



Status of Organic Tree Fruit in Washington State and Other Regions: 2010

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Summary

Washington State is the leading U.S. producer of organic apples, pears, and cherries. Organic apples represented 9.7% of the state’s total apple area and 7% of sales volume in 2010. Following several years of rapid expansion in Washington (+123% from 2004 to 2009), certified acreage dropped 6%, from 15,735 acres in 2009 to 14,800 acres in 2010. Despite the downturn in area, organic apple sales volume continued to increase in the 2010/2011 market year, and exceeded the 5.9 million boxes (40 lb SEB)² sold the previous year. By mid- June 2011, season sales volume was 6.68 million boxes compared to 5.84 million boxes for the same date the previous year. Total season sales will likely be around 7 million boxes. Galas and Fujis made up 45% of the total area; Red Delicious had less than 10%.

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² SEB is Standard equivalent box, currently set at 40 lb for Washington State apples; 44 lb for pears, 20 lb for dark sweet cherries and 15 lb for Rainier cherries.

Washington organic pear area continued to increase at a modest rate, similar to the past four seasons, with 2,033 acres certified in 2010, a 4% annual growth from the previous year. Washington organic pears had an 8.5% share of all state pear acres. Green Bartlett and D'Anjou varieties accounted for 64% of state organic pear area; Bosc had 15%. Northwest (Washington and Oregon) organic pear sales volume increased 53% between 2001 and 2010. Organic sales share was 4.5% with over 711,619 boxes (44 lb SEB) sold in 2010/11, down from 769,809 the previous year). Total 2010/11 season sales for all pears were estimated at 17.8 million boxes.

Average conventional and organic apple and pear prices fell during the 2008/09 season, resulting in lower premiums. Prices have continued to lag behind 2007/08 prices, except for conventional pears. Given that apple sales continued to expand despite the downturn in acres indicates improved market demand. Increasing sales volume may result in continued producer interest to maintain or expand acres in the future despite recent lower premiums.

Washington organic cherries represented 5.8% of the total state cherry area in 2010. Certified acreage declined 12%, from 2,437 acres in 2009 to 2,147 acres in 2010, following significant growth in each of the previous five years. Washington organic cherry sales volume for 2009 totaled 541,962 boxes (20/15 lb. SEB). Early season forecasts predicted a potential of 700,000 boxes for the 2010 season; however, actual shipped volume was just under 245,000 boxes. Organic share of total cherry sales volume was estimated at 2.7% in 2010, down from 5.8% in 2009.

Transition acreage for all Washington tree fruit has declined notably since its peak in 2007. Producers apparently responded to the significant price drops in 2008 (apple) and 2009 (pear) and scaled back on future expansion of organic. Based on 2010 transition acreage little, if any, growth in state organic tree fruit area is predicted for 2011.

Introduction

Washington State is the leading producer of organic apples, pears, and cherries in the U.S. These crops contribute significant economic value to the state economy. Despite recent growth, the organic sector is still relatively small and subject to considerable price and market volatility. The data presented in this report are intended to provide a reference for those trying to understand the historical trends for organic fruit production in the state, along with the price and sales volume information. The report focuses exclusively on the fresh fruit market, as most fruit is produced for and sold to this market in contrast to regions that grow more for processing.

Methods

WSU-CSANR has compiled statistics on organic tree fruit production in Washington since 1998 in order to provide annual updates with current, detailed information for industry planning, decision making, and risk management. The reports have included historical information on certified and transition acreage by variety (where available), state distribution of area, and market information. Annual organic statistics information is posted on-line at http://csanr.wsu.edu/pages/Organic_Statistics.

Acre values have been compiled from data provided by multiple certifiers or retrieved manually from certifier forms and records. The current report covers data through calendar year 2010. Washington State Department of Agriculture (WSDA) has historically been the primary certifier working in the state; WSDA currently certifies over 95% of the state's organic producers and nearly all of Washington organic tree fruit producers. Oregon Tilth Certified Organic (OTCO) has also certified a number of farms in Washington (2% in 2010) and data from multiple other certifiers such as International Certification Services (ICS), California Certified Organic Farmers (CCOF) and Quality Assurance International (QAI), among others, have also been collected and reviewed for several years. The numbers present a reliable picture of organic tree fruit area in the state. Acres include both bearing and non-bearing blocks which are not segregated in certifier numbers. Shares of organic tree fruit area were calculated from certifier data as a portion of annual USDA-NASS Washington bearing acre totals.

Certifier numbers for “transition” acres (those currently managed as organic which have not met the National Organic Program (NOP) 3-year organic management requirement) are included in this report. However, growers are not required to register transition acreage (as of 2002) and the reported numbers may underestimate the actual total. Historically, a large proportion of the reported transition acres have been tree fruit, likely because planting and market decisions for perennial crops require long-term planning. While possibly under-reported, these numbers have been an important tool for predicting growth that occurred in the industry during the last decade.

County organic tree fruit values are estimates. Certifiers may report a farm’s land as only one county although the farm’s individual sites may be physically located in one or more counties. Specific county land has been segregated wherever information was available. In 2011, WSU-CSANR made a request to primary certifiers to link all individual sites to specific counties for future data reporting. If the certifiers are able to respond to this request, accuracy of county values should improve. In addition to certifier information, WSDA conducts an ongoing survey which segregates tree fruit, including organic, by county. However, not all blocks are surveyed in all years (i.e. annual county numbers are not verifiable).

Market prices and sales volumes in this report were based on private data, reports and annual summaries from the Washington Grower’s Clearing House Association and Pear Bureau Northwest. Pear Bureau Northwest data combine both Washington and Oregon data. Specific citations for these data are generally not provided in the text as the data come from various years, data files, and reports, and cannot easily be attributed to one source document.

Annual farmgate sales for organic tree fruit were not available for this report. While some certifiers do collect annual estimated total and individual crop sales data from producers, typically only the *total* crop values per farm are entered into their databases, making it difficult to track the value of individual crops including tree fruit. Tree fruit sales values reported in the 2008 Organic Production Survey (USDA-NASS, 2010) are included in this report.

USDA-ERS and USDA-NASS have collected state and national information on organic crops when funding and support have been available. Publication typically lags well behind production year. The ERS data sets are based on certifier-reported area and are limited by category, with apples being the sole segregated tree fruit. Currently, the ERS has certifier-reported values available through 2008. Certifiers vary in their degree of crop detail reported, which can affect ERS numbers. USDA-NASS has administered a few surveys on organic crops, most recently the detailed 2008 Organic Production Survey (OPS). This survey was administered as a supplement to the 2007 Census of Agriculture and included information on many tree fruits, and both certified and “exempt” producer information. Producer response to the survey was 87%. An additional survey is planned for the 2011 calendar year. A review of the 2008 OPS revealed that certifier data for tree fruit covered 99.6% of total harvested organic fruit acres (certified and exempt) in Washington State. The number of fruit producers varied to a greater extent, with 348 producers reported by certifiers versus 421 certified and exempt producers tallied in the survey.

Washington State national rankings were based on the USDA-NASS 2008 Organic Production Survey, WSU-CSANR compiled data, and USDA-ERS organic crop tables. Global area percentages were computed using data from a collaborative project between WSU-CSANR and the Research Institute for Organic Agriculture (FiBL) in Frick, Switzerland. FiBL, in association with the International Federation of Organic Agriculture Movements (IFOAM), conducts an annual world-wide survey of organic crop area. Survey information varies widely in terms of crop detail, and results typically lag two years. WSU-CSANR also collects available detailed organic information from Washington and California, and countries that have important organic tree fruit production, with the intent of producing current, detailed crop information for the annual survey. Annual California crop numbers have been provided by the California Department of Food and Agriculture. Some individual countries (e.g. Argentina, Chile, Turkey, Austria) have annual information available, while it is more difficult to obtain current information from others (e.g. China, U.S.). The most recent national and global data reported here are for 2008.

Washington State acreage

Washington State is the leading producer of organic apples, pears, and cherries in the U.S. Washington producers managed 20,658 acres of certified organic tree fruit in 2010. With a total of 14,790 acres, apples accounted for 72% of the state's organic tree fruit and 9.7% of all Washington apple acres. Production of organic apples and pears began an upward trend in the mid-1990s in response to success with mating disruption, early market demand and potential price premiums. Over the last decade, certified Washington apple area increased 250%. Following four years of rapid expansion, certified acres declined 6% in 2010 from a 2009 peak of 15,735 acres (Fig.1; Tables A1-2, A4). This trend was similar to 1998-2002 when growth occurred quickly, then leveled off (2003-2005), following downward price adjustments that occurred in the 2001/02 market season. However, as markets developed, spurred by 'big box' grocers and increased consumer demand, apple producers again transitioned large areas to organic. The renewed expansion, beginning in 2005, had unprecedented annual growth, from 2007 to 2008, of nearly 5,000 certified apple acres (61%), and an additional 2,800 acres (22%) certified in 2009. The combined total of certified organic and transition acres were similar in 2008 and 2009, a signal that the growth trend had leveled off. It is important to note that just one or two producers moving in or out of organic production can strongly affect the statistics in any given year, particularly for pear and cherry.

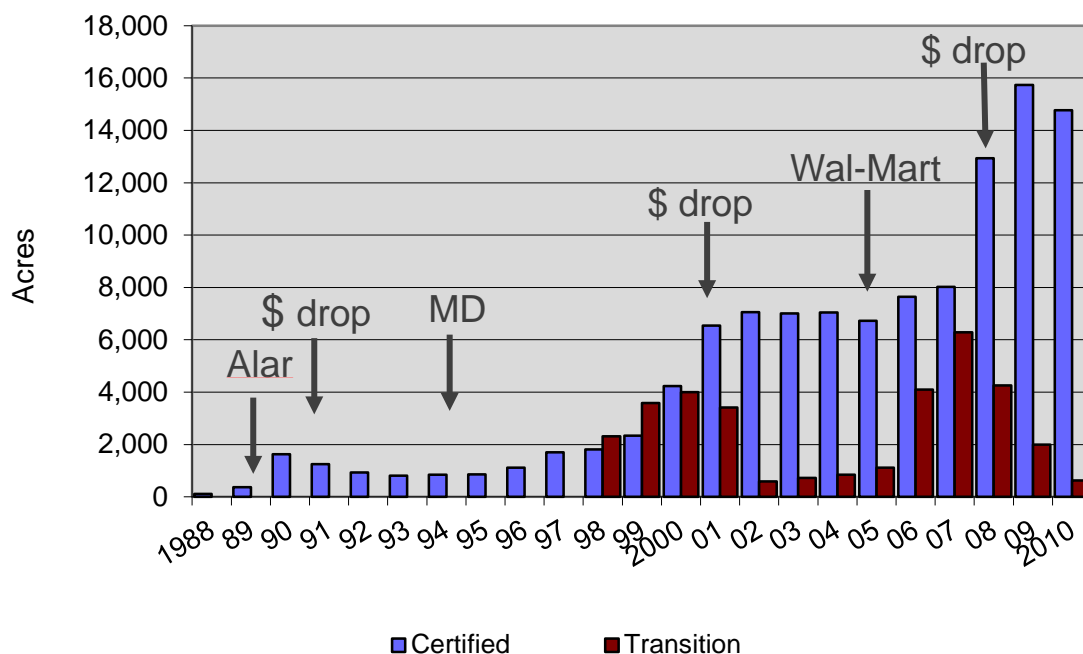


Figure 1. Washington State organic apple area trend. Text on the graph denotes important events over the past 20 years of organic apple production, including the Alar incident, introduction of mating disruption (MD), entry of Wal-Mart into the organic apple market, and price drops.

Reported transition apple area peaked in 2007 at 6,291 acres. Transition apple area fell to just over 600 acres in 2010 indicating much slower growth for the next few years. This leveling off was likely a response to the price drops that occurred for both conventional and organic apples during the 2008/09 market year, and/or to producers removing acres of varieties such as Red Delicious that have experienced softer market demand. Some of these acres may be replanted to newer varieties and returned to organic production in the future.

Washington certified organic pear acres increased 228% from 2000 (619 acres) to 2010 (2,033 acres). Growth showed an upward trend pattern similar to apples, on a smaller scale. Organic pear acres

decreased 17% between 2002 and 2003 and 21% from 2004 to 2005, likely in response to low premiums experienced during 2001-2003. Growth of organic pear acres during a second expansion period, beginning in 2006, was moderate compared to apples and cherries. However, pear area continued upward in 2010, with a total over 2,000 acres and an annual increase of 3.5% compared to 2009. Organics represented 8.5% of all Washington pear acres in 2010. Transition area decreased annually since 2007, and with just 118 acres reported in 2010, there will likely be little short-term growth (Fig. 2; Tables A1-2).

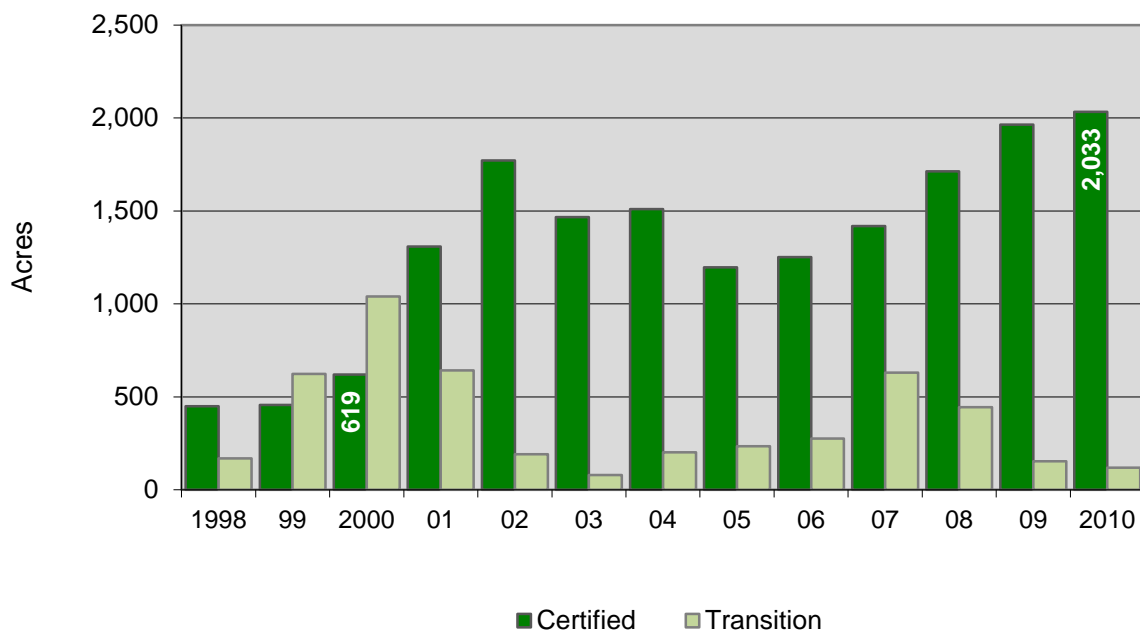


Figure 2. Washington State organic pear area.

Organic cherry production became a viable option in Washington State with the advent of effective cherry fruit fly controls compliant with organic standards (e.g., spinosad formulations). From 2000 to 2010, organic cherry acres increased from 193 to 2,147 acres. Area more than tripled between 2006 and 2009, then declined 12% in 2010. Organic cherries had a 5.8% share of total state cherry area in 2010. Similar to apples and pears, cherry transition area decreased in each of the past three years, from 1,284 acres in 2007 to just 94 acres in 2010 (Fig. 3). The expansion of organic cherry acres occurred in tandem with an increase of conventional cherry plantings as producers replaced less profitable apple blocks. Acres of all Washington sweet cherries increased from 29,000 to 37,000 from 2001 to 2010, while apple area dropped from 192,000 to 153,000 acres (USDA-NASS WA, 2006; USDA-NASS, 2011).

The slight downward trend for organic cherries may have been in response to production challenges and/or market signals. Weather conditions in the spring of 2009 favored disease development and smaller sized fruit. These situations likely caused producers to move some organic blocks into conventional production by 2010. There were 20% fewer organic acres reported by certifiers for both the Sweetheart and Rainier cherry varieties in 2010 compared to the previous year. Sweetheart is more susceptible to brown rot and powdery mildew, and can be more difficult to manage for cherry size, than other varieties. Concerns over the recent establishment of spotted wing drosophila (SWD) and migration of brown marmorated stinkbug (BMSB) may also have prompted producers to scale back or hold off putting additional cherry acres into organic management. However, preliminary certification numbers did not indicate a decline in area for 2011.

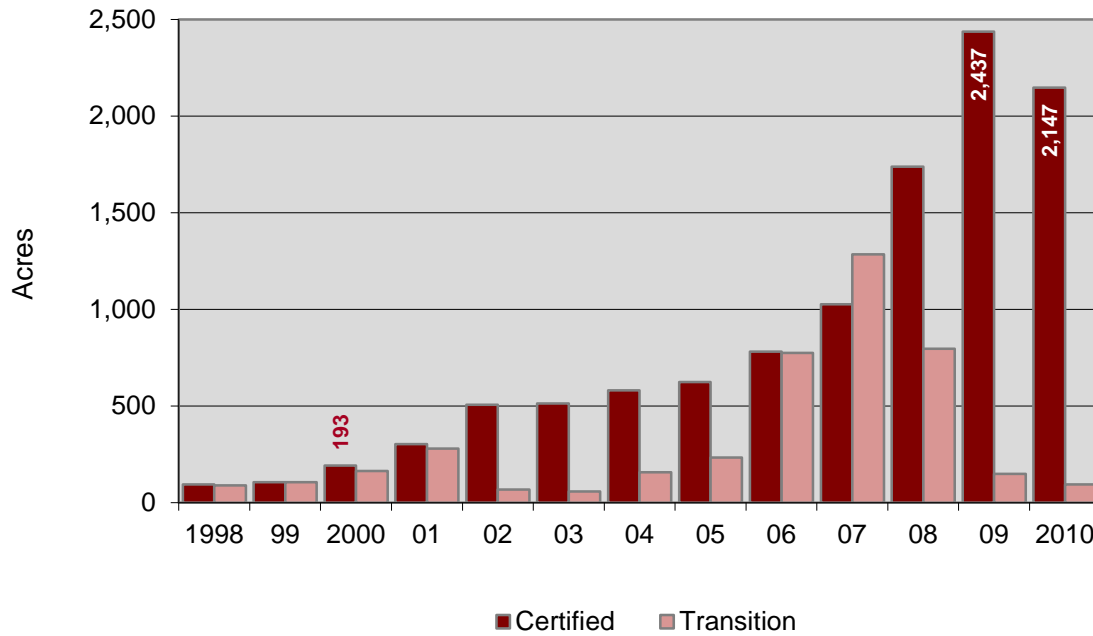


Figure 3. Washington State organic cherry area.

California has traditionally dominated U.S. organic stone fruit production, except cherry (368 acres), with nearly 5,200 acres of other soft fruit in 2009 (Table A3). Washington State currently ranks second, nationally, behind California for organic stone fruit area, with 1,688 acres of peaches, nectarines, apricots, plums and prunes certified in 2010, compared to fewer than 300 acres in 2001. While overall area remains small, Washington producers began to transition significant acreage of soft fruit in 2007. Peaches and nectarines represented less than 2% of the state’s organic tree fruit in 2007. However, combined peach and nectarine transition area was nearly 800 acres (Fig. 4; Tables A4-5). Certified organic peach and nectarine area more than quadrupled between 2007 and 2009 to 1,238 acres, and leveled off in 2010 at 1,250 acres. Minor apricot area tripled over a three year period, with 300 acres certified in 2010. Washington plum and prune area doubled after 2007, and leveled off in 2010 at 125 acres. Soft fruit area increased slightly in 2010, except for plums and prunes which decreased by 5 acres. Soft fruits, not including cherry, comprised 8% of Washington organic tree fruit acreage. With few transition acres reported, minimal growth is predicted in the near future. As with cherry, spotted wing drosophila may emerge as a potential barrier to continued expansion of organic soft fruit production in the region.

Granatstein et al. (2000) calculated the organic share of total Washington apple and pear acres at 1% and 2% in 1998. Organic share for all tree fruit acres followed an upward trend through 2009; apple, pear, and plum/prune shares declined slightly in 2010 (Table 1).

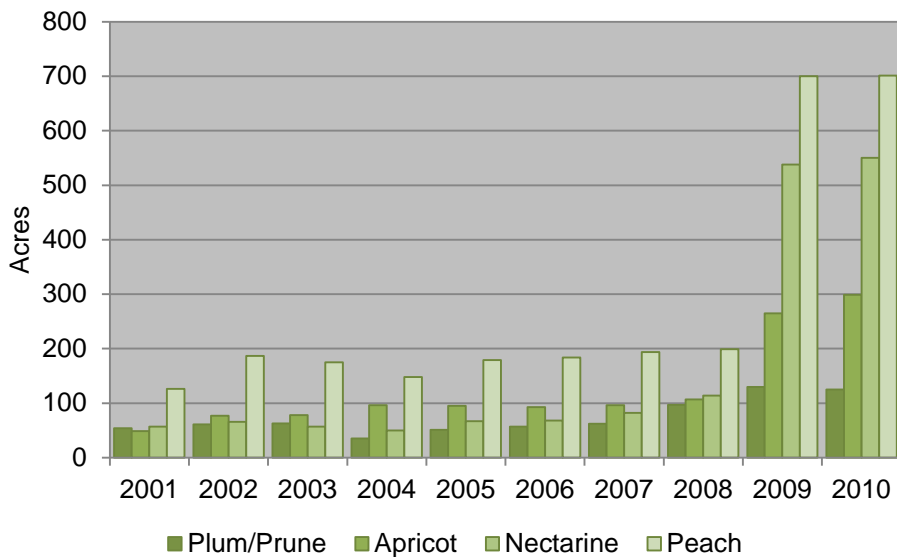


Figure 4. Washington State certified organic stone fruit acres (excluding cherry).

Table 1. Organic share (%) of Washington tree fruit acres.

	1998	2001	2006	2008	2009	2010
Apple	1.0%	3.4%	4.4%	8.5%	10.3%	9.7%
Pear	1.8%	4.7%	5.0%	7.1%	8.2%	8.5%
Cherry	--	1.0%	2.2%	5.3%	7.0%	5.8%
Apricot	--	3.8%	8.5%	--	--	--
Peach	--	3.9%	6.6%	8.7%	28.0%	30.5%
Nectarine	--	3.8%	4.4%	8.8%	36.3%	42.3%
Plum, Prune	--	4.9%	7.1%	16.2%	21.7%	20.8%

Based on USDA-NASS Washington Field Office estimated bearing acreage in Washington State and WSU-CSANR compiled organic certifier data; 2008-2010 updated with NASS-WA Field Office 2011 AgriFacts.

National and global acreage

According to the 2008 Organic Production Survey, Washington State ranked first, nationally, for harvested acres of organic apple (65%), pear (61%) and cherry (72%), second for organic plums and prunes, and third for organic peach (USDA-NASS, 2010). More current U.S. information is only available for a few states. National organic tree fruit production is primarily located in the semi-arid irrigated regions of the western U.S., where climatic conditions and reduced pest pressure make organic production of high quality fruit most feasible. Over 95% of organic apple acres are located in this region (Fig. 5; Table A6). By 2003, more than 50% of U.S. organic apple acres were located in Washington State. That share increased to 70% in 2008 and was estimated at 74% in 2009. Washington organic tree fruit producers are major suppliers for national markets, and state production area makes up a substantial percentage of global area as well. A few western states (e.g., Colorado and Arizona) have experienced considerable declines in organic apple acreage for various reasons such as market competition, low demand varieties or production challenges.

Washington State's expansion fueled the national organic apple trend. In other regions, the USDA-ERS (2010) reported Midwest U.S. certified organic apples acres at 655 for 2008, with over 500

acres located in Michigan. Northeast U.S. organic apple area increased to more than 400 acres in 2006 (a 12% increase from 2005), with over 90% of the acres located in New York and Maine. The certifier data showed a decrease (to 189 acres) of organic apples in the Northeast by 2008. However, it is likely that numbers reported to the ERS underestimate that region's organic apple area as several certifiers in that region report aggregate fruit and vegetable acre numbers. The 2008 Organic Production Survey (USDA-NASS, 2010), which showed just over 900 certified apple acres in the Northeast in 2008, was likely a better estimate for that region (C. Greene, pers. comm.).

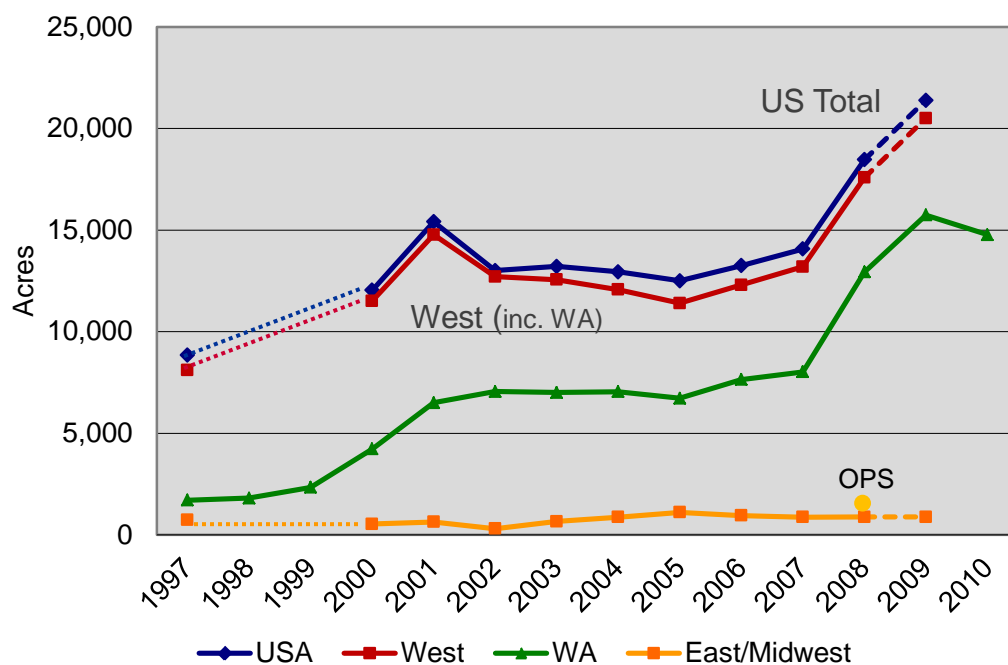


Figure 5. Estimated US organic apple area trend. East/Midwest trendline based on ERS and select certifier data; OPS datapoint is for 2008 only.

Washington State organic tree fruit area is also important globally. World organic temperate tree fruit area, in 2008, is shown in Figure 6. The U.S. led world organic apple area with nearly 20% of reported global acres under organic management (including area in transition to organic) located in Washington State. Argentina and Chile combined had 6,400 acres of organic apples in 2008. Europe had over 57,000 acres of organic apples, in 2008; Poland, Italy, Turkey and Germany each have substantial production areas (Granatstein et al., 2010a). In the South Tyrol region of Italy, organic apple area more than doubled from 1,280 acres in 2000 to more than 2,800 ac in 2010, which represented 7% of the region's total apple area (U. Kiem, pers. comm).

Washington producers managed 13% of the world's reported organic pear acres, ranking just behind Argentina and Italy with reported areas of 3,900 and 3,600 acres, respectively. Italy is the primary European organic pear producer with over half the region's acres (Granatstein et al., 2010a). China also has had organic tree fruit. For 2005, the Organic Food Development Center (OFDC) reported 3,900 acres of apples and 2,900 acres of pears under organic management (Z. Zejiang, pers. comm.). However, no specific data has been made available since then.

The U.S. ranked third, behind Italy (7,400 ac) and Turkey (3,500 ac), for global organic sweet cherry acres with Washington State accounting for 15% of the total world area. Together, California and

Washington accounted for 20% of the world’s reported organic peach and nectarine area. Fifteen percent of world organic plum and prune area was located in California (Granatstein et al., 2010a).

World organic tree fruit data unfortunately are not always segregated by type of fruit. Thus, nearly one-third of the area reported to FiBL as part of their 2008 global survey as temperate tree fruit had no further details.

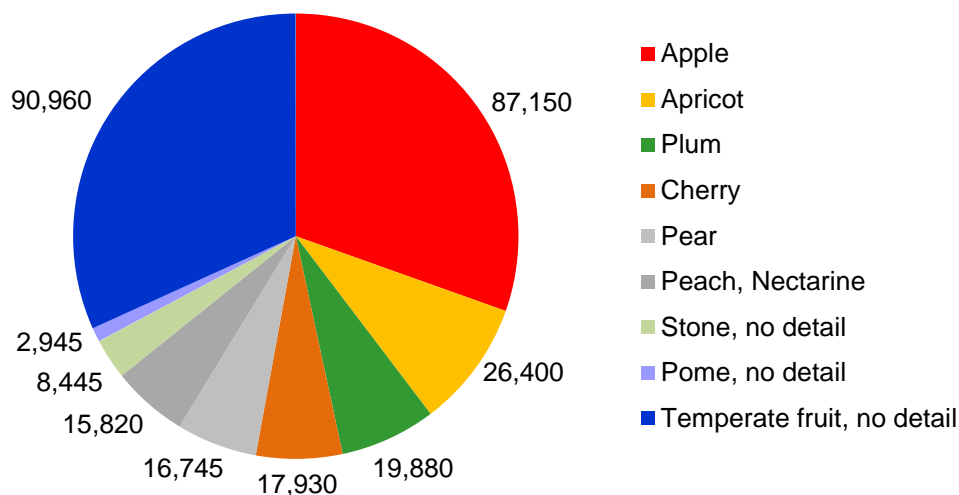


Figure 6. World organic temperate tree fruit acres, 2008.

County geographic distribution

Washington State tree fruit production, both conventional and organic, is based primarily in the central, irrigated regions of the state. County organic tree fruit acres were estimated for this report. Some producers may have sites in more than one county which, historically, have not been segregated by the certifier but have been reported in the producer’s primary county. Estimated values are presented here to show trends and the contribution of organic tree fruit to different county economies. Figures 7-8 and Tables A7-13 present the current and historical county distribution for organic and transition tree fruit area. Grant County leads in certified apple area, with an estimated 40% (over 6,000 acres) of the state total in 2010. The county experienced a steep growth curve for organic apples, beginning in 2007, and area continued to increase (6%) from 2009 to 2010, while Douglas (1,869), Yakima (1,400 ac), and most other county apple acres decreased. Okanogan County certified apple area also had annual growth (12%) in 2010. Grant and Benton counties had the highest number of transition apple acres with 238 and 212, respectively (Tables A7-8).

Organic pear acres are located primarily in Yakima (567 ac), Okanogan (535 ac) and Chelan (436 ac) counties, representing 75% of the acres. Okanogan County was an early leader with nearly 800 acres in 2001, but by 2005 this number had dropped 55%, to 350 acres. Chelan and Yakima counties experienced a somewhat different growth pattern, trending upward until 2005, when they also went through a few years of declining acreage. Since 2008, moderate growth has occurred in each of those counties and in 2010 Yakima Co. area appears to have surpassed Okanogan Co. area. Again, with these smaller acreages, just one or two producers entering or exiting organic management can have a large impact on county or state area. Klickitat County producers transitioned the highest number of pear acres (164) during 2007 and 2008 (Tables A9-10).

Grant, Yakima, and Chelan counties had 527, 443, and 346, acres of organic cherry, respectively, in 2010. These counties experienced rapid expansion from 2006 to 2009 followed by declines in acreage of 6% for Chelan County and 30% each for Grant and Yakima counties in 2010. Bucking the downward trend, Benton and Walla Walla county organic cherry area increased to 308 and 112 acres, respectively. Grant, Walla Walla and Chelan county producers had minor transition acres in 2010 (Tables A11-12).

Other organic soft fruit is primarily located in Franklin County which had 436 acres peaches, 315 acres of nectarines, 102 acres apricots and 27 acres of plums, and 52% of the total other soft fruit acres. Benton and Yakima counties each had about 12% of other soft fruit area. Only 36 acres of transition soft fruit were reported statewide in 2010; 20 acres apricot in Franklin County, and 16 acres nectarine in Yakima County (Table A13).

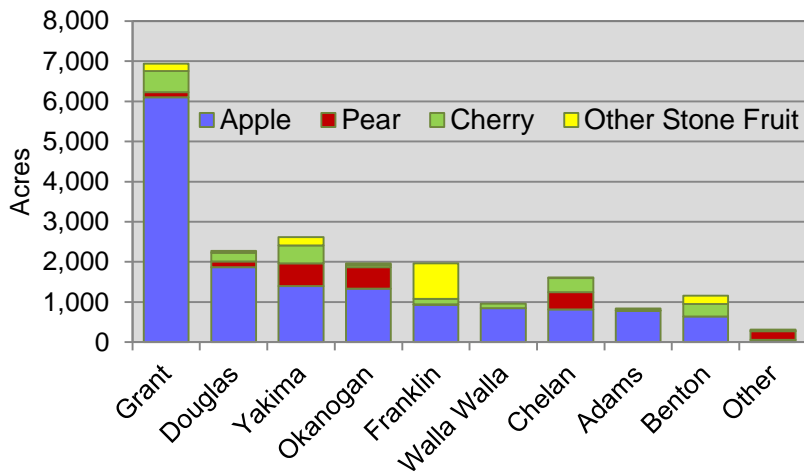


Figure 7. County distribution of organic tree fruit acres in Washington State in 2010.

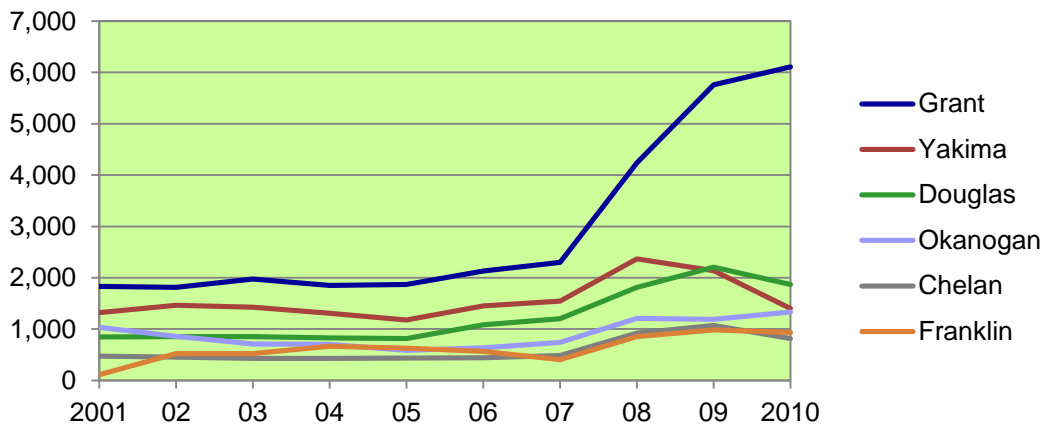


Figure 8. Historical distribution of organic apple area by county.

Variety acreage

Gala and Fuji are the leading organic apple varieties grown in Washington, with 3,182 and 3,336 certified acres in 2010, respectively. Their combined area represents over 44% of the total certified organic apple acres in the state (Table 2). Certified area for Braeburn, Cripps Pink, Golden types (mostly Golden Delicious), Honeycrisp, Red Delicious and Granny Smith ranged from 884 to 1,470 acres during the same year. The National Organic Program does not require producers to report their transition acres with certifiers. However, tree fruit producers historically have reported a substantial amount of their transition area, by variety, which has proved useful for predicting near-term changes in certified acres except for periods of decline. As illustrated in Table A14, acres were expected to increase in 2010, based on 2008 and 2009 transition acres, for all varieties. However, only Fuji (+11%) and Honeycrisp (+25%) acres experienced annual growth from 2009 to 2010. Other variety acres decreased from -6% (Cripps Pink) to -30% (Golden Delicious). The decrease in Golden acres might partially be explained by growers adjusting varieties in response to market demand. Organic Golden Delicious and Granny Smith have had lower shares of sales volume compared to their acre shares, while Gala and Fuji had higher sales volume proportionate to acre share (data not shown). This suggests that more organic Golden Delicious and Granny Smith apples are being diverted to conventional sales or processing. Near term growth (2010-2012) is expected to be small compared to past years, ranging from no growth for Granny Smith and golden types (primarily Golden Delicious), to 6-7% for Gala and Fuji varieties. Again, these predictions do not include what producers may remove from organic. And, similar to total area, variety acres may change significantly with the entry, exit, or replanting of only a few producers in any given year.

Table 2. Estimated Washington certified apple acres by variety and year.

Variety	----- Certified Acres -----										% 2010
	1998	2000	2003	2004	2005	2006	2007	2008	2009	2010	
Gala	223	2,710	1,429	1,341	1,364	1,543	1,672	2,710	3,458	3,201	22
Fuji	165	2,280	1,072	1,151	1,137	1,201	1,299	2,280	3,045	3,366	23
Red Delicious	687	1,459	1,222	985	837	914	1,018	1,459	1,676	1,461	10
Granny Smith	158	1,268	827	819	744	969	1,006	1,268	1,700	1,470	10
Golden Delicious	198	1,225	821	797	743	799	866	1,225	1,557	1,058	7
Cripps Pink	8	1,047	467	591	607	638	596	1,047	1,081	1,016	7
Braeburn	84	956	497	494	503	579	599	956	1,083	884	6
Honeycrisp	--	756	157	165	178	298	339	756	879	1,099	7
Cameo®	12	436	188	191	201	210	219	436	436	458	3
Other & NS	274	799	323	517	407	491	404	799	104	777	5
Total	1,809	12,936	7,003	7,049	6,721	7,642	8,018	12,936	15,735	14,790	

NS=variety not specified. Unpublished certifier data compiled by WSU-CSANR.

Bartlett and D'Anjou varieties, with 692 and 636 acres, respectively, comprised 65% of the total certified organic pear area in 2010 (Fig. 8; Table A15), similar to the past several years. Prior to 2005, D'Anjou had the greater share of acres; Bartlett has had a slightly higher proportion from 2007 to 2010. Organic Bosc pear area peaked in 2002 with 370 acres, followed by a decline to 214 in 2005. Since that time, area has increased slightly to 300 acres (15%) by 2010. Organic red pear area doubled from 2005 to 2009 but still remains a smaller share, with 217 acres. Producers also reported minor acres of organic specialty pears including Concorde, Tosca, Taylor's Gold, Forelle, Starkrimson and Comice.

The Washington cherry season overlaps slightly with California. Organic sweet cherries are now available in quantity for a longer market window, due to variety diversification. California offers early

supply of varieties such as Brooks, Chelan, Coral Champagne, Garnet, Bing, Rainier, and Sweetheart. Washington subsequently provides early Chelan cherries followed by Van, Bing, and Rainier mid-season, and Lapins, Sweetheart and Skeena later in the season.

Certifier information for Washington organic cherry varieties has been improving. Seventy percent of cherry acres were reported by variety in 2010, compared to just 40% identified in 2008. Bing had the largest variety area reported, at 380 acres. Other sweet cherry varieties ranged from 135 to 179 acres, for Chelan and Rainier, respectively (Fig.10; Table A16). “Other Sweet” cherries included varieties such as Lapins, Sonnet™, Tieton, Staccato, Benton, and Van.

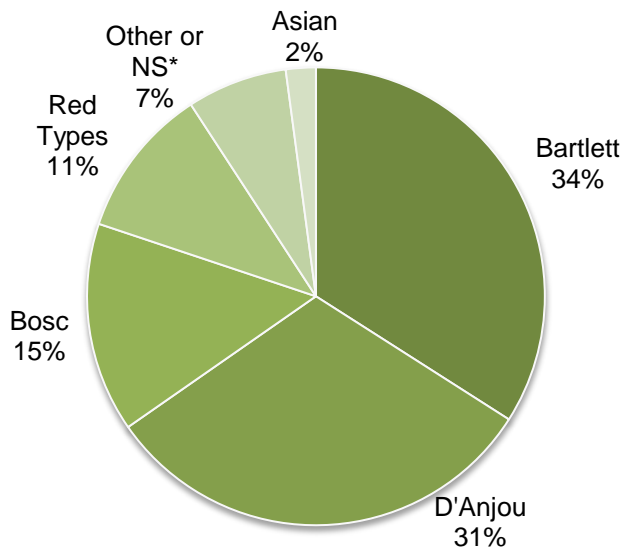


Figure 9. 2010 organic pear variety as percent of total organic Washington pear acres.

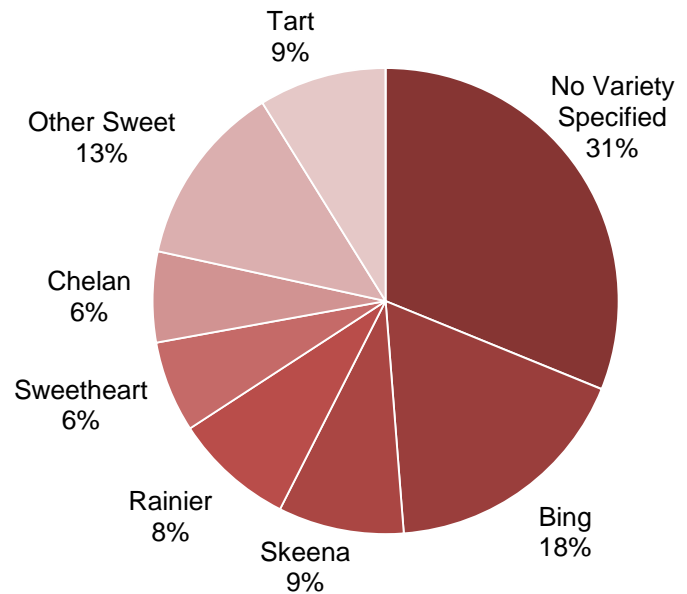


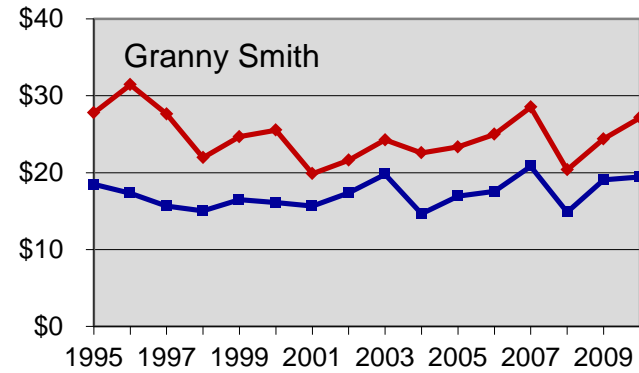
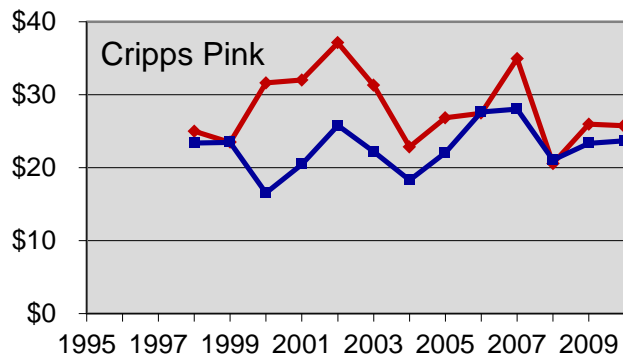
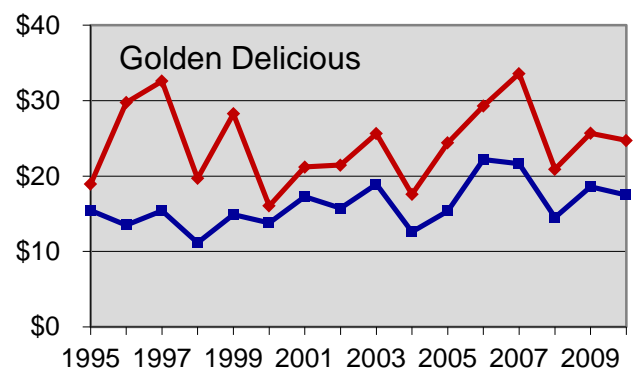
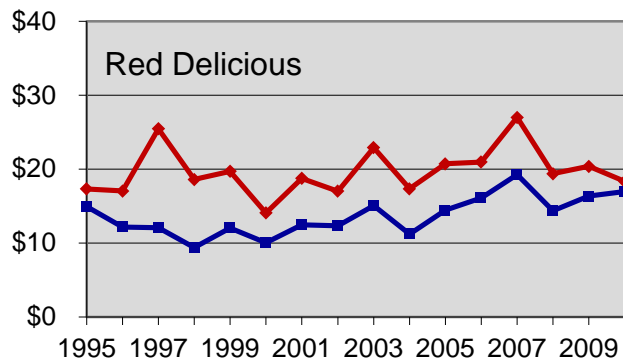
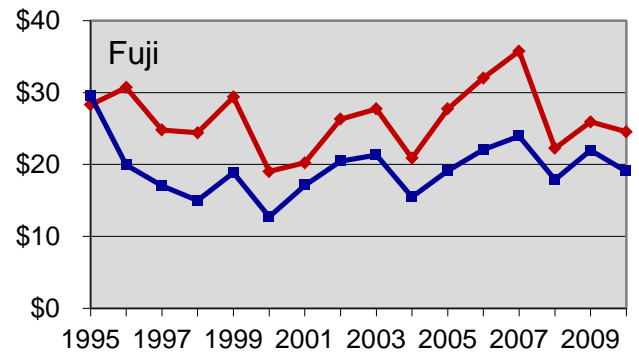
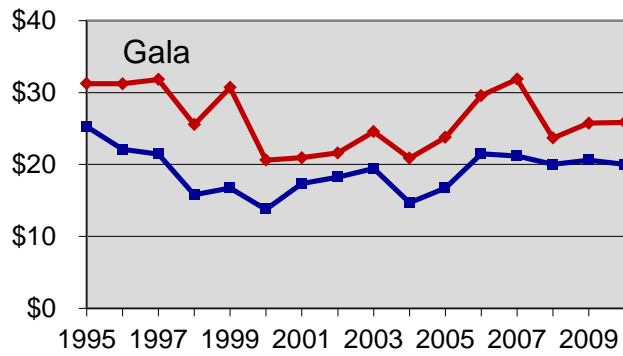
Figure 10. 2010 cherry variety as percent of total organic Washington cherries.

Price and sales volume trends, Washington State

The most commonly cited economic indicator for organic food is the price premium (% difference from the conventional counterpart) that both producers and consumers experience. Many tree fruit producers enter organic production for the potential to increase profits. However, reliable data on the cost of production for organic tree fruit is generally lacking, limiting the ability to determine whether it is profitable regardless of high or low premiums.

Historically, season average FOB prices for organic apples have tended to follow a pattern similar to conventional prices; as conventional prices dropped or increased, organic prices followed. Early large premiums, tracked in the 1990’s, narrowed by the 2001/02 season for most varieties, to just under a \$5 per 40 pound box. Over the next few years, organic supply increased but lagged behind demand for many sizes and grades of fruit which resulted in higher prices and premiums through the 2007/08 marketing year. The 2008/09 season was characterized by a higher than expected volume of both conventional and organic fruit, and smaller than optimal fruit size which depressed prices. Organic sales volume increased 55% over the previous year, but more organic fruit was sold as conventional than in previous years.

Washington Growers Clearing House data showed that 2008/09 weighted, average organic box prices (\$24.25 for varieties listed in Table A17) fell well below the previous year (\$33.87) and the previous five year (2003-2007) average, and resulted in an average box premium of \$4.37, compared to \$10.03 in 2007/08. Premiums shrank for all varieties (Figs. 11-12, Tables A17-20). Generally prices fell more steeply for organic (more than \$10 per box average drop for organic compared to less than \$5 per box average drop for conventional). In 2009/10 crop prices recovered slightly, with season end average value of \$25.32, representing a \$4.87 box premium. Price gains were similar for conventional and organic, increasing by an average \$2.39 and \$2.85 (all varieties) per box, FOB, respectively. Organic premiums (09/10) ranged from \$2.59 for Cripps Pink to \$8.64 for Ginger Gold; Gala, Red Delicious, and Fuji received \$5.12, \$4.04, and \$3.94, respectively. Honeycrisp had the highest sales value at \$45.82, with a premium of \$5.21. However, the continued economic recession spurred demand for the lower value grades and smaller sizes of organic fruit. Average season prices (\$28.75), as of 11/15/10, were up 15% over the same date the previous year (data not shown); by mid-June 2011, box prices were estimated \$0.30 (listed varieties) and \$0.90 (all varieties) below the previous year.



— Organic — Conventional

— Organic — Conventional

Figure 11. Washington State apple average price comparisons (FOB), organic and conventional. Graph based on unpublished industry data using 42 lb SEB through 06/07 and 40 lb SEB (beginning 07/08). X-axis labels indicate harvest year; price comparisons are actually for season end of market year which extends into August of following year. 2010 points are season through mid-June, 2011.

Supply and shipped volume of Washington organic apples have increased rapidly since 2005 (Fig. 12). The 2009/10 season sales volume exceeded 5.9 million boxes (compared to 5.6 million the previous year) and represented over 6% of all apples shipped. In addition to the 5.9 million boxes sold as organic, an estimated 2 million boxes of organic apples were apparently sold on the conventional market or were diverted to other uses such as peelers or slicers. Despite the decrease in state organic apple area in 2010, the early season industry sales volume forecast predicted 8.6 million boxes for the 2010/11 market year. By June 21, 2011, total organic apple shipments (6.68 million boxes) were up 15% from the same date the previous year. With limited supply in storage, season end volume will more likely be about 7 million rather than the predicted 8.6 million boxes (WA Grower’s Clearinghouse, 2011).

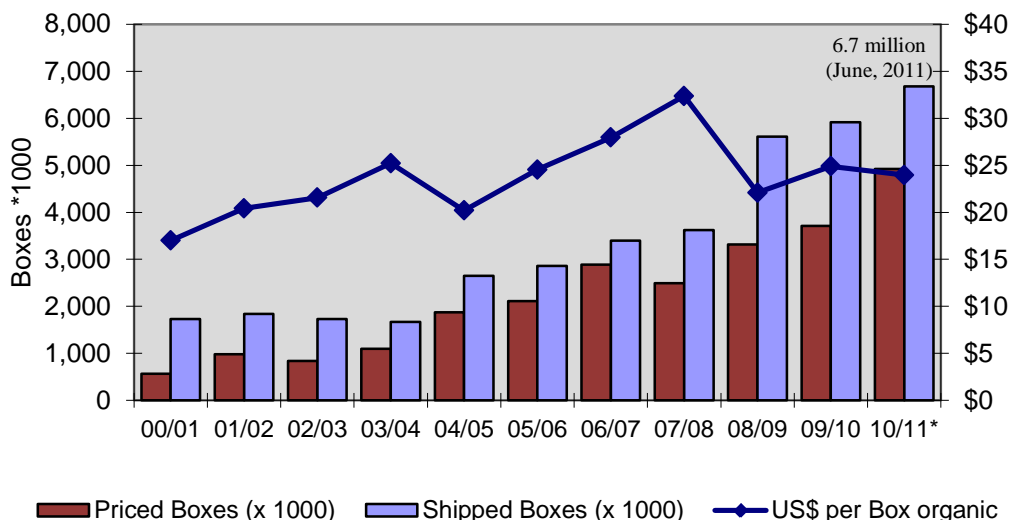


Figure 12. Washington organic apple sales volume and price trends (FOB). Graph based on unpublished industry data (42 lb SEB through 06/07 and 40 lb SEB beginning 07/08). X-axis labels indicate market year, approximately September to September. Prices are not reported for all shipments; thus “priced volume” is less than “shipped volume”. Average prices are based only on the priced volume.

Gala and Fuji apples will continue to have the highest organic supply volumes in Washington State. These varieties ranked first and second for organic sales volume at 1,678,000 (Gala) and 1,288,000 (Fuji) boxes for the 2009/10 season (Fig. 13). Lower box volumes of Red Delicious (789,000), Granny Smith (479,000) and Golden Delicious (410,000) were shipped as well as smaller amounts of other varieties such as Cripps Pink and Honeycrisp. The 2009/10 season organic share of total Washington apple sales volume, including all varieties was 6.1% compared to 2.9% in 2005/06. Organic share of Gala apples was 8.7% (09/10); other organic shares by variety ranged from 2.5% for Red Delicious to 17.6% for Cripps Pink (Table A21). Continued growth of organic fresh apple sales, despite fewer certified acres, may have resulted from an increase in bearing acres relative to total area or less diversion of organic apples to other markets and uses.

Available supply, variety, grade, fruit quality and size, and time of year product is sold will affect box prices, premiums and actual grower returns. Average season end organic Fuji premiums were around \$1 per box higher than Gala over the last several years. However, Gala premiums exceeded Fuji during the 2009/10 market year. Both varieties have increased in supply, with sales volume doubling between 2007/08 and 2009/10. Organic Cripps Pink prices have been inconsistent, with premiums ranging from \$0 to nearly \$7 in the last few years. A model of organic apple price in relation to supply suggests

that organic apple premiums may approach zero when organic volume reaches 12% of all volume of Washington State apples (O'Rourke, 2008). Recent prices fall within the model's range. For example, with the 6% organic share of total apple shipments in the 2009/10 season, average organic box prices were at \$24.89 for all grades and sizes, close to the model prediction (Table A22).

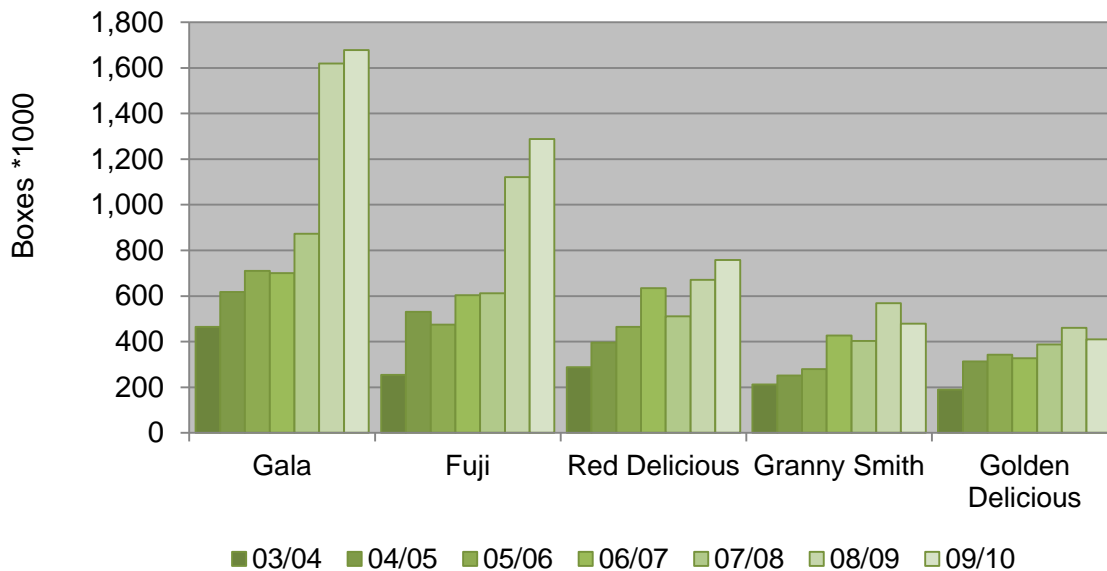


Figure 13. Variety sales volume of Washington organic apples (annual season end 2003-04 through 2009-10). Graph based on unpublished industry data (42 lb SEB through 06/07 and 40 lb SEB beginning 07/08). X-axis labels indicate market year, approximately September to September.

Smaller fruit has typically received lower average box prices. For example, values from a search using Washington Growers Clearinghouse sales data illustrated that in the fall of 2007, Organic Gala WAXF #1 (size 80-100) brought premiums ranging from 66-82% compared to 22% for size 113. Larger fruit (size 72) had a similar box price to size 88 but a 50% lower premium (data not shown). In addition, Organic Gala WAXF#1 season average price differences (2005/06 to 2010/11) have ranged from -4 to -15% for size 100, and from -17% to -35% for 113s when compared to 80-88s (Table A23). As total supply and demand have increased, especially the last two years, the price penalty for size 100 has shrunk, indicating a growing acceptability of the smaller size on the organic market and the potential for the smaller sizes to supplement supply. Consequently an increasing proportion of apples grown as organic may be sold as organic rather than diverted to other uses and markets.

Washington organic pear prices do not track conventional prices as closely as organic apple prices do. Early (mid-1990's) organic pear prices were double that of conventional; average organic and conventional Bartlett box prices were approximately \$41 and \$20, respectively (Fig. 14). Similar to apple, early organic pear premiums were not sustained. Prices dropped to near conventional by 2001/02 with an average premium of \$2.59 (listed varieties), ranging from \$0 per box for Red Bartlett to \$5.43 for Bartlett. Low premiums improved gradually from 2002 onward and experienced significant increases to \$13.88 per box in the 2006/07 season (Tables A24-27). Conventional and organic pears again experienced reduced average prices (FOB) and organic premiums from 2007/08 to 2009/10. The 2009/10 season had a record pear crop of just over 20 million boxes (conventional and organic); prices dropped an estimated \$2.50 per box for conventional and \$5 for organic per box (to \$24.57) compared to the previous year. Premiums also adjusted downward, to an average \$6.11 per box. Organic prices and premiums recovered some value in the 2010/11 market season but remained well below 2007/08 prices.

By mid- June 2011, the average premium for all pear varieties had decreased to \$5.17, about \$0.70 less than the previous year. However, the average premium for green and red Bartletts and D’Anjous, and Bosc, had increased by \$0.90 to \$7.00 per box.

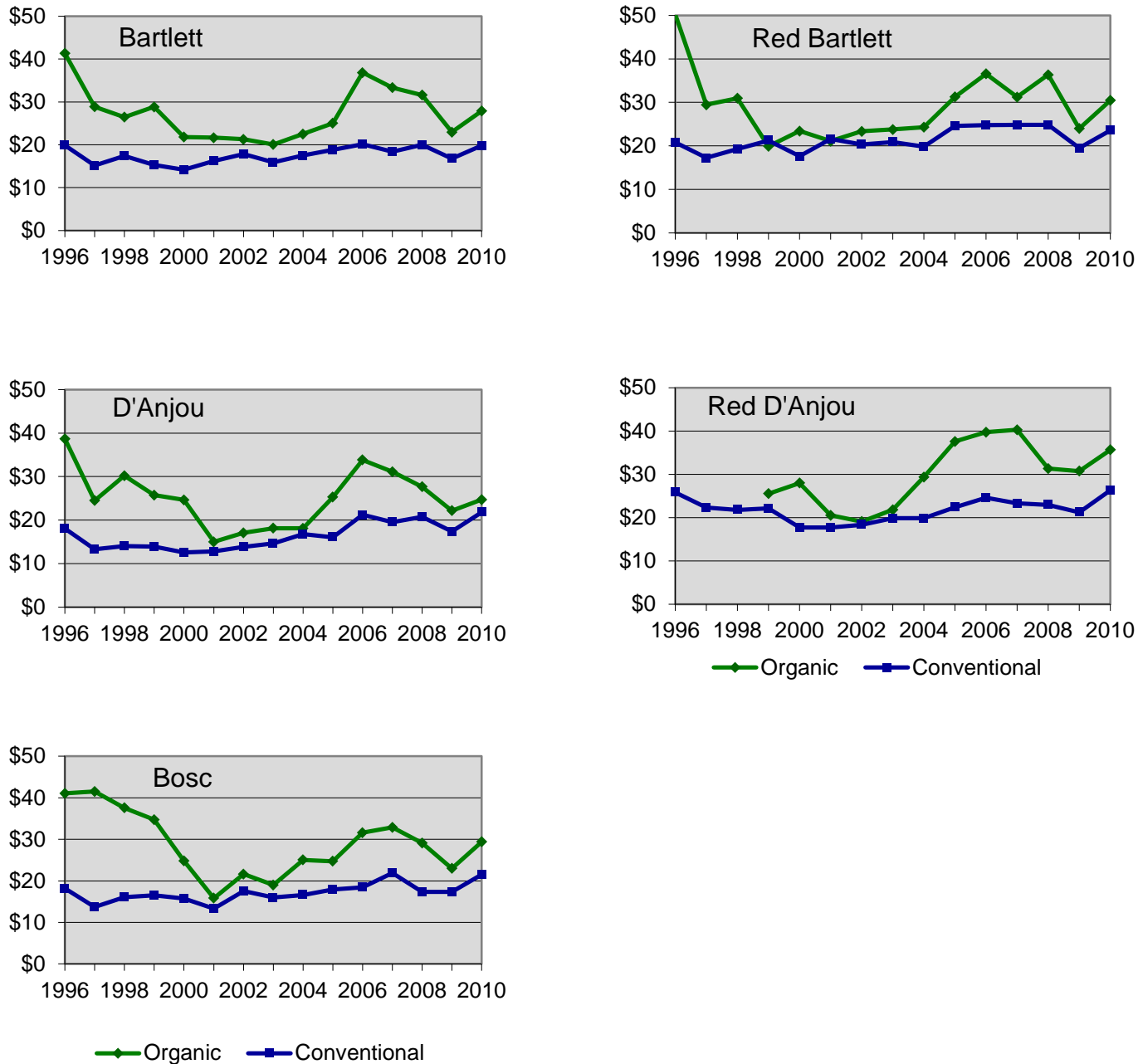


Figure 14. Washington State average pear price comparisons (FOB), organic and conventional. Graphs were created using unpublished industry data based on 44 lb SEB values. X-axis labels indicate harvest year; price comparisons are actually for season end of market year.

Northwest organic pear sales volume increased 53% between 2001 and 2010, from approximately 465,000 to 711,619 boxes, respectively (Fig. 15). The record 2009/10 crop resulted in record organic sales volume of 769,809 boxes. Decreased volume in the 2010/11 season reflected the smaller crop which followed the previous year's record crop. The smaller 2010/11 crop was more similar to the 2008/09 crop; overall season sales volume (2010/11) was estimated at 17.9 million boxes (Pear Bureau Northwest). The 2010 organic pear volume share appeared to have increased proportionately. Lagging sales volumes reported from 2004-2006 likely resulted from producers taking some pears out of organic production, in response to low premiums (2001-2003), and smaller total pear crops.

Total organic share of Northwest pears sales volume, calculated from Pear Bureau Northwest values, was approximately 4% in 2008 and 2009. With nearly 100% of the 2010/11 organic crop sold and 90% of the total crop moved, organic share increased to 4.5% (data not shown). D'Anjou and Bartlett's make up the largest proportion of organic pear sales volume, at 43% and 28%, respectively (Fig.16). Bosc pears account for 15% of organic sales. The high volume likely explains why D'Anjou box premiums (\$6.92) were well below the average pear premium of \$10 in the 2008/09 season. Average premiums for all varieties fell about 40% to \$6.11 for the 2009/10 season. Bartlett and D'Anjou will continue to have the greatest supply based on organic acres.

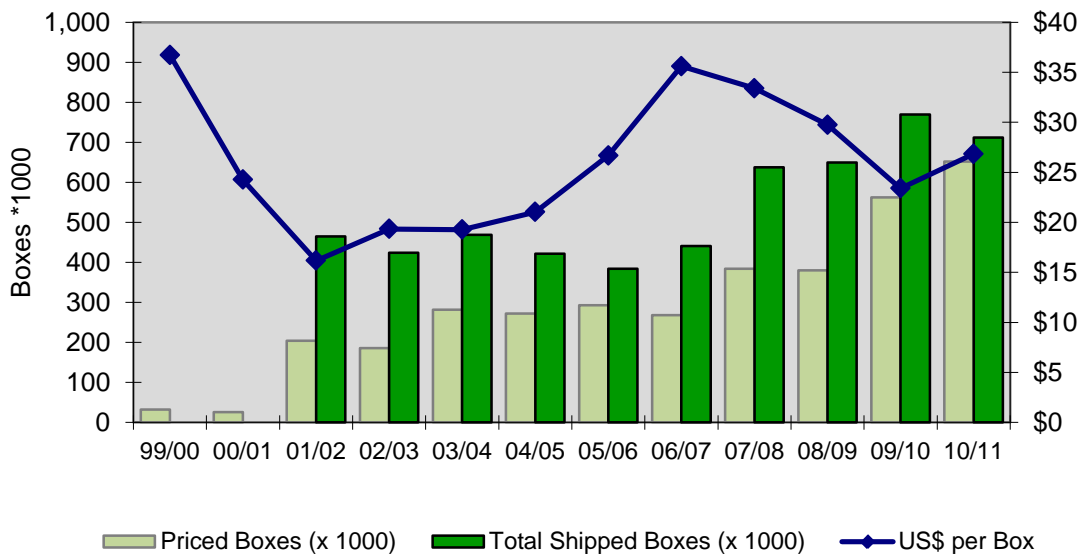


Figure 15. Washington/Oregon organic pear sales volume and price trends (FOB).

Graph created using unpublished industry data. X-axis labels indicate market year, approximately September to September.

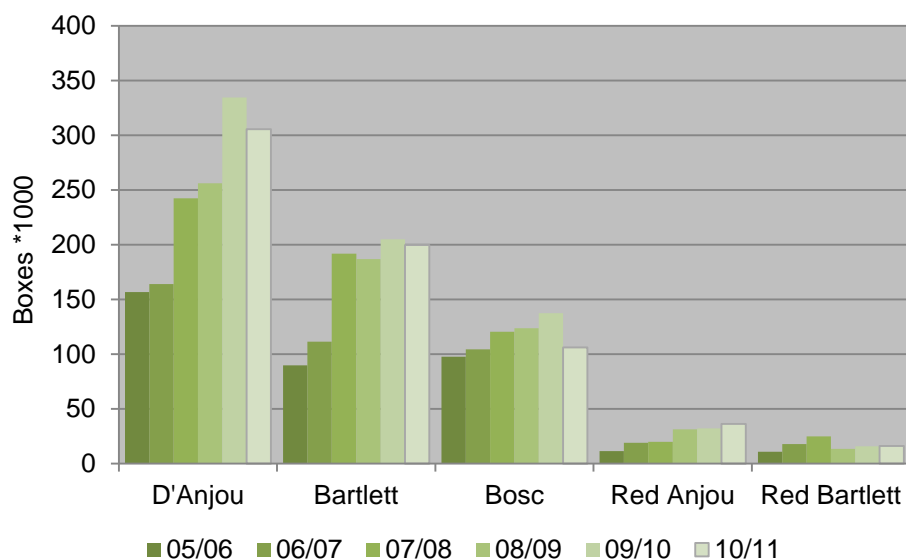


Figure 16. Variety sales volume of Washington and Oregon organic pears (season end). Graph based on unpublished PBNW industry data (44 lb SEB). X-axis labels indicate market year.

As organic cherry supply has increased, growth in sales of organic cherries has lagged with a large proportion of harvested organic cherries being sold in the conventional market. Industry sources cite current market challenges such as supply chain delivery problems, inadequate retail support and advertising, and price elasticity (Karst, 2011). Historical volume and price information for Washington organic cherries is limited. Bing and Rainier have been the dominant varieties, and represented 33% and 15%, respectively, of the organic cherries shipped in Washington State in 2010. A significant amount of product (20%) labeled as “Dark Sweet” cherries, was also shipped in 2010 (D. Kelly, pers. comm.) Average organic prices for Bing, Chelan and Rainier have typically exceeded average conventional prices but have followed conventional price patterns since 2007. Both organic and conventional average prices plummeted 45% during 2009, compared to 2008, in response to a record Northwest crop (20.5 million boxes) squeezed into a shorter marketing period due to cooler than normal weather that also led to smaller sized cherries. Cherry prices partially recovered in 2010, for both organic and conventional, but did not reach previous 2008 price levels (Figs. 17-18).

Washington Grower’s Clearinghouse data showed a weighted average box price for organic cherries of slightly over \$83 (20 lb SEB) for 2006, including all varieties, grades and sizes. Substantially more shipped boxes are now reported with price information, improving the industry data (e.g. 11,000 priced boxes in 2006 vs 150,000 in 2010), reflecting increased supply and improved industry tracking. The five year average price premium for organic cherries (all varieties, sizes and grades) was \$19. Premiums were highest in 2006 at \$46 per carton, but fell to \$15 and \$14, in 2007 and 2008, respectively, and to just under \$5 in 2009. While 2010 average box prices remained somewhat below 2008 prices, organic premiums increased to approximately \$15.50 per box, slightly higher than 2007 and 2008 values, indicating that average organic value increased more than average conventional prices. Premiums were calculated using unpublished industry information (data not shown).

Washington organic sweet cherry 2009 sales volume totaled 541,962 boxes. Early season forecasts predicted 700,000 boxes for the 2010 season; however, actual shipped volume was just under 245,000 boxes (D. Kelly, pers. comm.) Total 2010 cherry volume (conventional and organic) was also well below the previous year’s record crop and early season forecasts. Inclement weather in the Northwest reduced the region’s expected 16 million box crop to 14.1 million (Northwest Cherries, 2011). Organic share of

total shipped cherry volume has ranged from 4% in 2005 to 5.8% in 2009; organic volume share dropped to 2.7% in 2010. While no significant decrease in certified organic Washington cherry acreage is expected in 2011 (L. Eklund, pers. comm.), weather and potential need for control of spotted wing drosophila may result in lower organic cherry volume for the season. In addition to production challenges, the organic cherry market has been volatile. Industry sources estimate that 30-50% of organic cherries are not sold as organic in any given year.

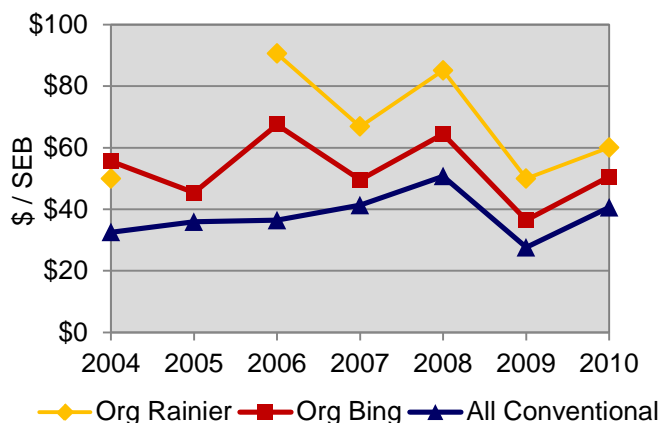


Figure 17. Washington State cherry average FOB price comparisons of organic Bing and Rainier to all conventional varieties.

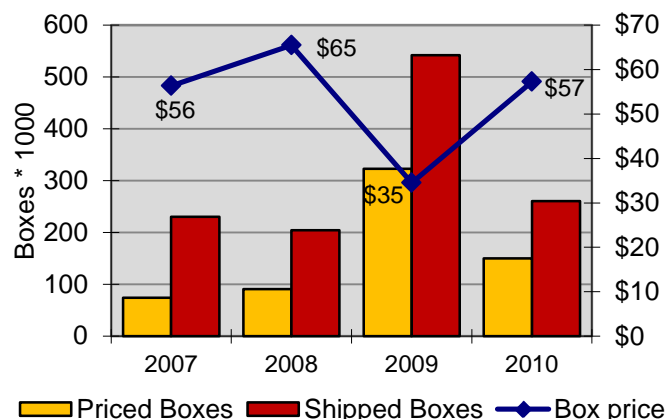


Figure 18. Washington State organic cherry volume and average weighted FOB prices, all varieties, grades and sizes. Graphs created using unpublished industry data.

Industry reports indicate that fruit size is more important than variety for selling cherries on the organic market. In 2009, a record volume year, smaller organic cherries were discounted. Reports from one company showed that 23% of their organic cherries were diverted to conventional markets; 90% percent of their diverted cherries were the smaller 11.5/11R size and grower returns for these were below the cost of production (Ostenson, 2011). Washington Growers Clearing House 2010 price data also indicated that larger cherry size translates to higher value for organic red cherries. For example, organic ‘Dark Sweet’ average weighted prices were \$42.56, \$52.00, and \$66.43 per carton for 11.5R, 10.5R and 9.5R 12/1.5# packaged cherries, respectively; 88% of priced boxes were in the 10.5R size. Bings showed a similar price bonus related to size. Average organic Bing prices were \$45.09, \$49.41, and \$51.75 for 11R, 10.5R and 9.5R 12/1.5# cartons, respectively. This trend, however, was not as clear for organic Rainier cherries, where higher prices appeared to be based on early market demand. Limited June shipments (160 boxes) of 11R Rainiers averaged nearly \$73 per box. In contrast, season averages for 10.5R and 9.5R were \$ 71.76 and \$66.85. The lower prices for the larger Rainiers may have been due to earlier availability (1 week) of the 10.5R as indicated by shipped volumes (data not shown).

Overall Value and Production

Annual farmgate sales for Washington organic tree fruit were not available for this report. While some certifiers do collect producer sales data by specific crop, typically only the *total* crop values per farm are entered into their databases, making it difficult to track the value of individual crops including tree fruit. According to the 2008 Organic Production Survey, Washington State producers reported the second highest value (over \$154 million) of organic fruit sales in the nation for 2008 (USDA-NASS, 2010). Apples generated 33% of the national organic fruit value, at \$137 million. Washington organic apples were valued at about \$119 million in 2008, representing 87% of national sales. Sweet cherries

(over \$15 million) and pears (\$16 million) each accounted for just under 4% of national organic fruit sales. Washington pears (\$12.8 million) and sweet cherry (\$13.2 million) sales were 79% and 84% of US organic sales, respectively. Apple, pear, and cherry accounted for 93% of the Washington organic fruit sales. National values were not available for the 2009/10 market season. However, estimated values for Washington sales were calculated for organic apples (\$147.2 million), pears (\$18.5 million) and cherries (\$18.9 million) using Washington Growers Clearing House shipped volume and average box prices.

Production and yield information is also limited for organic tree fruits. Based on the 2008 OPS, the calculated Washington State yield for organic apple, pear and cherry was 32.7 tons/ac, 13 tons/ac, and 2.9 tons/ac, respectively (based on harvested acres only). Growers report yields of 5-7 tons/ac (Bing) and 6-10 tons/ac (Rainier, Chelan, Sweetheart) for mature cherry blocks; thus potential organic cherry volume is much higher than what is currently being marketed.

Market Outlook

The Organic Trade Association reported total U.S. organic food sales growth of 5.1% in 2009 and 7.7% in 2010, continuing a 15-year growth trend despite the lingering economic recession. In comparison, total U.S. food sales grew by only 1.1%. Produce represented nearly 40% of all U.S. organic food sales in 2010. Organic fresh produce sales increased to a 12% share of all U.S. fresh produce sales in 2010, up from 9.8% in 2008, and 11.4% in 2009. Sales of organic produce also increased 11.8% (OTA 2010, 2011). Fruit consumption is expanding in general for health reasons, and with less perceived pesticide risk, organic fruit fits well with consumer interests. Recent findings on higher levels of antioxidants in organic fruit also encourage increased consumption (Brandt et al., 2011). Apple is the third most important fresh fruit consumed in the U.S.; apples (and other fresh fruit) represent a high priority organic purchase for many consumers. Organic foods have moved into new segments such as food service, restaurants, and schools.

Organic tree fruit is exported from the Pacific Northwest to destinations around the world. Preliminary estimates of Washington organic apple exports were close to 738,000 boxes for the 2010/11 season, up 15% over the 2009/10 season with over 640,000 boxes. Gala apples comprised about 40% of the total. Northwest organic pear exports peaked in 2009 at just under 93,000 boxes; the smaller 2010 crop resulted in decreased exports just over 72,000 boxes (Fig.19). D'Anjous and Bartlett varieties made up 50% and 30% of the export volume, respectively. Canada and the European Union have traditionally been strong markets for organic tree fruit. In 2009/10 and 2010/11, Canada received over 55% of exported Washington organic apples and 65% of Northwest organic pear exports (10/11), compared to 54% of pears the previous year. The EU, primarily the UK, received over 9% of northwest organic pear exports, down from 30% in 2009/10. Washington organic apples destined for the UK also decreased in 2010/11, by 45%, and represented 13% of state organic apple exports. An additional 15% of Washington organic apples and 7% of northwest organic pears were destined for Asia in 2010/11.

It appears that European countries are increasingly meeting much of their demand with internal production and with counter season imports from Argentina and Chile. Such trends may limit U.S. sales into the EU markets. For example, the South Tyrol region in Italy produced 2.1 million boxes of organic apples in 2008, mostly for export within the EU. Germany was able to supply their internal market until June for the first time in the 2007/08 market season, and organic apple sales volume increased to 1.4 million boxes in 2008 (A. Kasbohm, pers. comm.). According to SENASA, Argentina exported 0.9 million boxes of organic apples (40 lb SEB) in 2009, with 78% destined to the EU and 9% to the U.S.; Argentine exports were up nearly 10% compared to 2008. Argentina also exported 1.1 and 1.46 million boxes of organic pears (44 lb SEB) in 2008 and 2009, respectively, with 57% destined for the EU and 22% to the U.S. in 2009. The more than 328,000 box volume imported by the U.S. represented about half of the total domestic and export volume shipped from Washington and Oregon in the 2008/09 market season.

Washington organic cherry export information was not available for this report. Although organic sweet cherry area in Chile is small (150 acres in 2008), counter season product is making its way to the U.S. market. Off-season prices appear to be much lower than U.S. summer product prices, according to USDA-AMS on-line data.

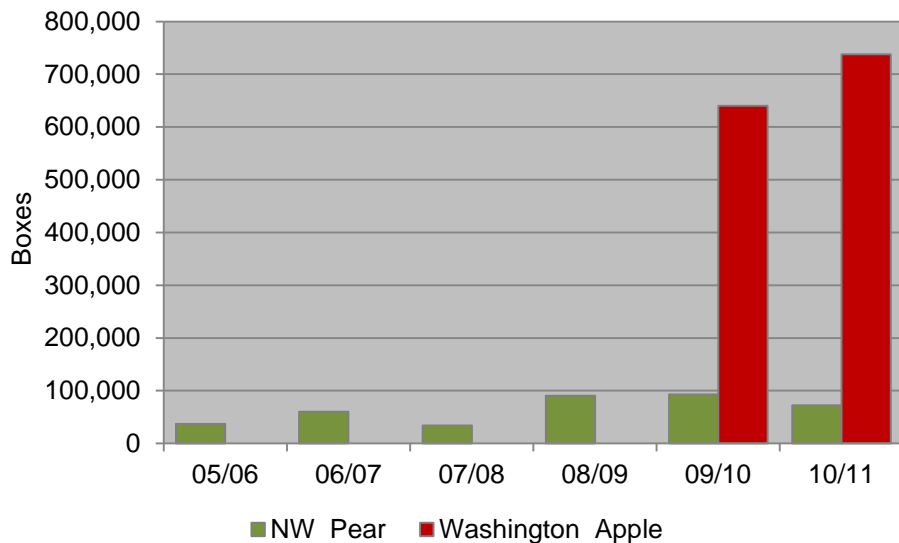


Figure 19. Estimated organic apple and pear exports. Chart was created using unpublished industry data (e.g. Pear Bureau Northwest); Standard Equivalent Boxes (44 lb pear; 40 lb apple) [Note: waiting for more historical apple data and then will make adjustments to text – there are data available – we just don’t have them yet]

Conclusion

The long-term outlook for organic tree fruit production in Washington continues to be positive. A big challenge remains in matching the growth of supply to the growth of demand. With Washington State’s favorable climate, we can increase supply rapidly and overshoot demand. Washington organic apple sales volume increased significantly during the 2008/09 and the 2009/10 marketing years. Prices for both organic and conventional tree fruit, particularly apples, dropped during the 2008/09 marketing year resulting in much lower organic premiums. Growers apparently responded to this market situation by scaling back additional new acres for organic production.

Pest management research for conventional fruit increasingly provides technology usable by organic growers. However, the loss of antibiotics (streptomycin, tetracycline) for fire blight control, currently slated for October 2014, will add more risk to organic apple and pear production until suitable replacements are found. According to a grower survey, 76% of the organic apple and pear growers in the state said they would reduce or eliminate their organic apple and pear production if a de-listing of antibiotics occurred (Granatstein et al., 2010b). Organic tree fruit production may also be negatively affected by the emergence of new pests such as spotted wing drosophila and brown marmorated stink bug in the Pacific Northwest and potential lack of effective organic compliant control materials. In June 2011, the EPA approved an additional use label for an insecticide containing azadirachtin and pyrethrins that may help to manage stink bugs in organic production systems.

Economics will clearly influence future acreage trends for organic tree fruit in Washington State. Price fluctuations for organic apples are well-correlated with conventional prices, indicating that both sectors are influenced by similar forces, such as overall crop or fruit size in a given year. In a 2010

organic tree fruit grower survey, about 20% of respondents said that yields and packouts were either unchanged or increased with organic production, whereas 30% said yields and packouts declined by 10% (D. Granatstein, unpublished data). Alternate bearing and small fruit size were the main causes cited for reduced yields. Fifteen percent said their organic cost of production was similar or lower than comparable conventional, while 57% said it was 20% or more expensive. Thus, if many growers experience both reduced output and increased costs, a substantial organic premium will be needed for them to remain in production. Additional economic studies are needed to understand the cost structure for organic production and where research could contribute to lowering expenses. A WSU enterprise budget for organic Gala apples has been completed (Taylor et al., in press) calculating total costs and breakeven prices at different yields. As no enterprise budgets for organic pears have been developed, it is not possible to evaluate the profitability of organic pears with data currently available to the public. Organic premiums are not enough to determine profitability; costs of organic production, yields, pack out percentage, and packing costs will all affect the prices growers need to break even. Knowing the cost of production for organic tree fruit is necessary to judge whether the prices reported here are profitable and can sustain the organic tree fruit sector.

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³ Pear Bureau Northwest bulletins are available to members only or by special permission and are confidential.

⁴ Washington Growers Clearing House Bulletins and Annual Reports are available only to members, or by special permission, and are confidential.

Appendix Tables

Table A1. Certified and transition organic apple, pear and cherry acres in Washington State by year.

		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Apple	Cert	2,334	4,228	6,540	7,054	7,003	7,049	6,721	7,642	8,018	12,936	15,735	14,790
	Tran	3,590	3,997	3,415	590	719	844	1,111	4,100	6,291	4,256	2,001	630
Pear	Cert	456	619	1,308	1,771	1,466	1,509	1,196	1,251	1,418	1,713	1,964	2,033
	Tran	624	1,040	642	192	80	201	234	276	630	444	154	118
Cherry	Cert	107	193	303	507	513	581	624	782	1,026	1,738	2,437	2,147
	Tran	--	165	280	69	58	158	234	775	1,284	796	150	94

Unpublished certifier data compiled by WSU-CSANR.

Table A2. Changes in estimated Washington certified organic tree fruit acreage.

Year	Apples (acres)	Annual Change (acres)	Annual Change %	Pears (acres)	Annual Change (acres)	Annual Change %	Soft fruit (acres)	Annual Change (acres)	Annual Change %
1988	109	--	--	29	--	--	36	--	--
1989	365	256	235	31	2	7	85	49	136
1990	1,632	1,267	347	164	133	429	269	184	216
1991	1,253	-379	-23	344	180	110	197	-72	-27
1992	930	-323	-26	336	-8	-2	173	-24	-12
1993	807	-123	-13	323	-13	-4	131	-42	-24
1994	849	42	5	339	16	5	161	30	23
1995	861	12	1	320	-19	-6	149	-12	-7
1996	1,115	254	30	361	41	13	163	14	9
1997	1,634	519	47	411	50	14	194	31	19
1998	1,809	175	11	449	38	9	208	14	7
1999	2,334	525	29	456	7	2	216	8	4
2000	4,228	1,894	81	619	163	36	385	169	78
2001	6,540	2,312	55	1,308	689	111	588	203	53
2002	7,054	514	8	1,771	470	36	899	311	53
2003	7,003	-51	-1	1,466	-305	-17	884	-15	-2
2004	7,049	46	0.7	1,509	43	3	910	26	3
2005	6,721	-328	-5	1,196	-313	-21	1,038	128	14
2006	7,642	921	14	1,251	55	5	1,217	179	17
2007	8,018	376	5	1,418	167	13	1,523	306	25
2008	12,936	4,918	61	1,713	295	21	2,334	811	53
2009	15,735	2,799	22	1,964	251	15	4,100	1,766	76
2010	14,790	-945	-6	2,033	69	4	3,835	-265	-6

Unpublished certifier data compiled by WSU-CSANR.

Table A3. California organic stone fruit acres.

	----- Organic Acres -----					
	2004	2005	2006	2007	2008	2009
Prune & Plum	2,019	--	2,493	2,609	2,698	2,469
Peach	663	743	913	976	1,107	1,215
Nectarine	324	387	546	720	841	906
Apricot	404	434	455	505	411	382
Cherry	184	282	267	272	307	368
Stone, Mixed	98	149	170	154	158	226

California Department of Food and Agriculture, unpublished data.

Table A4. Certified organic stone fruit acres, Washington State.

	----- Certified Acres -----									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Cherry	303	507	513	581	624	782	1,026	1,738	2,437	2,147
Peach	126	187	175	148	179	184	194	199	644	701
Nectarine	57	66	57	50	67	68	82	114	472	550
Mixed Peach/Nect	--	--	--	--	--	--	--	--	122	--
Apricot	49	77	78	96	95	93	96	107	265	299
Plum/Prune	54	61	63	35	51	57	62	97	130	125
Stone, Mixed	--	--	--	--	22	33	64	78	30	13
Totals	589	898	886	910	1,038	1,217	1,524	2,333	4,100	3,835

Unpublished certifier data compiled by WSU-CSANR.

Table A5. Washington stone fruit acres in transition to organic.

	----- Transition acres -----									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Cherry	280	69	58	158	234	775	1,284	797	150	95
Peach	31	--	--	9	9	29	456	463	7	--
Nectarine	26	3	--	8	8	8	336	369	4	16
Apricot	4	12	12	--	12	12	146	179	20	20
Plum/Prune	14	3	--	--	3	19	110	49	5	--
Stone, Mixed		--	--	--	4	8	185	164	--	2
Totals	355	87	70	175	270	851	2,517	2,021	186	133

Unpublished certifier data compiled by WSU-CSANR.

Table A6. Estimated US certified organic apple acre trend by region.

State	1997	2000	2001	2003	2005	2007	2008	2009	2010
WA	1,707	4,228	6,540	7,003	6,721	8,018	12,936	15,735	14,790
CA	1,883	4,423	4,853	4,045	3,402	3,900	3,393	3,450	--
AZ	3,178	1,795	1,715	835	865	816	816	--	--
CO	1,270	431	635	235	202	209	164	--	--
OR	9	350	350	265	123	106	136	201	--
Other West	59	281	677	171	83	147	139	--	--
West total	8,106	11,508	14,770	12,554	11,396	13,196	17,584	>20,000	
Midwest	522	419	567	650	708	612	655	--	--
Northeast	201	83	52	5	392	212	193	--	--
South	17	28	15	1	8	47	33	--	--
US Total	8,846	12,038	15,404	13,210	12,504	14,067	18,465	>21,000	

Table A7. Estimated county distribution of Washington certified organic apple acres.

	----- Certified acres -----									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Grant	1,829	1,812	1,977	1,851	1,872	2,129	2,299	4,238	5,758	6,104
Yakima	1,321	1,465	1,425	1,310	1,179	1,452	1,542	2,367	2,136	1,400
Douglas	848	854	852	826	813	1,083	1,204	1,816	2,207	1,869
Okanogan	1,037	858	708	703	588	635	739	1,209	1,192	1,333
Chelan	474	456	432	431	433	444	488	920	1,072	814
Franklin	109	521	521	664	626	564	407	854	982	937
Walla Walla	464	424	424	436	421	511	511	521	846	850
Adams	--	233	233	217	217	336	378	504	831	783
Benton	432	396	396	561	521	437	399	455	653	641
Others	26	35	35	51	51	52	51	52	58	59
Totals	6,540	7,054	7,003	7,049	6,721	7,643	8,018	12,936	15,735	14,790

Unpublished certifier data compiled by WSU-CSANR.

Table A8. Estimated county distribution of Washington apple acres in transition.

	----- Transition acres -----									
County	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Grant	1,403	316	351	353	369	1876	2,609	2,069	1,237	238
Yakima	774	19	46	61	110	651	684	254	45	--
Douglas	39	--	66	295	340	612	939	548	113	--
Okanogan	461	26	35	14	31	297	385	220	91	68
Chelan	133	8	5	15	17	376	601	167	8	7
Franklin	502	95	95	--	--	113	525	328	99	31
Walla Walla	--	--	--	106	106	10	50	368	--	--
Adams	--	--	--	--	138	145	393	239	146	74
Benton	91	125	125	--	--	21	104	63	262	212
Others	9	--	--	--	--	--	1	--	--	--
Totals	3,411	589	723	844	1,111	4,100	6,291	4,256	2,001	630

Unpublished certifier data compiled by WSU-CSANR.

Table A9. Estimated Washington certified organic pear acres by county.

	----- Certified acres -----									
County	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Okanogan	794	686	479	482	357	392	473	594	482	535
Yakima	233	373	343	314	286	286	331	450	485	567
Chelan	258	575	500	567	409	383	376	420	459	436
Klickitat	--	--	--	--	--	--	3	3	170	152
Douglas	--	21	21	13	12	58	105	122	165	140
Grant	2	42	42	46	46	46	46	67	119	126
Skamania	--	65	65	65	65	65	65	39	64	47
Other	21	15	16	22	21	22	19	18	20	30
Totals	1,308	1,777	1,466	1,509	1,196	1,252	1,418	1,713	1,964	2,033

Unpublished certifier data compiled by WSU-CSANR.

Table A10. Estimated county distribution of Washington pear acres in transition.

	----- Transition acres -----									
County	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Okanogan	53	6	6	5	47	61	101	91	50	80
Yakima	180	10	10	10	--	94	115	65	67	16
Chelan	301	21	17	111	112	28	104	36	4	--
Douglas	--	--	47	75	75	75	29	10	--	--
Grant	34	--	--	--	--	19	36	21	--	--
Skamania	65	--	--	--	--	--	80	57	22	22
Other	9	--	--	--	--	--	1	0	--	--
Klickitat	--	--	--	--	--	--	164	164	11	--
Totals	642	37	80	201	234	276	630	444	154	118

Unpublished certifier data compiled by WSU-CSANR.

Table A11. Estimated county distribution of Washington certified organic cherry acres.

	----- Certified acres -----									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Yakima	84	149	174	184	182	221	285	643	646	443
Grant	39	52	51	66	107	132	140	298	561	527
Chelan	32	65	56	95	103	153	160	191	484	346
Douglas	37	43	43	58	39	62	115	123	255	214
Franklin	42	135	135	115	132	140	140	183	207	142
Benton	--	14	14	16	16	7	34	120	103	308
Okanogan	65	46	36	44	51	59	63	70	56	53
Walla Walla	--	--	--	--	--	2	84	106	12	108
Other	--	3	3	3	4	9	89	4	112	6
Total	299	507	512	581	634	784	1,110	1,738	2,437	2,147

Unpublished certifier data compiled by WSU-CSANR.

Table A12. Estimated county distribution of Washington cherry acreage in transition .

County	----- Transition acres -----									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Yakima	42	12	13	18	47	324	344	134	18	--
Grant	105	40	40	57	12	156	315	172	92	56
Chelan	42	12	--	12	14	23	390	323	23	7
Douglas	16	3	3	71	71	64	81	78	--	--
Franklin	50	--	--	--	7	35	88	37	17	--
Benton	14	--	--	--	--	83	35	35	--	--
Okanogan	10	2	2	--	--	3	6	6	--	--
WallaWalla	--	--	--	--	--	97	13	--	--	32
Other	--	--	--	--	84	97	25	12	--	--
Totals	279	69	58	157.5	234.2	882	1297	797	150	95

Unpublished certifier data compiled by WSU-CSANR.

Table A13. Estimated Washington certified organic other soft fruit acres by county in 2010.

County	Apricot	Peach	Nectarine	Plum*	Apricot	Nectarine
	----- Certified acres -----				- Transition acres -	
Adams	--	7	21	15	--	--
Benton	59	83	70	--	--	--
Chelan	13	3	--	5	--	--
Douglas	7	19	15	14	--	--
Franklin	102	436	315	27	20	--
Grant	59	47	58	19	--	--
Okanogan	5	18	3	17	--	--
Stevens	2	22	2	2	--	--
Yakima	52	66	64	25	--	16
Other	--	--	2	1	--	--
Total	299	701	550	125	20	16

T = Transition. Unpublished certifier data compiled by WSU-CSANR.

Table A14. Projected short term growth for Washington organic apples.

Variety	Acres Transition (T) or Certified (C)					% Acre Growth	Projected % Growth	Boxes (*1000) Shipped	% Variety acres	% Varieties shipped
	T 2008	C 2009	T 2009	C 2010	T 2010	2009-10	2010-12	2009/10*	2009	2009
Gala	838	3,458	365	3,201	195	-8%	6%	1,678	22%	28%
Fuji	1,179	3,045	865	3,366	267	11%	7%	1,288	19%	22%
Red Delicious	468	1,676	38	1,461	31	-13%	2%	758	11%	13%
Granny Smith	360	1,700	18	1,470	--	-14%	0%	479	11%	8%
Golden Types	286	1,557	42	1,058	--	-32%	0%	410	10%	7%
Cripps Pink	206	1,081	133	1,016	44	-6%	4%	472	7%	8%
Braeburn	219	1,083	113	884	14	-18%	2%	328	7%	6%
Honeycrisp	300	879	246	1,099	44	25%	4%	210	6%	4%
Others & NS	400	1,256	181	1,235	--	-2%	3%	291	8%	5%
Total	4,256	15,735	2,001	14,790	630	-6%	4%	5,914	100%	100%

*Shipped box values are from Washington Growers Clearinghouse unpublished data. Industry sources (unpublished) predict a 46% increase in shipping volume to 8.6 million boxes organic apples for the 2010/11 market season, based on 40 lb. standard equivalent boxes (SEB). Unpublished certifier acreage data was compiled by WSU-CSANR.

Table A15. Washington certified organic pear acres by variety.

Variety	----- Certified acres -----											T ac
	1998	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2010
Bartlett	65	274	431	455	433	360	402	480	591	656	692	19
D'Anjou	238	569	755	529	560	389	393	401	519	616	636	92
Bosc	75	240	370	284	270	224	214	218	223	276	301	--
Red Types	--	58	89	71	98	102	107	99	156	216	217	7
Asian	39	60	60	47	65	42	46	41	43	44	43	--
Other & NS	32	107	66	80	83	78	89	179	181	156	144	--
Total	449	1,308	1,771	1,466	1,509	1,195	1,251	1,418	1,713	1,964	2,033	118

T=Transition acres. Unpublished certifier data compiled by WSU-CSANR.

Table A16. Washington organic cherry acres by variety.

	----- Certified acres -----			T acres
	2008	2009	2010	2010
Not reported by variety	994	887	669	2
Other Sweet	115	257	273	2
Bing	293	405	378	26
Rainier	109	225	179	2
Sweetheart	45	173	136	--
Skeena	37	167	187	5
Chelan	145	133	135	58
Tart	--	190	190	--
Total	1,738	2,437	2,147	95

T = Transition. Unpublished certifier data compiled by WSU-CSANR.

Table A17. Estimated average weighted Washington organic apple prices (\$/box FOB).

	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11*
Red Delicious	\$14.06	\$18.73	\$17.00	\$22.89	\$17.34	\$20.72	\$20.95	\$26.98	\$19.36	\$20.37	\$18.33
Golden Delicious	\$16.04	\$21.21	\$21.46	\$25.64	\$17.57	\$24.41	\$29.30	\$33.59	\$20.90	\$25.68	\$24.73
Granny Smith	\$25.53	\$19.86	\$21.62	\$24.26	\$22.57	\$23.33	\$24.98	\$28.52	\$20.36	\$24.38	\$27.15
Fuji	\$19.02	\$20.23	\$26.31	\$27.73	\$20.88	\$27.73	\$32.01	\$35.76	\$22.25	\$25.93	\$24.54
Gala	\$20.62	\$20.95	\$21.60	\$24.56	\$20.88	\$23.76	\$29.57	\$31.86	\$23.67	\$25.75	\$25.85
Braeburn	\$20.87	\$22.51	\$24.79	\$27.33	\$20.93	\$24.83	\$26.49	\$28.21	\$17.66	\$19.81	\$19.18
Jonagold	\$15.80	\$18.22	\$17.45	\$21.00	\$18.18	\$20.35	\$26.04	\$27.28	\$23.70	\$21.58	\$21.88
Cameo	\$21.22	\$21.57	\$24.22	\$29.01	\$23.25	\$27.56	\$27.75	\$26.99	\$17.51	\$20.11	\$20.43
Cripps Pink	\$31.60	\$32.01	\$37.11	\$31.28	\$22.82	\$26.83	\$27.47	\$34.94	\$20.54	\$25.94	\$25.75
Ginger Gold	\$20.37	\$18.62	\$23.36	\$15.15	\$20.01	\$24.11	\$27.47	\$32.74	\$28.71	\$23.16	\$24.75
Honeycrisp	--	--	--	--	\$52.59	\$51.70	\$59.80	\$65.66	\$52.04	\$45.82	\$49.22
Average above	\$20.51	\$21.39	\$23.49	\$24.89	\$23.37	\$26.85	\$30.17	\$33.87	\$24.25	\$25.32	\$25.62
Avg. all varieties	\$16.99	\$20.41	\$21.55	\$25.22	\$20.19	\$24.54	\$27.96	\$32.36	\$22.09	\$24.94	\$23.96

*Based on Washington Growers Clearing House Association data (all grades & sizes, CA and regular storage) market year Season end averages; except 2010/11 is Season to June 15, 2011. SEB 42 lb through 06/07; 40 lb (beginning 07/08).

Table A18. Estimated price premiums (\$/box) for organic apples in Washington State by variety.

Variety	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	*to 6/15/11
Red Delicious	\$4.02	\$6.27	\$4.66	\$7.86	\$6.14	\$6.29	\$4.87	\$7.75	\$4.99	\$4.04	\$1.38
Goldens	\$2.25	\$3.96	\$5.73	\$6.73	\$4.95	\$9.03	\$7.09	\$11.94	\$6.37	\$6.55	\$7.24
Granny Smith	\$9.42	\$4.19	\$4.25	\$4.48	\$7.92	\$6.40	\$7.42	\$7.69	\$5.48	\$5.28	\$7.73
Fuji	\$6.30	\$3.13	\$5.85	\$6.42	\$5.42	\$8.61	\$9.94	\$11.82	\$4.37	\$3.94	\$5.49
Gala	\$6.86	\$3.58	\$3.38	\$5.10	\$6.20	\$7.03	\$8.08	\$10.67	\$3.67	\$5.12	\$5.83
Braeburn	\$7.17	\$4.77	\$6.03	\$8.62	\$7.15	\$8.56	\$7.68	\$9.26	\$2.37	\$3.82	\$2.46
Jonagold	\$2.14	\$2.39	\$0	\$1.53	\$3.02	\$3.13	\$6.46	\$7.10	\$5.98	\$3.87	\$5.16
Cameo	\$6.62	\$4.06	\$6.54	\$10.27	\$8.21	\$9.97	\$8.02	\$7.22	\$2.02	\$3.09	\$2.34
Cripps Pink	\$15.08	\$11.57	\$11.33	\$9.11	\$4.53	\$4.78	\$0.00	\$6.91	\$0	\$2.59	\$2.08
Ginger Gold	--	--	--	--	--	--	--	\$8.95	\$5.49	\$8.64	\$7.24
Honeycrisp	--	--	--	--	--	--	--	\$21.00	\$7.86	\$5.21	\$3.41
<i>Average above</i>	\$6.65	\$4.88	\$5.31	\$6.68	\$5.95	\$7.09	\$6.62	\$10.03	\$4.37	\$4.87	\$4.58
<i>Avg, all varieties</i>	\$5.02	\$5.59	\$6.24	\$7.30	\$6.94	\$8.35	\$9.54	\$11.19	\$5.39	\$5.85	\$4.70

*Calculated using unpublished Washington Growers Clearing House Association data (all grades & sizes, CA and regular storage). Based on market year - Season end averages and Season to date June 15, 2011. SEB 42 lb through 06/07; 40 lb (beginning 07/08).

Table A19. Price premiums for Washington organic apples by variety, as a percent difference from conventional prices.

Variety	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	*to 6/15/11
Red Delicious	40%	50%	38%	52%	55%	44%	30%	40%	35%	25%	38%
Goldens	16%	23%	36%	36%	39%	59%	32%	55%	44%	35%	42%
Granny Smith	58%	27%	24%	23%	54%	38%	42%	37%	37%	28%	42%
Fuji	50%	18%	29%	30%	35%	45%	45%	49%	24%	18%	24%
Gala	50%	21%	19%	26%	42%	42%	38%	50%	18%	25%	35%
Braeburn	52%	27%	32%	46%	52%	53%	41%	49%	16%	24%	29%
Jonagold	16%	15%	0%	8%	20%	18%	33%	35%	34%	22%	30%
Cameo	45%	23%	37%	55%	55%	57%	41%	37%	13%	18%	19%
Cripps Pink	91%	57%	44%	41%	25%	22%	0%	25%	0%	11%	1%
Ginger Gold	--	--	--	--	--	--	--	38	24	60%	41%
Honeycrisp	--	--	--	--	--	--	--	53	82	87%	88%
<i>Average above</i>	47%	29%	29%	35%	42%	42%	34%	42%	24%	32%	35%

*Calculated using unpublished Washington Growers Clearing House Association data (all grades & sizes, CA and regular storage). Based on market year - Season end averages and Season to date 11/15/2010. SEB 42 lb through 06/07; 40 lb (beginning 07/08).

Table A20. Washington organic apple price premium comparison by variety (\$/box FOB).

Apple	5 yr average 2003/04 to 07/08	5 yr average 2004/05 to 08/09	07/08	to 6/15/11
Gala	\$7.42	\$7.13	\$10.67	\$5.83
Fuji	\$8.44	\$8.03	\$11.82	\$5.49
Red Delicious	\$6.58	\$6.01	\$7.75	\$1.38
Golden Delicious	\$7.95	\$7.88	\$11.94	\$7.24
Granny Smith	\$6.78	\$6.79	\$7.69	\$7.73
Cripps Pink	\$5.07	\$3.14	\$6.91	\$2.08
Braeburn	\$8.25	\$7.00	\$9.26	\$2.46
<i>Average above</i>	7.21	6.57	9.43	\$4.60
<i>Average all varieties</i>	\$7.05	\$6.47	\$8.93	\$4.70

Calculated using unpublished Washington Growers Clearing House Association data (all grades & sizes, CA and regular storage). Based on market Season end averages and Season to June 15, 2011. SEB 42 lb through 06/07; 40 lb (beginning 07/08).

Table A21. Organic share of total apple variety sales volume, Washington State.

Variety	----- Percent -----				
	2005/06	06/07	07/08	08/09	2009/10
Red Delicious	1.5	1.9	1.7	2.1	2.5
Golden Delicious	2.5	3.2	3.7	3.8	4.0
Granny Smith	2.2	3.1	3.2	4.2	4.0
Gala	4.2	4.4	4.6	8.0	8.7
Fuji	3.7	4.9	5.1	7.6	10.0
Jonagold	1.9	1.9	3.1	3.6	5.3
Braeburn	6.7	7.0	7.4	12.7	10.1
Cameo	7.1	5.0	8.6	11.4	11.0
Cripps Pink	7.9	13.1	11.7	13.1	17.6
Honeycrisp	0.0	5.3	4.8	9.6	11.0
Other	3.7	5.3	5.5	5.8	5.4
Total organic share, all varieties	2.9	3.6	3.8	5.4	6.1

Calculated using unpublished Washington Growers Clearing House Association data.

Table A22. Modeled prices of WA organic apples with increasing sales volume.

	Organic Shipments as % of All WA Apple Shipments			
	6%	8%	10%	12%
Model Box Price, All Apples	Predicted Model Organic Price (\$/Box FOB)			
\$20.00	\$ 26.77	\$ 24.45	\$ 22.13	\$ 19.82
\$17.00	\$ 22.75	\$ 20.78	\$ 18.81	\$ 16.85
\$14.00	\$ 18.74	\$ 17.11	\$ 15.49	\$ 13.87
2009/10 Season; Actual Organic Share of Sales Volume = 6%				
	All Apples		Organic Apples	
Avg. Actual Box Price (FOB)	\$19.05		\$24.89	

Model: D. O'Rourke, 2008; 2009/10 Washington Growers Clearing House price data

Table A23. Average box price as a percent difference from size 80-88 for organic Gala WAXF#1.

	Size 100	Size 113
2005/06	-15%	-29%
2006/07	-10%	-25%
2007/08	-14%	-24%
2008/09	-15%	-35%
2009/10	-9%	-22%
2010/11	-4%	-17%

Table A24. Estimated average Washington organic pear prices (\$/box FOB).

Variety	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11
Bartlett	\$21.81	\$21.64	\$21.27	\$20.06	\$22.52	\$25.03	\$36.84	\$33.32	\$31.60	\$22.94	\$27.88
Red Bartlett	\$23.40	\$21.09	\$23.35	\$23.78	\$24.31	\$31.25	\$35.56	\$31.23	\$36.34	\$23.99	\$30.45
D'Anjou	\$24.64	\$15.00	\$17.07	\$18.14	\$18.11	\$25.29	\$33.82	\$31.12	\$27.67	\$22.17	\$24.69
Red Anjou	\$27.97	\$20.52	\$19.09	\$21.80	\$29.35	\$37.58	\$39.70	\$40.26	\$31.30	\$30.73	\$35.64
Bosc	\$24.81	\$15.82	\$21.62	\$18.99	\$25.03	\$24.73	\$31.59	\$32.85	\$29.09	\$23.00	\$29.38
<i>Avg. above</i>	\$24.53	\$18.81	\$20.48	\$20.55	\$23.86	\$28.78	\$35.50	\$33.76	\$31.20	\$24.57	\$29.61
<i>Average all</i>	\$24.26	\$16.17	\$19.33	\$19.27	\$21.03	\$26.67	\$35.60	\$33.40	\$29.74	\$23.40	\$26.73

Based on unpublished Washington Growers Clearing House Association data (all grades & sizes, CA and regular storage). Season end averages; 44 lb SEB.

Table A25. Estimated price premium (\$/box) for Washington organic pears.

Variety	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11
Bartlett	\$7.61	\$5.43	\$3.42	\$4.14	\$5.01	\$6.20	\$16.71	\$14.91	\$11.60	\$6.16	\$8.04
Red Bartlett	\$5.78	\$0.00	\$3.03	\$2.91	\$4.47	\$6.64	\$11.81	\$6.40	\$11.49	\$4.49	\$6.88
D'Anjou	\$12.05	\$2.20	\$3.19	\$3.50	\$1.32	\$9.23	\$12.61	\$11.57	\$6.92	\$4.79	\$2.87
Red D'Anjou	\$10.28	\$2.82	\$0.75	\$1.95	\$9.49	\$15.18	\$15.12	\$16.99	\$8.36	\$9.50	\$9.33
Bosc	\$9.05	\$2.51	\$4.07	\$3.01	\$8.42	\$6.78	\$13.15	\$10.96	\$11.77	\$5.62	\$7.87
<i>Average above</i>	\$8.95	\$2.59	\$2.89	\$3.10	\$5.74	\$8.81	\$13.88	\$12.17	\$10.03	\$6.11	\$7.00
<i>Average, all</i>	\$10.82	\$2.53	\$4.21	\$3.90	\$3.97	\$9.57	\$14.77	\$13.56	\$9.49	\$5.86	\$5.16

Calculated using unpublished Washington Growers Clearing House Association data (all grades & sizes, CA and regular storage). Season end averages; 44 lb SEB.

Table A26. Estimated price premiums for Washington organic pears as a percent difference from conventional prices.

Variety	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11
Bartlett	54%	33%	19%	26%	29%	33%	83%	81%	58%	37%	41%
Red Bartlett	33%	0%	15%	14%	23%	27%	48%	26%	46%	23%	29%
D'Anjou	96%	17%	23%	24%	8%	57%	59%	59%	33%	28%	13%
Red D'Anjou	58%	16%	4%	10%	48%	68%	62%	73%	36%	45%	35%
Bosc	57%	19%	23%	19%	51%	38%	71%	50%	68%	32%	37%
<i>Average above</i>	60%	17%	17%	19%	32%	45%	65%	58%	48%	33%	31%

Calculated using unpublished Washington Growers Clearing House Association data (all grades & sizes, CA and regular storage). Season end averages; 44 lb SEB.

Table A27. Washington organic pear price premium comparison by variety (\$/box FOB).

Pear	5 yr average 2004/05 to 08/09	07/08	10/11
Bartlett	\$11.12	\$14.91	\$8.04
D'Anjou	\$9.02	\$6.40	\$2.87
Bosc	\$9.66	\$10.96	\$7.87
Red Bartlett	\$8.17	\$6.40	\$6.88
Red D'Anjou	\$13.03	\$16.99	\$9.33
<i>Average, above</i>	\$9.66	\$12.17	\$7.00

**Calculated using Washington Growers Clearing House Association unpublished data (all grades & sizes, CA and regular storage). Based on market year season end averages; 44 lb SEB.*