China’s Agricultural Development and Implications for California Agriculture

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1. Global Overview

• The landscape of international agricultural trade will change rapidly in the coming decades

• Over this period, California farmers can reap large gains from this for two reasons:
  – The Doha Round will confer competitive advantages on California farmers
  – Huge food markets will emerge in Asia, led by China
How we got here: Total World Grain and Oilseeds

Index: 1975 = 100

Peak

Source: USDA.
The Meaning of Doha

• The current round of World Trade Organization (Doha) negotiations is a watershed event for global agriculture.

• For the first time in history, significant agricultural protection is on the bargaining table, including over $350 billion of direct and indirect farm support in OECD countries.
Doha and California Agriculture

California food and farm exports will accelerate under Doha for three reasons:

1. U.S. levels of farm and food protection are lower than those of our major trading partners (Europe, Japan, and Korea), particularly for California.

2. The way we support agriculture at home is less trade distorting. This will tilt competitive advantage in our favor.

3. Huge markets will emerge in East Asia.
Three Pillars of Agriculture Protection

1. Direct farm subsidies
2. Market support from import protection
3. Export subsidies
US Support is Smaller
(percent of producer price)

Source: USDA.

1991-93  2001

Japan
Europe
United States
New Zealand

Source: USDA.
US Support is Less Trade Distorting

US support measures are less WTO negotiable/actionable.


- Direct Subsidy
- Export Subsidy
- Import Tariff
- Export Subsidy
- Import Tariff

United States
EU
Japan
Korea
ANZ

US support measures are less WTO negotiable/actionable.

147%
Doha and Agriculture: What’s at Stake?

Nearly two thirds of Doha’s gains will come to agriculture. Over half will go to high income economies.

*Income gains from Doha (2015, USD Billions)*

<table>
<thead>
<tr>
<th></th>
<th>Agric &amp; food</th>
<th>Textiles &amp; clothing</th>
<th>Other merch.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-income countries</td>
<td>135</td>
<td>15</td>
<td>9</td>
<td>159</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>55%</td>
</tr>
<tr>
<td>Developing countries</td>
<td>47</td>
<td>23</td>
<td>58</td>
<td>128</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>45%</td>
</tr>
<tr>
<td>All countries’ policies</td>
<td>182</td>
<td>38</td>
<td>67</td>
<td>287</td>
</tr>
<tr>
<td></td>
<td><strong>63%</strong></td>
<td><strong>14%</strong></td>
<td><strong>23%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Doha will sharply accelerate agricultural trade

World exports as a percent of world output.

<table>
<thead>
<tr>
<th></th>
<th>Now</th>
<th>Free Trade</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>3</td>
<td>9</td>
<td>200</td>
</tr>
<tr>
<td>Sugar</td>
<td>6</td>
<td>20</td>
<td>233</td>
</tr>
<tr>
<td>Meats</td>
<td>7</td>
<td>15</td>
<td>114</td>
</tr>
<tr>
<td>Other grains</td>
<td>12</td>
<td>20</td>
<td>66</td>
</tr>
<tr>
<td>Oilseeds</td>
<td>31</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Dairy products</td>
<td>67</td>
<td>11</td>
<td>83</td>
</tr>
<tr>
<td>Other Ag</td>
<td>7</td>
<td>12</td>
<td>71</td>
</tr>
</tbody>
</table>

2. China’s Agricultural Potential

Opportunities
1. Productivity growth – impressive but not keeping pace with other sectors
2. Economies of scale – serious institutional challenges

Constraints
1. Land area – small and shrinking
2. Water – nationally scarce, most major aquifers are already in overdraft
Asia Pork and Poultry Production

Million metric tons

Source: USDA.
Asia Pork and Poultry Production

Million metric tons

India, Thailand, Bangladesh, Pakistan, Indonesia, Malaysia, Philippines, China

Source: USDA.
China Pork Production

Million metric tons

Source: USDA.
Asian Poultry Production

Million metric tons

Source: USDA.
Chinese Arable Land
Stock of Cultivated Land in China

The chart shows the stock of cultivated land in China over several years, from 1988 to 1995. The stock values range from 131.1 million ha in 1995 to 132.6 million ha in 1991. The decrease in stock is shown by various factors, including conversion to horticulture, forestry land, disaster, grassland, fish ponds, settlements, water conservancy, transport infrastructure, industrial sites, and public buildings. The chart indicates a decrease in stock with a notable increase in conversion to horticulture and disaster.
Provincial Land Stock Changes
Annual Rainfall
Yellow River Basin Water Use

Available Water Resources
Water Demand, Best Case
Water Demand, Worst Case
Chinese farms are simply too small to mechanize and too poor to invest in innovation.
Chinese Supply Conditions

Productivity growth has been impressive, but resource constraints are very serious.

Output growth might sustain current trends for the next decade, but it is unlikely to accelerate in any major categories.
3. China’s Food Requirements

One of every seven people on the planet is a Chinese farmer. Should we be worried about this?
No. One of every five people on the planet is a Chinese consumer.
Average incomes are rising fast, and so is the resource intensity of consumption.

Concluson: You ain’t seen nothin’ yet.
It wasn’t always so…

but we are in a new world now.
Income is Rising in China…
(2000 USD and growth rate)

Source: USDA.

Domestic GDP %  Per capita GDP, dollars
And so is Inequality

Source: USDA.
China’s Population is Moving
(Rural and Urban, millions)

Half a billion people will switch from the food supply side to the demand side.

Source: UN.
And Diets are Changing

kcal/person/day

Percent of caloric intake
Emergent Imbalances

Despite significant progress in productivity, the implications of these trends in supply and demand are obvious.

China’s growth can only be sustained with increased absorption of resources and resource-intensive products.

As it has with energy, China will emerge as a leading global importer of agricultural products.
Exhibit A: Petroleum

China’s Net Oil Exports

Million Metric Tons


-120 -100 -80 -60 -40 -20 0 20 40 60
Exhibit B: Soy products

China net trade in soybeans, oil and meal, 1980-2003

Million tons

1980 82 84 86 88 90 92 94 96 98 2000 02

Note: net trade = exports - imports.
Source: USDA, Production, Supply, and Distribution data.
Exhibit C: Income and Imports, Meat or Feed

Import the meat or the feed to produce the meat.

Source: Author’s estimates.
Verdict: China Will be Asia’s Largest Ag. Importer

Net Agricultural Imports in 1997 USD Billions

Source: Author’s estimates.
China’s rapidly rising imports

Agricultural trade of China (including Hong Kong, excluding intratrade)

Source: WITS.

Billion US$
Corn Feed Use

Million metric tons

Source: USDA.
Soybean Meal Feed Use

Million metric tons

Source: USDA.
Global Cotton Imports

Million bales

Source: USDA
Consumer Food Imports from US

Source: USDA.
### China’s Import Trends 1

**Who will take these markets?**

<table>
<thead>
<tr>
<th>Product</th>
<th>Millions in 2004</th>
<th>Annual Growth 1999-2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almonds</td>
<td>4.048</td>
<td>22.5</td>
</tr>
<tr>
<td>Beef</td>
<td>7.110</td>
<td>4.4</td>
</tr>
<tr>
<td>Cereals</td>
<td>2,218.543</td>
<td>34.9</td>
</tr>
<tr>
<td>Cherries</td>
<td>2.334</td>
<td>160.5</td>
</tr>
<tr>
<td>Crustaceans</td>
<td>312.036</td>
<td>20.5</td>
</tr>
<tr>
<td>Blueberries</td>
<td>1.163</td>
<td>29.1</td>
</tr>
<tr>
<td>Fish - whole (chilled, frozen)</td>
<td>1,516.575</td>
<td>30.0</td>
</tr>
<tr>
<td>Fish - fillets (chilled, frozen)</td>
<td>45.556</td>
<td>24.9</td>
</tr>
<tr>
<td>Frozen Potato/ French Fries</td>
<td>51.485</td>
<td>71.3</td>
</tr>
<tr>
<td>Grapes</td>
<td>67.546</td>
<td>23.4</td>
</tr>
<tr>
<td>Hazelnuts</td>
<td>2.297</td>
<td>17.6</td>
</tr>
<tr>
<td>Infant Formula</td>
<td>88.821</td>
<td>27.5</td>
</tr>
<tr>
<td>Juices and Concentrates</td>
<td>61.001</td>
<td>35.4</td>
</tr>
<tr>
<td>Lobsters (uncooked)</td>
<td>0.131</td>
<td>159.3</td>
</tr>
<tr>
<td>Mollusks</td>
<td>332.462</td>
<td>26.6</td>
</tr>
<tr>
<td>Oranges</td>
<td>36.994</td>
<td>31.4</td>
</tr>
<tr>
<td>Pistachios</td>
<td>17.432</td>
<td>21.9</td>
</tr>
</tbody>
</table>
### China’s Import Trends 2

<table>
<thead>
<tr>
<th>Product</th>
<th>Millions in 2004</th>
<th>Annual Growth 1999-2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pollock</td>
<td>1.250</td>
<td>1.9</td>
</tr>
<tr>
<td>Pork</td>
<td>54.452</td>
<td>17.5</td>
</tr>
<tr>
<td>Poultry</td>
<td>153.413</td>
<td>-17.8</td>
</tr>
<tr>
<td>Prunes</td>
<td>0.922</td>
<td>39.4</td>
</tr>
<tr>
<td>Raisins</td>
<td>14.666</td>
<td>104.5</td>
</tr>
<tr>
<td>Salmon</td>
<td>26.612</td>
<td>63.0</td>
</tr>
<tr>
<td>Scallops</td>
<td>8.023</td>
<td>15.5</td>
</tr>
<tr>
<td>Soybeans</td>
<td>6,956.654</td>
<td>50.9</td>
</tr>
<tr>
<td>Soy Flour</td>
<td>1.758</td>
<td>5.9</td>
</tr>
<tr>
<td>Thickeners</td>
<td>12.604</td>
<td>14.7</td>
</tr>
<tr>
<td>Whey Powder</td>
<td>119.744</td>
<td>15.6</td>
</tr>
<tr>
<td>Wine (containers less than 2L)</td>
<td>25.247</td>
<td>30.4</td>
</tr>
<tr>
<td>Wine (containers more than 2L)</td>
<td>24.436</td>
<td>-2.0</td>
</tr>
</tbody>
</table>
4. The Path Ahead

If Doha progresses, two major new opportunities exist for California farm and food exports:

1. China – an emergent giant with scarce resources
2. High income Asian countries – very high prior protection levels and significant purchasing power
Chinese Agricultural Imbalances
(USD 1997 billions in 2010)

Source: Author's forecast.
**Food Cost is Rising in China**

*Annual CPI change by commodity, 2004*

In global energy markets, China is increasingly being seen as a demand-side OPEC. Can a single economy reverse global food price trends?

<table>
<thead>
<tr>
<th>Item</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer price index, all items</td>
<td>5.0</td>
</tr>
<tr>
<td>Consumer price index, by item:</td>
<td></td>
</tr>
<tr>
<td>1. Food items</td>
<td></td>
</tr>
<tr>
<td>Grain</td>
<td>14.0</td>
</tr>
<tr>
<td>Meat</td>
<td>32.0</td>
</tr>
<tr>
<td>Eggs</td>
<td>22.1</td>
</tr>
<tr>
<td>Fish</td>
<td>30.3</td>
</tr>
<tr>
<td>Vegetables</td>
<td>18.5</td>
</tr>
<tr>
<td>Fruit</td>
<td>10.2</td>
</tr>
<tr>
<td>2. Tobacco, alcohol</td>
<td>-0.9</td>
</tr>
<tr>
<td>4. Clothing</td>
<td>1.5</td>
</tr>
<tr>
<td>5. Household items</td>
<td>-1.5</td>
</tr>
<tr>
<td>6. Health</td>
<td>-1.4</td>
</tr>
<tr>
<td>7. Transport, communication</td>
<td>-1.3</td>
</tr>
<tr>
<td>8. Recreation, culture</td>
<td>0.7</td>
</tr>
<tr>
<td>9. Housing</td>
<td>4.9</td>
</tr>
</tbody>
</table>
Doha’s Gift to California: Japan and Korea

Given the scale of prior protection, imports will increase very sharply. Rice, Meat & Diary, Specialty, and Processed Foods will see most of the absolute growth.
Japanese Agricultural Trade
(USD 1997 billions in 2010)

Source: Author’s forecast.

5 March 2005  Roland-Holst
Conclusion

Three Friends of California Farmers

1. Doha – really
2. The Chinese consumer – riding to the rescue
3. China’s Currency (RMB)
   - In China, the biggest opponent of RMB appreciation is the Agriculture Ministry
   - You should be its biggest supporter
Competitive Principles for California Agriculture

1. Resources – Your forbearers were talented and fortunate, and you can extend their legacy with entrepreneurship and stewardship.

2. Quality – As a prosperous and mature market, we set tastes and product standards for the rest of the world.

3. Innovation – Take your rightful place with IT, biotech, and the state’s other knowledge-intensive industries to sustain global leadership.
Thank You