Citrus Production- A Global Perspective

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ICBC 2018
Global Food System

- "the aggregate of food-related activities and the environments (political, socio-economic, and natural) within which these activities occur."

Credit: Steven Vanek, based on Combs et al., 1996
Fruit and Juice Trade is Global and Complex

Source: RaboResearch 2018
General Trends

• About 9% of all fruits grown are traded internationally and expected to increase = increased competition

• Fresh and frozen fruit market still growing

• Consumer perceived “superfoods” on the rise (e.g. avocado, blueberry)

• Fruit juices and other preserved products fell flat globally and decreased by 1% in EU, USA, and AUS.

Source: UN-Comtrade, 2018
General Trends

• Latin America is a dominant global export force
• China increasing export and import market
• China more professional retail environment = new opportunities
• Sea shipping is a game changer for the southern hemisphere
• Fruits can now be shipped long distances = increased competition with USA fruit growers
## How Does Citrus Stack Up?

<table>
<thead>
<tr>
<th>Rank</th>
<th>Fruit Type</th>
<th>Global production volume</th>
<th>Global export volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Bananas and plantains</td>
<td>150 millions</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Melons</td>
<td>100 millions</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Apples</td>
<td>90 millions</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Grapes</td>
<td>80 millions</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Oranges</td>
<td>70 millions</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Mangoes</td>
<td>60 millions</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Mandarins</td>
<td>50 millions</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Pears</td>
<td>40 millions</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Pineapples</td>
<td>30 millions</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Peaches and nectarines</td>
<td>20 millions</td>
<td></td>
</tr>
</tbody>
</table>

Source: RaboResearch 2018
Food System

- Changes to the food system have led to huge changes in the fruit industry

<table>
<thead>
<tr>
<th>THEN</th>
<th>NOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Few options</td>
<td>- Great competition in the marketplace</td>
</tr>
<tr>
<td>- Many commodities seasonally available</td>
<td>- Packaging</td>
</tr>
<tr>
<td>- No packaging</td>
<td>- Global market place</td>
</tr>
<tr>
<td>- Many products locally or regionally sourced</td>
<td>- Whatever you want, whenever you want it</td>
</tr>
<tr>
<td>- Few international imports</td>
<td>- Choices</td>
</tr>
</tbody>
</table>

...and have ultimately led to changes in the citrus industry
HLB Major Production Problem Globally for Citrus

Tuesday, February 7, 2017

Citrus greening – a global threat

CROPS > CROP DISEASE

Huanglongbing continues to spread across southern California

Green is Florida’s new Orange

Alliance of farmers, scientists and promoters share c Florida’s citrus crop.

August 23, 2018

Science News

Promising new citrus varieties for greening tolerance
Global Production- Oranges (Fresh)

- Production forecasted to fall by 6.0 metric tons due to disease and weather in USA & Brazil

‘Washington’ navel

- Consumption is flat
- Many consumers switching to mandarins

Source: USDA, Citrus World Markets and Trade 2018
Global Production- Orange Juice

Total Global Orange Juice Production & Consumption

- Total Production
- Total Consumption

Top Five Orange Juice Producers
- Brazil
- United States
- Mexico
- European Union
- China

Consumption is down over past decade; China is 5th globally but expected to climb.

Source: USDA, Citrus World Markets and Trade 2018
Citrus Production in China
(1978-2015)
Sugar Troubles for OJ
Marketing and Reformulations?

- What about public perception?
- Can antioxidants help?
- Engagement of millennials or generation Z?
- Use of social media?
Perception VS Fact?
Global Production- Mandarins

- Huge growth from China
- USA is not in the top 5 but production & exports increased dramatically
- Large plantings globally = predicted production increase

Source: USDA, Citrus World Markets and Trade 2018
Flavors, Colors, and Convenience

• New varieties with consumer traits are driving an increase in production
• Previous studies show the importance of flavor, texture, easy peel, and seedless for consumer acceptance
Marketing Mandarins

• Branding/packaging is becoming more important.

• Mandarins are competing for supermarket space, much like processed foods.
Global Production - Grapefruit/Pummelo

Consumption up slightly on domestic supplies because of higher Chinese & Turkish production.

USA lost production due to disease and weather.

Most varieties are regionally grown.

Source: USDA, Citrus World Markets and Trade 2018
Global Production - Grapefruit

- Most varieties arose as the result of mutations
- Older population consumers
- Grapefruit drug interaction
- Time for newer varieties?
- Pummelo Hybrids?

New grapefruit hybrid could resolve medication issues

‘UF914’
Global Production - Lemons/Limes

Top 5 Global Lemon/Lime Producers

- Mexico
- Argentina
- European Union
- United States
- Turkey

• Record 7.5 million metric tons
• Processed fruit up 3%

‘Persian’ lime

Approx. 28% Processed

Global Lemon/Lime Production & Consumption

- Total Production
- Total Consumption

Source: USDA, Citrus World Markets and Trade 2018
US Citrus Production Trends

Source: USDA, Citrus Fruits 2018 Summary

Utilized Citrus Production – United States

3.2 Billion

Citrus Value of Production – United States

6.1 Million
2017-2018 US Production by Crop

Source: USDA, Citrus Fruits 2018 Summary
Hurricane Irma

Source: USDA, Citrus Fruits 2018 Summary
2017-2018 Production Breakdown by State

2017-2018 US Production

- **United States**: 3 million tons (Total), 2 million tons (Processed), 3 million tons (Fresh)
- **Texas**: 0.1 million tons (Total), 0.1 million tons (Processed), 0.1 million tons (Fresh)
- **Florida**: 2 million tons (Total), 1 million tons (Processed), 1 million tons (Fresh)
- **California**: 3 million tons (Total), 2 million tons (Processed), 1 million tons (Fresh)
- **Arizona**: 0.1 million tons (Total), 0.1 million tons (Processed), 0.1 million tons (Fresh)
Mandarin Fever

“Forecasted to grow 4% supported by domestic supplies”
‘LB8-9’ Sugar Belle®
Sugar Belle®: HLB > 8 years!
FLAVOR SUMMIT
Industry Perspectives

You are invited to the 1st Annual Flavor Summit – Industry Perspectives workshop, hosted by the University of Florida, Citrus Research and Education Center and the University of Florida Center for Smell and Taste. This workshop will offer insights into the cutting edge science and current industry trends relevant to flavor. Topics will include flavor generation and flavor precursors, chemosensory perception and psychophysics, consumer preferences, and natural products as sources of novel flavor compounds. The training program will be provided by leading speakers from industry, government, and academic institutions around the world. Posters and tabletop demonstrations will also be available throughout the workshop.

February 5-6, 2019
Rosen Plaza Hotel
Orlando, Florida

TO REGISTER FOR THE MEETING AND TO MAKE HOTEL RESERVATIONS, VISIT www.crec.ifas.ufl.edu/flavorsummit

Highlighted Presentations
• The Key to Future Flavors Lies within Citrus Genetics
• Innovative Flavor & Food Product Development - Influence of Regulations and Guidelines
• The Taste of Fruit: Sweet Taste of Nature
• Bitterness perception: Can we discriminate between bitter compounds?
• Mercaptans in Foods: Only Bad Guys or Key Contributors to Food Flavors?
• Industrial-Scale Production of 11 Steviol Glycosides: from Reb A to Z

For more information, please contact
Jamie Burrow, 863-956-8648, jdyates@ufl.edu

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