The Looming Food Crisis

Extreme weather, economic forces of rising demand and speculation threaten global food security.

David Dapice
YaleGlobal, 18 February 2011

In wealthy nations as well as in poor ones, consumers express alarm about fast-rising food prices, and their governments are well aware that shortages can quickly translate into unrest and political crisis. Complaints today may be mild compared with those looming ahead unless governments take steps to curb policies that encourage speculation, warns economist Dapice. Subsidies that divert corn to ethanol fuel reduce food supplies. Despite extreme weather events in many countries in recent years, food prices have climbed in recent years and in a few countries, such as Chile, Nile tilapia and strawberries are so expensive that they cost nearly as much as meat.

The New York Times

Lawton, North Dakota — Whatever Dennis Miller decides to plant this year on his farm, the world needs. Wheat prices have tripled in the last three months, and China is on a tear. Barley, sunflower seeds, canola and corn are up sharply.

Feed the World

Demand for food is rising, and the world’s farmers are struggling to keep up.

The Gazette

Farm forecast: extreme

What lay behind this spring’s ferocious flooding along the Red River seems simple enough to pin down: blame the higher levels in recorded history for Lake Champlain, which feeds the river. But how much harder to gauge, however, are answers to a more far-reaching question:

How will more frequent hours of such extreme weather phenomena, which scientists acknowledge are on the increase, hit agriculture, rip through our food chain?

Bloomberg

Agriculture Output Must Grow 70% to Meet World Demand, UN Says

Global agriculture production needs to increase 70 percent to meet food demand by the middle of the century as more people move to cities, the United Nations said. Growers will have to increase yields on existing farms as the amount of land available for agriculture is shrinking, the UN’s Food and Agriculture Organization said in a book on farming. “Save and Farm.” About 70 percent of people will live in urban areas by 2050, up from 50 percent today, the FAO said.

“We have no option but to further intensify crop production,” the FAO said.
Introduction

► The world OJ situation has changed dramatically in recent years due to supply-side disruptions and demand-side influences.

► However, the world OJ situation can still provide significant opportunities for orange producers, even though many challenges remain.
HISTORICAL AND CURRENT WORLD ORANGE-JUICE SITUATION
World OJ Production, by Country

- Brazil
- US
- EU-27
- Mexico
- South Africa
- China
- Australia
- Turkey
- South Korea
- Morocco
- Belize
- Costa Rica

2010:
- Brazil: 1,511
- US: 837
- Mexico: 27
- EU-27: 84%
- South Africa: 84%

2005:
- Brazil: 1,790
- US: 966
- Mexico: 27
- EU-27: 84%
- South Africa: 84%

2000:
- Brazil: 1,667
- US: 1,479
- Mexico: 27
- EU-27: 84%
- South Africa: 84%

1995:
- Brazil: 1,511
- US: 1,245
- Mexico: 27
- EU-27: 84%
- South Africa: 84%

1990:
- Brazil: 1,202
- US: 646
- Mexico: 27
- EU-27: 84%
- South Africa: 84%

Million SSE Gallons

0 400 800 1,200 1,600 2,000 2,400 2,800 3,200 3,600
DRIVERS OF FUTURE WORLD ORANGE-JUICE SITUATION
Factors that Influence Global Demand for OJ

- Economic Stability and Recovery
- New Markets and Population Growth
- Influencing Consumer Attitudes with Marketing Messages
- Availability and Pricing
Global Economic Stability and Recovery
Emerging Economies: Countries with growing global economic interactions and responsibilities

Economic Recovery

► Developing Economies: Increased industrialization and information access for citizens

Terms Used to Describe Blocks of Developing Countries

- **BRIC**: Brazil, Russia, India and China
- **BRICET**: BRIC + Eastern Europe and Turkey
- **BRICS**: BRIC + South Africa
- **BRICM**: BRIC + Mexico
- **BRICK**: BRIC + South Korea
- **Next Eleven**: Bangladesh, Egypt, Indonesia, Iran, Mexico, Nigeria, Pakistan, Philippines, South Korea, Turkey, and Vietnam
- **CIVETS**: Colombia, Indonesia, Vietnam, Egypt, Turkey and South Africa
Global Economic Growth Forecasts

Source: International Monetary Fund.
Most economists agree a recovery will occur, but at different rates by country.
New Markets and Population Growth
World Population Growth
2.6B more Mouths to Feed

Source: U.S. Census Bureau.
India Population Maturation
2011 to 2050

Source: U.S. Census Bureau.
China Population Maturation
2011 to 2050

Source: U.S. Census Bureau.
Consumer Perceptions and Attitudes
Influencing Consumer Attitudes with Motivating Marketing Messages

► Functional Attributes

► Health and Nutrition Drivers

► Nature’s Perfect Beverage

► Emotional Connections

► Vibrant, Sunny and Energizing

► Fun & Joyful, yet Safe & Comforting
Global OJ Availability
Factors that Influence Global Availability of OJ

► Disease pressures, and other production issues in traditional growing regions
► Rising cost of production and risks
► Potential for new production areas
► Global distribution and supply-chain
BALANCING WORLD ORANGE JUICE SUPPLY AND DEMAND
Demand May Surpass Supply if:

- U.S. and Europe recover and grow
- Economic recovery
- Consumer attitudes are influenced
- Emerging Markets Demand More OJ
- Population and Income Effects
- Florida and Brazil crops remain flat

If this happens, prices, both retail and wholesale, rise.
World OJ Demand Growth Scenario
(Million Single Strength Gallons)

ROW

U.S.

0 500 1,000 1,500 2,000 2,500 3,000 3,500 4,000 4,500 5,000

10-11 15-16 f 20-21 f 25-26 f 30-31 f
World OJ Supply Growth Scenario
(Million Single Strength Gallons)
Filling the OJ Growth Opportunity
(Million Single Strength Gallons)

ROW
Brazil
Florida

10-11 15-16 f 20-21 f 25-26 f 30-31 f
Satisfying U.S. OJ Growth
Florida’s Opportunity

FL Growth
Imports
FL Baseline

Million SSE Gallons

10-11 15-16 f 20-21 f 25-26 f 30-31 f
Defining the Florida Opportunity
US Market Growth = Maximum Profits

• Florida’s Opportunity is defined as:
  1. Replace a Portion of Current Imports
     • Last 12mo: 265mm ssg @ ~$1.65/ssg
  2. Satisfy Future Consumption Needs
     • Demand Growth (400mm ssg over 20 years):
       – Population growth,
       – Income recovery, and
       – Motivating marketing pressures on consumers

Supply can expand without impacting current price levels.
Florida’s Supply Challenge to Meet Future US Opportunities
Florida Planting and Loss Requirements to Meet Opportunity

-6.00%
-5.00%
-4.00%
-3.00%
-2.00%
-1.00%
0.00%
0.00%

Million Trees

2010 2015 2020 2025 2030

New Plantings
Loss Rate
SUMMARY & CONCLUSIONS
‘If supply does not keep pace with demand, there will be upward pressure on commodity prices. With per capita incomes rising globally and in many poor countries expected to increase by as much as 50%, food demand will become more inelastic such that larger price swings would be necessary to affect demand.”

“The sharp rise in food prices has sparked fears of a global food shortage.”

“The Washington Post

“Great Food Crunch. Global food demand is colliding with strained supply.”

“Great Food Crunch. Global food demand is colliding with strained supply.”

“In a directionally changing world, with continually rising demand for agricultural products driven by population and income growth pressing on a finite land base, tradeoffs among these sustainability goals often occur.”

“Is a slowdown in agricultural productivity growth contributing to the rise in commodity prices?”
After expanding for many years until the first decade of the 21st century, the world OJ situation has leveled and declined in recent years due to a combination of factors:

- Availability issues caused by disease pressure and weather events
- Negative shifts in the attitudes and economics of consumers
- Advent of competitive and substitute products
However, future prospects for OJ are more positive as:

- Disease issues are being mitigated
- Consumer attitudes and perceptions continue to be positive
- World economies recover and grow
Citrus growers should take advantage of these future opportunities by expanding production capabilities.

Investments into new production capacity is viable considering the current citrus economics environment.

Future opportunities are enhanced with relevant consumer communications.
Thank You!

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