,867 workers in April. Seasonal employment in asparagus reached its highest peak in May, with 3,508 workers, and then gradually declined to nearly zero in June through July. Employment for activities in onions increased in April (974 workers) and then peaked again in July (1,105 workers) through August (1,167 workers) for the onion harvest. Employment in grapes remained relatively steady from about March through July, with the number of workers per month ranging from 648 to 841 workers with moderate declines in the number of workers needed in August through October, ranging from 501 to 350 workers. Overall, there was growth in seasonal employment in the South Eastern area over the last two years as well, representing an increase of 770 workers from 2003 to 2004.

Figure 34

South Eastern (Area 5) Seasonal Employment in 2004

Source: Authors' calculations based on data provided by ESD



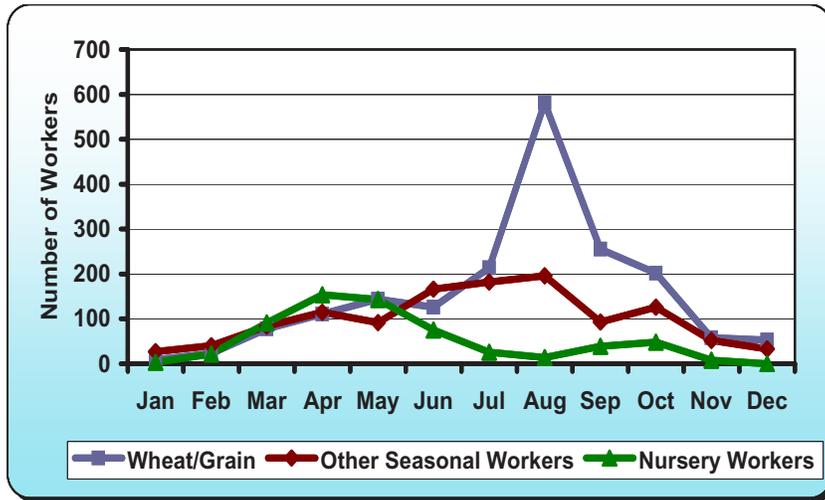
Eastern (Area 6). Of the six agricultural reporting areas, this area employs the least number of seasonal workers annually, less than 500 in 2004 (*Figure 35*). Even at its peak of 791 seasonal workers in August, it only represents 2 percent of the state's seasonal labor in that month in 2004. Wheat and grains are dominant in this area and for the most part do not rely on seasonal labor throughout the growing season. There is an increased need for workers in August for wheat and other grain harvest and a small but steady need for workers in other crop areas from spring through October. A small number of nursery workers is needed from about April through May and then a slightly smaller number again in September and October. This area showed some growth in seasonal employment in 2002 to 2003 and no growth in 2004.

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Figure 35

Eastern (Area 6) Seasonal Employment in 2004

Source: Authors' calculations based on data provided by ESD



Apples. Apples production, the top commodity in the state, also employs the highest proportion, or 50 percent, of the state's seasonal workers on average each year. In 2004, there was an average of 15,439 seasonal workers in apples out of the state's total 31,149 seasonal workers. Furthermore, apple workers comprised as much as three fourths of the state's seasonal labor in specific peak months in 2004. Seasonal labor in apples occurs in four of the six agricultural reporting areas in the state: South Central, North Central, Columbia Basin, and South Eastern regions (*Figure 36*). As discussed earlier, the first employment peak in apples occurs in June and July and pertains to apple thinning activities. While several other key crops contribute to this first employment peak in the state (i.e. cherry and berry harvests), in 2004 apple workers comprised around one third of the seasonal workers in the state in June (29 percent) and July (35 percent), or an average of 32 percent across the two months. In the fall the need for seasonal workers for the apple harvest increases dramatically across the four apple-producing areas in Washington. In September 2004, there were 34,960 seasonal workers in apples across the four regions, or 67.5 percent of the total number of seasonal workers in Washington during that month. By October 2004, the proportion increased to 79 percent of Washington's seasonal labor force. This represents 39,348 seasonal workers in apples across the four regions. The availability of seasonal workers in apples at critical times in the growing season is essential to the success of apple production in the state. Furthermore, the dramatic increase in the number of seasonal workers in affected areas boosts other segments of the economy. Anticipating the need for workers and influx of people into an area all contributes to successful apple production and a healthy economy in those local areas.



The availability of seasonal workers in apples at critical times in the growing season is essential to the success of apple production in the state.

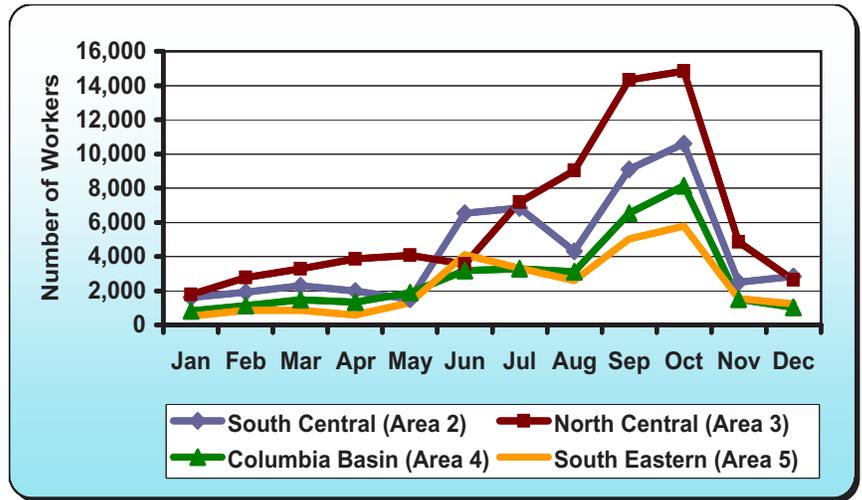
Cherries. Cherry production, the eighth top commodity in terms of value of production in the state in 2004, employed an average of 4,142 seasonal workers throughout the year in 2004; this represents 13 percent of the state's average number of seasonal workers in 2004. However, cherry workers comprised at least twice that proportion in specific peak months in 2004. Seasonal

Chapter 2—Agricultural Employment

Figure 36

Seasonal Employment in Apples Across Areas in 2004

Source: Authors' calculations based on data provided by ESD

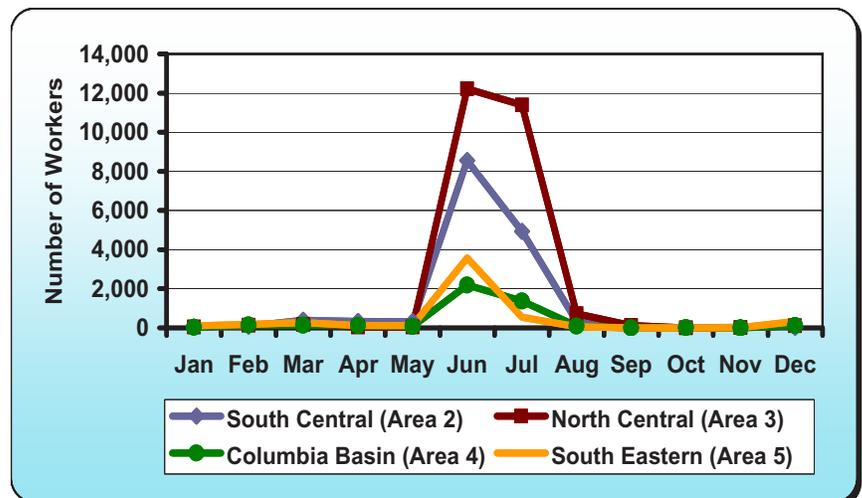


labor in cherries occurs in the same areas where apples are grown. The four reporting areas where cherries are grown in the state are: South Central, North Central, Columbia Basin, and South Eastern regions (Figure 37). There is one peak in seasonal employment for cherry harvest, which occurs in June and July. This increased need for cherry workers coincides with increased labor needs during these two months in other commodity areas, such as berry harvests in the Western region and apple thinning activities in the same four regions where the cherry harvest is occurring. In June cherry workers comprised around 44 percent of the seasonal workers in the state and 31 percent of seasonal workers in the state in July. During these two peak months, that averages to about 37 percent of the state's seasonal labor. In 2004 in the North Central region alone, this influx of cherry workers in June represents as many as 12,224 people.

Figure 37

Seasonal Employment in Cherries Across Areas in 2004

Source: Authors' calculations based on data provided by ESD



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Grapes. Grape production, ranked tenth in terms of top commodities in the state for 2004, employed an average of 1,295 seasonal workers throughout the year. The two top grape producing areas in the state are the South Central region and the South Eastern region (*Figure 38*). Seasonal employment in grapes has an overall increasing trend from about February through July and then gradually declines. In terms of the proportion of the total seasonal employment for the state, grapes averaged about 4 percent of the state's total in 2004. In February and March, the number of workers in grapes represented between 9 percent and 10 percent of the state's total employment for those months. In April and May, seasonal employment in grapes comprised around 6.5 percent to 7.5 percent of the state's total seasonal labor. Seasonal employment for grapes peaked in July with as many as 2,083 workers across the two producing areas. However, because of the increased activities in other commodity areas in the state around this same time, workers in grapes in July 2004 comprised only 3.5 percent of the state's seasonal labor for that month.

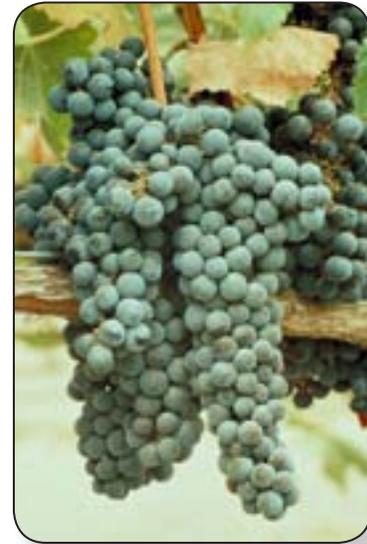
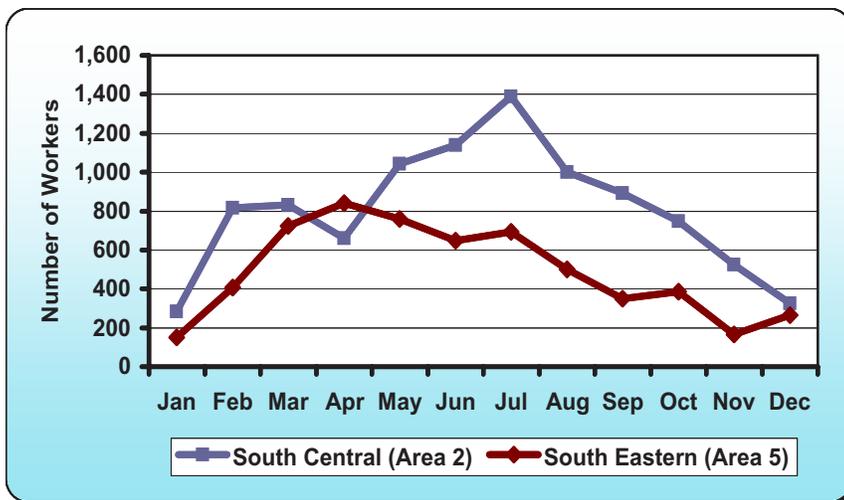


Figure 38

Seasonal Employment in Grapes Across Areas in 2004

Source: Authors' calculations based on data provided by ESD

Seasonal employment for grapes peaked in July with as many as 2,083 workers across the two producing areas.



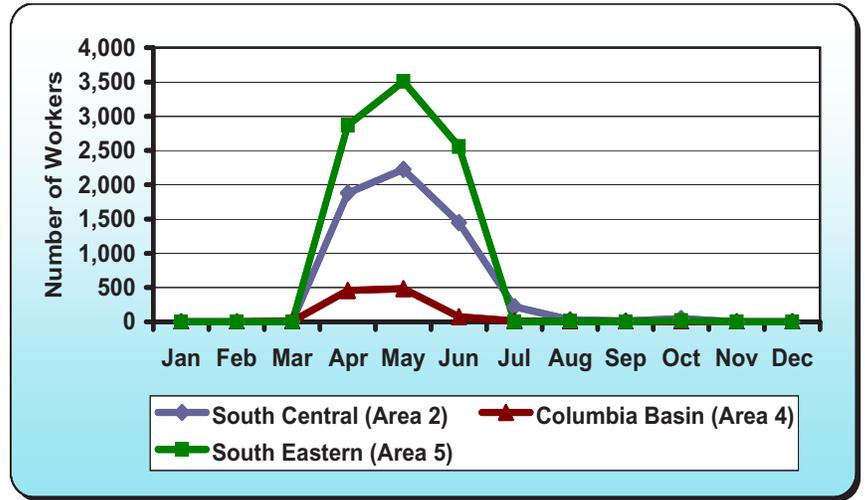
Asparagus. Seasonal employment needs for asparagus represent a short time frame when the number of workers increases dramatically for the asparagus harvest in April to a peak in May, and then the need for workers dramatically declines in June as the asparagus harvest is completed. There are three areas in the state where asparagus is a dominant commodity: the South Central, Columbia Basin, and the South Eastern areas (*Figure 39*). On average in 2004, workers in asparagus comprised 4.25 percent of the state's average seasonal employment, or an average of 1,323 workers. However during the time when the need for workers increased dramatically in April 2004, seasonal workers in asparagus represented 22.5 percent of the state's seasonal labor in that month, representing 5,202 workers. This percent increased to 25.8 percent during the peak month, May 2004 when there were 6,217 seasonal workers in asparagus. So, while the need for asparagus workers represents a fairly short time frame, the need is dramatic and comes earlier in the year than in other seasonal employing commodities in the state.

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Figure 39

Seasonal Employment in Asparagus Across Areas in 2004

Source: Authors' calculations based on data provided by ESD



Nurseries were one of the top seasonal employing commodities in four areas in the state in 2004.

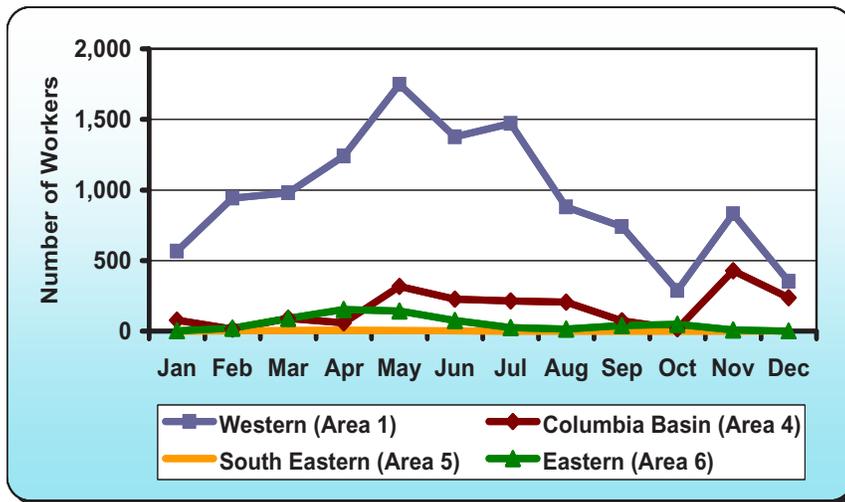
Nurseries. The fifth top seasonal employing commodity in Washington in 2004 was nurseries. As a commodity, nursery products rank seventh in the state in terms of value of production. Nurseries employed an average of 1,168 seasonal workers in 2004, which represents 3.75 percent of the state's average seasonal employment. Nurseries were one of the top seasonal employing commodities in four areas in the state in 2004: Western, Columbia Basin, South Eastern, and Eastern regions (*Figure 40*). Early in the year, from January through April 2004, seasonal nursery workers represented around 6 to 8 percent of the state's seasonal employment during those month, with the number of seasonal nursery workers needed increasing each month overall. The number of seasonal nursery workers in January 2004 was 647 and this increased steadily to the peak of 2,212 workers in May. During the peak month of May 2004 then, nursery workers represented 9 percent of the state's seasonal employment. The need for nursery workers declined overall from June to October 2004, when there was a small upturn in nursery employment in November in the Western and Columbia Basin areas.

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Figure 40

Seasonal Employment in Nurseries Across Areas in 2004

Source: Authors' calculations based on data provided by ESD



End Notes

When examining employment trends in agriculture, there are a number of different ways in which the numbers can be estimated, and each has implications for interpretation.

Unadjusted Totals Versus Adjusted Totals Unadjusted totals include workers who have dual jobs in agriculture versus adjusted totals that reflect the number of individuals working in agriculture. In other words, the unadjusted total represents the number of jobs held and the adjusted total reflects the number of individuals who held jobs in agriculture.

SIC Codes Versus NAICS The Standard Industrial Classification (SIC) system is the former way in which occupations have been classified by the government. Since 1987 this system has been replaced with the North American Industry Classification System (NAICS). While the vast majority of codes related to agriculture translate easily from one classification system to the other, in few specific areas related to Ag veterinary and animal services and landscape and horticultural services (SIC: 074/075/078) the SIC codes do not easily transfer.

Covered Employment Versus Non-Covered Employment Covered employment refers to employment covered under Washington State's Unemployment Insurance benefits program and Federal workers who are covered by the Unemployment Compensation for Federal Employees Program. In agriculture self-employed farm operators and unpaid family member workers are not covered by the unemployment insurance, and therefore are not included in when trends in "covered" employment are examined.

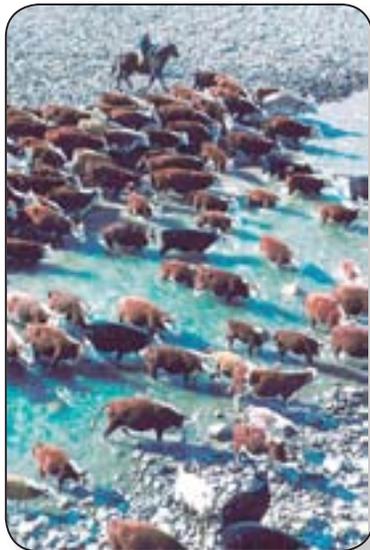
Chapter 3—Hours and Earnings



Workers attracted to these commodity-based sources of employment may work multiple jobs and for multiple employers inside and outside of the agricultural industry during a year's time.

Covered Employment and Payroll

Evaluating the importance of agriculture as a source of employment in Washington and allowing for comparison to other industries over time requires evaluating the industry from the standpoint of how many jobs are available annually and what wages individuals earn. This discussion first presents employment in the context of earnings for jobs offered by employers in agriculture. Employment is then presented in terms of worker wages. This analysis is complicated by the fact that many agricultural production based jobs are only available for part of the year. Across specific agricultural commodities the seasonal nature of production varies and each may require large numbers of workers for only a few weeks or months at slightly different times of the year. Often, many of these jobs are associated with harvests of crops such as vegetables and deciduous tree fruits, which are harvested within just days, or weeks of each other. Workers attracted to these commodity-based sources of employment may work multiple jobs and for multiple employers inside and outside of the agricultural industry during a year's time. Washington Employment Security Department's covered employment wage and earnings information is analyzed across industries to show these two aspects of employment. The reporting year for covered employment is 2003. Covered employment in this context refers to employment covered under Washington State's Unemployment Insurance Benefits Program. Self-employed farmer operators are not covered by Unemployment Insurance programs so their jobs and wages are not part of the covered employment analysis.



In production agriculture, earnings are reported by type of commodity. There are primarily three types of jobs—crop production, animal production, and support services.

The first way to analyze the importance of agriculture as a source of employment is to compare reported earnings across jobs for industry sectors within agriculture and to nonagricultural industry sectors. In production agriculture, earnings are reported by type of commodity. There are primarily three types of jobs—crop production, animal production, and support services. Average annual earnings in agriculture tend to be below that of most other industries in the state. *Figure 41* shows how the average wages for agricultural jobs stack up against the industrywide average of \$39,021. This disparity continues from year to year since agriculture is highly seasonal. Most agricultural production workers, especially seasonal crop workers, do not work the entire year and when they do work during seasonal periods they may work multiple jobs for multiple employers. Consequently, the total number of workers employed in agriculture during a year at any point in time (especially peak harvest months) may be considerably greater than the monthly average implies. In addition, many covered seasonal employees do not work the hours needed (less than 680 hours annually) to be eligible for Unemployment Insurance program benefits when they become unemployed.

During peak production periods, many seasonal farm workers move from location to location within a broad geographic area, such as the western United States. Many seasonal farm workers on average work less than 8-hour days and standard 40-hour weeks, even at the peak of harvest times. The number of hours that can be worked are dependent on crop conditions, the specific work activity (planting, irrigation, sorting, packing, and grading, etc.), size of crop, and weather. Workers in fruit harvest jobs exemplify this as

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they shift between different employers to maximize their ability to earn and to accommodate the fluctuation in ripening harvest. Often, the whole crop of one commodity on a farm may not be ready at once and field workers shift back and forth between farms, orchards, and fields as different fruit varieties ripen or vegetables mature in local areas. In this way, both workers and employers benefit. Wages for an individual are reported across employers by unique social security number so the number of individual workers per industry can be tallied.



Many seasonal farm workers work less than 8-hour days and standard 40-hour weeks, even at the peak of harvest times.

There is a wide range of jobs and pay scales among agricultural jobs. Like most work, farm earnings are a function of the scarcity of job skills, individual worker productivity, or the productivity of the field, vineyard, orchard, etc. In Washington, eastern and western regional agriculture are also subject to different levels of competition in labor demand from nonagricultural industries for unskilled labor. Unlike jobs in other industries, agricultural demand for labor is highly dependent on given commodity circumstances such as whether production is labor intensive at planting, pruning, irrigation, or harvest, or

Figure 41
Average Annual Earnings and Covered Employment in Agriculture 2003
Source: Authors' calculations based on data provided by ESD

Industry	NAICS	Average Number of Firms 2003	Total Wages	Avg. Emp. (Jobs) 2003	Avg. Annual Pay Per Job 2003
Industrywide Total		209,682	\$103,552,340,049	2,653,776	\$39,021
Production Agriculture		8,325	\$1,275,520,856	74,438	
Poultry and Egg Production	1123	38	\$14,946,121	615	\$24,303
Animal Aquaculture	1125	46	\$11,512,684	475	\$24,237
Cattle Ranching & Farm. (incl. Feedlots & Dairy)	1112	1,709	\$238,021,415	10,451	\$22,775
Other Misc Crop Farming (incl. Hay)	1119	748	\$134,942,045	6,638	\$20,329
Greenhouse, Nursery, & Floriculture	1114	374	\$94,630,090	4,752	\$19,914
Support for Animal Production	115210	168	\$10,311,055	519	\$19,867
Other Animal/Livestock Production	1129	144	\$7,761,762	391	\$19,851
Support for Crop Production	1151	261	\$202,135,661	10,426	\$19,388
Vegetable and Mellon Crops (incl. Potatoes)	1112	422	\$86,328,277	4,461	\$19,352
Oilseed and Grain Farming	1111	1,278	\$35,295,729	1,971	\$17,908
Berries, Grapes, Other Non-Tree Fruit	1113	532	\$59,282,228	4,176	\$14,196
Sheep, Goat, and Hog Production	1122,24	10	\$164,146	12	\$13,679
Fruit and Tree Nut & Other Tree Fruit	1113	2,595	\$380,189,643	29,551	\$12,866
Valued Added Agricultural Manufacturing		964	\$1,455,401,875	38,083	
Beverage Manufacturing	3121	166	\$303,979,454	3,717	\$81,781
Seafood Product Preparation and Packaging	3117	111	\$300,661,203	6,401	\$46,971
Dairy Product Manufacturing	3115	23	\$46,430,537	1,126	\$41,235
Other Animal Food Manufacturing	3111/ 311119	34	\$22,250,807	612	\$36,358
Grain and Oilseed Milling	3112	13	\$11,466,386	331	\$34,642
Other Food Manufacturing	3119	145	\$114,197,388	3,395	\$33,637
Bakery and Tortilla Manufacturing	3118	265	\$162,502,356	5,202	\$31,238
Fruit & Veg. Preserving & Spec. Food Manuf.	3114	84	\$326,501,077	10,932	\$29,867
Animal Slaughter and Processing	3116	90	\$153,356,359	5,748	\$26,680
Sugar & Confectionary Product Manuf.	3113	33	\$14,056,308	619	\$22,708

* Does not include farm operators

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...the largest percentage changes occurred in animal aquaculture; sheep, goat, and hog production, and support for crop production.

whether a given animal species can be successfully confined in large concentrations, or whether mechanization can be utilized at a particular time during the production cycle. Many seasonal crop farm workers are paid on a piece rate basis and make more than the state minimum wage during a peak harvest activity. Workers in production agriculture are subject to the seasonality of job availability. In 2003, the fruit and tree nut sector remained the leading agricultural production sector providing 29,551 jobs or 40 percent of covered employment in production agriculture. Overall, in 2003, production agricultural jobs increased by 6.3 percent and accounted for 2.4 percent of employment in Washington (Figure 42). Looking at the changes in employment levels in production agriculture sectors, the largest percentage changes occurred in animal aquaculture (67 percent), sheep, goat, and hog production (50 percent), and support for crop production (18.8 percent). However, these industries account for only a relatively small proportion of overall production agriculture employment. The largest change in the number of jobs was associated with fruit crops, with the fruit and nut tree sector adding 2,215 jobs (+8.1 percent) and support for crop production, which added 1,650 jobs (+18.8 percent).

For agricultural production sectors, the highest annual earnings displayed in Figure 41 (by 4 digit NAICS category) are for poultry and egg production and animal aquaculture at \$24,303 and \$24,237, respectively. Even these jobs report earnings significantly below the state level average for all jobs in the state. Cost efficient poultry, egg, and fish production depends on achieving large economies of scale with small worker to animal ratios. Aquaculture work primarily entails the feeding and handling of large numbers of fish in aquatic pen environments. These two types of work require more use of specialized knowledge such as: equipment operation, species health and nutrition, nutrient balancing and feed efficiency, animal confinement, and environmental assessment.

Figure 42

Average Number of Firms and Employment, Percent Change - 2002-2003

Source: Authors' calculations based on data provided by ESD

NAICS	Industry	Average Firms 2003	Average Firms 2002	Percent Change 2002-2003	Average Emp. (Jobs) 2003	Average Emp. (Jobs) 2002	Percent Change 2002-2003
	Industrywide Total	209,682	207,357	1.1%	2,653,776	2,643,715	0.4%
	Total Production Agriculture	7,344	7,664	-4.2%	68,469	64,423	6.3%
1111	Oilseed and Grain Farming	1,278	1,361	-6.1%	1,971	1,938	1.7%
1112	Vegetable and Mellon Crops (incl. Potatoes)	422	473	-10.8%	4,461	4,542	-1.8%
1113*	Fruit & Tree Nut & Other Tree Fruit	2,595	2,754	-5.8%	29,551	27,336	8.1%
1113*	Berries, Grapes, Other Non-Tree Fruit	532	552	-3.6%	4,176	4,099	1.9%
1114	Greenhouse, Nursery, & Floriculture	374	393	-4.8%	4,752	4,675	1.6%
1119*	Other Misc. Crop Farming (incl. Hay)	748	798	-6.3%	6,638	6,656	-0.3%
1112	Cattle Ranching & Farming (incl. Feedlots & Dairy)	738	785	-6.0%	4,482	4,594	-2.4%
1123	Poultry and Egg Production	38	38	0.0%	615	611	0.7%
1122*	Sheep, Goat, and Hog Production	10	8	25.0%	12	8	50.0%
1125	Animal Aquaculture	46	45	2.2%	475	284	67.3%
1129	Other Animal/Livestock Production	144	169	-14.8%	391	401	-2.5%
1151	Support for Crop Production	251	121	107.4%	10,426	8,776	18.8%
115210	Support for Animal Production (exclude Other)	168	167	0.6%	519	503	3.2%

Chapter 3—Hours and Earnings

Figure 42 (Continued)

Average Number of Firms and Employment, Percent Change—2002-2003

Source: Authors' calculations based on data provided by ESD

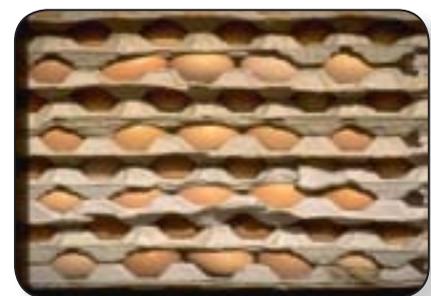
NAICS	Industry	Average Firms 2003	Average Firms 2002	Percent Change 2002-2003	Average Emp. (Jobs) 2003	Average Emp. (Jobs) 2002	Percent Change 2002-2003
	Total Food Manufacturing	964	962	0.2%	38,083	38,671	-1.5%
3111/ 311119	Other Animal Food Manufacturing	34	34	0.0%	612	576	6.3%
3112	Grain and Oilseed Milling	13	12	8.3%	331	326	1.5%
3113	Sugar & Confectionary Product Manuf.	33	33	0.0%	619	595	4.0%
3114	Fruit & Veg. Preserving & Spec. Food Manuf.	84	93	-9.7%	10,932	11,615	-5.9%
3115	Dairy Product Manufacturing	23	21	9.5%	1,126	1,121	0.4%
3116	Animal Slaughter and Processing	90	92	-2.2%	5,748	5,769	-0.4%
3117	Seafood Product Preparation and Packaging	111	120	-7.5%	6,401	6,359	0.7%
3118	Bakery and Tortilla Manufacturing	265	264	0.4%	5,202	5,394	-3.6%
3119	Other Food Manufacturing	145	137	5.8%	3,395	3,234	5.0%
3121	Beverage Manufacturing	166	156	6.4%	3,717	3,682	1.0%

*Does not include farm operators

As previously mentioned, the major factors in determining annual job earnings in agriculture production is whether a job is seasonal or year-round and whether it is part time or full time. Cattle feedlots and dairy are sectors that had relatively high average annual pay—\$26,339 and \$23,118 in 2003 at the 6-digit NAICS level. Dairy work is typically full time (40-hour weeks) and year-round. Feedlot jobs are not all entirely year-round and are dependent on when feeder cattle come off pasture in the fall and are put on feed for fattening and readied for slaughter. However, when these two sectors are combined with other cattle ranching under the 1112 NAICS code, average annual pay lowers to a category average of \$22,775.

At the other end of the pay scale are berry and deciduous tree (apples, cherries, pears, etc.) production jobs, which earned \$14,196 and \$12,866, respectively. The fruit and tree nut industry had the lowest annual pay in 2003. This type of work is highly seasonal and compensated on a piece-rate basis. Availability of seasonal fruit harvest jobs is very vulnerable to weather conditions in the production year as well as global market conditions of the previous and current year.

One way to look at the changing nature of production agriculture is to examine the number of agricultural firms and the changing distribution of employment among them (*Figure 42*). From 2002 to 2003, the number of firms in most agricultural production industries declined. The vegetable and melon crop sector experienced the largest decrease, -10.8 percent. For agricultural production firms reporting covered employment overall, 609 firms were lost. However, without further analysis it is unknown whether firms are expanding their payrolls or their output, to compensate for these lost firms.



...the highest annual earnings are for poultry and egg production and animal aquaculture at \$24,303 and \$24,237, respectively.

Chapter 3—Hours and Earnings

Manufacturing is a vital component of Washington's economy providing higher wage jobs. The interconnectedness of production agriculture with food manufacturing must be acknowledged since food manufacturing as a sub-sector adds value to raw agricultural commodities. Proximity of value added processing (such as fruit packing, grading, freezing, canning, storage facilities, meat slaughter, cooked and uncooked, etc.) is a dominant feature in Washington with food manufacturers often locating in some Washington counties near crop production areas. These localized processing facilities are very important sources of employment in the counties where they are located. In 2003, the state's 964 food manufacturing firms accounted for 38,083 jobs and approximately \$1.46 billion in wages. Food manufacturing and production agriculture share some of the same work force. An example of this is the seasonal worker in field harvest shifting to sorting and packaging jobs in processing plants for harvest and then repacking during some winter months in fruit and frozen vegetable canneries.



Proximity of value added processing (such as fruit packing, grading, freezing, canning, storage facilities, meat slaughter, cooked and uncooked, etc.) is a dominant feature in Washington...

Added value food manufacturing provides higher job earnings. Using average annual pay, *Figure 41* shows that food manufacturing sector jobs have higher annual pay than agricultural production jobs. Fruit and vegetable manufacturing provided 10,932 jobs with an average annual pay that is more than two times greater than fruit production jobs. Seafood product preparation and dairy product manufacturing have average annual pay of \$46,971 and \$41,235, respectively, with both exceeding the average annual wage for all jobs in the state of \$39,021. Production agriculture and food manufacturing, together, account for 4.5 percent of employment (jobs) and almost \$2.8 billion dollars in wages or about 2.7 percent of all wages in Washington State. It should be noted that this report of covered employment does not include jobs and wages of farm operators.

Mirroring the structural change in production agriculture, the number of agricultural food manufacturing firms (defined as NAICS 311 and 312) and the overall annual level of employment have declined over the last 5 years. The number of firms in agricultural manufacturing has slowly but steadily declined since the peak in 1998 of 1,161 firms to 1,028 firms in 2003, roughly a 2.8 percent decrease. Average annual employment peaked in 1996 at 43,336 jobs and declined about 12.1 percent to 38,109 jobs in 2003. While the number of firms and jobs has decreased in the last few years, individuals are paid more. Wages for food manufacturing jobs increased 22.9 percent from 1998 to 2003, with wages increasing from \$30,256 to \$37,170. From this information it is not possible to say whether there has been a real decline in the food manufacturing industry without determining if there is a change in quantity of manufactured products output.

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Individual Earnings of Agricultural Workers

In agriculture, a large portion of the employment is seasonal and some agricultural employees work more than one job and/or for more than one employer. To understand how various types of worker's earnings are impacted as agricultural production shifts from one commodity group to another or if agriculture declines or increases, it is necessary to look at industry wage levels for all workers who worked at any time in the industry, worked solely in the industry, and those who held jobs within agricultural and nonagricultural industries. This level of disaggregation allows for assessment of earnings for workers who have differing levels of dependency on agriculture as a source of employment. Average annual industry earnings represent the total earnings of all workers in agriculture divided by the total number of workers. *Figure 43* displays the attributes of paid workers who engage in any agricultural employment.



...some agricultural employees work more than one job and/or for more than one employer.

In 2004, 150,606 individuals were reported as having been paid wages at any time during the year in agricultural jobs (*Figure 43*). On average, all individuals who were reported working any time in agriculture, worked 938 hours for 2.52 employers and earned annual wages of \$10,165. This is a 7.7 percent increase in annual wages compared to 2003. All agricultural workers also worked 5.6 percent more hours and received about 1.8 percent more in hourly earnings in 2004. Thus, the overall increase in earnings for 2004 is driven by both the increase in hours worked and by the increase in hourly wages. The

Figure 43

Number of Employees (unique SSNs), Average Hours, Earnings, and Number of Employers Washington State, 1995-2004

Source: Authors' calculations based on data provided by ESD

Washington	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Percent Change 2003 - 2004
Washington Number of Workers									3,164,996	3,217,558	1.7%
Washington Average Annual Earnings	\$27,416	\$28,889	\$30,778	\$33,075	\$35,726	\$37,076	\$37,431	\$38,218	\$39,019	\$39,239	0.6%
All Agricultural Workers (Any)	149,650	154,870	155,980	161,423	152,474	154,154	150,315	149,871	146,255	150,606	3.0%
Average Annual Hours	777	788	835	849	859	889	861	859	888	938	5.6%
Average Annual Earnings	\$6,411	\$6,606	\$7,294	\$7,649	\$8,018	\$8,747	\$8,803	\$8,745	\$9,438	\$10,165	7.7%
# Workers With Wages Over \$10,000				43,349	42,810	49,490	47,017	46,794	49,451	55,879	13%
Average Hourly Earnings	\$8.25	\$8.38	\$8.74	\$9.01	\$9.33	\$9.83	\$10.22	\$10.18	\$10.37	\$10.56	2.1%
Average Number employers				2.62	2.53	2.58	2.49	2.49	2.45	2.52	2.9%
Workers in Agriculture Only	105,770	110,620	108,870	113,591	106,744	108,552	107,725	108,001	107,347	107,874	0.5%
Average Annual Hours			705	720	728	752	729	732	771	811	5.2%
Average Annual Earnings	\$5,383	\$5,503	\$6,116	\$6,418	\$6,697	\$7,308	\$7,323	\$7,346	\$8,036	\$8,613	7.2%
# Workers with Wages Over \$10,000				25,292	24,834	28,909	27,898	28,193	31,276	34,394	10.0%
Average Hourly Earnings	\$8.18	\$8.29	\$8.68	\$8.91	\$9.20	\$9.71	\$10.04	\$10.04	\$10.23	\$10.43	2.3%
Average Number of Employers				2.08	2.01	2.09	2.03		2.03	2.06	1.5%
Worked in Ag & Nonag industries	43,880	44,250	47,110	47,832	45,730	45,602	42,500	41,870	38,908	42,732	9.8%
Average Annual Hours	1,062	1,097	1,136	1,154	1,165	1,216	1,196	1,185	1,210	1,260	4.1%
Average Annual Earnings	\$8,890	\$9,361	\$10,017	\$10,574	\$11,102	\$12,172	\$12,548	\$12,353	\$13,307	\$14,085	5.8%
Over \$10,000				18,057	17,976	20,581	19,119	18,601	18,175	21,485	18.2%
Average Hourly Earnings	\$8.37	\$8.53	\$8.82	\$9.16	\$9.53	\$10.01	\$10.48	\$10.42	\$10.41	\$10.63	2.1%
Average Number Employers				3.88	3.74	3.75	3.67	3.65	3.59	3.67	2.2%

2004 Hourly wage from AIS tables 3-digit NAICS code rollup on wages and is calculated as a weighted average.

Chapter 3—Hours and Earnings



Workers solely dependent on agriculture for employment had annual average earnings that were 61 percent of that for workers who worked in both agricultural and nonagricultural industries.

majority, 72 percent of these individuals, worked only in agriculture while 28 percent worked in both agricultural and nonagricultural industries.

Workers solely dependent on agriculture for employment had annual average earnings that were 61 percent of that for workers who worked in both agricultural and nonagricultural industries; \$8,613 compared to \$14,085 (*Figure 43*). Both types of workers experienced moderate increases in annual average wages in 2004, with agriculture-only workers experiencing a slightly higher increase of 7.2 percent.

The difference in average annual earnings between the two subgroups of workers is mostly associated with the greater numbers of paid hours for those working in both agricultural and nonagricultural industries. Individuals who also worked at jobs outside of agriculture reported almost 1.6 times more paid work hours. These individuals, on average, had 43 percent of their hours paid by agricultural employers and the rest paid by employers in nonagricultural industries. Sixty percent of those working for both agricultural and nonagricultural firms were fully employed in 2004. On the other hand, only 39 percent of those working solely in agricultural industries were considered fully employed.

Fewer than 40 percent of those who worked any time in agriculture over the year earned more than \$10,000 in 2004. *Figures 44 and 45* show the distribution of workers earning different levels of wages by type of worker (any work in agriculture, agriculture work only, and worked in both agricultural and nonagricultural industries). For workers who worked only in agriculture, the majority, 68.7 percent, earned less than \$10,000 a year on average in covered employment. Slightly more than 50 percent of workers who supplemented their employment in some other nonagricultural industry earned more than \$10,000.

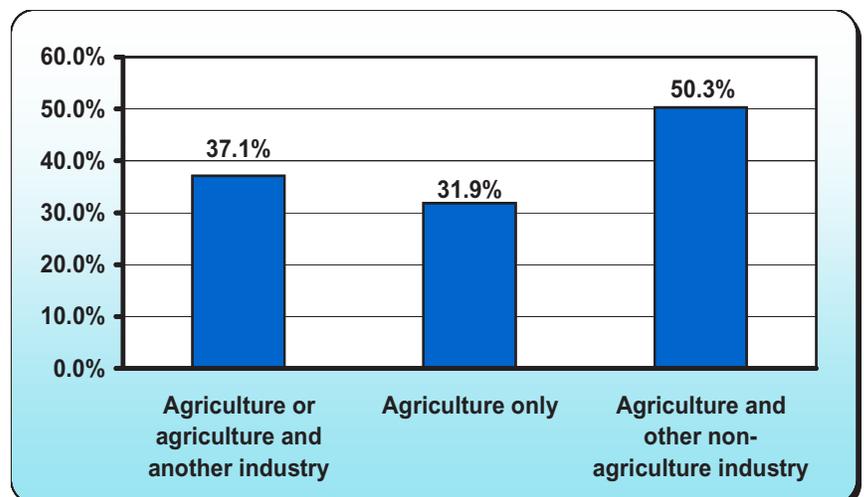
Figure 44

Percent of Workers Earning an Average Annual Wage over \$10,000

Source: Authors' calculations based on data provided by ESD



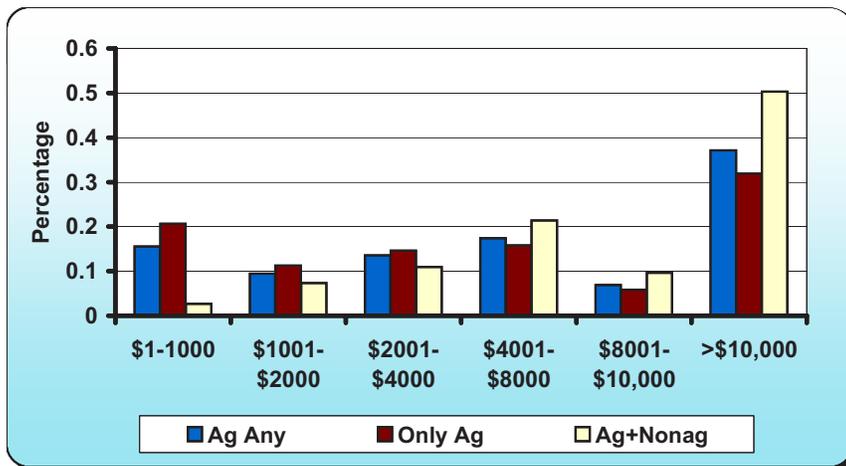
A little less than 40 percent of those who worked any time in agriculture over the year earned more than \$10,000 in 2004.



Chapter 3—Hours and Earnings

Figure 45

Distribution of Average Annual Wage Earnings by Employment Sector
Source: Authors' calculations based on data provided by ESD



Even though all three types of workers saw an increase in the number of hours worked in 2004, and a roughly 2 percent increase in average hourly pay, the lower earnings for agriculture-only workers was primarily the result of fewer hours worked (*Figure 43*). Steadily, over the last few years, agricultural only workers have added to the hours they worked in covered employment—showing 811 hours on average in 2004. This means that more agricultural only workers in 2004 qualified for Unemployment Insurance benefits than recent past years, with 51.5 percent working more than 680 hours. In addition, multi-sector workers also improved their earnings by working for more employers, 3.6 employers on average, whereas agricultural only workers worked for approximately 2 employers.

Trends

While average earnings rose for all agricultural workers in 2004, those who also worked outside of agriculture were better off with higher annual earnings (*Figure 43*). *Figure 46* displays average annual earnings adjusted for inflation using 1996 dollars as the base for conversion. This graph uses inflation-adjusted numbers and illustrates how real earnings consistently and steadily increased from 2002. Over the nine years, 1996 to 2004 real earnings showed roughly a 3 percent increase annually. The growth in earnings for all three types of workers in 2004 was associated with increases in average annual hours worked (4.1 percent to 5.6 percent) and average hourly wages (2.1 percent to 2.3 percent).

Commodity production statistics are not available for 2004, so it would be premature to tie the increase in average hours worked to commodity (quantity, average price, and value of production) outcomes. However, one can speculate that the increases in labor hours in 2004 were a response to the cumulative labor demand from agricultural operations that rely heavily on seasonal labor and for operations mostly concerned with apple, cherry, and other fruit and vegetable crops. Production of most fruit tree, other fruit, and



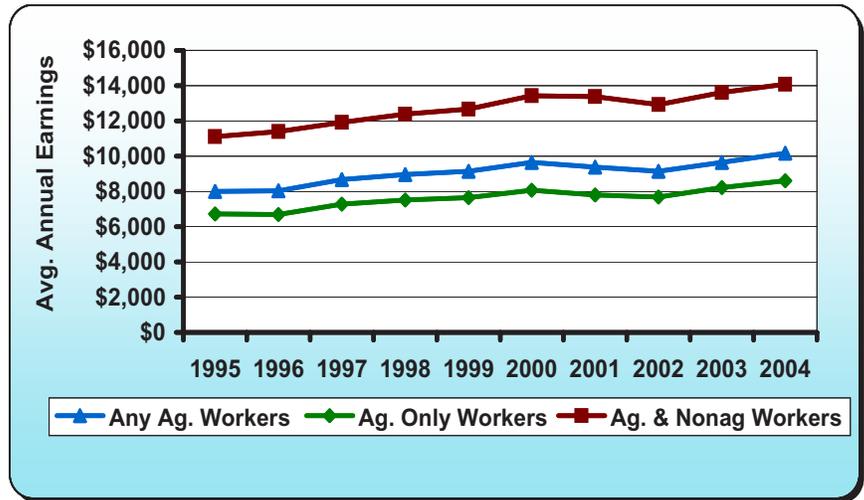
While average earnings rose for all agricultural workers in 2004, those who also worked outside of agriculture were better off with higher annual earnings.

Chapter 3—Hours and Earnings

Figure 46

Worker Average Annual Earnings, 1995-2004

Source: Authors' calculations based on data provided by ESD



vegetable crops increased in 2003. Changes in agricultural production (quantities) are often a one to two-year lagged response to product demand and prices. As market prices increase and farm operators experience increasing value of their production they respond by increasing production for the next or upcoming years depending on the nature of the commodity. Farmers will often shift production from one commodity to another to maximize profits.



Apple farmers received higher-than-average prices and value of productions was 13 percent higher than 2002.

The situational outlook can be summarized for labor-intensive crop commodities in Washington. Of all agricultural commodities produced in Washington during 2003, apples were tops in value of production. (The state's apple crop accounts for roughly 53 percent of the nation's crop.) Apple farmers received higher-than-average prices and value of productions was 13 percent higher than 2002. The crop decreased 12 percent from 2002. In 2003, Washington State was the largest producer of sweet cherries in the nation, and second largest in tart cherries. The production of sweet cherries in 2003 increased 36 percent from 2002. Washington lost value in the tart cherry crop as both production and average price declined. Other fruit crops with changes in value of production in 2003 were: apricots down 2.2 percent, Bartlett/winter pears up 20 percent and 4.2 percent, respectively. Peach crop value decreased 31.2 percent due to a large drop in average market price. Wine grape production decreased 3 percent, but the value of production increased 2.1 percent. Juice grape yields rose 7 percent but value of production fell 16.5 percent. As a whole, the value of grape production increased placing grapes third in terms of fruit crop value in Washington. For all berries combined, bearing acreage in Washington has generally increased over the last 9 years. In 2003, the value of berry production increased 5.4 percent to a near-record level.

As previously mentioned, the areas of Washington with high levels of seasonal agricultural employment are: South Central (25.2 percent), North Central (20.5 percent), South Eastern (15.2 percent) and Columbia Basin (11.7 percent) as shown in *Figure 47*. All four areas have relatively large numbers of seasonal apple, fruit, and vegetable workers. For these 4 areas,

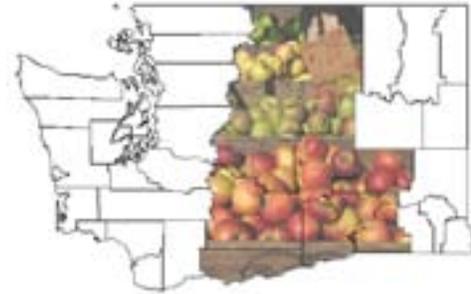
Chapter 3—Hours and Earnings

Figure 47

Area Total Average Agricultural Employment,
Reported by Farm Operators 2000-2004

Source: Authors' calculations based on data provided by ESD

	Western Area 1	South Central Area 2	North Central Area 3	Columbia Basin Area 4	South Eastern Area 5	Eastern Area 6	Total
2000	4,137	9,699	7,514	4,896	6,297	355	32,898
2001	4,283	8,837	6,069	4,222	5,135	254	28,800
2002	3,640	8,925	5,625	3,952	4,704	268	27,114
2003	3,878	7,965	7,161	4,079	4,905	307	28,295
2004	3,639	8,601	8,514	4,413	5,675	307	31,149
Percent Change 2003-2004	-6.2%	8.0%	18.9%	8.2%	15.7%	0.0%	10.1%



South Central, North Central, South Eastern, and Columbia Basin have relatively large numbers of seasonal apple, fruit, and vegetable workers.

seasonal agricultural employment increased by 8 percent in 2004, according to growers' surveys (*Figure 47*). Of these, the largest increase (18 percent) in seasonal agricultural workers was reported for the North Central area (Okanogan, Chelan, and Douglas counties). The North Central area's leading commodities were apple and cherry production. The next area reporting an increase in agricultural workers was the South Eastern area (Walla Walla, Benton, and Franklin counties) where apples, asparagus, onions, grapes, cherries, and other miscellaneous vegetables are produced in large quantities. The Columbia Basin area saw an 8.2 percent increase in agricultural workers associated with apple, potato, and cherry production. The South Central area, where apples, cherries, grapes, pears, and asparagus top the list of commodities grown, reported an 8 percent jump in workers. The number of workers in the Eastern area—which primarily grows wheat, grain, dry beans and peas, and nursery stock—did not change appreciably in 2004. The Western area (berries, nursery products, and numerous vegetable crops) was the only area of the state to report a decline in agricultural workers at -6.1 percent.

Looking at all agricultural workers as reported under covered employment between 1995 and 2004 (*Figure 43*), average annual wage earnings have gone up 27 percent, annual average hours worked have increased 21 percent, and the average number of employees has ranged from a low of 149,650 in 1995 to a high of 161,423 in 1998. In 2004, there were 150,606 workers in agriculture. Increases in the value of fruit and crop production in 2003 was most likely a stimulus for increasing the agricultural workforce into 2004.



Increases in the value of fruit and crop production in 2003 was most likely a stimulus for increasing the agricultural workforce into 2004.

Chapter 3—Hours and Earnings

By Industry



Workers who only worked in agriculture earned more on an annual basis for agricultural work than those who found supplemental work outside of agriculture...

Looking at all agricultural workers by industry, agriculture-only workers had the smallest proportion (31.9 percent) of workers earning more than \$10,000 in annual earnings. By contrast, half of the state's multi-sector workers earned more than \$10,000 annually (*Figure 44*).

Multi-sector workers have two components to their earnings—agricultural earnings and nonagricultural earnings. *Figure 48* shows the break-out for 2004 of average annual hours, hourly wages, and annual earnings from these two components. The nonagricultural component accounts for more work hours and earnings. When compared to the agricultural component, the non-agricultural component on average accounted for a larger share—57 percent of the work hours, an hourly rate that is 1.3 times larger, and provided about 63.4 percent of workers' annual earnings. However, the agriculture portion of earnings for these multi-sector workers was paid less at \$9.57 (*Figure 48*) on an hourly basis than that shown in *Figure 43* for agriculture only workers who are paid \$10.43 hourly. Workers who only worked in agriculture earned more on an annual basis for agricultural work than those who found supplemental work outside of agriculture (\$8,036 compared to \$5,156, respectively).

Figure 49 summarizes the jobs and earnings data by industry sector for individuals working in agriculture only and those working in agriculture plus some other nonagricultural work. The 128,411 workers solely in crop production, along with the 51,010 crop production workers with jobs in other industries, emphasize the importance of crop production employment and its income to Washington workers.

Of the 146,255 Washingtonians who worked in agriculture in 2003, more than half (59.6 percent) did so again in 2004. About 10.7 percent of workers moved to nonagricultural industrial sector jobs in Washington and 40.4 percent dropped from agricultural work and were not accounted for in other industry sectors in Washington in 2004.



The 128,411 workers in crop production represent 85.3 percent of agricultural workers.

Figure 48

Components of 2004 Earnings for Multisector (Ag+Nonag) Type Workers

Source: Authors' calculations based on data provided by ESD

Industry Earnings	Average Annual Hours	Average Annual Hourly Wage	Average Annual Earnings
Agriculture Component	539	\$9.57	\$5,156
Nonagricultural Component	721	\$12.38	\$8,929
Total	1,260	\$11.17	\$14,085

Chapter 3—Hours and Earnings

Figure 49

Number of Agricultural Workers and Average Earnings by NAICS Code
Washington State - 2004

Source: Authors' calculations based on data provided by ESD

NAICS		Multi-Industry Workers Employed in Both Ag and Nonag Jobs			Specialized Workers Employed in Agriculture Only		
		Number of Workers	Avg Annual Earnings	Hourly Average	Number of Workers	Avg Annual Earnings	Hourly Average
Agricultural Production							
111	Crop Production	51,010	\$3,079	\$9.39	128,411	\$5,031	\$10.17
112	Animal Production	3,027	\$6,574	\$11.58	7,122	\$15,670	\$13.32
113	Forestry and Logging	244	\$7,661	\$13.19			
114	Fishing, Hunting, Trapping	111	\$6,643	\$14.00			
115	Support for Agriculture and Forestry	12,816	\$3,546	\$9.55	24,294	\$7,467	\$10.94
Value-Added Food Manufacturing							
311	Food Manufacturing	6,477	\$5,042	\$10.37			
312	Beverage Tobacco Prod. Manuf.	734	\$4,278	\$10.19			
Nonagricultural							
212	Mining (excl. Oil and Gas)	41	\$12,051	\$15.30			
213	Support for Mining	4	\$2,973	\$24.77			
221	Utilities	226	\$13,160	\$19.73			
23	Construction	4,966	\$7,306	\$15.29			
313-339	Manufacturing (excl. 311-312)	3,335	\$10,292	\$12.96			
41-42	Wholesale Trade 41-42	7,256	\$5,383	\$11.02			
44-45	Retail Trade	6,066	\$2,269	\$10.64			
48-49	Transportation and Warehousing	2,659	\$6,363	\$13.69			
51	Information	362	\$18,632	\$22.60			
52	Finance and Insurance Industry	429	\$19,756	\$18.79			
53	Real Estate and Rental and Leasing	882	\$5,446	\$12.07			
54-56	Professional, Scientific, Technical Svcs.	11,004	\$4,089	\$10.59			
611	Health Care and Social Assistance	4,366	\$11,141	\$15.96			
71	Arts, Entertainment & Recreation	7,715	\$4,647	\$9.04			
81	Other Services (excluding Public Admin.)	1,315	\$5,885	\$11.50			
92	Public Administration	1,645	\$10,604	\$17.40			

*Weighted averages from Agy03-y04 steps0210 -Ag+Non-ag

Farm Operation Income

Figure 50 displays agricultural earnings in Washington in 2003 and compares the changes from 2001 to 2003 for both Washington and the United States. Both Washington's agriculture and the nation's agriculture indicate increases in farm operators' cash receipts from marketing of commodities. Total cash receipts for agriculture in Washington were \$5.46 billion in 2003, up 1.9 percent from 2001. This compares with a 5.6 percent increase nationally. In Washington, total receipts from livestock fell 12.4 percent from 2001 to 2003, and its share of total agricultural receipts dropped from 35.4 percent to 30.4 percent. This sector decline was offset with the proportion of agricultural income from crops increasing by 9.8 percent from 2001 to 2003—thus bringing crop's share of cash receipts from marketing in Washington to 69.6 percent. Unlike Washington State, the rest of the nation shows industry differences with livestock and products counting for half of farm income, 52.6 percent, and crops for the rest of income at 43.4 percent. In Washington State, livestock receipts continued to fall from 2001 to 2003, whereas income from crops of fruit increased 19.2 percent, vegetables increased 44.2 percent, and greenhouse, nursery, and mushrooms increased 6 percent. For the nation,



In Washington State, livestock receipts continued to fall from 2001 to 2003, whereas income from crops of fruit; vegetables; and greenhouse, nursery, and mushrooms increased.

Chapter 3—Hours and Earnings



...reflective of the shift towards increasing fruit and vegetable crops, hired farm labor is an important component of expenses and showed an especially large increase...

total livestock receipts were down 0.9 percent and total crop receipts were increased by 13.8 percent with most of this increase associated with total grains.

In Washington State, 2001 to 2003 production expenses for farmers increased 4.6 percent whereas the rest of the nation was not as heavily hit with production expenses, increasing by only 0.8 percent. In Washington, reflective of the shift towards increasing fruit and vegetable crops, hired farm labor is an important component of expenses and showed an especially large increase of 11.5 percent from 2001 to 2003. Washington farmers realized a serious net income change in 2003 with a decrease of 49.1 percent from 2001. This was significantly different than the national statistic, which showed a 23 percent net income increase for farmers. Most of the decline in proprietor income in Washington is associated with values of inventory held. Proprietor income overall in Washington fell by almost half (47.6 percent) from 2001 to 2003 and did not do as well as the nation. At the national level, proprietor income saw an increase of 14.7 percent.

Figure 50

Agricultural Cash Receipts, Income, and Expenditures, Washington and U.S.

Source: Authors' calculations based on data provided by ESD

	Washington		Percent Change 2001-2003	U.S. Percent Change 2001-2003
	2001	2003		
Total Cash Receipts from Marketings (\$000)	\$5,355,210	\$5,458,068	1.9%	5.6%
Total Livestock and Products	\$1,893,149	\$1,657,803	-12.4%	-0.9%
Meat Animals and Other Livestock	\$909,429	\$816,208	-10.3%	4.8%
Dairy Products	\$822,000	\$671,792	-18.3%	-14.0%
Poultry and Poultry Products	\$161,720	\$169,803	5.0%	-2.9%
Total Crops	\$3,462,061	\$3,800,265	9.8%	13.8%
Total Grains	\$531,961	\$529,393	-0.5%	24.7%
Hay, Silage, etc.	\$301,688	\$303,895	0.7%	-4.8%
Vegetables	\$306,815	\$442,355	44.2%	10.1%
Fruits and Nuts	\$1,273,653	\$1,519,099	19.3%	10.4%
Greenhouse, Nursery and Mushroom Products	\$362,681	\$384,539	6.0%	4.6%
Other Income	\$756,966	\$632,030	-16.5%	-7.9%
Government Payments				-23.1%
Production Expenses	\$5,547,200	\$5,802,737	4.6%	0.8%
Hired Farm Labor Expenses	\$1,366,322	\$1,523,546	11.5%	-2.9%
Total Cash Receipts and Other Income	\$6,112,176	\$6,090,098	-0.4%	3.6%
less: Total Production Expenses	\$5,547,200	\$5,802,737	4.6%	0.8%
Realized Net Income	\$564,976	\$287,361	-49.1%	23.3%
plus: Value of Inventory Change	-\$200,665	-\$67,454	-66.4%	796.8%
Total Net Income Including Corporate Farms	\$364,311	\$219,907	-39.6%	24.0%
less: Net Income of Corporate Farms	\$150,147	\$107,587	-28.3%	47.7%
plus: Statistical Adjustment	(L)	(L)		-121.2%
Total Net Farm Proprietors' Income	\$214,174	\$112,318	-47.6%	14.7%
plus: Farm Wages and Perquisites	\$1,006,755	\$1,177,392	16.9%	-1.7%
plus: Farm Supplements to Wages and Salaries	\$182,975	\$186,670	2.0%	-4.6%
Total Farm Labor and Proprietors' Income	\$1,403,904	\$1,476,380	5.2%	6.5%

(L) Less than \$50,000 or less than 10 jobs, as appropriate, but the estimates for this item are included in the total.

Chapter 4—Unemployment Claims

Claims by Industry

Employment in agriculture is highly seasonal and there are periods throughout the year when jobs in agriculture are less available. Workers in Washington are eligible for unemployment insurance if they work a minimum of 680 hours of covered employment during the base year, are unemployed through no fault of their own and are here in the United States legally. Understanding the trends in unemployment claims is important given that the seasonal workforce makes up such a large portion of the agricultural workforce in Washington.

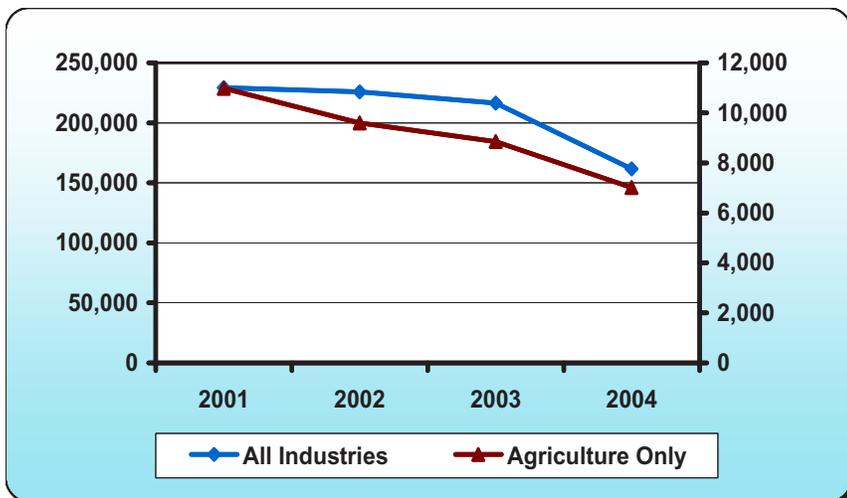
Looking at year-over-year change in the number of claims in agriculture versus all industries gives us an insight into the agricultural workforce. From 2001 to 2004 there was a decline in the number of unemployment claims in agriculture and for all industries. However, unemployment insurance claims in agriculture decreased faster than all industries from 2001 to 2003, but fell quicker for all industries in 2004 (Figure 51). Specifically, there was a 12.6 percent decline in unemployment claims in agriculture in 2002 and a 7.85 percent decline in 2003. There was only a 1.5 percent decline in unemployment claims for all industries in 2002 and a 4.15 percent decline in 2003. In 2004, claims in agriculture declined rapidly by 20.8 percent and in all industries by 25.3 percent.

Tracking the filing of unemployment claims throughout the year allows further insight into the agricultural workforce, as well as facilitating planning for the coming year. Annually from 2001-2004, agricultural unemployment claims averaged around 4-5 percent of the total unemployment claims in the state. The need for agricultural workers in the state is at its lowest after harvest is completed in late fall, and the availability of most fieldwork does not pick up again until early spring. Related industries such as food processing and wholesale fruit and vegetable operations are also at their annual lows during the winter months. Agricultural work starts to pick up again in February and



Employment in agriculture is highly seasonal and there are periods throughout the year when jobs in agriculture are less available.

Figure 51
Total Unemployment Insurance Claims, Washington, 2001-2004
Source: Authors' calculations based on data provided by ESD



Chapter 4—Unemployment Claims



By April 2004 there were expanded employment opportunities with the return of spring weather and the total number of continued claims in agriculture fell by 51.3 percent...

March in grapes; April and May for asparagus; June and July for harvesting berries and cherries and for apple thinning; August for pears, potatoes, and vegetable crops; and finally for apple harvest in September through October.

Agricultural workers smooth their seasonal income with unemployment insurance benefits between the peak employment times. As shown in *Figure 52*, from 2001-2004, agricultural employment inversely mirrored the number of unemployment claims filed.

In January 2004, unemployment claims for the State Regular Entitlement Unemployment Compensation from Continuing Claimants totaled 150,001 across all industries, while workers last employed in agriculture numbered 11,055 (*Figure 53*). Agricultural claims represented 7.4 percent of the total claims that month, a percentage essentially unchanged from a year earlier. By April 2004 there were expanded employment opportunities with the return of spring weather and the total number of continued claims in agriculture fell by 51.3 percent (January to April), while total claims across all industries only fell by 29 percent. This was largely driven by a surge of 6,562 agricultural jobs in the state in April.

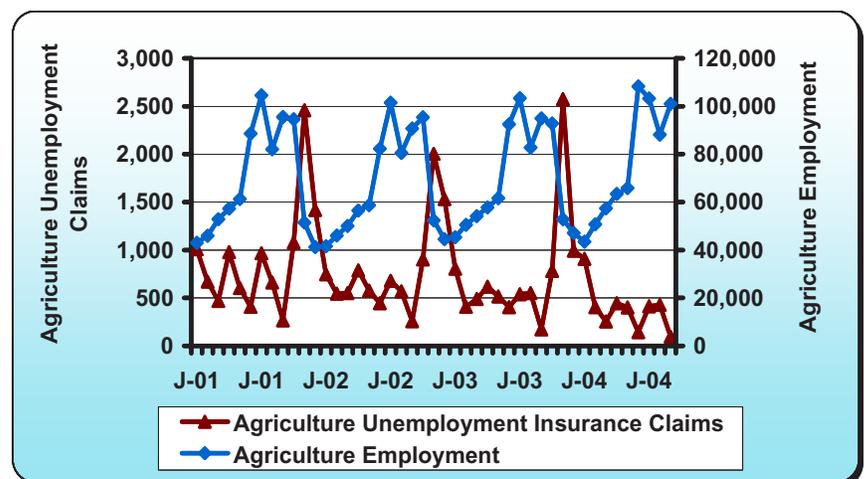
From April to July 2004, continued claims in agriculture decreased by 40.8 percent, representing 2,196 fewer claims; whereas for all continued claims in that same period the decrease was only 21.6 percent. This drop in agricultural continued claims corresponds to the addition of 36,402 agricultural jobs in the state in May and July.

In August 2004, agricultural claims rose by 48 percent, whereas claims for all industries only rose by 2.4 percent. This was largely due to employment losses in cherries and berries.

September continued claims in agriculture declined dramatically by 54.8 percent, while all claims dropped by only 11.8 percent. The dramatic decline in

Figure 52

Trends in Agricultural Employment and Unemployment Insurance Claims
 Source: Authors' calculations based on data provided by ESD



Chapter 4—Unemployment Claims

Figure 53

Unemployment Claims for Agriculture and All Industries, Washington State, 2001-2004

Source: Authors' calculations based on data provided by ESD

	2001 Ag CCs	2001 All CCs	% of Ag CCs of All CCs in 2001	2002 Ag CCs	2002 All CCs	% of Ag CCs of All CCs in 2002	2003 Ag CCs	2003 All CCs	% of Ag CCs of All CCs in 2003	2004 Ag CCs	2004 All CCs	% of Ag CCs of All CCs in 2004
JAN	10,682	121,819	8.77%	12,103	180,222	6.72%	11,033	163,542	6.75%	11,055	150,001	7.37%
FEB	9,175	118,654	7.73%	9,806	169,266	5.79%	8,701	149,086	5.84%	8,270	130,389	6.34%
MAR	8,101	118,792	6.82%	8,802	165,784	5.31%	7,619	148,637	5.13%	6,346	118,411	5.36%
APR	7,314	125,264	5.84%	7,703	157,877	4.88%	6,781	139,158	4.87%	5,384	106,538	5.05%
MAY	5,637	110,271	5.11%	6,246	141,167	4.42%	5,410	127,791	4.23%	4,707	95,399	4.93%
JUNE	4,919	108,860	4.52%	5,332	135,164	3.94%	5,066	126,562	4.00%	3,204	87,733	3.65%
JULY	4,584	113,183	4.05%	4,285	129,005	3.32%	4,182	116,573	3.59%	3,188	83,534	3.82%
AUG	6,009	108,886	5.52%	5,869	119,034	4.93%	6,085	113,776	5.35%	4,733	85,532	5.53%
SEPT	4,004	105,545	3.79%	3,895	117,489	3.32%	3,436	107,704	3.19%	2,137	75,433	2.83%
OCT	4,133	116,322	3.55%	3,193	114,220	2.80%	4,177	107,125	3.90%	2,725	78,500	3.47%
NOV	9,435	137,938	6.84%	8,591	129,188	6.65%	9,058	122,721	7.38%	6,605	88,701	7.45%
DEC	11,809	162,422	7.27%	11,526	154,934	7.44%	10,635	137,002	7.76%	7,504		
ALL	85,802	1,447,956	5.93%	87,351	1,713,350	5.10%	82,183	1,559,677	5.27%	65,858		5.07%

CCs - Continued Claims

Figure 54

Year over Year Percent Change in Unemployment Claims for Agriculture and All Industries, Washington State, 2001-2004

Source: Authors' calculations based on data provided by ESD

	Percent Change in Ag Claims 2001-2002	Percent Change in Ag Claims 2002-2003	Percent Change in Ag Claims 2003-2004	Percent Change in All Claims 2001-2002	Percent Change in All Claims 2002-2003	Percent Change in All Claims 2003-2004
JAN	13.30%	-8.84%	0.20%	47.94%	-9.26%	-8.28%
FEB	6.88%	-11.27%	-4.95%	42.66%	-11.92%	-12.54%
MAR	8.65%	-13.44%	-16.71%	39.56%	-10.34%	-20.34%
APR	5.32%	-11.97%	-20.60%	26.04%	-11.86%	-23.44%
MAY	10.80%	-13.38%	-12.99%	28.02%	-9.48%	-25.35%
JUNE	8.40%	-4.99%	-36.75%	24.16%	-6.36%	-30.68%
JULY	-6.52%	-2.40%	-23.77%	13.98%	-9.64%	-28.34%
AUG	-2.33%	3.68%	-22.22%	9.32%	-4.42%	-24.82%
SEPT	-2.72%	-11.78%	-37.81%	11.32%	-8.33%	-29.96%
OCT	-22.74%	30.82%	-34.76%	-1.81%	-6.21%	-26.72%
NOV	-8.95%	5.44%	-27.08%	-6.34%	-5.01%	-27.72%
DEC	-2.40%	-7.73%	-29.44%	-4.61%	-11.57%	
Average Monthly Percent Change	1.81%	-5.92%	-19.86%	18.33%	-8.97%	-23.47%

Chapter 4—Unemployment Claims



The number of continued claims in October increased 27.5 percent, in November, a dramatic 142.4 percent, and in December a 13.6 percent increase.

agriculture claims was mostly driven by apple harvest workers, but hops and potatoes workers also contributed.

For October through December 2004, the number of continued claims in agriculture increased each month. In October there was a 27.5 percent increase, November a dramatic 142.4 percent increase (as the apple harvest wound down), and 13.6 percent increase in December.

In 2004, with the exception of January, the number of claims filed was less than the number filed in the same month a year earlier (*Figure 54*). The highest declines were observed in June with 36.75 percent fewer claims and 37.81 percent in September.

These declines in continuing claims were spread across all sub-industries in agriculture (*Figure 55*). The most sizeable declines were in dairy farms with a 27.5 percent decline in 2004, general farms with a 20.3 percent decline and Irish potatoes with an 18.8 percent decline. Field crops, vegetables and melons, and berry farms had 15-17 percent declines. More moderate declines of 12-13 percent were observed in deciduous tree fruits, crop preparation, grapes, and farm labor. The smallest declines occurred in ornamental floriculture (-10.5 percent) and wheat (-0.49 percent).

Likewise, the decline in agriculture industry claims in 2004 was spread amongst all occupational groups (*Figure 56*). Occupational groups with the most change were information and record clerks with a 25.9 percent decline and other management occupations with a 24.7 percent decline. Agricultural workers showed a 12.2 percent decline, slightly better than the two categories with the least decline in 2004—construction trade workers (-9.4 percent) and retail sales workers (-5.4 percent). The moderate decline in claims by agricultural workers was exceeded by greater declines in 7 of the other 9 occupational groups.



Agricultural workers showed a 12.2 percent decline, slightly better than the two categories with the least decline in 2004—construction trade workers and retail sales workers.

Figure 55

Detailed Agricultural Industries
Most Continuing Claims in 2004

Source: Authors' calculations based on data provided by ESD

NAICS	2003	2004	% Change 2003-2004
Deciduous Tree Fruits	8,364	7,322	-12.46%
Crop Prep.	4,884	4,257	-12.84%
Field Crops	1,605	1,363	-15.08%
General Farms	1,282	1,022	-20.28%
Ornamental Floriculture	1,061	950	-10.46%
Grapes	860	750	-12.79%
Vegetables and Melons	775	645	-16.77%
Irish Potatoes	791	642	-18.84%
Wheat	405	403	-0.49%
Berry Farms	304	255	-16.12%
Dairy Farms	338	245	-27.51%
Farm Labor	219	189	-13.70%

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Figure 56

Detailed Agricultural Industries

Top 10 in Number of Continuing Claims in 2004

Source: Authors' calculations based on data provided by ESD

NAICS	2002	2003	2004	Percent Change 02-03	Percent Change 03-04
Construction Trades Workers	48,574	45,834	41,517	-5.64%	-9.42%
Other Production Occupations	30,970	25,763	20,541	-16.81%	-20.27%
Material Moving Workers	21,804	18,076	14,684	-17.10%	-18.77%
Agricultural Workers	17,317	15,768	13,840	-8.94%	-12.23%
Other Management Occupations	16,637	17,052	12,832	2.49%	-24.75%
Motor Vehicle Operators	16,354	15,249	13,106	-6.76%	-14.05%
Retail Sales Workers	15,480	13,703	12,964	-11.48%	-5.39%
Other Office and Administrative Support Workers	11,667	11,745	10,080	0.67%	-14.18%
Computer Specialists	13,596	11,362	8,900	-16.43%	-21.67%
Information and Record Clerks	14,021	11,028	8,167	-21.35%	-25.94%



Hired Farm Worker Demographics

While some demographic information is collected from farm workers in connection with unemployment insurance claims, there is no other year-to-year demographic data collected on farm workers in Washington. Nonetheless, understanding the demographic characteristics of farm workers, who have worked on Washington farms in the past, helps in planning for the coming year in terms of recruiting and hiring workers. Ensuring there are enough workers at the peak employment times is critical to the economic success of many Washington farm operators. Furthermore, farm workers move into specific areas of the state during these peak employment times, understanding their demographic profile can offer insight into their impact on the local economies.

National sources of information regarding farm workers in the United States can offer some insight on the probable profile of hired farm workers coming into Washington each year. The Economic Research Service (ERS) has compiled information on hired agricultural workers in the U.S. in 2002 from the Current Population Survey Earnings Microdata File (U.S. Department of Labor, Bureau of Labor Statistics). The ERS has compiled the information so that the national profile of hired farm workers can be compared to the profile of all wage and salary workers. The ERS also separates out the demographic profile of hired farm workers by census regions: Northeast, Midwest, South, and West. So while the national profile offers some insight, the profile for hired farm workers in the west is particularly useful as Washington is part of that census region¹. Highlights of the ERS findings are summarized here.

Hired farm workers in this discussion include those paid to manage farms for employers, supervisors of farm workers, and farm and nursery workers in 2002. According to the ERS summary, almost half of the hired farm work-

...understanding the demographic characteristics of farm workers, who have worked on Washington farms in the past, helps in planning for the coming year in terms of recruiting and hiring workers.



Hired farm workers include those paid to manage farms for employers, supervisors of farm workers, and farm and nursery workers...

¹The west region also includes California, Oregon, Idaho, Montana, Wyoming, Nevada, Utah, Colorado, Arizona, and New Mexico.

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Figure 57

Top Employing States for Hired Farm Workers

Source: Calculated by ERS Using Data from the Current Population Survey Earnings Microdata File

Top 5 Employing States	Number of Workers (in Thousands)	Percent of National Total (Percent)
California	225	28
Texas	75	10
North Carolina	27	4
Florida	26	3
Washington	26	3
Total	379	48

ers in the United States in 2002 were located in the top five states. This group includes Washington, which was ranked fifth in the nation with 3 percent annually of hired farm workers in the U.S. (*Figure 57*).

Profile of Hired Farm Workers in the U.S.



Hired farm workers in the U.S. are predominantly male (78.7), whereas in the general population of wage and salary workers males comprise just over half (51.8 percent).

A little over half (52 percent) of U.S. hired farm workers are white and another 42 percent are Hispanic. The remaining 5.8 percent are either black or some other race or ethnicity. These proportions contrast with U.S. wage and salary workers overall who are predominantly white, at 72.1 percent, with only 11.6 percent Hispanic, and 16.3 percent are black or other (*Figure 58*). Hired farm workers in the U.S. are predominantly male (78.7), whereas in the general population of wage and salary workers males comprise just over half (51.8 percent). Hired farm workers in the U.S. are slightly younger with a median age of 35 compared to the median age of all wage and salary workers of 39.

Hired farm workers in the U.S. are considerably less educated than all wage and salary workers. Fifty-two percent of hired farm workers in the U.S. have less than 12 years of school and only 20 percent of workers have some college or more. In contrast, only 12.4 percent of all U.S. wage and salary workers have less than a high school degree; and over half (57.1 percent) have some college or more (*Figure 58*).

The west has the largest proportion (44.8 percent) of hired farm workers in comparison to the other regions (due primarily to California, the leading state in terms of agricultural employment, being in the west region). By comparison, across all U.S. wage and salary workers, only 22.4 percent are in the west.

Finally, hired farm workers in the U.S. contrast with all wage and salary workers in one other dramatic way; just over one-third of hired farm workers are not U.S. citizens, whereas only 8.2 percent of all wage and salary workers are not U.S. citizens (*Figure 59*).

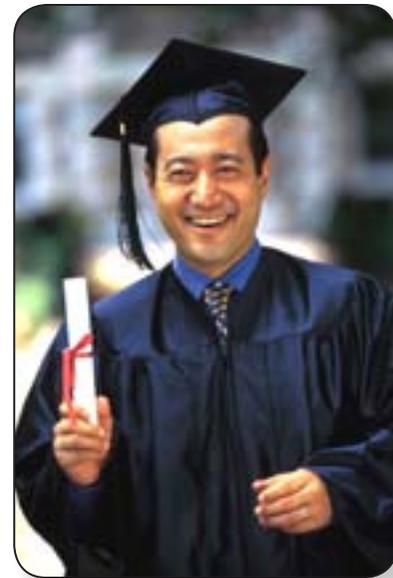
Chapter 4—Unemployment Claims

Figure 58

Demographic Characteristics of Hired Farm Workers and All Wage and Salary Workers in the U.S., 2002

Source: Calculated by ERS Using Data from the Current Population Survey Earnings Microdata File

Race/Ethnicity	Hired Farm Workers		All Wage and Salary Workers	
	Number of Workers	Percent of National Total	Number of Workers	Percent of National Total
White	413	52.2	86,609	72.1
Hispanic	333	42.0	13,969	11.6
Black and Other	47	5.8	19,513	16.3
Gender				
Male	624	78.7	62,179	51.8
Female	169	21.3	57,912	48.2
Age				
Less Than 20	104	13.1	6,670	5.6
20-24	129	16.3	12,932	10.8
25-34	162	20.4	26,994	22.5
35-44	182	22.9	31,271	26.0
45-54	122	15.4	26,563	22.1
55 and Over	94	11.9	15,660	13.0
Median Age	35 years		39 years	
Education				
0-4 Years	88	11.1	856	0.7
5-8 Years	158	19.9	3,218	2.7
9-11 Years	168	21.2	19,842	9.0
12 Years	219	27.6	36,592	30.5
13 or More Years	160	20.2	68,582	57.1
Region				
Northeast	--	6.2	--	18.9
Midwest	--	18.3	--	23.7
South	--	30.7	--	35.0
West	--	44.8	--	22.4
Total	793		120,091	



Fifty-two percent of hired farm workers in the U.S. have less than 12 years of school and only 20 percent of workers have some college or more.

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Two-thirds of hired farm workers in the west are Hispanic in contrast to only two-fifths throughout the country.

Figure 59

Citizenship Status of Hired Farm Workers and All Wage and Salary Workers in the U.S., 2002

Source: Calculated by ERS Using Data from the Current Population Survey Earnings Microdata File

Citizenship Status	Hired Farm Workers (Percent)	All Wage and Salary (Percent)
Native, Born in U.S.	61.0	85.4
Native, Born in Puerto Rico or U.S. Outlying Area	0.2	0.6
Native, Born Abroad of American Parents	0.2	0.9
Foreign Born, U.S. Citizen by Naturalization	5.0	5.0
Foreign Born, not a U.S. Citizen	33.6	8.1
TOTAL	100	100

Figure 60

Type of Agricultural Work: U.S. Hired Farm Workers

Source: Calculated by ERS Using Data from the Current Population Survey Earnings Microdata File

Type of Work	Number of Workers in U.S. (in thousands)	Percent of National Total
Crop Production	370	46.7
Livestock Production	306	38.6
Agricultural Services	116	14.7
TOTAL	792	100

Nationally, nearly half of hired farm workers work in crop production, another 39 percent work in livestock production, with the remaining 15 percent working in agricultural services (*Figure 60*). In contrast, in the west a higher proportion (57.7 percent) of hired farm workers work in crop production.

Profile of Hired Farm Workers in the West

In comparison to all hired farm workers in the U.S., hired farm workers in the west are more likely to be Hispanic. Two-thirds of hired farm workers in the west are Hispanic in contrast to only two-fifths throughout the country (*Figure 61*). There doesn't appear to be much difference in gender and age when comparing hired farm workers in the west with all U.S. hired farm workers. Eighty percent in Washington versus 78.7 percent overall are male, and the median age is 35 in both.



Eighty percent of hired farm workers in Washington versus 78.7 percent overall are male, and the median age is 35 in both.

Hired farm workers in the west are somewhat less educated in comparison to all hired farm workers in the U.S. Two-thirds (66 percent) of workers in the west have less than 12 years of school, compared to 52.2 percent of all hired farm workers.

Workers in the west are also less likely to be U.S. citizens in comparison to all hired farm workers in the U.S., 42.4 percent versus 66.4 percent.

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Figure 61

Demographic Characteristics of Hired Farm Workers in the West Versus All Hired Farm Workers, 2002

Source: Calculated by ERS Using Data from the Current Population Survey Earnings Microdata File

Race/Ethnicity	Hired Farm Workers in the West	All Hired Farm Workers in the U.S.
	Percent	Percent
White	27.8	52.2
Hispanic	68.0	42.0
Black and Other	4.2	5.8
Gender		
Male	80.3	78.7
Female	19.7	21.3
Age		
Less Than 20	9.6	13.1
20-24	16.8	16.3
25-34	22.7	20.4
35-44	29.0	22.9
45-54	12.6	15.4
55 and Over	9.3	11.9
Median Age:	35	35
Education		
0-4 Years	20.0	11.1
5-8 Years	28.4	19.9
9-11 Years	17.6	21.2
12 Years	16.4	27.6
13 or More Years	17.5	20.2
Type of Ag Work		
Crop Production	57.7	46.7
Livestock Production	21.9	38.7
Agricultural Services	20.4	23.3
Citizenship		
U.S. Citizen	42.4	66.4
Not U.S. Citizen	57.6	33.6



...hired workers in the west are more likely to work in crop production and less likely to work in livestock production in comparison to U.S. hired farm workers overall.

Finally, in terms of the type of work in agriculture, hired workers in the west are more likely to work in crop production and less likely to work in livestock production in comparison to U.S. hired farm workers overall. Among hired farm workers in the west, 57.7 percent work in crop production and 21.9 percent work in livestock production. By comparison, 46.7 percent of all hired farm workers in the U.S. work in crop production and 38.7 percent work in livestock production.

Chapter 4—Unemployment Claims

Unemployment Claims and Demographic Characteristics of Claimants

The race and ethnic distribution of continued claims under the Unemployment Insurance Program in 2004 reveals a similar pattern to that reported in the ERS in 2002. Sixty-nine percent of claimants in agriculture were Hispanic, another 26 percent were white, and the remaining 5 percent were black, Asian, or Native American (*Figure 62*). The continued claims for all industries in 2004 had 12 percent as Hispanic, 74 percent white, and 14 percent were black, Asian, or Native American. Assuming that the demographics of workers did not change dramatically between 2002 and 2004, the similar distributions of workers in agriculture and the unemployment claims suggests that no specific race or ethnic group within the agricultural workforce in Washington is disproportionately unemployed.



While in 2002 around 20 percent of hired farm workers in the west and nationally were female, the proportion of unemployment claims by female agricultural workers in 2004 was 35.95 percent.

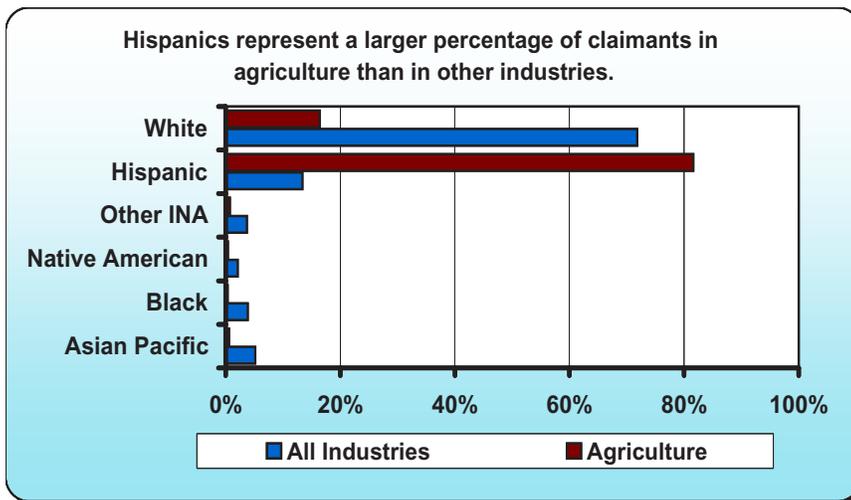
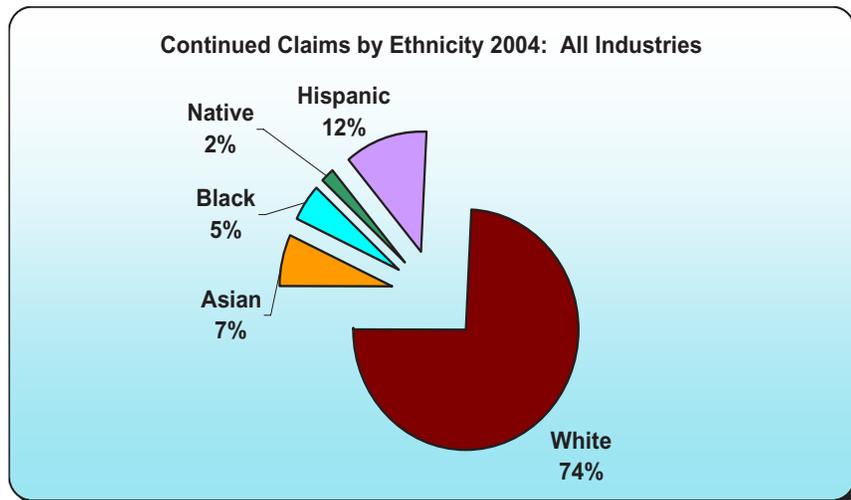
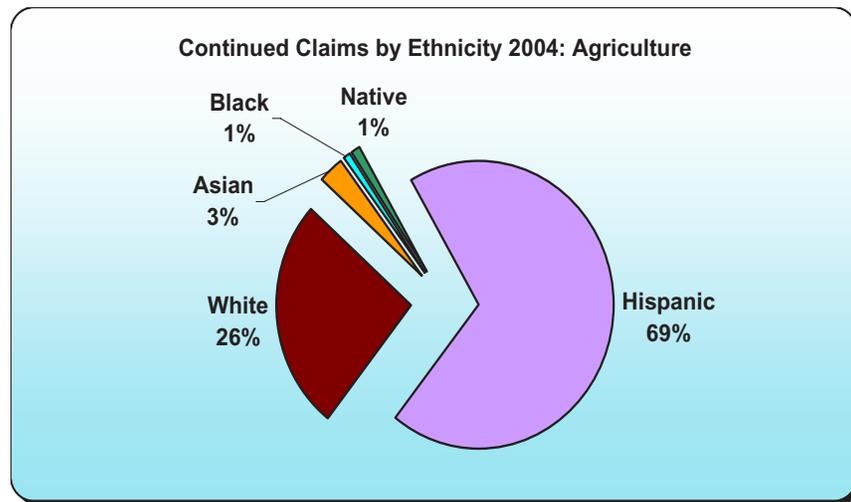
However, for unemployment insurance claimants in 2004, a different distribution is seen in the breakdown of male versus female hired workers. While in 2002 around 20 percent of hired farm workers in the west and nationally were female, the proportion of unemployment claims by female agricultural workers in 2004 was 35.95 percent. The higher proportion of female claimants in comparison to the proportion of hired farm workers who are female, suggests that females in agriculture are somewhat more likely to be unemployed in comparison to the male counterparts.

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Figure 62

Continued Claims by Ethnicity

Source: Authors' calculations based on data provided by ESD



Chapter 5—Outlook and Development



The FFS encompasses the vast range of employment activities of farm suppliers, farmers, processors, wholesalers, retailers, restaurants, fast food chains, and transporters.



The “state of origin of movement” includes: the state where the product began its export journey, the state where shipments are consolidated, the state of greatest value in case of consolidation, or the state with a foreign trade zone.

Export Markets, Trends, and Developments

Washington’s Export Markets

Washington’s economy and farmers strongly benefit from foreign trade of agricultural products. Exports of agricultural commodities and food products help boost prices farmers receive for production and farm income. Unlike other sectors of the U.S. economy, agriculture typically runs trade surpluses. In 2003, the total of all Washington State’s agricultural exports (origin of movement) was valued at \$6,479 million dollars.

To evaluate the benefits of international agricultural trade to Washington’s economy, the discussion has to widen beyond employment associated directly with agricultural production and food manufacturing. Nationally, the discussion of agricultural employment has been expanded to all farm-related employment and comprehensively includes employment associated with the food and fiber system (FFS). The FFS encompasses the vast range of employment activities of farm suppliers, farmers, processors, wholesalers, retailers, restaurants, fast food chains, and transporters. This larger network of workers is critical to meet the changing food demands of consumers in the U.S. and in other countries. According to ERS-USDA, the FFS provided jobs for 23.7 million workers in the U.S. and contributed more than \$1.24 trillion to the nations’ wealth in 2001. Of the FFS sectors, growth in services, trade, and food processing contributed the most to rising Gross Domestic Product.

The level of Washington’s agricultural exports can be viewed in two ways: origin of movement series and estimates of agricultural exports based on production. One source of state estimates for agricultural exports is the Foreign Agricultural Trade of the United States (FATUS) state export data. This series of information is collected by the U.S. Customs Service and distributed by the Census Bureau of the U.S. Department of Commerce.

Estimates for Washington’s agricultural exports from this source are based on “state of origin of movement” series. The “state of origin of movement” includes: the state where the product began its export journey, the state where shipments are consolidated, the state of greatest value in case of consolidation, or the state with a foreign trade zone. Washington estimates of exports of a particular commodity include all states where the origination for export (not production) is listed as a Washington port on the export declaration. A substantial portion of all agricultural exports leaves the U.S. from Washington’s ports and this confounds estimating Washington’s state level of actual agricultural exports. However, this helps explain how overall employment associated with exports can have a larger impact on the state’s economy. *Figure 63* provides the level of commodity exports based on origin of movement from Washington with grains and wheat topping the list. FATUS reports Washington’s reliance on agricultural exports is estimated at 36 percent, or about \$1.9 billion of its \$5.3 billion cash farm receipts from agriculture in 2003.¹

¹ Foreign Agricultural Service, State Fact Sheets, May 2005.

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This influx of agricultural commodities into Washington for export from other states augments Washington's food and fiber system. FFS employment was last estimated by the ERS-USDA in 1997 to be 524.6 thousand workers² and to have grown by more than 40 percent since 1981. At that time, Washington ranked 17th in the nation and was considered to be moderately dependent as a state on the food and fiber system for jobs. FFS employment was estimated at 17.6 percent of total state employment. *Figure 64* shows the FFS distribution

Figure 63

Value of Agricultural and Food Exports From Washington State
(Not all Were Originally Produced in Washington)

Source: Data Provided by WISER, at <http://www.wisertrade.org>,
U.S. Census Bureau, Foreign Trade Division

HTS Rank	Code		2002	2003	2004	Percent Increase 2002-2003	Percent Increase 2002-2004
TOTAL ALL COMMODITIES EXPORTED			34,626,548,518	34,172,826,419	33,792,503,705	-1.31	-1.11
Total All Agricultural and Food Commodities			4,005,006,794	5,594,727,238	6,479,166,932	39.7%	15.8%
2	10	Cereals	843,630,303	1,114,670,729	2,121,374,319	32.1	90.3
5	12	Oil Seed Etc.; Misc Grain, Seed, Fruit, Plant Etc.	705,083,827	1,663,790,739	1,476,000,149	136.0	-11.3
11	3	Fish, Crustaceans and Aquatic Invertebrates	505,430,569	532,830,501	552,332,265	5.4	3.7
12	8	Edible Fruit and Nuts; Citrus Fruit or Melon Peel	450,479,823	459,346,080	489,460,325	2.0	6.6
14	20	Prep Vegetables, Fruit, Nuts or Other Plant Parts	264,103,985	294,317,677	334,398,519	11.4	13.6
19	23	Food Industry Residues and Waste; Prep Animal Feed	133,402,852	150,343,956	218,854,370	12.7	45.6
20	16	Edible Preparation of Meat, Fish, Crustaceans Etc.	165,894,508	168,605,778	202,378,983	1.6	20.0
22	7	Edible Vegetables and Certain Roots and Tubers	141,931,078	157,659,837	143,920,388	11.1	-8.7
23	2	Meat and Edible Meat Offal	201,191,201	393,608,376	136,258,801	95.6	-65.4
24	4	Dairy Prods; Birds Eggs; Honey; Ed Animal Pr Nesoi	66,122,536	74,417,595	130,323,518	12.5	75.1
26	19	Prep Cereal, Flour, Starch or Milk; Bakers Wares	73,046,874	88,951,236	118,525,256	21.8	33.3
28	43	Furskins and Artificial Furs; Manufactures Thereof	75,971,283	69,450,979	98,368,313	-8.6	41.6
29	41	Raw Hides and Skins (No Furskins) and Leather	61,149,771	77,903,880	88,727,109	27.4	13.9
32	9	Coffee, Tea, Mate and Spices	59,642,097	66,070,052	76,444,271	10.8	15.7
34	13	Lac; Gums, Resins and Other Vegetable Sap and Extract	44,621,030	57,422,896	67,009,660	28.7	16.7
35	6	Live Trees, Plants, Bulbs Etc.; Cut Flowers Etc.	51,073,111	54,527,360	65,367,595	6.8	19.9
39	21	Misceallaneous Edible Preparations	40,350,284	41,196,484	52,231,339	2.1	26.8
50	15	Animal or Vegetable Fats, Oils Etc. and Waxes	26,751,358	42,058,773	28,821,173	57.2	-31.5
52	22	Beverages, Spirits and Vinegar	22,906,831	28,921,008	19,427,037	26.25	-32.83
59	5	Products of Animal Origin, Nesoi	25,377,582	16,911,004	11,208,543	-33.36	-33.72
61	17	Sugars and Sugar Confectionary	10,415,845	10,201,513	14,756,349	-2.06	44.65
66	18	Cocoa and Cocoa Preparartions	8,734,266	8,489,520	13,281,832	-2.8	56.45
67	11	Milling Products; Malt; Starch; Inulin; Wht Gluten	17,205,418	13,466,152	14,872,851	-21.73	10.45
80	1	Live Animals	9,308,203	8,317,891	4,191,048	-10.64	-49.61
91	51	Wool and Animal Hair, Including Yarn and Woven Fabric	231,074	597,325	327,617	158.5	-45.15
92	53	VegText Fib Nesoi; Veg Fib and Paper Yns and Wov Fab	256,100	238,810	129,399	-6.75	-45.82
97	67	Prep Feathers, Down Etc; Artif Flowers; H Hair Art	694,985	411,087	175,903	-40.9	-57.2

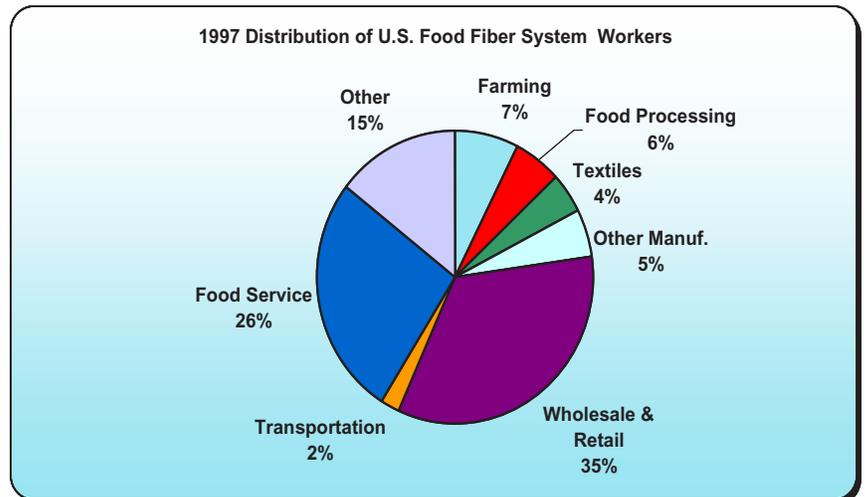
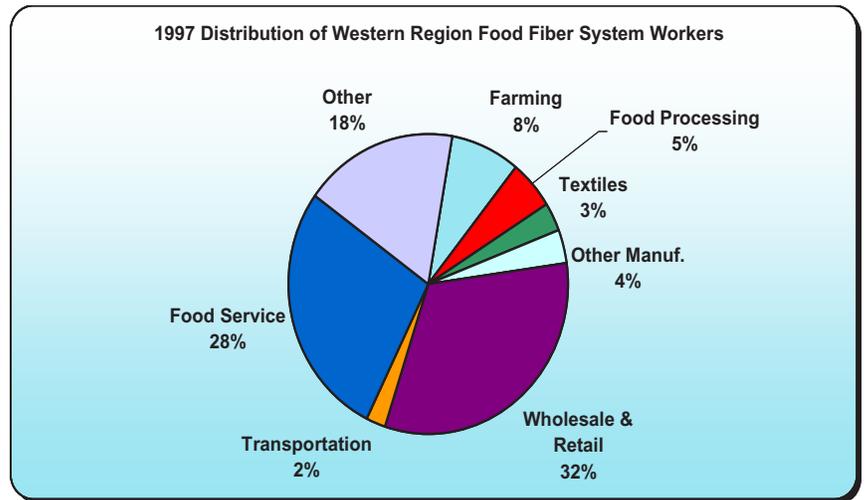
² "Where is Agriculture Important?" Rural Conditions and Trends, Vol. 10, No.2, Economic Research Service, United States Department of Agriculture.

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Figure 64

Washington State and U.S. Food Fiber System Workers, 1997

Source: Economic Research Service, U.S. Department of Agriculture



Due to its export reliance and extensive port system, Washington State has more of its total agricultural related employment located in metropolitan areas...

of jobs by sector in the Western region was very similar when compared to the U.S. as a whole. In both Washington and the nation, growth in farm-related jobs was concentrated at the consumer end of the delivery chain in wholesale, retail, transportation, and food service industries. The FFS was credited with providing more than 30,020 jobs³ in 2003 in Washington associated with exports.

Due to its export reliance and extensive port system, Washington State has more of its total agricultural related employment located in metropolitan areas (89 percent versus 85 percent) in comparison to the rest of the U.S. (Figure 65). The Washington-produced portion of the value of U.S. agricultural exports has generally increased since 1973 and on average risen by about 9 percent annually (Figure 66). The Economic Research Service estimates

³ "United States-Central America-Dominican Republic Free Trade Agreement. State Fact Sheets. FASonline, May 2005. www.FAS.USDA.gov/info.

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Figure 65

Rural Versus Urban Location of Washington and U.S. Farm-Related Employment, 2002

Source: Economic Research Service, USDA

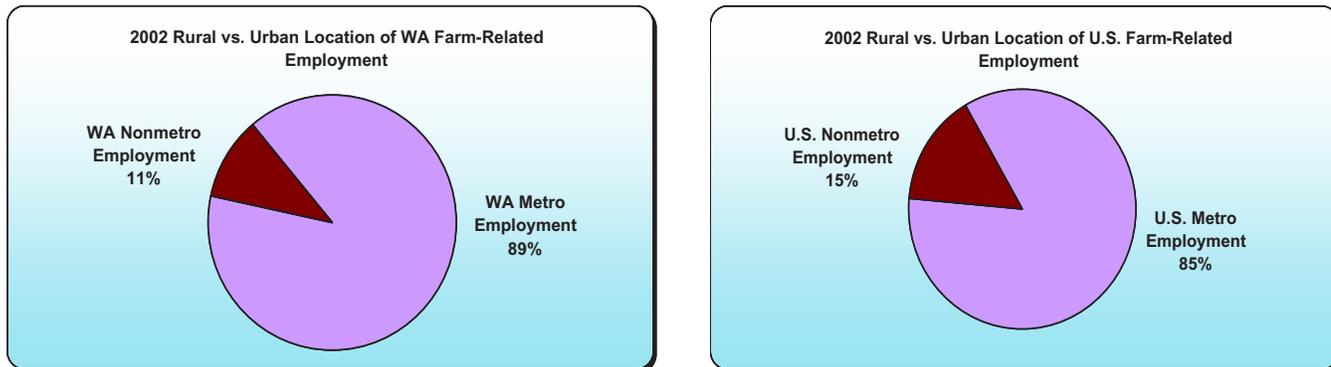
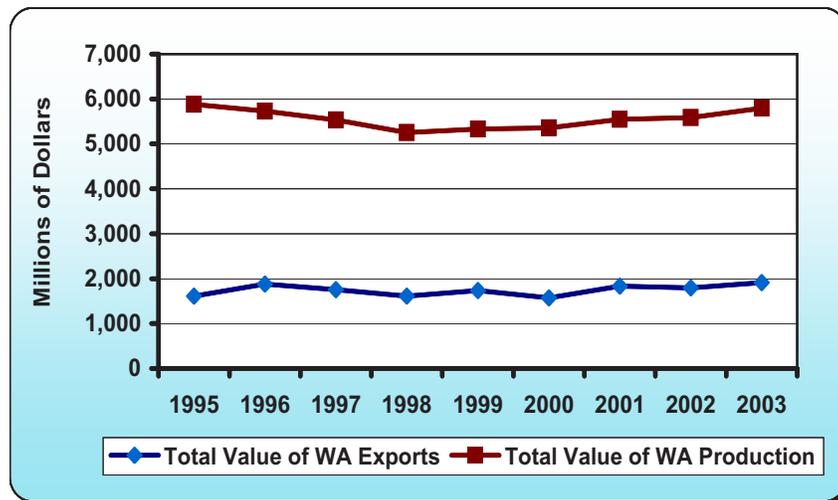


Figure 66

Value of Washington's Agricultural Exports (Produced in State)

Washington State, 1995-2003

Source: Economic Research Service, U.S. Department of Agriculture



that Washington agricultural exports from Washington's own production in 2003 were valued at \$1,912 million and that the value of exports has ranged from 27 percent to 33 percent of the value of production over the last nine years. Washington's value of exports from its own production increased more than the national value of agricultural exports (6.6 percent compared to 5.4 percent) in 2003. The ratio of Washington's own value of agricultural exports versus the value of agricultural exports from all sources is 3.4 (\$6,479 million versus \$1,912) in 2003. This means that international agricultural trade has more than three times the final impact on the state economy than if only Washington grown agricultural exports are considered.

FFS employment in Washington is most likely to experience continued growth into the future both from the state's growing level of local production and from increases in other state's agricultural exports passing through its ports.

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Washington Leading Trade Commodities



Cereal grains were the top Washington export, emphasizing that the state is not only a large producer of wheat but is also an important conduit for grain supplies passing through to Asia.

The mix of Washington's exports and markets has changed in the last 5 years. For example, export of meats declined dramatically by 65 percent from 2003 to 2004, more rapidly than other agricultural commodities as a result of changing consumer preferences and food safety-related trade barriers. Mad cow disease (BSE) in particular has been a concern, causing beef bans in some export markets. Trade is enhanced by trade agreements and likewise disrupted when restrictions are put in place. The value of groups of commodities exported is shown in *Figure 67*. This data reflects changes in values of commodities when agricultural exports of other states are added to Washington's.

Cereal Grains

Cereal grains were the top Washington export, emphasizing that the state is not only a large producer of wheat but is also an important conduit for grain supplies passing through to Asia. Market shares (*Figure 68*) have fluctuated amongst Asian countries for cereals, and miscellaneous grains, seeds, and fruits. Both Japan and Taiwan are important cereal grain markets, purchasing a quarter or more of all cereal exports that passed through Washington ports in the last 3 years. In the last year, Taiwan decreased cereal purchases by 15.7 percent and South Korea has increased purchases by more than 10 percent.

Figure 67

Value of Washington's Agricultural Exports
Washington State, 1995-2003

Source: Washington State Department of Agriculture

Washington Exports by Product U.S. \$ millions

			2000	2001	2002	2003	2004	Percent of 2004 Total	Percent Change 2004/2003
HTS Rank	Total All Commodities		3,655.6	4,210.0	3,866.8	5,446.2	6,291.8	100%	15.5%
10	1 Cereals		970.0	981.6	843.6	1,114.7	2,121.4	143.7%	90.3%
12	2 Misc Grain, Seed, Fruit		489.8	787.9	705.1	1,663.8	1,476.0	100.0%	-11.3%
3	3 Fish and Seafood		499.6	655.0	505.4	532.8	552.3	37.4%	3.7%
8	4 Edible Fruit and Nuts		409.2	448.2	450.5	459.3	489.5	33.2%	6.6%
20	5 Preserved Food		271.6	269.6	264.1	294.3	334.4	22.7%	13.6%
23	6 Food Waste; Animal Feed		111.9	120.0	133.4	150.3	218.9	14.8%	45.6%
16	7 Prepared Meat, Fish, Etc.		142.4	160.6	165.9	168.6	202.4	13.7%	20.0%
7	8 Vegetables		135.1	138.9	141.9	157.7	143.9	9.8%	-8.7%
2	9 Meat		248.6	206.8	201.2	393.6	136.3	9.2%	-65.4%
4	10 Dairy, Eggs, Honey, Etc.		35.9	60.6	66.1	74.4	130.3	8.8%	75.1%
19	11 Baking Related		57.4	64.2	73.0	89.0	118.5	8.0%	33.2%
	12 Other		130.4	128.5	120.7	128.4	106.9	1.7%	-16.8%
9	13 Spices, Coffee and Tea		40.2	54.1	59.6	66.1	76.4	5.2%	15.7%
13	14 Lac; Vegetabl Sap, Extract		46.7	56.0	44.6	57.4	67.0	4.5%	16.7%
6	15 Live Trees and Plants		35.4	47.4	51.1	54.5	65.4	4.4%	19.9%

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White Wheat

Exports of soft white wheat from Washington are favored by Asian countries such as Japan, Taiwan, Korea, and the Philippines. These countries import Washington wheat because of its quality and to offset inadequate domestic production. Soft white wheat from Washington is valued over other country suppliers of wheat particularly for its low protein content and softer baking texture that is needed for noodle, confectionary, and bakery production.

China is a large producer of wheat, but when adverse weather or disasters hamper production, it turns to other wheat supplying nations to gain enough supply to meet basic consumption. In recent years West Coast ports have increased shipments of wheat to China as a result of price advantages in ocean shipping rates. This has led China to trying Pacific Northwest (PNW) wheat as opposed to other U.S. wheat, and the hope is that they will like the quality and return as more than just token buyers of small quantities. Like other commodities, Washington's wheat trade with China has been impacted in the past by incidences of infestation of TCK smut (a fungus). Because of this pest, control will be important to sustaining market share.

Another factor impacting Washington grain trade is foreign consumer acceptance of genetic engineering of grains and use of biotechnology. Genetically modified (GM) wheat is not readily accepted by all countries and this poses a quandary for U.S. producers as China has expressed interest while Japan has not. Bulk generic grains are difficult to control for identification, so mixing of GM wheat with non-GM wheat could prove to be issues for keeping customers like Japan.



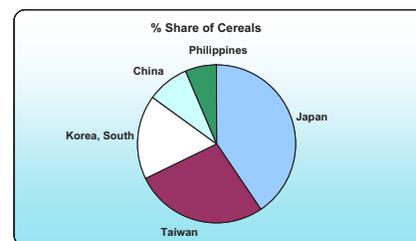
Soft white wheat from Washington is valued over other country suppliers of wheat particularly for its low protein content and softer baking texture...

Figure 68

Washington's Exports Leading Destinations
Washington State, 2004

(1) CEREALS (HS 10)

	U.S. Dollar millions			Percent Share			% Chg
	2002	2003	2004	2002	2003	2004	2003-04
1 Japan	246.2	331.6	762.9	29.2	29.8	36.0	130.1
2 Taiwan	270.3	440.3	509.3	32.0	39.5	24.0	15.7
3 Korea, South	102.0	59.4	322.9	12.1	5.3	15.2	443.6
4 China	4.5	0.8	158.8	0.5	0.1	7.5	19,750.0
5 Philippines	112.1	126.0	122.1	13.3	11.3	5.8	-3.1

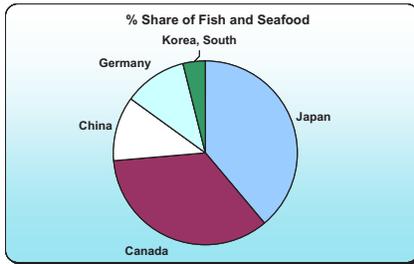


(2) MISC. GRAIN, SEED, FRUIT (HS 12)

	U.S. Dollar millions			Percent Share			% Chg
	2002	2003	2004	2002	2003	2004	2003-04
1 China	282.1	878.3	834.8	40.0	52.8	56.6	-5.0
2 Japan	148.2	169.0	225.1	21.0	10.2	15.3	33.2
3 Taiwan	143.2	216.2	138.3	20.3	13.0	9.4	-36.0
4 Korea, South	14.7	18.8	83.4	2.1	1.1	5.7	344.5
5 Indonesia	27.8	171.8	82.2	4.0	10.3	5.6	-52.1

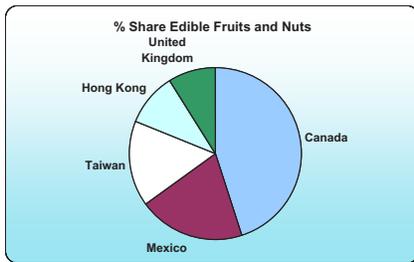
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(3) FISH AND SEAFOOD (HS 03)



	U.S. Dollar millions			Percent Share			% Chg
	2002	2003	2004	2002	2003	2004	2003-04
1 Japan	221.0	205.7	156.3	43.7	38.6	28.3	-24.0
2 Canada	131.4	133.9	139.6	26.0	25.1	25.3	4.3
3 China	16.9	40.5	45.2	3.4	7.6	8.2	11.5
4 Germany	17.0	18.4	44.7	3.4	3.5	8.1	143.4
5 Korea, South	26.0	24.1	16.1	5.2	4.5	2.9	-33.3

(4) EDIBLE FRUITS AND NUTS (HS 08)



	U.S. Dollar millions			Percent Share			% Chg
	2002	2003	2004	2002	2003	2004	2003-04
1 Canada	124.7	146.7	148.6	27.7	31.9	30.4	1.3
2 Mexico	96.7	72.2	65.8	21.5	15.7	13.4	-8.9
3 Taiwan	43.4	42.4	52.6	9.6	9.2	10.7	24.0
4 Hong Kong	33.2	42.5	32.7	7.4	9.3	6.7	-23.1
5 United Kingdom	17.1	22.6	29.5	3.8	4.9	6.0	30.3

(5) PRESERVED FOOD (HS 20)

	U.S. Dollar millions			Percent Share			% Chg
	2002	2003	2004	2002	2003	2004	2003-04
1 Japan	115.0	120.5	136.5	43.5	41.0	40.8	13.3
2 Canada	33.3	47.9	46.0	12.6	16.3	13.8	-4.0
3 Mexico	14.9	24.9	32.4	5.6	8.5	9.7	30.1
4 China	15.2	16.1	20.9	5.7	5.5	6.2	29.6
5 Korea, South	20.1	16.6	18.6	7.6	5.7	5.6	12.2

(6) FOOD WASTE, ANIMAL FEED (HS 23)

	U.S. Dollar millions			Percent Share			% Chg
	2002	2003	2004	2002	2003	2004	2003-04
1 Japan	49.0	49.2	67.5	36.8	32.7	30.8	37.2
2 Philippines	20.1	18.4	52.4	15.0	12.2	24.0	185.1
3 Indonesia	3.8	8.6	36.2	2.9	5.7	16.5	322.0
4 Australia	19.3	27.7	14.1	14.5	18.4	6.4	-49.1
5 Thailand	0.4	0.9	8.5	0.3	0.6	3.9	847.2

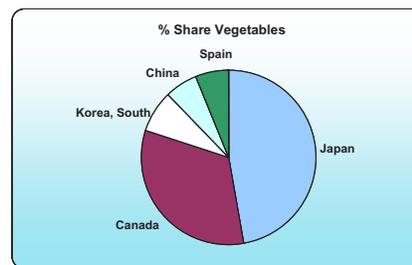
(7) PREPARED MEAT, FISH, ETC. (HS 16)

	U.S. Dollar millions			Percent Share			% Chg
	2002	2003	2004	2002	2003	2004	2003-04
1 Canada	62.9	77.0	92.8	37.9	45.7	45.8	20.4
2 United Kingdom	49.9	45.7	56.9	30.1	27.1	28.1	24.5
3 Australia	11.6	13.9	15.4	7.0	8.3	7.6	10.5
4 Mexico	3.0	4.7	10.0	1.8	2.8	4.9	113.9
5 Netherlands	7.6	7.4	6.4	4.6	4.4	3.2	-12.8

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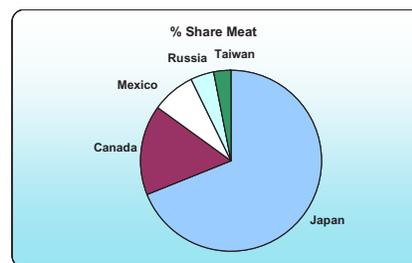
(8) VEGETABLES (HS 07)

		U.S. Dollar millions			Percent Share			% Chg
		2002	2003	2004	2002	2003	2004	2003-04
1	Japan	48.2	52.1	51.0	34.0	33.0	35.5	-2.0
2	Canada	52.4	43.1	35.6	36.9	27.3	24.7	-17.5
3	Korea, South	1.4	5.68.5	1.0	3.5	5.952.2		
4	China	2.4	6.86.7	1.7	4.3	4.7-0.4		
5	Spain	5.7	7.86.5	4.0	5.0	4.5-16.8		



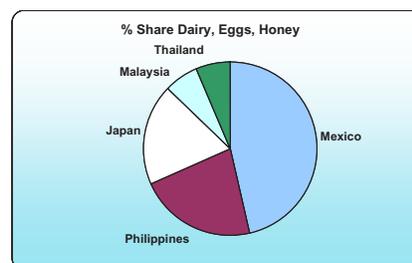
(9) MEAT (HS02)

		U.S. Dollar millions			Percent Share			% Chg
		2002	2003	2004	2002	2003	2004	2003-04
1	Japan	111.7	287.1	86.3	55.5	72.9	63.3	-70.0
2	Canada	6.1	4.820.5	3.0	1.2	15.1	326.7	
3	Mexico	3.7	5.89.5	1.9	1.5	7.064.4		
4	Russia	17.1	11.25.5	8.5	2.8	4.0-51.1		
5	Taiwan	3.2	5.43.7	1.6	1.4	2.7-32.0		



(10) DAIRY, EGGS, HONEY, ETC. (HS04)

		U.S. Dollar millions			Percent Share			% Chg
		2002	2003	2004	2002	2003	2004	2003-04
1	Mexico	7.3	11.946.211.0		15.9	35.5	290.0	
2	Philippines	8.6	9.721.813.0		13.1	16.7	123.9	
3	Japan	13.0	16.5	18.8	19.6	22.2	14.4	13.6
4	Malaysia	6.0	1.16.6	9.0	1.4	5.1519.8		
5	Thailand	9.5	4.26.2	14.4	5.7	4.848.2		



Apples

Washington has long held the position of leading apple producing and exporting state (*Figure 69*), and this contribution makes the U.S. one of the largest exporters in the world for apples. Washington's export share of the market has steadily increased from 54 percent in 1996 to almost 70 percent in 2004. Not all of this is attributable to the increases in Washington State's production. An increasing number of other states' apple and apple product exports are passing through Washington ports. Nonetheless, Washington is the lead-producing apple state with about 98.4 million boxes expected in the 2004 harvest.

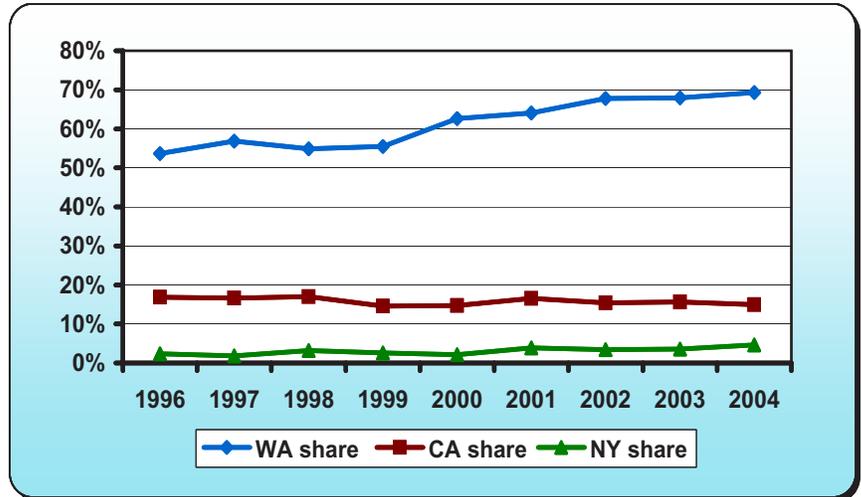
Since the early 1990s, Washington apple producers have made a concerted effort to increase revenues by adding new apple varieties, increasing acreage devoted to apples, and increasing tree planting densities. The Census of Washington apple producers have shown shifts in apple varieties⁴, and it was estimated that Washington production would move strongly away from Red

⁴ O'Rourke, D. (1999) "Trends in Production, Utilization and Price of Washington Apples to 2005" IMPACT Center information Series, Washington State University.

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Figure 69

Top Apple Producing States, Share of Total U.S. Apple Exports 1996-2002
Source: Data provided by WISER, at <http://www.wisertrade.org>, from U.S. Census Bureau, Foreign Trade Division



and Golden Delicious. Up to 25 percent of Washington State apple acreage by 2005 is likely to be in apple varieties not commercially available before 1990 (Fuji, Gala, Braeburn, etc). Washington's increasing share of apple market values does have implications for the potential of employment.

Emerging market exporters can threaten market share—China has quadrupled its apple industry since 1990 and market experts see Chinese competition to continue growing. In 2003 China produced 10 times the quantity of apples as Washington and is surpassing Washington in apple juice concentrate sales worldwide. China's apple exports increased almost 1,709 percent between 1990 and 2002. With such large production, China can take a strategic approach to capturing export market share by first selling at lower prices and getting a foot hold in markets and then in later years working towards improving apple quality.



Exports of Washington's dairy, eggs, and honey have increased to the state's top 5 trade partners in 2004.

Other threats to Washington exports are apple pests such as the fire blight, codling moths, and apple maggots, potentially leading to quarantines and bans. In 2004, twenty counties in Western Washington were placed under apple-maggot quarantine, threatening loss of Washington's "maggot-free" status. While commercial orchards are closely monitored, backyard apple trees are a continuing source for apple maggots. In 2004, Japan applied trade restrictions on Washington apples to prevent infestations of fire blight to Japanese orchards. Apple growers were also hit when the third largest apple market, Taiwan, put a ban in place after codling moth larvae were found in a shipment of U.S. apples from Oregon.

Dairy

Exports of Washington's dairy, eggs, and honey have increased to the state's top 5 trade partners in 2004. In Mexico, Philippines, and Japan, sales of the dairy, eggs, and honey commodity group have increased each of the past three

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years. Mexico's share of the state's exports has more than tripled since 2002, and in 2004 it purchased more than a third of the market value. The Philippines surpassed Japan in market share purchases of dairy, eggs, and honey purchases.

Despite these trade increases in dairy and other products, Washington dairy producers fear the effect of a trade pact with Australia. Australia has radically lower prices for these same products of butter, cheese, and skim-milk powder; passage of this agreement will reduce U.S. competitiveness for this industry's exports.

Meat, Beef, and Prepared Meats

Japan, for many years, has been a valuable Washington trade partner for meat products. Even though purchases by Japan were substantial in 2004 (exceeding \$86.3 million and representing 63.3 percent share), demand dropped by more than 70 percent from a year earlier. Some of the decline in meat purchases from Japan is attributed to lack of consumer confidence and fear associated with mad cow disease (Bovine Spongiform Encephalopathy or BSE). Conversely, Canada, United Kingdom, Australia, and Mexico have all increased purchases of prepared meat and fish, despite producing their own meat products.

Potatoes

Washington exports of potatoes and potato products in 2004 amounted to \$260 million dollars with shipments to more than 50 countries. The Pacific Northwest held about 75 percent of the frozen potato market. Export shipments from Washington account for just more than a third (34.2 percent) of U.S. potato exports. Washington's largest 5 trade partners in potatoes and their respective market shares in 2004 were Japan (39.4 percent), Canada (14.3 percent), Mexico (9.7 percent), China (7.5 percent), and Korea (6.3 percent). Japan has significantly increased imports of Washington potatoes over the last three years, with 2004 seeing an 18.14 percent increase. Despite importing more than \$37 million worth of potatoes each of the last three years, Canada reduced imports during the same period with a 6.86 percent loss in 2004. Mexico on the other hand, has more than doubled imports of potatoes since 2002 to over \$25 million. Korea also had significant imports worth \$16.2 million in 2004.

The largest potato agribusiness giant and french-fry processor in the Pacific Northwest has closed some potato processing plants in the last couple of years as a result of flat to declining demand in both U.S. and Asia. The global market for potatoes is described by industry as oversupplied. This situation is not helped by the increasing competition from the Midwest U.S. and Canada shipping low-valued products long distances to overseas markets. China, up until recent years, was a relatively large importer of potatoes, but now has its potato exports to Japan exceed \$60 million, approaching current Washington levels. Outlook for Washington potato exports are even more grim when pest concerns become an additional barrier to trade.



Japan, for many years, has been a valuable Washington trade partner for meat products.



Washington exports of potatoes and potato products in 2004 amounted to \$260 million dollars with shipments to more than 50 countries.

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Other Factors that Impact Agricultural Production, Exports, and Employment

NAFTA Trade Partners



Over the last 3 years, Japan and Korea have purchased less fish and seafood from Washington, while Germany, Canada, and China have purchased more.

Over the last 3 years, Japan and Korea have purchased less fish and seafood from Washington, while Germany, Canada, and China have purchased more. Under the North American Free Trade Agreement (NAFTA), exports to Canada and Mexico have increased, making them increasingly valuable importers of edible fruits and nuts, preserved foods, prepared meats and fish, and meats. Trade agreements like NAFTA and the Central America-Dominican Republic Free Trade Agreements (CAFTA-DR) help reduce tariffs and other barriers to trade that have stifled U.S. suppliers, while these countries have enjoyed duty free access to U.S. markets. For Washington fruit (apples, grapes, and berries) producers, CAFTA-DR may eliminate duties that were as high as 25 percent. Dairy products (with tariffs as high as 60 percent), beef (tariffs as high as 30 percent), and wheat (tariffs of 60-100 percent) will also gain duty-free status. The major goal of these two trade agreements is to level the playing field, benefiting Washington farmers.

Trends in Food Processing and Manufacturing

Food processing firms have been major contributors to the increase in sales of agricultural products. A significant portion of every crop is damaged or blemished, reducing its value as a commodity for sale. But, milk can be transformed into high-value products, such as ice cream, butter, cheese, or dry powdered milk. And, damaged apples can be converted into applesauce or frozen fruit juices, preserving them for consumption, and preventing overall loss. Processing can convert fresh potatoes to frozen French fries, allowing for interstate and foreign market transportation. The same is true for seafood and fish.

Consumers' tastes and preferences have shifted—some consumers prefer processed food products to fresh products, while other consumers have turned away from some manufactured food. Although foreign *consumers* have helped to increase the demand for some agricultural products, foreign *competitors* have accumulated enough market share to run Washington agriculture processing and manufacturing firms out of business. Food manufacturing and processing firms have indeed been in decline in Washington and the Northwest.

Food processing employment has experienced a decline, losing more than 2,500 workers from 1990 to 2003. These food processing job losses, however, were less severe than those experienced by all manufacturing firms in the state. Most of the change in employment, 78 percent, was attributed to structural changes (such as labor saving technology), while 22 percent was attributed to cyclical factors in the economy.

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Fruit and vegetable processing represents the largest sector of food processing employment, thus food processing employment now demonstrates an increasing need for seasonal workers. In addition, real per capita wages for food processing workers increased by 14 percent, while food processing, as a share of all employment, has fallen from 1.6 percent to less than 1.3 percent of all employment. Slow growth (+0.2 percent) for the industry is expected; this is much slower growth than expected for other industries. Food processing employment is expected to reach a low in 2004 to 2005, and then expected to increase 2.3 percent by 2007.⁵ The large job rebound forecasted is associated with the high job multipliers associated with manufacturing jobs; the food manufacturing multiplier is 3.97, indicating that, for every food manufacturing job created, almost 4 other jobs are created in the rest of the economy.

Consumer Confidence, Tastes, and Preferences

Consumers' tastes, preferences, and confidence can have huge impacts on food demand. Washington, the nation and foreign markets have seen recent declines in purchases of frozen and fresh potato products—as consumers are less willing to super size their consumption and try to follow healthier eating trends. Consumer tastes and preferences, expressed in the form of following low carbohydrate, high protein, and high fiber diets, focusing on foods with lower cholesterol, fewer pesticides, and “organic product” labels, guide consumers' food purchases.

Some consumers are extremely anxious about consuming beef (some have removed beef from their diet all together) due to the spread of Bovine Spongiform Encephalopathy (BSE)—also called Mad Cow Disease—throughout Europe, Canada, the U.S. and dozens of other countries. The human variant of BSE, Creutzfeld-Jacob Disease (vCJD), has no known cure or treatment, causing much uncertainty and fear on the part of beef consumers. These cases of BSE and vCJD have triggered trade policy changes and sudden declines in beef sales in many beef-consuming countries. This has hurt the beef industries in the U.S. and many country exporters of beef.

The U.S. has implemented strict policies that ban imports of live ruminants and ruminant products and that control imports of cattle feed ingredients. Fast food corporations and meat wholesalers are requiring meat packers to provide documentation that cattle have met FDA standards for feed and feed consumption. Some restaurants have chosen to take beef dishes off their menus and have replaced them with close alternatives to beef (such as lamb, pork, chicken or even upscale vegetable recipes).

Food safety is described as a “credence attribute,” or an attribute that is not easy for consumers to detect, or evaluate, at time of consumption.⁶ Labels on meat products have been shown as a good way to market meat quality. But,



Fruit and vegetable processing represents the largest sector of food processing employment...



Some consumers are extremely anxious about consuming beef due to the spread of Bovine Spongiform Encephalopathy (BSE)—also called Mad Cow Disease...

⁵ Wallace, Dave. (2005) Food Processing. Workforce Explorer Washington. <http://www.workforceexplorer.com>

⁶ Kamimura, Gary (2005) “Why Manufacturing Counts: A Labor Market Perspective. <http://www.workforceexplorer.com>

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for food safety or testing claims to be effective, testing processes, inspections, labeling systems, and monitoring systems must be controlled and reliable. So, restoring consumer confidence in the meat production and meat processing industry will require rigorous adherence to source and feed documentation, including a trusted labeling system for beef products.

Conclusions



Producers of fruit crops, cereal crops, and livestock also deal with increased risk and uncertainty, due to changing consumer tastes, preferences, health concerns, and trade restrictions of importing countries.

Washington agriculture continues to play an important role in supplying jobs, earnings, and production value to Washington's economy. Agriculture in Washington has proven it is dynamic, changing in response to U.S. and foreign trade market demands. Fruit and vegetable crop values have increased to be the greatest share of total agricultural production value in Washington. This shift in commodity production implies increased risk for producers in the form of foreign competition. China has the potential to fiercely dominate apple exports in Asian markets, having some price advantages—such as the ability to sell large quantities at low prices due to cheaper shipping costs and labor. Producers of fruit crops, cereal crops, and livestock also deal with increased risk and uncertainty, due to changing consumer tastes, preferences, health concerns, and trade restrictions of importing countries.

Labor-intensive crops of tree fruit, cherries, and berries require the availability of a seasonal workforce. When crops ripen early (so that harvest times of different commodities overlap), greater numbers of seasonal workers are needed; producers need to be able to increase the workforce in the short term. Allowing Thai workers to enter Washington under the H-2A visa program, for example, is a creative and effective solution for producers. Farmers may otherwise lose money from crops left on the ground to rot, while Washington's economy also loses jobs that may have been created by the multiplier effect—an estimated four jobs are created in the economy for every food manufacturing job created. Processed and high-value commodity exports like fruit juices and sweet cherries have a proportionately larger effect on the economy than bulk exports such as wheat. Food processing and manufacturing firms create additional jobs, as they add value to raw agricultural products and as they require transportation, storage, and handling of these commodities.

Appendix I

Total Agricultural Employment in Washington State, Statewide, and by Area, 2004 (Benchmark: March 2004)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	AVG
WASHINGTON	57,730	67,030	75,460	83,000	87,010	131,050	148,470	120,130	133,350	123,820	74,820	63,970	97,150
BELLINGHAM MSA	2,350	2,550	2,780	2,850	3,150	4,010	6,460	4,660	3,470	3,290	3,170	3,010	3,480
BREMERTON PMSA	300	330	370	400	430	450	460	430	400	380	390	380	390
OLYMPIA PMSA	1,420	1,510	1,640	1,780	1,900	1,930	2,030	1,960	1,810	1,560	1,440	1,380	1,700
RICHLAND-KENNEWICK-PASCO MSA	5,230	6,800	8,260	11,380	12,100	19,430	15,610	13,980	15,140	12,830	7,630	6,050	11,200
SEATTLE-BELLEVUE-EVERETT PMSA	2,780	3,310	3,580	3,810	4,080	4,500	5,060	4,630	4,620	4,150	3,320	3,050	3,910
SPOKANE MSA	1,140	1,290	1,470	1,650	1,770	1,820	1,980	1,810	1,690	1,490	1,310	1,190	1,550
TACOMA PMSA	1,370	1,560	1,850	1,830	2,030	2,290	2,650	2,320	2,160	1,750	1,670	1,450	1,910
CHELAN-DOUGLAS LMA	7,540	8,390	9,290	9,240	9,350	18,890	24,120	13,820	19,460	15,510	9,320	7,670	12,720
YAKIMA MSA	13,120	15,370	17,340	18,910	19,610	33,610	33,230	29,470	34,170	28,080	15,730	14,540	22,770
ADAMS	1,270	1,560	1,840	1,880	2,150	2,860	3,770	3,420	3,730	3,920	1,850	1,400	2,470
ASOTIN	120	130	150	170	170	190	440	310	220	300	150	130	210
CLALLAM	270	300	330	350	380	410	450	410	370	320	300	290	350
CLARK	900	1,060	1,200	1,240	1,390	1,540	1,870	1,590	1,430	1,130	1,060	950	1,280
COLUMBIA	200	220	250	270	270	320	360	390	320	290	230	230	280
COWLITZ	460	540	600	680	760	1,260	1,080	930	700	560	470	400	700
FERRY	90	110	120	130	140	150	160	150	130	110	100	100	120
GARFIELD	140	150	160	180	180	190	240	260	200	180	160	150	180
GRANT	4,940	5,630	6,490	7,280	8,180	11,030	12,020	10,990	13,400	13,320	7,460	5,440	8,850
GRAYS HARBOR	300	430	460	380	410	440	480	420	400	390	340	290	390
ISLAND	250	260	300	310	320	350	360	340	360	330	300	260	310
JEFFERSON	110	120	140	150	160	180	170	160	150	140	130	110	140
KITTITAS	740	870	1,020	1,440	1,040	1,250	1,380	1,300	1,560	1,680	1,110	620	1,170
KLICKITAT	940	1,120	1,280	1,510	1,440	2,440	3,000	2,270	2,320	2,110	1,440	1,090	1,750
LEWIS	940	1,060	1,140	1,200	1,260	1,360	1,520	1,480	1,310	1,130	1,180	1,010	1,210
LINCOLN	540	590	650	680	710	760	920	1,040	800	730	630	590	720
MASON	340	350	370	410	440	470	510	490	470	560	560	480	450
OKANOGAN	3,490	3,960	3,960	4,160	4,290	7,170	11,360	7,180	10,280	8,940	4,780	3,680	6,100
PACIFIC	290	300	340	350	370	390	410	370	340	370	290	270	340
PEND OREILLE	100	110	120	130	140	150	160	160	140	120	100	100	130
SKAGIT	2,380	2,740	3,160	3,140	3,010	4,210	6,080	5,850	5,130	4,110	3,160	2,650	3,800
SAN JUAN	110	110	120	130	150	170	170	170	150	140	130	110	140
SKAMANIA	70	80	90	100	90	100	120	110	110	140	80	70	100
STEVENS	550	630	710	780	850	890	930	850	790	690	610	560	740
WAHKIAKUM	50	50	60	60	70	70	70	70	60	50	50	50	60
WALLA WALLA	2,100	2,540	2,860	3,060	3,170	4,610	5,670	4,760	4,350	4,320	3,190	2,440	3,590
WHITMAN	820	900	1,000	1,010	1,050	1,160	1,370	1,590	1,200	1,120	980	900	1,090

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

Appendix II

Employment of Seasonal Workers by Activity in Washington, Statewide and by Agricultural Reporting Areas, 2004

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
STATE TOTALS	8,322	12,460	16,503	23,065	24,128	60,140	59,467	39,525	51,760	49,650	16,179	12,585	31,149
APPLES, TOTAL	4,735	6,685	7,903	7,776	8,736	17,339	20,642	19,046	34,960	39,348	10,363	7,739	15,439
APPLE PRUNING	4,559	5,980	5,969	1,224	802	86	543	871	597	0	558	5,585	2,231
APPLE THINNING	0	480	724	2,281	2,711	15,585	16,706	2,004	92	0	0	0	3,382
APPLE HARVESTER	0	0	0	0	0	0	86	10,721	32,304	37,124	6,093	0	7,194
APPLE SORT, GRADE, PACK	90	84	89	92	94	179	175	673	661	779	770	959	387
OTHER APPLE ACTIVITIES	86	141	1,121	4,179	5,129	1,489	3,132	4,777	1,306	1,445	2,942	1,195	2,245
CHERRIES, TOTAL	216	557	973	631	561	26,554	18,222	1,202	131	26	51	581	4,142
CHERRY PRUNING	146	481	837	355	79	0	108	42	0	12	42	550	221
CHERRY HARVESTER	0	0	0	0	6	22,283	9,723	660	0	0	0	0	2,723
OTHER CHERRY ACTIVITIES	70	76	136	276	476	4,271	8,391	500	131	14	9	31	1,198
PEARS, TOTAL	402	459	344	172	132	612	321	2,814	2,951	858	514	448	836
PEAR PRUNING	268	410	341	107	58	185	34	0	0	47	262	362	173
PEAR THINNING	0	0	0	0	0	301	124	0	0	0	0	0	35
PEAR HARVESTER	0	0	0	0	0	0	50	2,199	2,141	43	0	0	369
OTHER PEAR ACTIVITIES	134	49	3	65	74	126	113	615	810	768	252	86	258
OTHER TREE FRUIT WORKERS	216	121	217	748	351	147	1,168	2,719	1,100	91	74	141	591
GRAPE WORKERS	434	1,223	1,556	1,500	1,803	1,787	2,083	1,500	1,241	1,134	690	588	1,295
BLUEBERRY WORKERS	104	320	8	24	0	99	1,416	924	486	283	39	109	318
RASPBERRY WORKERS	515	158	281	425	403	966	5,736	942	443	908	854	941	1,048
STRAWBERRY WORKERS	0	0	127	94	254	2,018	639	46	30	24	0	0	269
BULB WORKERS	107	345	1,164	534	85	38	341	222	118	108	95	99	271
HOP WORKERS	0	10	664	284	635	158	110	105	1,729	10	10	0	310
NURSERY WORKERS	647	981	1,165	1,458	2,212	1,680	1,714	1,099	854	352	1,268	591	1,168
WHEAT/GRAIN WORKERS	19	28	125	139	166	169	445	847	319	277	90	59	224
ASPARAGUS WORKERS	0	0	14	5,202	6,217	4,080	234	47	11	68	0	0	1,323
CUCUMBER WORKERS	11	26	0	6	7	29	150	551	230	0	0	0	84
ONION WORKERS	458	618	828	1,171	164	898	1,231	1,543	1,287	781	354	82	785
POTATO WORKERS	200	163	364	763	696	564	934	1,648	2,296	2,630	606	318	932
MISC VEGETABLE WORKERS	34	162	147	701	455	1,344	2,322	2,901	2,134	1,668	566	159	1,049
OTHER SEASONAL WORKERS	224	604	623	1,437	1,251	1,658	1,759	1,369	1,440	1,084	605	730	1,065

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

Appendix II

Employment of Seasonal Workers by Activity in Washington, Statewide and by Agricultural Reporting Areas, 2004

WESTERN - AREA 1

ACTIVITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
TOTAL	1,507	1,988	2,778	3,093	2,906	4,773	10,541	5,396	3,661	2,930	2,371	1,722	3,639
BLUEBERRY WORKERS	104	320	8	24	0	99	1,416	924	486	283	39	109	318
RASPBERRY WORKERS	515	158	281	425	403	966	5,736	942	443	908	854	941	1,048
STRAWBERRY WORKERS	0	0	127	80	225	1,848	434	12	26	24	0	0	231
BULB WORKERS	107	345	1,164	534	85	38	341	222	118	108	95	99	271
CUCUMBER WORKERS	11	26	0	6	7	29	150	551	230	0	0	0	84
POTATO WORKERS	130	58	81	108	93	68	37	127	280	568	222	172	162
MISC. VEGETABLE WORKERS	5	34	39	292	91	151	659	1,544	1,020	598	190	16	387
NURSERY WORKERS	567	943	980	1,240	1,749	1,376	1,472	879	741	287	831	352	951
RHUBARB WORKERS	20	72	36	259	186	83	15	0	0	0	0	0	56
OTHER SEASONAL WORKERS	48	32	62	125	67	115	281	195	317	154	140	33	131

SOUTH CENTRAL - AREA 2

ACTIVITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
TOTAL	2,332	3,359	4,360	5,884	6,348	18,971	15,456	11,214	15,280	12,714	3,739	3,556	8,601
APPLES, TOTAL	1,616	1,929	2,285	2,000	1,505	6,522	6,825	4,307	9,097	10,607	2,485	2,824	4,334
APPLE PRUNING	1,520	1,403	1,563	800	480	0	250	52	0	0	68	1,222	613
APPLE THINNING	0	480	497	20	604	6,201	6,260	925	86	0	0	0	1,256
APPLE HARVESTER	0	0	0	0	0	0	86	900	8,448	9,734	1,733	0	1,742
APPLE SORT, GRADE, PACK	65	22	32	19	19	179	164	472	367	480	346	615	232
OTHER APPLE ACTIVITIES	31	24	193	1,161	402	142	65	1,958	196	393	338	987	491
CHERRIES, TOTAL	40	91	393	327	315	8,561	4,927	337	6	12	30	26	1,255
CHERRY PRUNING	40	91	352	261	57	0	71	0	0	12	30	26	78
CHERRY HARVESTER	0	0	0	0	0	4,984	2,668	0	0	0	0	0	638
OTHER CHERRY ACTIVITY	0	0	41	66	258	3,577	2,188	337	6	0	0	0	539
PEARS, TOTAL	239	390	307	126	47	376	129	2,044	1,976	494	399	175	559
PEAR PRUNING	239	390	307	107	47	185	0	0	0	47	253	175	146
PEAR THINNING	0	0	0	0	0	191	79	0	0	0	0	0	23
PEAR HARVESTER	0	0	0	0	0	0	50	2,015	1,516	0	0	0	298
OTHER PEAR ACTIVITIES	0	0	0	19	0	0	0	29	460	447	146	0	92
OTHER TREE FRUIT, TOTAL	139	27	95	205	197	0	726	2,168	859	0	9	5	369
OTHER TREE FRUIT PRUNER	139	27	95	94	0	0	0	0	0	0	0	5	30
OTHER TREE FRUIT HARVESTER	0	0	0	0	0	0	379	1,753	589	0	0	0	227
OTHER TREE FRUIT ACTIVITIES	0	0	0	111	197	0	347	415	270	0	9	0	112
GRAPES, TOTAL	282	817	832	659	1,044	1,139	1,390	999	891	747	524	324	804
GRAPE PRUNING	277	424	677	263	0	66	0	0	5	0	19	304	170
GRAPE HARVESTER	0	0	0	0	0	0	0	0	378	455	0	0	69
OTHER GRAPE ACTIVITY	5	393	155	396	1,044	1,073	1,390	999	508	292	505	20	565
ASPARAGUS WORKERS	0	0	4	1,877	2,224	1,448	221	32	11	49	0	0	489
HOPS, TOTAL	00	307	113	371	96	34	74	1,273	10	0	0	190	
HOP TWINING & TRAINING	00	0	56	360	64	0	0	0	3	0	0	40	
HOP HARVESTER	00	0	0	0	0	0	0	812	0	0	0	68	
OTHER HOP ACTIVITY	00	307	57	11	32	34	74	461	7	0	0	82	
ONION WORKERS	0	0	0	57	65	159	54	288	341	167	86	0	101
POTATO WORKERS	0	0	10	9	0	0	154	300	75	27	0	0	48
MISC. VEGETABLE WORKERS	9	25	54	117	110	196	497	282	265	316	75	141	174
OTHER SEASONAL WORKERS	7	80	73	394	470	474	499	383	486	285	131	61	279

Appendix II

Employment of Seasonal Workers by Activity in Washington, Statewide and by Agricultural Reporting Areas, 2004

NORTH CENTRAL - AREA 3

ACTIVITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
TOTAL	2,047	3,073	3,587	4,457	4,295	16,188	19,167	10,350	15,554	15,395	5,000	3,051	8,514
APPLES, TOTAL	1,761	2,764	3,267	3,866	4,061	3,554	7,196	9,027	14,324	14,827	4,854	2,641	6,012
APPLE PRUNING	1,694	2,656	2,445	130	98	13	168	294	238	0	18	2,263	835
APPLE THINNING	0	0	227	2,028	394	2,779	4,764	5	6	0	0	0	850
APPLE HARVESTER	0	0	0	0	0	0	0	6,933	13,215	14,051	2,834	0	3,086
APPLE SORT, GRADE, PACK	25	62	57	73	75	0	11	201	294	299	424	344	155
OTHER APPLE ACTIVITIES	42	46	538	1,635	3,494	762	2,253	1,594	571	477	1,578	34	1,085
CHERRIES, TOTAL	43	134	171	49	48	12,224	11,387	720	125	5	9	99	2,085
CHERRY PRUNING	43	130	150	0	22	0	0	0	0	0	0	84	36
CHERRY HARVESTER	0	0	0	0	0	11,790	5,814	605	0	0	0	0	1,517
OTHER CHERRY ACTIVITIES	0	4	21	49	26	434	5,573	115	125	5	9	15	531
PEARS, TOTAL	104	48	34	43	33	123	90	264	889	347	42	187	184
PEAR PRUNING	29	20	34	0	11	0	34	0	0	0	9	187	27
PEAR THINNING	0	0	0	0	0	110	45	0	0	0	0	0	13
PEAR HARVESTER	0	0	0	0	0	0	0	184	625	43	0	0	71
OTHER PEAR ACTIVITIES	75	28	0	43	22	13	11	80	264	304	33	0	73
OTHER TREE FRUIT WORKERS	60	21	13	86	58	135	292	218	83	91	12	22	91
OTHER SEASONAL WORKERS	79	106	102	413	95	152	202	121	133	125	83	102	143

COLUMBIA BASIN - AREA 4

ACTIVITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
TOTAL	1,184	1,618	2,178	3,040	3,604	6,805	6,318	5,576	8,407	9,948	2,497	1,784	4,413
APPLES, TOTAL	836	1,121	1,487	1,338	1,885	3,177	3,291	3,115	6,522	8,127	1,494	1,032	2,785
APPLE PRUNING	823	1,092	1,120	194	206	73	105	480	292	0	403	929	476
APPLE THINNING	0	0	0	68	808	2,880	2,630	713	0	0	0	0	592
APPLE HARVESTER	0	0	0	0	0	0	0	969	5,788	7,692	183	0	1,219
OTHER APPLE ACTIVITIES	13	29	367	1,076	871	224	556	953	442	435	908	103	498
CHERRIES, TOTAL	24	155	142	128	71	2,187	1,369	84	0	9	3	123	358
CHERRY PRUNING	22	123	130	35	0	0	0	42	0	0	3	123	40
CHERRY HARVESTER	0	0	0	0	6	2,005	1,081	0	0	0	0	0	258
OTHER CHERRY ACTIVITIES	2	32	12	93	65	182	288	42	0	9	0	0	60
PEAR WORKERS	59	21	3	3	52	113	102	506	86	17	73	86	93
MINT WORKERS	0	0	31	10	62	3	18	42	16	15	23	14	20
OTHER TREE FRUIT WORKERS	0	45	22	333	85	0	17	188	12	0	45	46	66
ASPARAGUS WORKERS	0	0	8	458	485	73	13	7	0	0	0	0	87
ONION WORKERS	116	137	105	140	5	31	72	88	268	231	148	69	118
POTATOES, TOTAL	70	101	160	346	442	327	349	623	1200	1313	168	139	437
POTATO HARVESTER	0	0	0	0	0	0	0	0	53	186	0	0	20
POTATO SORT, GRADE, PACK	50	60	4	55	151	163	214	405	488	513	84	103	191
OTHER POTATO ACTIVITIES	20	41	156	291	291	164	135	218	659	614	84	36	226
MISC VEGETABLE WORKERS	0	0	3	17	29	297	460	340	56	26	3	2	103
WHEAT/GRAIN WORKERS	0	0	26	10	7	35	139	165	48	42	22	0	41
NURSERY WORKERS	77	14	90	58	316	227	215	206	74	16	428	237	163
OTHER SEASONAL WORKERS	2	24	101	199	165	335	273	212	125	152	90	36	143

Appendix II

Employment of Seasonal Workers by Activity in Washington, Statewide and by Agricultural Reporting Areas, 2004

SOUTH EASTERN - AREA 5

ACTIVITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
TOTAL	1,213	2,337	3,347	6,211	6,596	13,036	7,563	6,198	8,471	8,287	2,454	2,386	5,675
APPLES, TOTAL	522	871	864	572	1,285	4,086	3,330	2,597	5,017	5,787	1,530	1,242	2,309
APPLE PRUNING	522	829	841	100	18	0	20	45	67	0	69	1,171	307
APPLE THINNING	0	0	0	165	905	3,725	3,052	361	0	0	0	0	684
APPLE HARVESTER	0	0	0	0	0	0	0	1,919	4,853	5,647	1,343	0	1,147
OTHER APPLE ACTIVITIES	0	42	23	307	362	361	258	272	97	140	118	71	171
CHERRIES, TOTAL	109	177	267	127	127	3,582	539	61	0	0	9	333	444
CHERRY PRUNING	41	137	205	59	0	0	37	0	0	0	9	317	67
CHERRY HARVESTER	0	0	0	0	0	3,504	160	55	0	0	0	0	310
OTHER CHERRY ACTIVITIES	68	40	62	68	127	78	342	6	0	0	0	16	67
OTHER TREE FRUIT WORKERS	17	28	87	124	11	12	133	145	146	0	8	68	65
GRAPE WORKERS	152	406	724	841	759	648	693	501	350	387	166	264	491
ASPARAGUS WORKERS	0	0	2	2,867	3,508	2,559	0	8	0	19	0	0	747
HOP WORKERS	0	10	357	171	264	62	76	31	456	0	10	0	120
ONION WORKERS	342	481	723	974	94	708	1,105	1,167	678	383	120	13	566
POTATOES, TOTAL	0	4	113	300	161	169	394	598	741	722	216	7	285
POTATO HARVESTER	0	0	0	0	0	0	13	63	62	79	14	0	19
POTATO SORT, GRADE, PACK	0	0	16	133	148	104	242	452	424	335	178	0	169
OTHER POTATO ACTIVITIES	0	4	97	167	13	65	139	83	255	308	24	7	97
MISC VEGETABLE WORKERS	0	31	15	16	39	617	691	735	793	728	298	0	330
WHEAT/GRAIN WORKERS	10	5	21	18	15	8	92	101	16	33	10	6	28
NURSERY WORKERS	0	2	4	6	4	2	1	0	0	1	1	2	2
STRAWBERRY WORKERS	0	0	0	14	29	170	205	34	4	0	0	0	38
OTHER SEASONAL WORKERS	61	322	170	181	300	413	304	220	270	227	86	451	250

EASTERN - AREA 6

ACTIVITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
TOTAL	39	85	253	380	379	367	422	791	387	376	118	86	307
WHEAT/GRAIN, TOTAL	9	23	78	111	144	126	214	581	255	202	58	53	155
WHEAT/GRAIN HARVESTER	0	0	0	0	0	0	0	8	0	0	0	0	1
WHEAT/GRAIN EQPMT OPERATOR	9	20	42	19	36	30	139	524	210	113	29	0	98
OTHER WHEAT/GRAIN ACTIVITY	0	3	36	92	108	96	75	49	45	89	29	53	56
NURSERY WORKERS	3	22	91	154	143	75	26	14	39	48	8	0	52
OTHER SEASONAL WORKERS	27	40	84	115	92	166	182	196	93	126	52	33	101

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 Worker - 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 1 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 the Migrant and Seasonal Agricultural Worker Protection Act (MSPA) 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.