• France, Italy and Spain account for 15% to 17% of total global wine production.
• France, Italy and Spain account for 15% to 17% of total global wine production.

• US is world’s fourth leading producer with about 8% total production.
• France, Italy and Spain account for 15% to 17% of total global wine production.

• US is world’s fourth leading producer with about 8% total production.
  • California produces about 50% of total US wines at about 4.2 million tons.
• France, Italy and Spain account for 15% to 17% of total global wine production.

• US is world’s fourth leading producer with about 8% total production.
  • California produces about 50% of total US wines at about 4.2 million tons of grapes.
  • Washington produces about 5% 210,000 tons.
• US Wine Industry began in 1976 when several California wines were entered into the Judgement of Paris blind wine tasking competition.
• US Wine Industry began in 1976 when several California wines were entered into the Judgement of Paris blind wine tasting competition.

• From 1966 to 2010;
  • California vineyard plantings increased from 100,000 to 535,000 acres
  • Wineries increased from 227 to 3,400
  • Shipping 242 million cases to the US and abroad
• First commercial *vineyards* came to Washington in the latter 1970’s.
• First commercial vineyards came to Washington in the latter 1970’s.
• Commercial *wineries* soon followed in the late-1970’s and early 1980’s.
• Washington ranks second in the US behind California in wine grape production with four primary varietals:
• Washington ranks second in the US behind California in wine grape production with four primary varietals:
  • Cabernet Sauvignon
• Washington ranks second in the US behind California in wine grape production with four primary varietals:
  • Cabernet Sauvignon
  • Merlot
- Washington ranks second in the US behind California in wine grape production with four primary varietals:
  - Cabernet Sauvignon
  - Merlot
  - Chardonnay
Washington ranks second in the US behind California in wine grape production with four primary varietals:

- Cabernet Sauvignon
- Merlot
- Chardonnay
- Riesling
PRIMARY WINE GRAPE GROWING AREAS OF WASHINGTON
WHAT MAKES WASHINGTON WINES SPECIAL
WHAT MAKES WASHINGTON WINES SPECIAL

1. Climate
WHAT MAKES WASHINGTON WINES SPECIAL

1. Climate
2. Soils
WHAT MAKES WASHINGTON WINES SPECIAL

1. Climate
2. Soils
3. Available Water
CLIMATE

- Rainfall from 8” to 14” in most wine growing areas
CLIMATE

- Rainfall from 8” to 14” in most wine growing areas
- Seasonal temperature fluctuations
CLIMATE

- Rainfall from 8” to 14” in most wine growing areas
- Seasonal temperature fluctuations
  - Summertime $T^0$ from mid 70’s into low 100’s
CLIMATE

- Rainfall from 8” to 14” in most wine growing areas
- Seasonal temperature fluctuations
  - Summertime $T^0$ from mid 70’s into low 100’s
  - Wintertime $T^0$ from low 30’s to upper 40’s with occasional drops below freezing.
CLIMATE

- Rainfall from 8” to 14” in most wine growing areas
- Seasonal temperature fluctuations
  - Summertime $T^0$ from mid 70’s into low 100’s
  - Wintertime $T^0$ from low 30’s to upper 40’s with occasional drops below freezing.
- Low humidity
CLIMATE

- Rainfall from 8” to 14” in most wine growing areas
- Seasonal temperature fluctuations
  - Summertime $T^0$ from mid 70’s into low 100’s
  - Wintertime $T^0$ from low 30’s to upper 40’s with occasional drops below freezing.
- Low humidity
- Same latitude as the wine grape growing regions in Europe
SOILS

• Different sources
SOILS

• Different sources
  • Basalt-based from numerous lava flows
SOILS

- Different sources
  - Basalt-based from numerous lava flows
  - Volcanic ash from numerous volcanic eruptions
SOILS

- Different sources
  - Basalt-based from numerous lava flows
  - Volcanic ash from numerous volcanic eruptions
  - Many years of mixing with wind and rain
AVAILABLE WATER

- Irrigation water available from:
  - Columbia Basin Irrigation Project and other federal projects
AVAILABLE WATER

• Irrigation water available from:
  • Columbia Basin Irrigation Project and other federal projects
  • Wells
AVAILABLE WATER

• Irrigation water available from:
  • Columbia Basin Irrigation Project and other federal projects
  • Wells
  • Rivers such as the Columbia and Snake
Wine Appellation

*Definition:* a legally defined and protected geographical area used to identify where the grapes for a wine were grown.
**WINE APPELLATION**

*Definition:* a legally defined and protected geographical area used to identify where the grapes for a wine were grown.

Appellations in the US are designated as *American Viticultural Areas* or AVAs.
WASHINGTON STATE'S
AMERICAN VITICULTURAL AREAS (AVAs)
AMERICAN VITICULTURAL AREAS (AVAs)

- An area that has local or national significance
AMERICAN VITICULTURAL AREAS (AVAs)

An area that has local or national significance
  • Area has distinct geographical boundaries
AMERICAN VITICULTURAL AREAS (AVAs)

An area that has local or national significance
- Area has distinct geographical boundaries
- Evidence that growing conditions such as climate, soils, elevation and physical features are distinctive.
AMERICAN VITICULTURAL AREAS (AVAs)

An area that has local or national significance

- Area has distinct geographical boundaries
- Evidence that growing conditions such as climate, soils, elevation and physical features are distinctive.
- The only requirement for the use of the AVA name is that 85% of the wine must have come from grapes grown within the AVA boundaries.
VINEYARD DEVELOPMENT
VINEYARD DEVELOPMENT

- Soils
- Slope - air drainage
- Water - irrigation
VINEYARD DEVELOPMENT

- Soils
  - Sandy
VINEYARD DEVELOPMENT

• Soils
  • Sandy
  • South slopes
VINEYARD DEVELOPMENT

• Slope - air drainage
VINEYARD DEVELOPMENT

- Water - irrigation
VINEYARD DEVELOPMENT

- Water - irrigation
VINEYARD DEVELOPMENT

• Water - irrigation
# Vineyard Development

VINEYARD/ORCHARD DEVELOPMENT LAND SALES

<table>
<thead>
<tr>
<th>DATE</th>
<th>AREA</th>
<th>WATER SOURCE</th>
<th>SIZE</th>
<th>PRICE</th>
<th>UNIT PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec-15</td>
<td>Eltopia</td>
<td>CBP</td>
<td>148 Ac</td>
<td>$1,952,500</td>
<td>$13,193/Ac</td>
</tr>
<tr>
<td>Nov-15</td>
<td>Quincy</td>
<td>CBP</td>
<td>371 Ac</td>
<td>$6,700,000</td>
<td>$18,059/Ac</td>
</tr>
<tr>
<td>Aug-15</td>
<td>Finley</td>
<td>---</td>
<td>102 Ac</td>
<td>$1,800,000</td>
<td>$17,647/Ac</td>
</tr>
<tr>
<td>Jul-15</td>
<td>Wapato</td>
<td>Wapato</td>
<td>88 Ac</td>
<td>$581,000</td>
<td>$6,602/Ac</td>
</tr>
<tr>
<td>Jun-15</td>
<td>Quincy</td>
<td>CBP</td>
<td>82 Ac</td>
<td>$1,063,400</td>
<td>$12,968/Ac</td>
</tr>
<tr>
<td>Apr-15</td>
<td>Othello</td>
<td>CBP</td>
<td>110 Ac</td>
<td>$1,428,400</td>
<td>$12,985/Ac</td>
</tr>
<tr>
<td>Mar-15</td>
<td>Royal Slope</td>
<td>CBP</td>
<td>20 Ac</td>
<td>$288,000</td>
<td>$14,400/Ac</td>
</tr>
<tr>
<td>Mar-15</td>
<td>Mabton</td>
<td>S-side Irr</td>
<td>72 Ac</td>
<td>$550,000</td>
<td>$7,639/Ac</td>
</tr>
<tr>
<td>Jan-15</td>
<td>Cowiche</td>
<td>Yak-Tie</td>
<td>19 Ac</td>
<td>$215,000</td>
<td>$11,316/Ac</td>
</tr>
<tr>
<td>Oct-14</td>
<td>Cowiche</td>
<td>Yak-Tie</td>
<td>75 Ac</td>
<td>$756,600</td>
<td>$10,088/Ac</td>
</tr>
<tr>
<td>Oct-14</td>
<td>Quincy</td>
<td>CBP</td>
<td>225 Ac</td>
<td>$3,644,875</td>
<td>$16,199/Ac</td>
</tr>
<tr>
<td>Jul-14</td>
<td>Quincy</td>
<td>CBP</td>
<td>64 Ac</td>
<td>$886,320</td>
<td>$13,849/Ac</td>
</tr>
<tr>
<td>Jul-14</td>
<td>Quincy</td>
<td>CBP</td>
<td>171 Ac</td>
<td>$2,400,000</td>
<td>$14,035/Ac</td>
</tr>
<tr>
<td>May-14</td>
<td>Ephrata</td>
<td>CBP</td>
<td>47 Ac</td>
<td>$480,000</td>
<td>$10,213/Ac</td>
</tr>
<tr>
<td>Apr-14</td>
<td>Wapato</td>
<td>Roza</td>
<td>41 Ac</td>
<td>$498,000</td>
<td>$12,146/Ac</td>
</tr>
<tr>
<td>Feb-14</td>
<td>Quincy</td>
<td>CBP</td>
<td>114 Ac</td>
<td>$1,561,000</td>
<td>$13,693/Ac</td>
</tr>
<tr>
<td>Jan-14</td>
<td>Quincy</td>
<td>CBP</td>
<td>154 Ac</td>
<td>$2,184,000</td>
<td>$14,182/Ac</td>
</tr>
</tbody>
</table>

Low: $6,602/Ac  
High: $18,059/Ac  
Average: $12,895/Ac  
Median: $13,193/Ac
VINEYARD DEVELOPMENT

Year 1

• Land is plowed, leveled, surveyed and marked for planting.
• Vines are planted and drip irrigation system is installed.
• Part of trellis system is installed later in the year.
VINEYARD DEVELOPMENT

Trellis Design

Diagram showing the design of a trellis system with labels for line post, end post, twitch stick, and anchor. The diagram includes a 12.5 gauge high tensile wire.
VINEYARD DEVELOPMENT
Trellis Design
VINEYARD DEVELOPMENT
Trellis Design
VINEYARD DEVELOPMENT
Trellis Design
VINEYARD DEVELOPMENT
Trellis Design
VINEYARD DEVELOPMENT
Trellis Design
VINEYARD DEVELOPMENT

Year 2

• The catch wires are installed on the trellis system.
• Drip irrigation lines are installed on lowest wire.
• New vines are attached to the 2<sup>nd</sup> (cordon) wire.
• Some shoots are attached to the 3<sup>rd</sup> (top) wire.
• A small crop may be harvested in the second year.
VINEYARD DEVELOPMENT

Year 3

- Maintenance consisting of pruning, weed, fungus and pest control occurs.
- Typical vineyards will produce a harvestable crop of 50% to 60% of normal production.
VINEYARD DEVELOPMENT

Year 4

• Yahoo! Vineyard is in full production!
# Vineyard Development

## Vineyard Development Costs*

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>$12,000</td>
<td>$15,000</td>
</tr>
<tr>
<td>Year 1</td>
<td>$7,000</td>
<td>$9,000</td>
</tr>
<tr>
<td>Year 2</td>
<td>$2,000</td>
<td>$3,000</td>
</tr>
<tr>
<td>Year 3</td>
<td>$500</td>
<td>$1,000</td>
</tr>
<tr>
<td>Year 4</td>
<td>$200</td>
<td>$400</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$21,700</strong></td>
<td><strong>$28,400</strong></td>
</tr>
</tbody>
</table>

* Costs on a per/acre basis
PRODUCTION & INCOME

PRICE TREND - REDs

$1,800/ton
$1,600/ton
$1,400/ton
$1,200/ton
$1,000/ton
$800/ton
$600/ton
$400/ton
$200/ton
$0/ton


Cab Sauv  Merlot  Syrah
PRODUCTION & INCOME

PRODUCTION - WHITEnes

- 60,000 tons
- 50,000 tons
- 40,000 tons
- 30,000 tons
- 20,000 tons
- 10,000 tons
- 0 tons


- Riesling
- Chardonnay
PRODUCTION & INCOME

PRICE TREND - WHITES

Riesling
Chardonnay
## PRODUCTION & INCOME

### PRODUCTION & PRICE*

<table>
<thead>
<tr>
<th>Variety</th>
<th>Production</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cabernet Sauvignon</td>
<td>158%</td>
<td>34%</td>
</tr>
<tr>
<td>Merlot</td>
<td>63%</td>
<td>26%</td>
</tr>
<tr>
<td>Syrah</td>
<td>146%</td>
<td>11%</td>
</tr>
<tr>
<td>Riesling</td>
<td>237%</td>
<td>16%</td>
</tr>
<tr>
<td>Chardonnay</td>
<td>17%</td>
<td>21%</td>
</tr>
</tbody>
</table>

* from 2002 to 2015
## Recent Vineyard Sales

<table>
<thead>
<tr>
<th>DATE</th>
<th>AREA</th>
<th>SIZE</th>
<th>PRICE</th>
<th>UNIT PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>May-16</td>
<td>Franklin Co</td>
<td>80 Ac</td>
<td>$1,850,000</td>
<td>$23,125/Ac</td>
</tr>
<tr>
<td>Jan-16</td>
<td>Franklin Co</td>
<td>215 Ac</td>
<td>$5,220,000</td>
<td>$24,279/Ac</td>
</tr>
<tr>
<td>Jan-16</td>
<td>Franklin Co</td>
<td>65 Ac</td>
<td>$1,304,000</td>
<td>$20,062/Ac</td>
</tr>
<tr>
<td>Jun-15</td>
<td>Grant Co</td>
<td>15 Ac</td>
<td>$450,000</td>
<td>$30,000/Ac</td>
</tr>
<tr>
<td>Apr-15</td>
<td>Benton Co</td>
<td>89 Ac</td>
<td>$1,861,000</td>
<td>$20,910/Ac</td>
</tr>
<tr>
<td>Oct-14</td>
<td>Benton Co</td>
<td>214 Ac</td>
<td>$3,779,365</td>
<td>$17,661/Ac</td>
</tr>
<tr>
<td>May-14</td>
<td>Klickitat Co</td>
<td>341 Ac</td>
<td>$6,830,000</td>
<td>$20,029/Ac</td>
</tr>
<tr>
<td>Jul-13</td>
<td>Benton Co</td>
<td>32 Ac</td>
<td>$400,200</td>
<td>$12,506/Ac</td>
</tr>
</tbody>
</table>

- **Low**: 15 Ac, $12,506/Ac
- **High**: 341 Ac, $30,000/Ac
- **Average**: 131 Ac, $21,071/Ac
- **Median**: 85 Ac, $20,486/Ac