Viticulture in Turkey

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<table>
<thead>
<tr>
<th>Countries</th>
<th>Area (ha) 2004</th>
<th>Area (ha) 2007</th>
<th>Production (tonnes) 2004</th>
<th>Production (tonnes) 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spain</td>
<td>1 170 625</td>
<td>1 157 853</td>
<td>8 691 970</td>
<td>8 519 418</td>
</tr>
<tr>
<td>France</td>
<td>851 970</td>
<td>827 561</td>
<td>7 564 902</td>
<td>6 787 081</td>
</tr>
<tr>
<td>Italy</td>
<td>748 924</td>
<td>770 000</td>
<td>7 064 201</td>
<td>6 384 090</td>
</tr>
<tr>
<td>Turkey</td>
<td>520 000</td>
<td>484 610</td>
<td>5 770 614</td>
<td>6 044 900</td>
</tr>
<tr>
<td>China</td>
<td>416 633</td>
<td>433 266</td>
<td>3 500 000</td>
<td>3 612 781</td>
</tr>
<tr>
<td>U.S.A.</td>
<td>377 617</td>
<td>379 000</td>
<td>2 795 923</td>
<td>3 000 000</td>
</tr>
<tr>
<td>Iran</td>
<td>313 310</td>
<td>315 000</td>
<td>2 650 972</td>
<td>2 900 000</td>
</tr>
<tr>
<td>Portugal</td>
<td>210 000</td>
<td>222 600</td>
<td>2 014 965</td>
<td>2 350 000</td>
</tr>
<tr>
<td>Argentina</td>
<td>205 416</td>
<td>220 000</td>
<td>1 900 000</td>
<td></td>
</tr>
<tr>
<td>Romania</td>
<td>205 381</td>
<td>187 629</td>
<td></td>
<td></td>
</tr>
<tr>
<td>World Total</td>
<td>7 343 476</td>
<td>7 272 583</td>
<td>67 565 568</td>
<td>67 231 000</td>
</tr>
</tbody>
</table>

The table shows the area in hectares and production in tonnes for different countries, with some notable figures for Italy, France, Spain, China, and the U.S.A. The map visualizes the global distribution of these regions.
Viticultural Areas in Turkey’s Agriculture (%)
Grapes Within Fruit Production in Turkey %

- Grapes: 23%
- Citrus: 19%
- Pome fruits: 19%
- Other fruits: 13%
- Stones fruits: 6%
- Tea: 6%
- Nuts: 7%
- Olive: 7%
Turkey’s Fruit Production For The Years 2005 and 2007

<table>
<thead>
<tr>
<th>Fruit groups</th>
<th>Production (tons)</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2005</td>
<td>%</td>
</tr>
<tr>
<td>Grape</td>
<td>3 850 000</td>
<td>24.2</td>
</tr>
<tr>
<td>Pome Fruits</td>
<td>3 046 300</td>
<td>19.2</td>
</tr>
<tr>
<td>Citrus Fruits</td>
<td>2 913 000</td>
<td>18.3</td>
</tr>
<tr>
<td>Stone Fruits</td>
<td>2 060 500</td>
<td>13.0</td>
</tr>
<tr>
<td>Nuts</td>
<td>835 000</td>
<td>5.2</td>
</tr>
<tr>
<td>Other Fruits</td>
<td>810 675</td>
<td>5.1</td>
</tr>
<tr>
<td>Tea</td>
<td>1 192 004</td>
<td>7.5</td>
</tr>
<tr>
<td>Olives</td>
<td>1 200 000</td>
<td>7.54</td>
</tr>
<tr>
<td>Total</td>
<td>15 907 479</td>
<td></td>
</tr>
</tbody>
</table>

Total production for 2005: 15 907 479 tons
Total production for 2007: 15 419 271 tons

Difference in total production: -488 208 tons (2005 > 2007)
AGRICULTURAL REGION IN TURKEY

1st Region (Central North)
2nd Region (Aegean)
3rd Region (Marmara)
4th Region (Mediterranean)
5th Region (North East)

6th Region (South East)
7th Region (Black Sea)
8th Region (Central East)
9th Region (Central South)
## Viticultural Areas and Grape Production Values of Agricultural Regions

<table>
<thead>
<tr>
<th>Agricultural Regions</th>
<th>Area (ha)</th>
<th>%</th>
<th>2007</th>
<th>%</th>
<th>Difference (%)</th>
<th>Production (tons)</th>
<th>%</th>
<th>2007</th>
<th>%</th>
<th>Difference (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Central north</td>
<td>37 526</td>
<td>7.3</td>
<td>34 193</td>
<td>7.0</td>
<td>-8.9</td>
<td>164 083</td>
<td>4.3</td>
<td>168 908</td>
<td>4.7</td>
<td>+2.9</td>
</tr>
<tr>
<td>2. Aegean</td>
<td>156 368</td>
<td>30.3</td>
<td>151 400</td>
<td>31.2</td>
<td>-3.2</td>
<td>1 734 058</td>
<td>45.0</td>
<td>1 583 133</td>
<td>44.4</td>
<td>-8.7</td>
</tr>
<tr>
<td>3. Marmara</td>
<td>21 079</td>
<td>4.1</td>
<td>18 197</td>
<td>3.8</td>
<td>-13.7</td>
<td>239 539</td>
<td>6.2</td>
<td>151 262</td>
<td>4.2</td>
<td>-36.8</td>
</tr>
<tr>
<td>4. Mediterranean</td>
<td>107 356</td>
<td>21.0</td>
<td>101 155</td>
<td>20.9</td>
<td>-5.8</td>
<td>664 045</td>
<td>17.2</td>
<td>677 079</td>
<td>19.0</td>
<td>+1.9</td>
</tr>
<tr>
<td>5. Northeast</td>
<td>1 306</td>
<td>0.25</td>
<td>1 523</td>
<td>0.3</td>
<td>+14.2</td>
<td>66 44</td>
<td>0.17</td>
<td>5 957</td>
<td>0.16</td>
<td>-10.3</td>
</tr>
<tr>
<td>7. Black Sea</td>
<td>1 160</td>
<td>0.2</td>
<td>1 708</td>
<td>0.4</td>
<td>+32.0</td>
<td>8 624</td>
<td>0.2</td>
<td>4 992</td>
<td>0.13</td>
<td>-42.1</td>
</tr>
<tr>
<td>8. Middle East</td>
<td>34 577</td>
<td>6.7</td>
<td>39 190</td>
<td>8.1</td>
<td>+11.8</td>
<td>149 606</td>
<td>3.9</td>
<td>144 771</td>
<td>4.05</td>
<td>-3.2</td>
</tr>
<tr>
<td>9. Central south</td>
<td>86 826</td>
<td>17.0</td>
<td>69 565</td>
<td>14.3</td>
<td>-19.9</td>
<td>504 772</td>
<td>13.1</td>
<td>470 236</td>
<td>13.2</td>
<td>-6.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>515 946</td>
<td>51.9</td>
<td>484 685</td>
<td>48.6</td>
<td>-6.1</td>
<td>3 849 994</td>
<td>7.6</td>
<td>3 566 787</td>
<td>7.3</td>
<td>-7.3</td>
</tr>
</tbody>
</table>
Distribution of Viticultural Areas in Agricultural Regions (%)

- Central North: 7.3% (2005), 7% (2007)
- Aegean: 30.3% (2005), 31.2% (2007)
- Marmara: 4.1% (2005), 3.8% (2007)
- Mediterranean: 21% (2005), 20.09% (2007)
- North East: 0.25% (2005), 0.3% (2007)
- South East: 13.5% (2005), 14% (2007)
- Black Sea: 0.2% (2005), 0.4% (2007)
- Central East: 6.7% (2005), 8.1% (2007)
- Central North: 17% (2005), 14.3% (2007)
Total Grape Production in Agricultural Regions (%)

- (1) Central North: 4.3
- (2) Aegean: 4.7
- (3) Marmara: 6.2
- (4) Mediterranean: 4.2
- (5) North East: 17.2
- (6) South East: 19
- (7) Black Sea: 0.17
- (8) Central East: 0.16
- (9) Central South: 0.2

2005: Brown bars, 2007: Green bars
Table Grapes

- 1.9 million metric tonnes of table grapes is produced in Turkey. With this value, Turkey is the second after China in the World.
<table>
<thead>
<tr>
<th>Agricultural Regions</th>
<th>Area (ha)</th>
<th>Production (tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central north</td>
<td>25 204</td>
<td>119 803</td>
</tr>
<tr>
<td>Aegean</td>
<td>60 167</td>
<td>586 601</td>
</tr>
<tr>
<td>Marmara</td>
<td>14 343</td>
<td>113 531</td>
</tr>
<tr>
<td>Mediterranean</td>
<td>67 647</td>
<td>495 582</td>
</tr>
<tr>
<td>Northeast</td>
<td>1 524</td>
<td>5 957</td>
</tr>
<tr>
<td>Southeast</td>
<td>42 302</td>
<td>237 451</td>
</tr>
<tr>
<td>Black Sea</td>
<td>1 708</td>
<td>4 992</td>
</tr>
<tr>
<td>Middle East</td>
<td>27 972</td>
<td>121 304</td>
</tr>
<tr>
<td>Central south</td>
<td>33 510</td>
<td>226 898</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>274 377</strong></td>
<td><strong>1 912 119</strong></td>
</tr>
</tbody>
</table>
Table Grapes (White)

Other Cultivars: Bozcaada Çavuşu, Parmak, Çiftlik
Table Grapes (Coloured)

- Lival
- Muscat Hamburg
- Ribol
- Horozkarası
- Tekirdağ Ç.
- Karaerik
- Kozak Siyahı
- Pembe Gemre
- Red Globe
- Trakya İlkeren
- Hönüşü
## Seedless Raisin Grape Production in Primary Producer Countries (tonnes)

<table>
<thead>
<tr>
<th>Row</th>
<th>Country</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Turkey</td>
<td>274.000</td>
<td>220.000</td>
<td>300.000</td>
</tr>
<tr>
<td>2</td>
<td>USA</td>
<td>265.000</td>
<td>295.000</td>
<td>300.000</td>
</tr>
<tr>
<td>3</td>
<td>Chile</td>
<td>1.000</td>
<td>60.000</td>
<td>60.000</td>
</tr>
<tr>
<td>4</td>
<td>Iran</td>
<td>150.000</td>
<td>120.000</td>
<td>50.000</td>
</tr>
<tr>
<td>5</td>
<td>S.Africa</td>
<td>33.000</td>
<td>40.000</td>
<td>40.000</td>
</tr>
<tr>
<td>6</td>
<td>Greece</td>
<td>0</td>
<td>25.000</td>
<td>35.000</td>
</tr>
<tr>
<td>7</td>
<td>Argentina</td>
<td>1.000</td>
<td>23.000</td>
<td>30.000</td>
</tr>
<tr>
<td>8</td>
<td>Australia</td>
<td>500</td>
<td>12.000</td>
<td>10.000</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>724.500</td>
<td>795.000</td>
<td>825.000</td>
</tr>
</tbody>
</table>
Turkey is the first in total dry seeded and seedless raisin in the world.

However, Turkey shares the first place with USA in seedless raisin production.

Seedless raisins make up 75% of the raisin produced.

75% of seedless raisin grape is exported.

Sultani is the only variety for seedless raisin grape cv.
## Seedless Raisin Grape Production in Turkey

<table>
<thead>
<tr>
<th>Years</th>
<th>Production (tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>280.000</td>
</tr>
<tr>
<td>2005</td>
<td>250.000</td>
</tr>
<tr>
<td>2006</td>
<td>274.000</td>
</tr>
<tr>
<td>2007</td>
<td>220.000</td>
</tr>
<tr>
<td>2008</td>
<td>300.000</td>
</tr>
</tbody>
</table>
Seeded Raisin Grapes

- Eastern Mediterranean (Gaziantep and Kilis) and Southeast (Adıyaman “Besni district”, Marin and Diyarbakır) regions rank in the first two places among agricultural regions in seeded raisin production.
- The second important region for seeded raisins is Central South Agricultural region. Nevşehir and Konya are two important producer provinces in this region.
Seeded Raisin Grape Cvs.

- Besni
- Horozkarası
- Karadimrit
- Rumi

Other cultivars:
Çalkarası, Banazı siyahı, Kerküş, Sergi karası
Wine Grapes

• In Turkey around 2-3 % of total grape production is used for wine making..
• Turkey’s Wine Production is around 75 mio litres per year.
• The consumption per capita is around 1 litre per annum.
Wine Grapes

- In late 20 years, significant progress has been realised in terms of local and foreign wine grape varieties started to grow to produce high-class wine especially for red wine production. As a consequence, these mentality changes contributed to the qualities of the wines produced in our country.

- In this regards, production potential increased significantly for Kalecik Karası, which is one of the most important local red wine grape, being raised in Denizli-Güney town besides its own ecological area Ankara-Kalecik; Öküzgözü being raised in Denizli-Çal and Güney town, Antalya-Elmalı town and also in cities such as Gaziantep and Adıyaman besides its own ecological area Elazığ and Malatya; besides Bogazkere’s own ecological region Diyarbakır-Çermik and Çüngüş towns with new established vineyards.
Wine Grapes

- Especially well known red wine varieties of French origin had one's share of this interest showing a rapid increase. It was founded so many modern vineyards in Elmalı county of Antalya, Kalecik county of Ankara, Ürgüp and Gülşehir counties of Nevşehir, Turgutlu and Alaşehir counties of Manisa, Urla, Menderes and Torba county counties of İzmir, Eceabat county of Çanakkale and Şarköy, Mürefte counties and the center of Tekirdağ with imported plants belongs to different clones of especially Cabernet Sauvignon, Merlot and Syrah.

- These varieties are followed by such Cabernet Franc, Grenache, Carignan, Cinsaut, Cot and Sangiovese which has more limited vineyard areas. The majority of these wine yards are the wine making companies own vineyards operating in our country.
Wine Grapes

- The majority of these vineyards are the wine making companies own vineyards operating in our country.
- Semi-dense (3000 - 5000 wines per hectare) and dense (5000 - 10000 wines per hectare) planting systems are implemented on almost all of those vineyards planted and grown in accordance with modern cultivation technique.
- Vineyards considered important with well known French white wine grape varieties (Chardonnay and Sauvignon Blanc) even not on the red varieties level are planted in Thrace, Aegean, Cappadocia and Western Mediterranean regions.
Wine Grapes

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- Vineyards considered important with well-known French white wine grape varieties (Chardonnay and Sauvignon Blanc) even not on the red varieties level are planted in Thrace, Aegean, Cappadocia and Western Mediterranean regions.
Local Winegrapes Cultivars

Kalecik karası  Boğazkere  Öküzgözü

Narince  Emir  Bornova Misketi
Nobel Winegrape Cultivars

- S. Blanc
- C. Sauvignon
- Merlot
- Riesling
- Sirah
Approximately 10% of fresh grape produced in our country are used in different variety of molasses, sausage (orcik), dried fruit pulp (bastık), köfter (a sweet made of starch and boiled-down grape juice), muska, tarhana etc. and a limited part is used in making of vinegar, grape juice and hardaliye (grape juice flavored with mustard).
Turkey has an a vineyard area of 482.789 and produced a total of 3.918.442 tonnes of grapes.

%50, 3 of the produced grapes are evaluated as table grapes;

37, 7 % of them are raisins;

12 % of them are grapes for must production- wine grapes.
### Table Grapes Export

<table>
<thead>
<tr>
<th>Year</th>
<th>Quantity (Tonnes)</th>
<th>Value (1000$)</th>
<th>Unit Price (Tonnes/$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>159 310</td>
<td>81 747</td>
<td>513 13</td>
</tr>
<tr>
<td>2005</td>
<td>155 604</td>
<td>91 361</td>
<td>587 14</td>
</tr>
<tr>
<td>2006</td>
<td>144 454</td>
<td>79 724</td>
<td>551 90</td>
</tr>
<tr>
<td>2007</td>
<td>155 278</td>
<td>118 233</td>
<td>761 43</td>
</tr>
<tr>
<td>2008</td>
<td>202 114</td>
<td>169 411</td>
<td>838 20</td>
</tr>
</tbody>
</table>

### Raisin Grape Export

<table>
<thead>
<tr>
<th>Year</th>
<th>Quantity (Tonnes)</th>
<th>Value (1.000 $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>211 893</td>
<td>231 400</td>
</tr>
<tr>
<td>2005</td>
<td>226 597</td>
<td>239 728</td>
</tr>
<tr>
<td>2006</td>
<td>244 212</td>
<td>289 230</td>
</tr>
<tr>
<td>2007</td>
<td>240 599</td>
<td>316 827</td>
</tr>
<tr>
<td>2008</td>
<td>199 234</td>
<td>349 539</td>
</tr>
</tbody>
</table>
## Wine export

<table>
<thead>
<tr>
<th>Years</th>
<th>Wine Export</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quantity (1 000 liter)</td>
</tr>
<tr>
<td>2004</td>
<td>1000 $</td>
</tr>
<tr>
<td>2005</td>
<td>Quantity (1 000 liter)</td>
</tr>
<tr>
<td></td>
<td>1000 $</td>
</tr>
<tr>
<td>2006</td>
<td>Quantity (1 000 liter)</td>
</tr>
<tr>
<td></td>
<td>1000 $</td>
</tr>
<tr>
<td>2007</td>
<td>Quantity (1 000 liter)</td>
</tr>
<tr>
<td></td>
<td>1000 $</td>
</tr>
</tbody>
</table>
Developments on Regulations

• Important legislative regulations have been developed concerning the viticulture and the more general agricultural and vegetative production in the last five years. *(Law of Agricultural Insurance Law No: 5363, Date of Ratification: 14.06.2005)*

• This legislation aims to determine the appropriate geographical places for viticulture, find and plan the measurements of the vineyard areas and the types and amounts of products produced from grapes and grape products, take necessary precautions regarding the production and process of healthy crops cultivation, support certified grafted vine production and support the producers to use certified grafted vine plants for establishing vineyards and create a database by registering the producers, workers and the traders. *(Viticulture Legislation (issued in 30.12.2006 dated ve 26 392 numbered Official Gazette)*
**Berry Characteristics**
- **Color:** Yellowish green
- **Form:** Oblong round
- **Size:** Medium, 2-3g
- **Seed:** 2-3
- **Flavor:** Distinct varietal flavor

**Cluster Characteristics**
- **Form:** Short conical
- **Size:** Large, 250-350g
- **Compactness:** Very compact

**Cultural Characteristics**
- **Ripening:** Midlate
- **Pruning:** Spur-Cane
- **Location:** Nevşehir/Cappadocia
WINE CHARACTERISTICS

- Emir makes straw yellow coloured wines with green reflections; famously with green apple and minerals on the nose.

- On the palate it makes lively, crisp wines. Wines are; light-medium bodied, light yellow colour, high acidity and delicate.

- Emir is used in sparkling and still wine making. Does not match with oak and generally should be consumed in 1-2 years, no malolactic.

AROMA PROFILE:

- It bears Apple (green/yellow), Pineapple, Kiwi, Lemon, Blood Orange, White Rose.
Narince

**BERRY CHARACTERISTICS**
- Color: Yellow
- Form: Slightly ovoid
- Size: Large, 3-4g
- Seed: 2-3
- Flavor: Distinct varietal flavor

**CLUSTER CHARACTERISTICS**
- Form: Winged conical
- Size: Large, 350-450g
- Compactness: Wellfilled

**CULTURAL CHARACTERISTICS**
- Ripening: Midlate
- Pruning: Spur-Cane
- Location: Tokat, Amasya
WINE CHARACTERISTICS

- Wines produced from Narince are usually dry. It has yellow-green colour and sophisticated fruit flavour.
- Since the acidity level is high, wine gains a complex bouquet with aging.
- Narince makes straw yellow coloured wines with floral notes, yellow fruit and citrus aromas on the nose.
- On the palate, it produces round, medium to full bodied wines, balanced with good acidity. It is usually treated with oak.

AROMA PROFILE:

- Orange, Grapefruit, Lime, White Pineapple, Quince, Floral, Plumeria, Acaccia, Fruit Blossom, Basil, Ripe Green Apple, Walnut.
**BERRY CHARACTERISTICS**
- Color: Black with blue bloom
- Form: Round
- Size: Medium, 2-2.5g
- Seed: 1-2
- Flavor: Distinct varietal flavor

**CLUSTER CHARACTERISTICS**
- Form: Winged conical
- Size: Small-Medium, 200g
- Compactness: Compact

**CULTURAL CHARACTERISTICS**
- Ripening: Midseason
- Pruning: Semi long cane with “Max 6 buds”- Spur
- Location: Ankara (Kalecik)
Kalecik Karası

WINE CHARACTERISTICS

- Kalecik Karası yields a wine with “dried red rose” colour with a cotton candy boiled aroma on the nose, quite typical of the variety. Better examples have a vibrant, fruity nose, with red fruits.
- On the palate, wine is medium bodied, low on tannins; fresh and lively, with a crisp acidity.
- The high acidity and light tannins result in a soft and elegant wine.

AROMA PROFILE:

- Red Berries, Cherry, Strawberry, Raspberry, Cotton Candy, Pyrepline, Game or Stable.
Öküzgözü

**BERRY CHARACTERISTICS**
- Color: Black with gray bloom
- Form: Ellipsoidal
- Size: Large, 6g
- Seed: 2-3
- Flavor: Distinct varietal flavor

**CLUSTER CHARACTERISTICS**
- Form: Winged conical
- Size: Very large, 450-550 g
- Compactness: Wellfilled

**CULTURAL CHARACTERISTICS**
- Ripening: Late
- Pruning: Cane
- Location: Elazığ, Malatya
WINE CHARACTERISTICS

- Native to Eastern Anatolia, Öküzgözü derives its name from the fact that it has large, black berries that resemble a bull’s eye.
- On the palate, it is medium bodied, producing round, fruity wines, with some tannins and rather lively acidity. Alcohol level is usually between 12.5% and 13.5%.
- Öküzgözü is high in acidity, medium to low in alcohol content and its medium body offers a delicate bouquet.
- It has fruit and floral flavours, making soft and easy to drink wines.
- Due to its acidity, it can age well.

AROMA PROFILE:

- Raspberry, Ripe cherry, Black Mulberry, Violet are dominant.
- Mint, Chocolate, Eucalyptus, Sour Cherry, Pomegranate, Ripe Plum, Cherry Marmalade, Clove and Cardamom.
**Boğazkere**

**BERRY CHARACTERISTICS**
- Color: Violet-Black
- Form: Round
- Size: Large, 3.4g
- Seed: 2-3
- Flavor: Highly tanninous

**CLUSTER CHARACTERISTICS**
- Form: Winged conical
- Size: Very large, 490 g
- Compactness: Wellfilled

**CULTURAL CHARACTERISTICS**
- Ripening: Late
- Pruning: Cane
- Location: Diyarbakır, Elazığ, Malatya
WINE CHARACTERISTICS

- Bogazkere takes its name from the bitter sensation that it leaves on the palate.
- Bogazkere has very high dense tannins with medium acidity.
- The wines made from this grape are dark in colour, full bodied, dense tannins, with complex flavour profiles.
- The wines from the Bogazkere grape find balance when aged.

AROMA PROFILE:

- It bears black cherry, raspberry, blackberry, black mulberry, pepper, clove, eucalyptus, tobacco, leather, pine forest, dark chocolate, liquorice.