The following set of slides presents the current data on organic tree fruit area and production for Washington State, with some associated global and national data. Data come from various sources including certifiers [e.g., Washington St. Dept. of Agriculture (WSDA) Organic Program; Oregon Tilth Certified Organic (OTCO), California Certified Organic Farmers (CCOF) The World of Organic Agriculture annual publication http://www.organic-world.net/index.html, USDA, Calif. Dept. Food and Agric. (CDFA), and industry sources [Washington State Tree Fruit Association (WSTFA), Wenatchee Valley Traffic Association (WVTF), Washington Growers Clearinghouse (WGCH)]. Data from WSDA were extracted on Dec. 23, 2015.

Organic agriculture continues to be consumer driven. The next slide (3) shows the growth in retail sales of organic food in the U.S. since 2002. Growth dipped during the recession but did not stop, and has rebounded to 10-12% per year. Growth of the fruit and vegetable category was much more stable (Slide 4), confirming that these products are very core to organic consumers. These consumer data come from the Organic Trade Association annual industry survey.
Retail organic food sales increased **10.4%** in 2015. Organic fruits and vegetable sales increased **10.9%** and were **36%** of all organic food sales; ~**7%** of all fruits and vegetables sales ($) in U.S. in 2014 were organic.

*Source: OTA, Nutrition Business Journal*
Consumer Demand for Organic Food

Annual growth rates for organic foods

- based on supermarket retail sales; does not include direct market, specialty stores

Source: OTA, Nutrition Business Journal
Estimates of **global area** of organic horticultural crops, including tree fruits, have been made several times in the past by the authors to help track trends. The most recent data (2014) were used in the following slides. Organic tree fruit represented about 1% of all organic agricultural land globally, with temperate tree fruits having 38% of all organic tree fruit area (**slide 6**). Tropical/subtropical tree fruits are now the largest category. Apple had the largest area for a specific fruit, followed by banana (**slide 7**) and avocado (data not shown). Area of organic tree fruit expanded rapidly since 2008 but declined slightly in 2014 (**slides 8 and 9**). This may be due to serious diseases in banana (black Sigatoga, Fusarium wilt TR4) and orange (citrus greening), as well as withdrawal of subsidy-induced apple land in Poland. Europe continues with the largest area of organic temperate tree fruit (Poland 41,326 ha; Italy 17,889 ha; Turkey 14,808 ha), followed by China (25,266 ha) and the U.S. (13,268 ha). Organic apple area declined in several countries (China, Poland, Argentina), but increased about 10% in Italy and Turkey (**slide 10**).
Global Organic Tree Fruit Area

Organic tree fruit crops 496,000 ha
~1% of organic agriculture land

<table>
<thead>
<tr>
<th></th>
<th>Hectares* 2014</th>
<th>% of organic tree fruit</th>
<th>% change from 2013</th>
<th>% of all global</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperate</td>
<td>188,201</td>
<td>38</td>
<td>-11</td>
<td>1.5</td>
</tr>
<tr>
<td>Citrus</td>
<td>75,215</td>
<td>15</td>
<td>-8</td>
<td>0.8</td>
</tr>
<tr>
<td>Tropical/Subtropical</td>
<td>233,143</td>
<td>47</td>
<td>+8</td>
<td>1.0</td>
</tr>
</tbody>
</table>

*certified + transition
1 hectare (ha) = 2.47 acres

Source: World of Organic Agriculture, FAO
## Global Organic Tree Fruit Area

<table>
<thead>
<tr>
<th></th>
<th>Hectares* 2014</th>
<th>% change from 2013</th>
<th>% of organic category</th>
<th>% of all global#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple</td>
<td>88,106</td>
<td>-8</td>
<td>46</td>
<td>1.7</td>
</tr>
<tr>
<td>Apricot</td>
<td>20,978</td>
<td>-6</td>
<td>11</td>
<td>4.2</td>
</tr>
<tr>
<td>Cherry</td>
<td>11,952</td>
<td>+15</td>
<td>6</td>
<td>2.6</td>
</tr>
<tr>
<td>Peach/Nect.</td>
<td>9,066</td>
<td>-6</td>
<td>4</td>
<td>0.4</td>
</tr>
<tr>
<td>Pear</td>
<td>17,425</td>
<td>-2</td>
<td>9</td>
<td>0.9</td>
</tr>
<tr>
<td>Plum</td>
<td>12,633</td>
<td>+12</td>
<td>6</td>
<td>0.4</td>
</tr>
<tr>
<td>Other, no details</td>
<td>33,912</td>
<td></td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Banana</td>
<td>60,432</td>
<td>-24</td>
<td>26</td>
<td>1.2</td>
</tr>
<tr>
<td>Orange</td>
<td>32,764</td>
<td>-23</td>
<td>44</td>
<td>0.8</td>
</tr>
</tbody>
</table>

*certified + transition; # using 2013 FAO global data

Source: World of Organic Agriculture; FAO
Organic Apple Trends
Expansion of Global Area

*Certified + Transition area
1 hectare = 2.47 acres

Data courtesy of H: Willer, FiBL
Organic Tree Fruit Trends
Expansion of Global Area

*Certified + Transition area

Data courtesy of H: Willer, FiBL
# World Organic Apple Area

<table>
<thead>
<tr>
<th>Country</th>
<th>2014 Ha (C+T)</th>
<th>% change from 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>88,016</td>
<td>-6</td>
</tr>
<tr>
<td>US</td>
<td>7,889</td>
<td>?</td>
</tr>
<tr>
<td>Europe</td>
<td>63,986</td>
<td>-3</td>
</tr>
<tr>
<td>Poland</td>
<td>31,452</td>
<td>-11</td>
</tr>
<tr>
<td>Germany</td>
<td>4,800</td>
<td>+2</td>
</tr>
<tr>
<td>Italy</td>
<td>3,950</td>
<td>+10</td>
</tr>
<tr>
<td>France</td>
<td>6,227</td>
<td>+8</td>
</tr>
<tr>
<td>Turkey</td>
<td>4,290</td>
<td>+13</td>
</tr>
<tr>
<td>China</td>
<td>11,540</td>
<td>-30</td>
</tr>
<tr>
<td>Argentina</td>
<td>1,248</td>
<td>-17</td>
</tr>
<tr>
<td>Chile</td>
<td>1,127</td>
<td>+1</td>
</tr>
<tr>
<td>New Zealand</td>
<td>450</td>
<td>?</td>
</tr>
</tbody>
</table>

WA organic apples, 2014
- 5,689 ha cert.
- 72% of US
- 6% of world certified area (2014)

Europe is the leading region for producing organic tree fruits.
- 72% of world organic apple area

1 hectare (ha) = 2.47 acres

Data courtesy of H: Willer, FiBL
Data on the area of organic tree fruit production in the U.S. are not collected regularly and are not segregated by the fruit type, except for apple. The results in the following tables (slides 12 and 13) come from USDA ERS reports, certifier data, CDFA, and USDA NASS surveys. In general, >90% of certified organic apple area has been located in the semi-arid regions of the western U.S. where there is little summer rainfall which minimizes many key diseases. This pattern holds true for other temperate tree fruit as well, such as pears, sweet cherries, peaches/nectarines, plums, and apricots. For example, based on data from the NASS 2014 Organic Production Survey, Washington State is the major producer of organic apples, pears, and cherries. It has 70% of the reported organic apple acres, producing 93% of the reported fresh fruit volume in the country. It also has 57% of the organic pear acres and 79% of the volume, and 75% of the sweet cherry acreage and 93% of the volume. A similar situation exists for peaches/nectarines and plums/prunes in California. Additional data can be found on slides 61 to 63.
## 2014 U.S. Organic Temperate Tree Fruit Area (ac)

<table>
<thead>
<tr>
<th>Fruit Type</th>
<th>WA</th>
<th>CA</th>
<th>US estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple</td>
<td>14,052</td>
<td>3,392</td>
<td>19,370</td>
</tr>
<tr>
<td>Pear</td>
<td>1,843</td>
<td>697</td>
<td>3,078</td>
</tr>
<tr>
<td>Other pome</td>
<td>71</td>
<td></td>
<td>71</td>
</tr>
<tr>
<td>Apricot</td>
<td>298</td>
<td>393</td>
<td>691</td>
</tr>
<tr>
<td>Cherry, sweet</td>
<td>1,560</td>
<td>563</td>
<td>2,302</td>
</tr>
<tr>
<td>Cherry, tart</td>
<td>372</td>
<td>0</td>
<td>467</td>
</tr>
<tr>
<td>Nectarine</td>
<td>440</td>
<td>846</td>
<td>1,286</td>
</tr>
<tr>
<td>Peach</td>
<td>580</td>
<td>1,583</td>
<td>3,039</td>
</tr>
<tr>
<td>Plum/prune</td>
<td>58</td>
<td>2,228</td>
<td>2,377</td>
</tr>
<tr>
<td>Other stone</td>
<td>16</td>
<td>379</td>
<td>395</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>19,219</td>
<td>10,152</td>
<td>33,076</td>
</tr>
</tbody>
</table>

Reported as acres. Data from various certifiers, CDFA, and USDA-NASS.
# US Organic Apple Area

(acres, estimated)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>WA*</td>
<td>4,228</td>
<td>6,540</td>
<td>7,003</td>
<td>6,721</td>
<td>8,018</td>
<td>12,936</td>
<td>15,735</td>
<td>14,296</td>
<td>14,052</td>
</tr>
<tr>
<td>CA*</td>
<td>4,423</td>
<td>4,853</td>
<td>4,045</td>
<td>3,402</td>
<td>3,900</td>
<td>3,393</td>
<td>3,450</td>
<td>2,322</td>
<td>3,392</td>
</tr>
<tr>
<td>AZ</td>
<td>1,795</td>
<td>1,715</td>
<td>835</td>
<td>865</td>
<td>816</td>
<td>816</td>
<td>--</td>
<td>354</td>
<td>?</td>
</tr>
<tr>
<td>CO</td>
<td>431</td>
<td>635</td>
<td>235</td>
<td>202</td>
<td>209</td>
<td>164</td>
<td>--</td>
<td>509</td>
<td>194</td>
</tr>
<tr>
<td>OR</td>
<td>350</td>
<td>350</td>
<td>265</td>
<td>123</td>
<td>106</td>
<td>136</td>
<td>201</td>
<td>234</td>
<td>262</td>
</tr>
<tr>
<td>Other West</td>
<td>281</td>
<td>677</td>
<td>171</td>
<td>83</td>
<td>147</td>
<td>139</td>
<td>--</td>
<td>96</td>
<td>17</td>
</tr>
<tr>
<td>West total</td>
<td>11,508</td>
<td>14,770</td>
<td>12,554</td>
<td>11,396</td>
<td>13,196</td>
<td>17,584</td>
<td>&gt;20,000</td>
<td>17,934</td>
<td>17,917</td>
</tr>
<tr>
<td>Midwest</td>
<td>419</td>
<td>567</td>
<td>650</td>
<td>708</td>
<td>612</td>
<td>655</td>
<td>--</td>
<td>1,207</td>
<td>319</td>
</tr>
<tr>
<td>NY &amp; NE</td>
<td>83</td>
<td>52</td>
<td>5</td>
<td>392</td>
<td>212</td>
<td>193</td>
<td>--</td>
<td>361</td>
<td>645</td>
</tr>
<tr>
<td>S &amp; SE</td>
<td>28</td>
<td>15</td>
<td>1</td>
<td>8</td>
<td>47</td>
<td>33</td>
<td>--</td>
<td>40</td>
<td>11</td>
</tr>
<tr>
<td>US Total</td>
<td>12,038</td>
<td>15,404</td>
<td>13,210</td>
<td>12,504</td>
<td>14,067</td>
<td>18,465</td>
<td>&gt;21,000</td>
<td>19,542</td>
<td>19,370</td>
</tr>
</tbody>
</table>

*WA and CA values are from WSDA, OTCO, CCOF, and CDFA

>90% in arid west

Combined data sets from WSU-CSANR, USDA-ERS, USDA-NASS; Other West states include ID, MT, NM, NV, UT; updated 2011 to ERS values.
The acreages of different organic tree fruits in Washington over time are shown in slide 15. While accounting for about 21% of all certified organic acres in the state, organic tree fruit generates over 60% of the farmgate value of all organic products grown in the state (slide 16). Storage, packing, and marketing add another $80-90 million of value each year. Estimates for the value of organic tree fruit that is processed could not be determined, but demand for these products is growing (e.g., juice, puree, sliced apples). Organic apples dominate the organic tree fruit sector for area, production, and value, and sales value has been rapidly increasing (slide 17). Organic apples and pears will likely set record sales values ($) with the 2015 crop.
## Organic Tree Fruit Acres
**Washington State**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Apple</strong></td>
<td>15,735</td>
<td>14,790</td>
<td>14,296</td>
<td>13,657</td>
<td>14,030</td>
<td>14,052</td>
<td>14,283</td>
<td>3,356</td>
</tr>
<tr>
<td><strong>Pear</strong></td>
<td>1,964</td>
<td>2,033</td>
<td>1,917</td>
<td>1,900</td>
<td>1,820</td>
<td>1,843</td>
<td>2,050</td>
<td>165</td>
</tr>
<tr>
<td><strong>Cherry</strong></td>
<td>2,437</td>
<td>2,147</td>
<td>1,826</td>
<td>1,792</td>
<td>1,837</td>
<td>1,939</td>
<td>2,056</td>
<td>155</td>
</tr>
<tr>
<td>*<em>Apricot</em></td>
<td>265</td>
<td>299</td>
<td>296</td>
<td>266</td>
<td>299</td>
<td>298</td>
<td>260</td>
<td>--</td>
</tr>
<tr>
<td><strong>Peach&amp;Nectarine</strong></td>
<td>1,238</td>
<td>1,251</td>
<td>1,146</td>
<td>1,106</td>
<td>1,021</td>
<td>1,021</td>
<td>948</td>
<td>11</td>
</tr>
<tr>
<td>*<em>Plum&amp;Prune</em></td>
<td>130</td>
<td>125</td>
<td>92</td>
<td>89</td>
<td>58</td>
<td>58</td>
<td>56</td>
<td>--</td>
</tr>
<tr>
<td><strong>Mixed stone</strong></td>
<td>30</td>
<td>13</td>
<td>17</td>
<td>45</td>
<td>7</td>
<td>16</td>
<td>32</td>
<td>--</td>
</tr>
<tr>
<td><strong>Total</strong>*</td>
<td>21,799</td>
<td>20,658</td>
<td>19,590</td>
<td>18,855</td>
<td>18,941</td>
<td>19,228</td>
<td>19,685</td>
<td>3,687</td>
</tr>
</tbody>
</table>

*apricot includes aprium; plum includes pluot and plumcot; totals do not include mixed tree fruit

Tree fruit has a **22%** share of all organic acreage in Washington State; Accounted for **~65%** of farmgate sales in 2011 (apple >50%)
## Value of WA Organic Tree Fruits

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(Mil $)</strong></td>
<td>Sales Yr Farmgate Value</td>
<td>Crop Yr Packed Value</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apple</td>
<td>77.85</td>
<td>96.28</td>
<td>121.04</td>
<td>198.55</td>
<td>277.40</td>
<td>317.0</td>
<td>391.9</td>
<td>398.1e</td>
</tr>
<tr>
<td>Pear</td>
<td>8.87</td>
<td>8.66</td>
<td>11.87</td>
<td>22.71</td>
<td>27.04</td>
<td>31.4</td>
<td>37.6</td>
<td>38.2e</td>
</tr>
<tr>
<td>Cherry</td>
<td>9.92</td>
<td>10.05</td>
<td>17.09</td>
<td>15.31</td>
<td>16.15</td>
<td>17.9</td>
<td>25.4</td>
<td>27.3</td>
</tr>
<tr>
<td>Other</td>
<td>5.05</td>
<td>7.49</td>
<td>10.95</td>
<td>&gt;11.0</td>
<td>?</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Total</td>
<td>101.69</td>
<td>122.48</td>
<td>160.95</td>
<td>&gt;248</td>
<td>&gt;320</td>
<td>&gt;343</td>
<td>&gt;455</td>
<td>&gt;464</td>
</tr>
</tbody>
</table>

Data: WSDA, WGCH, WVTA

Sales year = Jan.-Dec., regardless of when the crop was harvested. Crop year = value of the crop harvested in the given year, that may be sold over multiple years; uses Packed value based on FOB price. e=estimate.
Value of WA Organic Apples and Pears

Based on shipped volume for the crop (e.g., 2008 harvest was shipped in both 2008 and 2009) and estimated weighted average price per packed box during the same period. Dashed line is polynomial trend line estimate. Does not include processed fruit. *Data: WSTFA, WGCH, WAVTA*
The expansion of organic apple area in the state has proceeded in a stepwise fashion as shown in slide 19. Partly this is due to the 3-year transition requirement that creates a lag between a market signal to growers and their ability to enter the market. There is also a lag in exiting, for example when prices fall, since growers have invested in the transition period and in various production practices. Increases in area have been spurred by crisis situations, such as Alar in 1989, and the crash in conventional ‘Red Delicious’ prices in the late 1990s.

While ‘Red Delicious’ remains the most widely planted cultivar under conventional management, ‘Gala’ and ‘Fuji’ dominate organic plantings, with ‘Honeycrisp’ increasing rapidly in area (slide 20). The change in area of cultivars over time can be seen in slides 21 and 22. In addition, many new and specialty cultivars are being grown organically, including some for hard cider production (slide 23).
Organic Apple Acreage
Washington State

14,279 ac = 9.6% of WA apple bearing acreage
(based on 2014 WA-NASS estimate of 148,000 acres)

Some historical events that have influenced organic apple production include the Alar incident, price volatility ($ Drop), the introduction of mating disruption (MD) for codling moth control, and market entry by national chain supermarkets (Retail chains).
Organic Apple Variety Acres Washington 2015

Fuji and Gala = 47% of certified apple acres; Honeycrisp tops Red and Granny since 2013

Combined certifier data; Cripps Pink includes Pink lady; Pinova includes Pinata and Sonata.
Organic Apple Varieties
Washington State Acres Trend

- **GALA**
- **FUJI**
- **RED DELICIOUS**
- **HONEYCRISIP**

Acres

- Certified
- Transition

Combined certifier data
Organic Apple Varieties
Washington State Acres Trend

GRANNY SMITH

GOLDEN TYPES

CRIPPS PINK
Over 100 varieties of organic apples grown in WA, from small to larger quantities

- 50-100 ac: Ambrosia®, Jonagold, Opal®
- 11-50 ac: Autumn Glory®, Empire, Envy™, Ginger Gold®, Golden Supreme®, Jazz™, Jubilee, Kanzi®, Lady Alice®, McIntosh, Minneiska (SweeTango®), Pacific Rose™, RosaLynn
- 1-10 ac: Blondee, Gravenstein, Earligold, Liberty, Rome, Cortland, Sansa, Spitzenberg, Tsugaru, Winesap, Winter Banana, Zestar®

In 2015, certified organic apples represented about 9.6% of all bearing apple acres in the state. This has translated to about 6% of the fresh shipments of apples (slides 25 and 26), with an unknown amount of organic fruit going to the processor market or being sold as conventional for various reasons.

A general upward trend of shipments has occurred since a big jump in 2008 (slide 27), despite slight declines in acreage after 2009. This can be attributed to newer high-yielding plantings coming into production, as well as less fruit being diverted to conventional or other markets. The increase has been driven by dramatic rises in ‘Gala’ and ‘Fuji’ shipments, with both exceeding 2 million 40-lb boxes in 2012, a large crop year (slides 28, 29). The rise of organic ‘Honeycrisp’ production is also evident. Despite the rapid rise in supply, prices have also risen during this period.
Annual prices are typically reported for a proportion of total boxes shipped rather than total volume of boxes shipped. Data: WVTA & Washington Growers Clearing House; organic season average FOB history; priced boxes all grades , sizes, storage
Organic Share of Apple Shipments
Washington State

Organic % of all apples shipped

Data Source: Wenatchee Valley Traffic Association; WSTFA
Organic Apple Sales
Volume and Price Trends - WA

40 lb box. Data: WSTFA, WVTA, WGCH; organic season average FOB history; priced boxes all grades, sizes, storage.
Total Shipped Organic Volume by year and variety, Washington State

Season totals 2003/04 to 2015/16

Shipped Volume (1000 Boxes)

Gala
Fuji
Red Delicious
Granny Smith

Total Shipped Organic Volume by year and variety, Washington State

Shipped Volume (1000 Boxes)

Season totals 2003/04 to 2015/16

Golden Delicious
- 03/04: 190
- 04/05: 281
- 05/06: 67

Cripps Pink
- 03/04: 0
- 04/05: 697
- 05/06: 11/12
- 06/07: 12/13

Honeycrisp
- 03/04: 0
- 04/05: 638
- 05/06: 67

The 2014 crop was the largest ever for organic apples, estimated at **10.1 million boxes** (slide 31). The final shipped volume was just over 9.6 million boxes. Many varieties experienced higher demand than there was supply, despite harvested volumes up 20% or more from the previous record. Volume was down for the 2015 crop at an estimated **8.2 million boxes**, due to a smaller crop from alternate bearing. The smaller crop led to rapid sales at prices higher than the previous season. A record size crop of **11.2 million boxes is predicted** for the 2016 crop.
Comparison of recent organic apple crop size estimates (December 1) with actual season-end volume shipped.

Data: WSTFA, WVTA, WGCH
Prices for organic tree fruit have been collected by the industry starting in the mid-1990s, and now include most of the crop (reporting is voluntary). Organic prices are almost always higher than conventional, but the magnitude of the difference varies from year to year. However, the direction of price change from year to year was generally the same between the two, until after the 2012 crop, indicating that market forces are becoming less similar. Both organic and conventional experience some alternate bearing which affects supply and price. The prices on the following slides (33-36) are for fresh packed apples (40 lb box) for all sizes and grades, domestic and export. Organic price premiums are plotted in slide 37 as both the absolute dollar amount as well as the percent difference. The dollar premium per box has been at record levels for the past three years.
Price Trends
Washington Apples

Gala

Fuji

SEB=standard equivalent box of 40 lb. Data: WSTFA, WGCH; FOB averages, all storage, grades, sizes. Annual data points represent season averages: season approx. Sept 1 to end of Aug.
Price Trends
Washington Apples

Red Delicious

Golden Delicious

Data: WSTFA, WGCH; FOB averages, all storage, grades, sizes. Annual data points represent season averages: season approx. Sept 1 to end of Aug.
Price Trends
Washington Apples

Granny Smith

Cripps Pink

Data: WSTFA, WGCH; FOB averages, all storage, grades, sizes.
Annual data points represent season averages: season runs approx.
Sept 1 to end of Aug.
Price Trends
Washington Apples

Honeycrisp

Braeburn

Data: WSTFA, WGCH; FOB averages, all storage, grades, sizes.
Annual data points represent season averages: season runs approx.
Sept 1 to end of Aug.
Organic Premiums
Washington Apples

Premiums are expressed as the price difference between organic and conventional, as $ per box, or as a percent.

Data: WSTFA, WGCH. Annual data points represent season averages: season runs approx. Sept 1 to end of Aug.
The USDA Agricultural Marketing Service (AMS) tracks data reported to them for various commodity prices at the point of shipment (FOB) and the retail price (based on grocery store advertisements). In slide 39, monthly price trends over 3.5 marketing seasons are plotted for ‘Gala’ and ‘Fuji’ apple, for both conventional and organic. A dotted trend line is also included to make the general trend more obvious. For both cultivars, at both price points, the trends are the same – conventional prices are essentially flat during this period, while organic prices are trending upwards. Given that the cost of production is generally trending upwards, the implication for conventional growers is that prices will no longer cover costs at some point, while organic growers should be able to cover increasing costs. There is no obvious difference between the trends at shipping point and at retail, suggesting that prices at both points are responding similarly to economic factors.
National Apple Retail vs WA Shipping Point Price

Gala, Retail

Fuji, Retail

Gala, Shipping point

Fuji, Shipping point

Dotted lines are linear trends

Data: USDA-AMS
Similar data as for apple are presented for organic pear in Washington in the next slides (41-48). Organic pear area has tended to be more stable over time than apple or cherry. Only a few pear varieties are currently in demand by the market, and pear consumption in general in the U.S. is much lower than apple. Pear orchards tend to be kept in production for many years (over 50 years is not uncommon) and renewal to the hottest new variety or planting system is still limited. While fire blight is a serious threat to all pear producers in Washington, it is relatively less so than in most other parts of the country, leading to a large percent of all organic pears being produced here or in California. Washington is the leading producer of conventional and organic pears in the U.S. Organic pear prices and volume have risen since 2009 in a pattern similar to apple.
Organic Pear Acreage
Washington State

2015 organic = 9.6% of total WA pear acreage
(based on WA-NASS 2014 value of 21,300 pear acres)
Organic Pear Acres by Variety
Washington 2015

- **D’Anjou**: 32%
- **Bartlett**: 32%
- **Bosc**: 17%
- **Concorde**: 2%
- **Tosca**: 2%
- **Reds (Bart, Anjou, Others)**: 12%
- **Concorde**: 2%
- **Other & NS**: 2%
- **Asian**: 1%

Combined certifier data; NS = not specified
Organic Pear Variety Trend
Washington State

Combined certifier data

Photo: Agyle
Organic Specialty Pears
Washington State 2012

- Over 25 varieties of organic pears and Asian pears grown in WA, from small to larger quantities.

- >25 ac: Concorde, Starkrimson, Tosca, Asian

- Acreage unknown: Comice, Forelle, Perry, Red Clapp, Seckel, others

- Varieties show on WSDA producer list:

Organic Pear Sales
Volume and Price Trends

Data Sources: WSTFA, WGCHA & WVTA.
Price Trends
Washington Pears

Bartlett

Organic

Conventional

D’Anjou

SEB = Standard Equivalent Box; Data: WSTFA, WGCH.
Annual data points represent FOB season price averages.
Price Trends
Washington Pears

Red Bartlett

Red D’Anjou

SEB = Standard Equivalent Box; Data: WSTFA, WGCH. Annual data points represent FOB season price averages.
Organic Premiums
Washington Pears

SEB = Standard Equivalent Box; Data: WSTFA, WGCH. Annual data points represent FOB season price averages.
Washington leads the nation in *sweet cherry* production, both for conventional and organic. A key quarantine pest, the western Cherry Fruit Fly, was a major barrier to organic cherry production for many years. The development of the GF-120 control protocol (a biologically based insecticide) by Tim Smith, WSU Extension, led to major increases in organic cherry area in the mid-2000s. In 2008, the new pest, Spotted Wing Drosophila, was found in the state for the first time and has expanded statewide. This pest was not controlled by GF-120 and thus organic pest management was seriously disrupted. Growers rely on Entrust® insecticide and reliance on this sole product poses risk of resistance.

Similar data as for apple and pear are presented for organic sweet cherry in Washington in the next slides (50-53). Slide 54 shows the area trend for other organic soft fruit (peaches, etc.); no other data were available. Washington is second to California in the production of most of these other organic soft fruits.
Organic Cherry Acreage
Washington State (sweet + tart)

2015 organic = 5.8% of total WA cherry area
(based on 2014 WA-NASS estimate of 35,000 acres)
Organic Cherry Variety Acres
Washington State 2015

23% of cherries not reported by variety in 2015 compared to 57% in 2008

Variety NS 23%
Tart 21%
Bing 16%
Chelan 12%
Skeena 7%
Rainier 7%
Sweetheart 4%
Other Sweet 10%
Variety NS 23%

Combined certifier data; NS = not specified
Cherry Price Trends
Washington State

Data: WSTFA, WGCHA; Conventional prices are from season FOB avg. price histories and may include organic for 2008-2010. Organic prices are from season FOB histories, all grades and sizes. Dark Sweet are ‘Bing’ prior to 2014.
# WA Organic Cherries

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ORG</td>
<td>CONV</td>
<td>ORG</td>
</tr>
<tr>
<td><strong>Dark Sweet</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume (1000 box*)</td>
<td>232</td>
<td>11,992</td>
<td>352</td>
</tr>
<tr>
<td>% of crop</td>
<td>90</td>
<td>93</td>
<td>98</td>
</tr>
<tr>
<td><strong>Light Sweet</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume (1000 box*)</td>
<td>34</td>
<td>1,237</td>
<td>61</td>
</tr>
<tr>
<td>% of organic</td>
<td>10</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Organic Share of all, %</td>
<td>2.0</td>
<td>1.9</td>
<td>2.3</td>
</tr>
<tr>
<td>Ave. Yield (lb/ac packed)</td>
<td>2,809</td>
<td>4,122</td>
<td>3,970</td>
</tr>
</tbody>
</table>

*Standard Equivalent Box: Dark Sweet = 20 lb; Light Sweet = 15 lb.*
Washington State
Other Stone Fruit Trends

Certified acres

Transition acres

Plum/Prune
Apricot

Combined certifier data
Exports of organic tree fruit from Washington have occurred for years, and have been relatively stable (slide 56). But markets have changed (slide 57). Considerable volumes were shipped to Europe, especially the UK, in previous years, but that has virtually ceased. Canada is by far the largest export destination for organic tree fruit from Washington, accounting for 76% and 84% of all organic apples and pears exported for the 2015 crop, respectively. Exports represented ~6% of both the 2015 organic apple and pear crops. ‘Gala’ apple and ‘d’Anjou’ pear are the leading organic tree fruit exports by volume (slides 58, 59).
Organic Apple and Pear Exports
Washington State

Data source: WSTFA, WGCH. Export includes Canada.
Washington Organic Apple Top Export Destinations

Data source: WSTFA, WVTA
WA Organic Apple Exports by Variety

35-40% of exports = Gala

Data source: WSTFA, WVTA
WA Organic Pear Exports by Variety

Data source: WSTFA, WVTA
Additional data on the U.S. organic temperate fruit situation are presented in slides 61-63. These are estimates derived from the USDA-NASS organic survey as well as data directly from certifiers. Slide 61 shows that the U.S. has about 5% of the global organic grape area, 10% for apples and other tree fruits, and 11% for all berries.

The high concentration of organic fruit production (based on volume of product, not area) in WA and CA is clear from slide 62, with over 90% accounted for in these two states for many fruits.

The change in U.S. certified organic apple area is shown graphically in slide 63. National area is almost identical to the area in the western states, and the pattern follows that of Washington State.
US Organic Temperate Fruit

- Total certified area >32,000 ha (2014)
- >90% in semi-arid western U.S.
- CA, WA are leading states
- 8% apple, 40% blueberry of global organic area in U.S.
- Cannot accurately track national growth with current data; 2014 NASS data – incomplete, some errors.

<table>
<thead>
<tr>
<th>Estimated U.S. Area of Temperate Fruits</th>
<th>ha</th>
<th>% global</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grapes</td>
<td>15,000</td>
<td>5</td>
</tr>
<tr>
<td>Apples</td>
<td>7,850</td>
<td></td>
</tr>
<tr>
<td>Other tree fruit</td>
<td>4,000</td>
<td>10</td>
</tr>
<tr>
<td>Berries</td>
<td>5,000</td>
<td>11</td>
</tr>
</tbody>
</table>

USDA-NASS, 2015; Willer & Lernoud, 2016
## Concentration of U.S. Organic Fruit

<table>
<thead>
<tr>
<th></th>
<th>U.S. Cert Ha</th>
<th>% of U.S. Production</th>
<th>WA</th>
<th>CA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple</td>
<td>7,842</td>
<td>76 (93 F)</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Pear</td>
<td>1,246</td>
<td>79</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>Cherry</td>
<td>1,121</td>
<td>94</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Peach/Nect</td>
<td>1,751</td>
<td>17</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Wine grape</td>
<td>5,678</td>
<td>8</td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>Blueberry</td>
<td>1,983</td>
<td>53 F</td>
<td>37 F</td>
<td></td>
</tr>
<tr>
<td>Raspberry</td>
<td>237</td>
<td>4</td>
<td>89</td>
<td></td>
</tr>
<tr>
<td>Strawberry</td>
<td>1,199</td>
<td>&lt;1</td>
<td>96</td>
<td></td>
</tr>
</tbody>
</table>

F=fresh

(USDA-NASS, 2015)
U.S. Organic Apple Area

USDA-ERS, USDA-NASS, combined certifiers
More information on Washington organic tree fruit statistics is available on-line at:

http://csanr.wsu.edu/pages/Organic_Statistics
Fruit/FruitTreeInventory2011.pdf