

***World on the Edge:* When Will the Food Bubble Burst?**

Food Situation Highlights
from the new book by
Lester R. Brown

2010 Russian Heat Wave

Statistics:

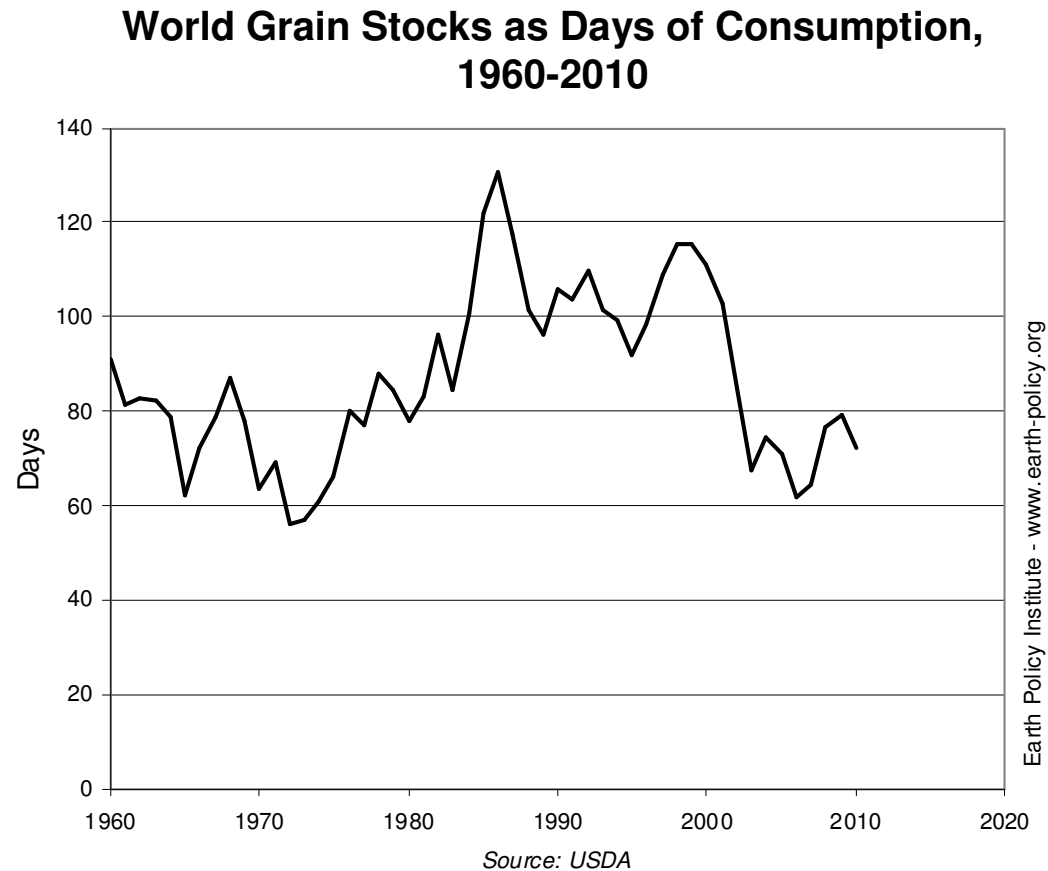
- Average Moscow July temperature: 14 °F above the norm
- Number of fires starting every day in early August: 300-400
- Forest damage and restoration cost estimate: \$300 billion
- Total death count from heat wave and air pollution: > 56,000
- Drop in the Russian grain harvest: down 40% to 60 million tons from recent annual harvests of 100 million tons

Fallout:

- In 2009, the Black Sea region contributed roughly 1/4 of world wheat exports, but Russia has banned grain exports entirely through mid-2011.
- Heat and drought decimated grass and hay growth, prompting the government to release 3 million tons of grain to supplement cattle feed. Still, farmers have had to cull herds.
- World wheat prices saw a 60% increase over 2 months.

Nightmare Scenario

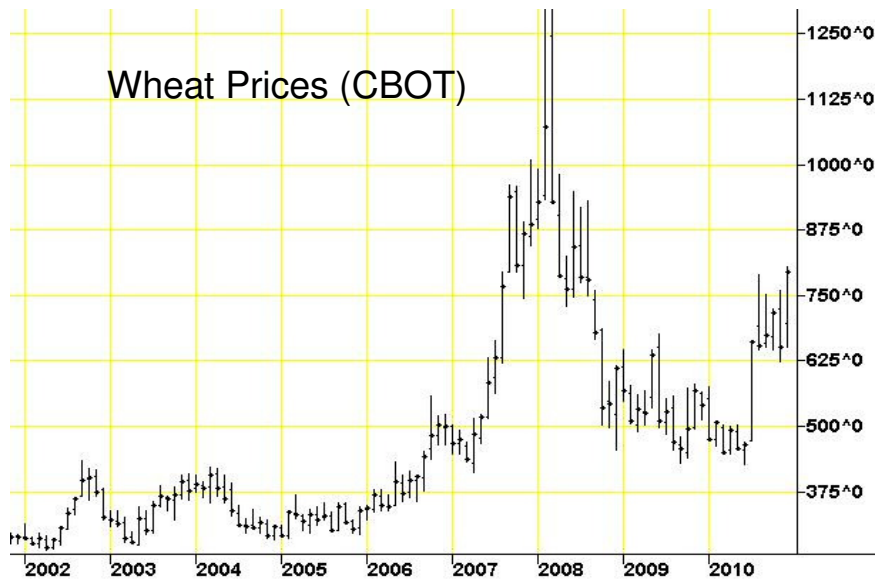
- 40% drop in Russian grain harvest reduced world grain stocks from 79 days of consumption to 72 days
- But what if the heat wave centered on Chicago, and the much larger U.S. grain harvest dropped 40%?
- World grain stocks would plummet to record-low 52 days – well below the level that preceded the tripling of grain prices in 2007-08



Would likely result in unprecedented food price inflation and food riots in scores of countries, toppling weaker governments.

Food Prices on the Rise

Grain and soybean prices are fast approaching their peaks of 2007-08.



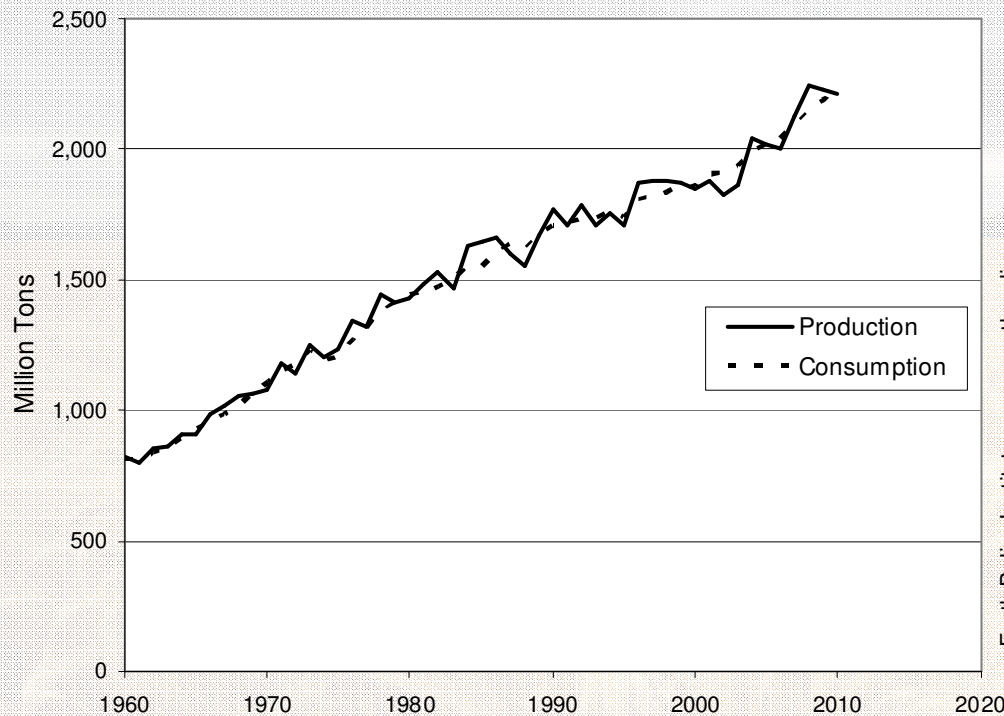
Source: futures.tradingcharts.com

Farmers Being Squeezed

- Supply Tightening
 - Little unused arable land, loss of cropland to development and industry
 - Overpumped aquifers, falling water tables, and over-allocated rivers limit irrigation expansion
 - Slowing growth in crop yields
 - Soils eroding, deserts expanding due to overgrazing, overplowing, deforestation
- Demand Growing
 - 219,000 more people at the dinner table each night
 - 3 billion people desire to move up the food chain and eat more grain-intensive livestock products
 - Food vs. Fuel: Expanding biofuel production means that cars and people compete for crops

Precarious Global Food Situation

World Grain Production and Consumption, 1960-2010



Source: USDA

Earth Policy Institute - www.earth-policy.org

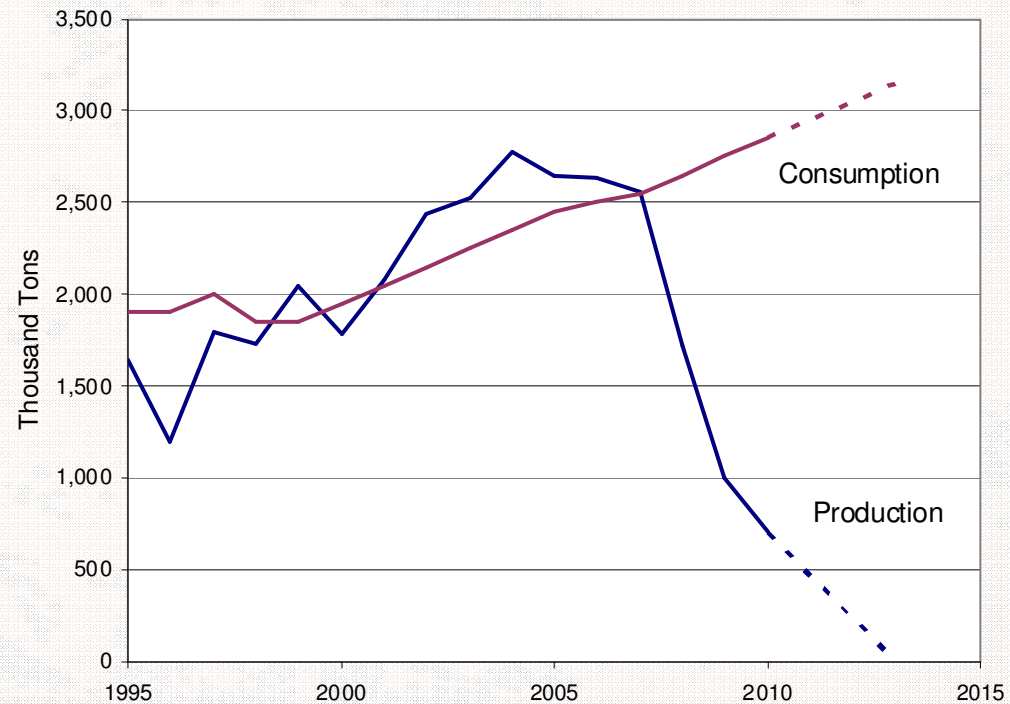
- Past food price spikes were event-driven, typically resolved with next harvest
- 2007-08 spike and the one building in 2010-11 are trend-driven
- Add in carbon emissions that are raising the global thermostat:
 - Each 1 °C rise above optimum during the growing season drops grain yields 10%
 - Melting mountain glaciers mean falling harvests in Asia
 - Rising sea level will inundate rice-growing river deltas

The world is only one poor harvest away from chaos in world grain markets.

When A Bubble Bursts: Saudi Arabia

- Became self-sufficient in wheat by tapping a non-replenishable aquifer to irrigate the desert
- In early 2008, announced the aquifer was largely depleted
- Population of nearly 30 million could be entirely dependent on imported grain by 2013

Wheat Production and Consumption in Saudi Arabia, 1995-2010, with Projection to 2013



Source: USDA; EPI

Water-Based Food Bubbles

Saudi Arabia is the first country to publicly project how overpumping will shrink its grain harvest, but millions of people around the world are fed by overpumping aquifers.

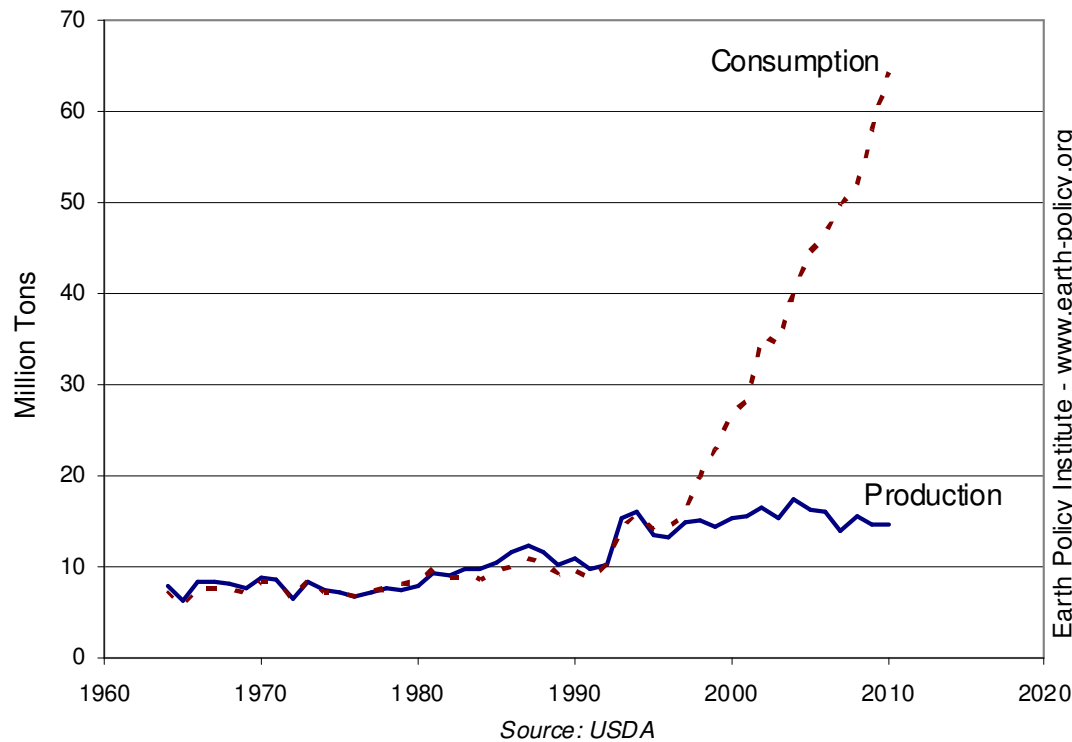
Countries Overpumping Aquifers in 2010

<u>Country</u>	<u>Population</u> Millions
Afghanistan	29
China	1,354
India	1,214
Iran	75
Iraq	31
Israel	7
Jordan	6
Lebanon	4
Mexico	111
Morocco	32
Pakistan	185
Saudi Arabia	26
South Korea	49
Spain	45
Syria	23
Tunisia	10
United States	318
Yemen	24
<u>Total</u>	<u>3,545</u>

Source: EPI with population data from UNPop

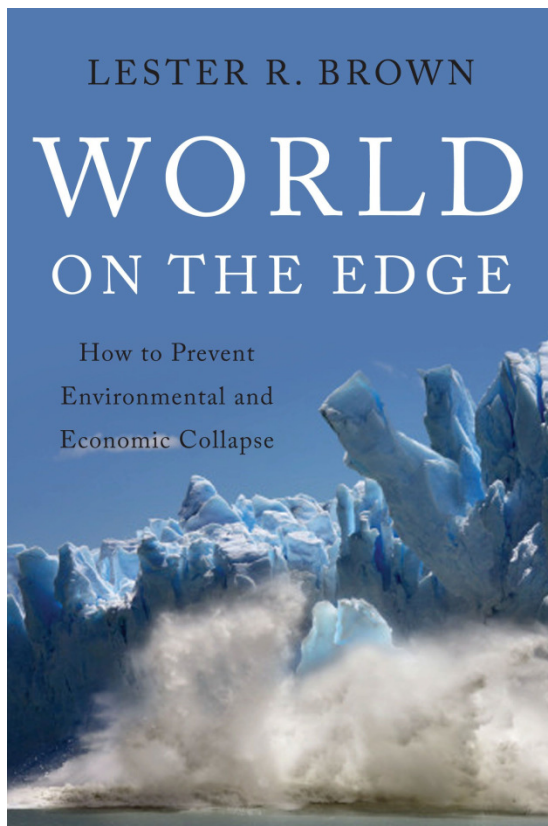
Will China's Food Bubble Be Next?

Soybean Production and Consumption in China, 1964-2010



- 130 million Chinese people are fed with grain produced by overpumping groundwater
- Vast amounts of cropland being paved for fast-growing auto fleet
- China gave the world the soybean; now imports 4/5 of the soybeans it consumes, largely to feed livestock
- Long self-sufficient in grain, China has begun to import wheat and corn within the last year

If China comes into the world market for grain in a major way, as it has for soybeans, it will turn to the United States, the world's largest grain exporter. American consumers will be competing with 1.4 billion Chinese for the U.S. harvest.



Learn how the world can address its food bubble and prevent environmental and economic collapse in *World On the Edge*.

For more information, including supporting data and a free download of the book, visit

www.earth-policy.org/books/wote