Citrus in Argentina:

Kurt Nordman

September 21, 2022
Presentation Highlights

• Global Citrus Production Figures
  • Northern Hemisphere
  • Southern Hemisphere
• Argentina Citrus Production Figures
  • All Citrus
  • Lemon
• Processing Plant
• Sustainability
Utilization of Citrus Fruit by Species (Mio, MT)

Source:
## World citrus production 2010 (1,000 MT)

<table>
<thead>
<tr>
<th>Country</th>
<th>Orange</th>
<th>Mandarin</th>
<th>Grapefruit</th>
<th>Lemon</th>
<th>Lime</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>5,900</td>
<td>14,000</td>
<td>2,800</td>
<td></td>
<td></td>
<td>22,700</td>
</tr>
<tr>
<td>Brazil</td>
<td>22,603</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>22,603</td>
</tr>
<tr>
<td>EU</td>
<td>6,198</td>
<td>3,245</td>
<td>83</td>
<td>1,380</td>
<td></td>
<td>10,906</td>
</tr>
<tr>
<td>Mexico</td>
<td>4,080</td>
<td></td>
<td></td>
<td></td>
<td>2,133</td>
<td>6,213</td>
</tr>
<tr>
<td>USA</td>
<td>8,078</td>
<td>643</td>
<td>1138</td>
<td>835</td>
<td></td>
<td>10,694</td>
</tr>
<tr>
<td>Turkey</td>
<td>1,710</td>
<td>858</td>
<td>213</td>
<td>787</td>
<td></td>
<td>3,568</td>
</tr>
<tr>
<td>Egypt</td>
<td>2,430</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2,430</td>
</tr>
<tr>
<td>Argentina</td>
<td>850</td>
<td>450</td>
<td></td>
<td>1,550</td>
<td></td>
<td>2,850</td>
</tr>
<tr>
<td>South África</td>
<td>1,428</td>
<td>140</td>
<td>406</td>
<td>257</td>
<td></td>
<td>2,231</td>
</tr>
<tr>
<td>India</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2,100</td>
<td>2,100</td>
</tr>
<tr>
<td>Total aprox.</td>
<td>53,277 (61%)</td>
<td>19,336 (22%)</td>
<td>4,640 (5%)</td>
<td>4,057 (5%)</td>
<td>4,233 (5%)</td>
<td>86,295</td>
</tr>
</tbody>
</table>

Source: fte. indexmundi.com/agriculture
<table>
<thead>
<tr>
<th>Country</th>
<th>Orange</th>
<th>Mandarin</th>
<th>Grapefruit</th>
<th>Lemon</th>
<th>Lime</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>7,550</td>
<td>27,000</td>
<td>5,200</td>
<td></td>
<td></td>
<td>39,750</td>
</tr>
<tr>
<td>Brasil</td>
<td>16,908</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16,908</td>
</tr>
<tr>
<td>EU</td>
<td>6,096</td>
<td>3,162</td>
<td>107</td>
<td>1,571</td>
<td></td>
<td>10,936</td>
</tr>
<tr>
<td>Mexico</td>
<td>4,280</td>
<td>534</td>
<td></td>
<td></td>
<td>3,217</td>
<td>8,031</td>
</tr>
<tr>
<td>USA</td>
<td>3,457</td>
<td>758</td>
<td>336</td>
<td>882</td>
<td></td>
<td>5,433</td>
</tr>
<tr>
<td>Turkey</td>
<td>1,750</td>
<td>1,810</td>
<td>249</td>
<td>1,337</td>
<td></td>
<td>5,146</td>
</tr>
<tr>
<td>Egypt</td>
<td>3,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3,000</td>
</tr>
<tr>
<td>Argentina</td>
<td>920</td>
<td>400</td>
<td></td>
<td>1,900</td>
<td></td>
<td>3,220</td>
</tr>
<tr>
<td>South Africa</td>
<td>1,600</td>
<td>660</td>
<td>380</td>
<td>670</td>
<td></td>
<td>3,310</td>
</tr>
<tr>
<td>India</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3,150</td>
<td>3,150</td>
</tr>
<tr>
<td>Total apr.</td>
<td>45,561</td>
<td>33,790</td>
<td>6,806</td>
<td>6,360</td>
<td>6,367</td>
<td>99,014</td>
</tr>
</tbody>
</table>

Source: [fte. indexmundi.com/agriculture](fte. indexmundi.com/agriculture)
Northern Hemisphere Lemon Production (1000 tons)

Source:
Northern Hemisphere Lemon Area (Hectares)

Source:
South American Southern Hemisphere Lemon Production (1,000 tons)

Source:
• Only Argentina processes the majority of lemons grown in the country.
• Other countries mainly consume lemons as fresh fruit.

Source: USDA July 2022 Citrus: World Markets and Trade
Percentage of Fruit Processed by Country

<table>
<thead>
<tr>
<th>Country</th>
<th>% of Fruit Processed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>78.47%</td>
</tr>
<tr>
<td>EU</td>
<td>18.06%</td>
</tr>
<tr>
<td>USA</td>
<td>23.24%</td>
</tr>
<tr>
<td>South Africa</td>
<td>17.01%</td>
</tr>
<tr>
<td>Turkey</td>
<td>3.74%</td>
</tr>
<tr>
<td>Mexico (est.)</td>
<td>60.44%</td>
</tr>
<tr>
<td>Other</td>
<td>19.19%</td>
</tr>
</tbody>
</table>

Source: USDA July 2022 Citrus: World Markets and Trade
## Fresh Fruit Exportations (MT)

<table>
<thead>
<tr>
<th></th>
<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>Mexico</td>
<td>523,000</td>
<td>519,000</td>
<td>610,000</td>
<td>662,000</td>
<td>731,000</td>
<td>729,000</td>
<td>751,000</td>
<td>798,000</td>
<td>795,000</td>
<td>798,000</td>
</tr>
<tr>
<td>EU</td>
<td>77,000</td>
<td>101,000</td>
<td>106,000</td>
<td>69,000</td>
<td>165,000</td>
<td>144,000</td>
<td>172,000</td>
<td>174,000</td>
<td>155,000</td>
<td>150,000</td>
</tr>
<tr>
<td>USA</td>
<td>110,000</td>
<td>127,000</td>
<td>114,000</td>
<td>110,000</td>
<td>112,000</td>
<td>97,000</td>
<td>96,000</td>
<td>93,000</td>
<td>85,000</td>
<td>90,000</td>
</tr>
<tr>
<td>Argentina</td>
<td>280,000</td>
<td>150,000</td>
<td>185,000</td>
<td>279,000</td>
<td>241,000</td>
<td>272,000</td>
<td>234,000</td>
<td>256,000</td>
<td>264,000</td>
<td>265,000</td>
</tr>
<tr>
<td>Chile</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>96,606</td>
<td>101,996</td>
</tr>
<tr>
<td>South Africa</td>
<td>165,000</td>
<td>220,000</td>
<td>246,000</td>
<td>237,000</td>
<td>299,000</td>
<td>315,000</td>
<td>350,000</td>
<td>458,000</td>
<td>490,000</td>
<td>510,000</td>
</tr>
<tr>
<td>Turkey</td>
<td>369,000</td>
<td>426,000</td>
<td>433,000</td>
<td>434,000</td>
<td>495,000</td>
<td>536,000</td>
<td>576,000</td>
<td>382,000</td>
<td>620,000</td>
<td>775,000</td>
</tr>
</tbody>
</table>

South Africa +3.1% increase in exportation  
Turkey +2.1% increase in exportation  

Source:
[Citromax Group](#)
Argentina Citrus Growing Regions

Created with mapchart.net ©

Sourced from USDA Foreign Agricultural Service
Citrus Semi-annual Report June 17, 2022
Buenos Aires, Argentina
Localización de la producción citrícola Argentina

Distribution per province of the Argentine citrus production

Provincia Province  Año Year  Naranja Orange  Mandarina Mandarin  Limón Lemon  Pomelo Grapefruit  Total Total

NOA
Entre Ríos 2019 378,315 181,829 16,200 4,500 566,644
2020 302,652 113,140 16,200 4,374 436,366

NEA
Misiones 2019 16,006 24,700 8,671 9,877 68,367
2020 16,006 24,700 8,671 9,877 68,367

Corrientes 2019 394,126 179,370 81,194 12,379 564,026
2020 392,042 179,505 81,194 12,379 564,056

Buenos Aires 2019 72,500 1,800 5,000 2,100 80,300
2020 71,000 1,490 5,000 3,400 80,890

Formosa 2019 441 0 774 10,329 11,544
2020 441 0 774 10,329 11,544

Jujuy 2019 159,076 35,480 51,352 17,760 260,678
2020 148,154 18,336 84,700 10,980 260,679

Salta 2019 54,625 2,560 203,940 33,000 294,115
2020 54,625 1,980 203,940 33,000 292,545

Tucumán 2019 43,100 7,800 1,679,765 4,700 1,735,365
2020 43,100 7,800 1,573,000 4,700 1,628,600

Catamarca 2019 10,839 7,940 2,193 0 20,972
2020 10,839 3,560 1,260 0 14,960

TOTAL 2019 1,036,163 421,371 2,015,989 89,478 3,565,001
2020 957,160 367,136 1,974,652 89,049 3,397,997

Source: FEDERCITRUS
# PRODUCCIÓN NACIONAL DE FRUTAS CÍTRICAS FRESCAS EN LA ARGENTINA

**Argentina citrus production**

## Producción de frutas cítricas frescas (En toneladas - Período 2010/2021)

<table>
<thead>
<tr>
<th>Año agrícola</th>
<th>Naranja</th>
<th>Mandarina</th>
<th>Limón</th>
<th>Pomelo</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>833.486</td>
<td>423.737</td>
<td>1.113.375</td>
<td>188.820</td>
<td>2.559.418</td>
</tr>
<tr>
<td>2011</td>
<td>1.130.074</td>
<td>564.640</td>
<td>1.756.351</td>
<td>172.382</td>
<td>3.613.447</td>
</tr>
<tr>
<td>2012</td>
<td>933.526</td>
<td>373.970</td>
<td>1.456.069</td>
<td>132.196</td>
<td>2.895.761</td>
</tr>
<tr>
<td>2013</td>
<td>859.752</td>
<td>364.883</td>
<td>1.485.963</td>
<td>113.549</td>
<td>2.824.147</td>
</tr>
<tr>
<td>2014</td>
<td>1.022.276</td>
<td>486.630</td>
<td>963.990</td>
<td>130.786</td>
<td>2.593.582</td>
</tr>
<tr>
<td>2015</td>
<td>1.001.309</td>
<td>491.384</td>
<td>1.561.606</td>
<td>130.382</td>
<td>3.184.681</td>
</tr>
<tr>
<td>2016</td>
<td>1.032.446</td>
<td>468.278</td>
<td>1.678.337</td>
<td>102.259</td>
<td>3.281.320</td>
</tr>
<tr>
<td>2017</td>
<td>1.024.918</td>
<td>459.665</td>
<td>1.675.851</td>
<td>112.337</td>
<td>3.272.771</td>
</tr>
<tr>
<td>2018</td>
<td>1.006.779</td>
<td>431.374</td>
<td>1.989.400</td>
<td>114.118</td>
<td>3.541.871</td>
</tr>
<tr>
<td>2019</td>
<td>1.038.352</td>
<td>421.371</td>
<td>2.061.660</td>
<td>114.695</td>
<td>3.636.078</td>
</tr>
<tr>
<td>2020</td>
<td>957.160</td>
<td>367.136</td>
<td>1.974.652</td>
<td>89.049</td>
<td>3.397.997</td>
</tr>
<tr>
<td>2021</td>
<td>1.038.163</td>
<td>421.371</td>
<td>2.015.989</td>
<td>89.478</td>
<td>3.556.001</td>
</tr>
</tbody>
</table>

**Source:**

FEDERCitrus

Citromax Group
Argentina Citrus Production (Metric Tons)

Orange Production 2021/22
- 920,000 MT
- 68% Fresh Fruit
- 22% Export
- 10% Processing

Tangerine Production 2021/22
- 400,000 MT
- 68% Fresh Fruit
- 16% Export
- 16% Processing

Grapefruit Production 2020/21
- 70,000 MT
- 32% Fresh Fruit
- 66% Export
- 1% Processing

Source: USDA July 2022 Citrus: World Markets and Trade
Argentina Lemon Production (1,000 MT)

Source: USDA July 2022 Citrus: World Markets and Trade
Lemon Production in Tucumán (MT)

\[ R^2 = 0.7206 \]

Source:
Lemon Growing Area in Tucumán (Hectares)

Source:

R² = 0.916

Area Planted (Hectares)

Year
Age Distribution of Trees in Tucumán (2020)

Source:
Summary of Fresh Fruit and Industrial Products

How your products are grown and made
Packing House
Lemon Growing in Argentina
Success Begins in the Nursery

Good genetic citrus propagating material free from damaging pathogens

Availability of a large range of rootstocks and scions in the nursery

**Lemon Rootstocks** (to name a few):
- Sour orange
- Cleopatra mandarin
- Rangpur
- Volkamer lemon
- Troyer and Benton citrange
- Swingle citrumelo
- Flying Dragon trifoliate
- X 639 citrandarin
- Citrandarin 61 AA3

**Lemon Scions:**
- Eureka Frost *
- Lisboa Frost *
- Lisboa Limoneira 8 A
- Genoa EEAT
- Santa Teresa Feminello

* Main variety
Nursery
Nursery
# Argentina Socio-Economic Summary

## Citrus Growers Forecast

<table>
<thead>
<tr>
<th>Citrus Growers</th>
<th>5,300 Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017/2018 and 2019/2020 Forecast</td>
<td>3.3 Mio MT</td>
</tr>
<tr>
<td>Citrus Packing Houses (export)</td>
<td>75</td>
</tr>
<tr>
<td>Processing Plants</td>
<td>22</td>
</tr>
<tr>
<td>Total Direct Workers</td>
<td>91,490</td>
</tr>
</tbody>
</table>

## Citrus Industry Employment

<table>
<thead>
<tr>
<th>Total Direct Workers</th>
<th>91,490</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanent Employment / Primary Production</td>
<td>6,440</td>
</tr>
<tr>
<td>Transitional Employment</td>
<td>58,350</td>
</tr>
<tr>
<td>- Nursery plantation and other activities</td>
<td>5,460</td>
</tr>
<tr>
<td>- Pruning/ weeding/ and other pre-harvest work</td>
<td>27,900</td>
</tr>
<tr>
<td>- Harvest (picking)</td>
<td>25,000</td>
</tr>
<tr>
<td>Permanent Employment (packing)</td>
<td>22,100</td>
</tr>
<tr>
<td>Permanent Employment (Industry)</td>
<td>4,600</td>
</tr>
</tbody>
</table>

Source:
SENASA - FederCitrus
Industrial Products - Lemon

How Lemons are made into the products you buy
Anatomy of a Lemon

**Colored outer layer** - *Flavedo or Epicarp* - contains minute oil glands. This is the source for Lemon peel essential oil.

**White inner peel layer** - *Albedo or Mesocarp* - Mostly chopped and dried and sold as “dried peel” for pectin manufacture.

**Pulp or Endocarp** consists of tightly packed juice sacs. Source for juice and juice byproducts.
Industrial Products

Main products per MT of Fruit:

- Peel oil = 5.5 Kg
- Dried peel = 50-55 Kg
- Concentrated juice = 60-65 Kg
- Aroma Water = 0.5 Kg
- Essence Oil = 0.03 Kg
Lemon Processing
Sustainability

• Care for the Forests
  • As part of our commitment to the conservation of native forests we actively collaborate in the formation of sustainable communities through reforestation, cultural activities and forest management in public green spaces.
  • During the year 2021, 300 trees were donated from our forest nursery.

• Strategic work in our forests
  • We work together with Proyungas foundation in the survey of animal and plant species.
  • Given its great environmental value, the continuous forest patch area and the connections with the surrounding protected areas had more than satisfactory results in their evaluation, which generated a strong commitment to the preservation of this space.
Water and Energy

- We work to achieve water efficiency and the maximum harnessing of energy resources, promoting two guiding practices:
  - Sustainable use of the water
  - Sustainable energy management
- Some measures applied for water efficiency in primary production and industry:
  - Primary lemon production counts on two irrigation systems: drip irrigation and spray irrigation.
  - The primary production of blueberries has precision drip irrigation, with 95% efficiency, applied to 100% of the hectares destined for this crop.
  - We carry out analyses of water quality and collect samples of tap and superficial water.
  - Recirculation of 20,000 liters of water every 48 hours in the packing house, by filtration of the lemon tanks. It is carried out during the harvest period.
  - 80% of the lighting of the factory warehouse was replaced by LED lights.
Social Responsibility

• We respect the legitimacy, the equity, the justice, the human rights, and the communities where our operations are carried out. By generating strategic actions with solid lines of work, we aim to improve the life quality of the communities in the area of influence.

Primary Production

• Global GAP.
• GRASP
• SPRING: Designed to complement GLOBALG.A.P. Certification towards irrigation water sustainable management.
• FSMA: Designed to complement GLOBALG.A.P. Certification towards FDA’s Food Safety Modernization Act.
• GGFSA: Designed to complement GLOBALG.A.P. Certification towards sustainability production, based on SAI Platform.
• SMETA 4 pillar V6
• Organic: Certified under NOP, IFOAM, SUE, JAS, and NOP-COR protocols.
Industrial Certifications

- **FSSC 22000 System**: Food Safety System Certification provides a framework for effectively managing our organization's food safety responsibilities.
- **ISO 9001:2015**: is a quality management standard.
- **ISO 14001:2015**: specifies the requirements for an environmental management system that an organization can use to enhance its environmental performance.
- **SGF IRMA**: (Sure Global Fair – International Raw Material Assurance). Voluntary system focused on fruit juices genuineness.
- **SMETA 4 pillar V6**: (Sedex Members Ethical Trade Audit) Sedex Members Ethical Trade Audit (SMETA) is one of the most widely used ethical audit formats in the world. SMETA is an audit methodology, providing a compilation of best practice ethical audit techniques. It is designed to help auditors conduct high quality audits that encompass all aspects of responsible business practice, covering Sedex’s four pillars of Labour, Health and Safety, Environment and Business Ethics.
- **Kosher**: Kosher Certification is the stamp of kosher approval by a rabbinical Agency verifying they have checked the products ingredients, production facility and actual production to ensure all ingredients, derivatives, tools and machinery have no trace of non-kosher substances. The Kosher Certified symbol assures consumers that both the actual product and its production adhere to all Kosher Law requirements.
- **Halal**: Halal certification is a process which ensures the features and quality of the products according to the rules established by the Islamic Council that allow the use of the mark Halal.
- **Organic**: Certified under NOP, IFOAM, SUE, JAS, and NOP-COR protocols.
Fresh Fruit Certifications

- **BRC (British Retail Consortium):** BRC Standards guarantee the standardization of quality, safety and operational criteria and ensure that manufacturers fulfil their legal obligations and provide protection for the end consumer.

- **HACCP:** (Hazard Analysis Critical Control Point) is internationally accepted as the most cost-effective method of preventing food contamination from chemical, microbiological and physical hazards.

- **Organic:** Certified under NOP, IFOAM, SUE, JAS, and NOP-COR protocols.

- **Global GAP:** The Worldwide Standard for Good Agricultural Practices

- **GRASP:** Designed to complement GLOBALG.A.P. Certification towards social aspects. GRASP helps producers establish a good social management system on their farms. It offers buyers added assurance. And it helps protect one of the farm’s most important resources: ITS PEOPLE.

- **SMETA 4 pillar V6**

- **SPRING:** Designed to complement GLOBALG.A.P. Certification towards irrigation water sustainable management.

- **FSMA:** Designed to complement GLOBALG.A.P. Certification towards FDA’s Food Safety Modernization Act.

- **GGFSA:** Designed to complement GLOBALG.A.P. Certification towards sustainability production, based on SAI Platform.
Summary

• Global Citrus production has increased 14% from 2010 to 2022

• Total Lemon Production is up 56.8%.

• Favorable weather resulted in higher Lemon Production in Argentina in 2021/22 (1.9 MMT)

• Argentina is in a strong position to provide the lemon products the food and beverage industries need.
Thank you!

Questions?