

21 Oct. 2009

Ending Hunger in Our Lifetime

2003
(Runge, Senauer, Pardey & Rosegrant)

Summary presentation
(of Chapter 3)
by Paul Porter

Ending Hunger in Our Lifetime

An attempt to examine global food markets and hunger to the year 2025.

What is the influence of increasing land and water scarcity on the sustainability of food production and prices?

Surge in grain production and rise in meat consumption.

Increasingly important role of international trade.

- Developed countries quadrupled net cereal exports between 1970 and 1990.
- Fueled by government subsidies.

Livestock now consume a growing share of cereals.

- Developing countries annual meat consumption: 11 to 24 kg/person from 1967 to 1997.
- Yet developing countries consume 1/3 as much meat per person as developed countries.

“Food insecurity has remained not because of shortfalls in production, but because of the poverty and access limitations...”

“It would be wrong to conclude that an adequate supply of food and feed is assured.”

“Without increased productivity, food prices will escalate beyond the reach of the poor, and hunger will persist...”

“An underlying factor of special concern is the growing shortage of water.”

“The demand for irrigation water in developing countries is forecast to rise 13.4% by 2025, but actual available water will rise by only 4.4%.”

“...Given these constraints, developing countries will frequently be unable to meet cereal demands from their own production, increasing their reliance on international trade...”

The World's Population

Population	Year	Years to add a billion
1 billion	~1804	--
2 billion	1927	123
3 billion	1960	33
4 billion	1974	14
5 billion	1987	13
6 billion	1999	12
7 billion	2011	12
8 billion	2025	14

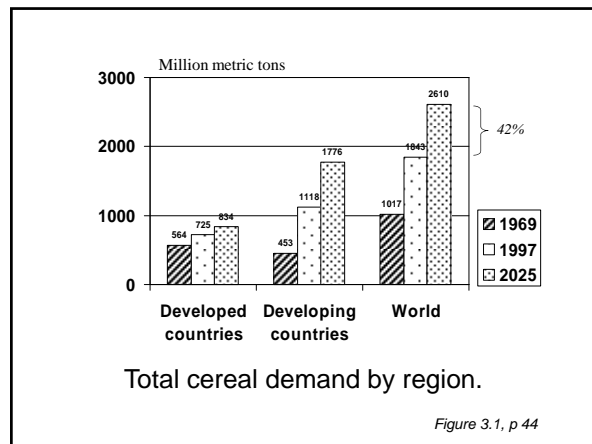
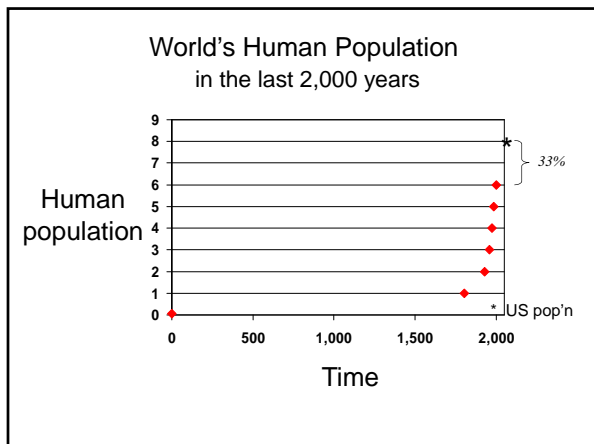


Figure 3.1, p 44

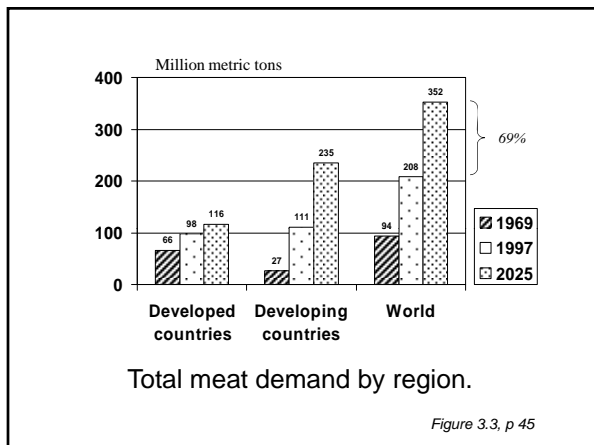


Figure 3.3, p 45

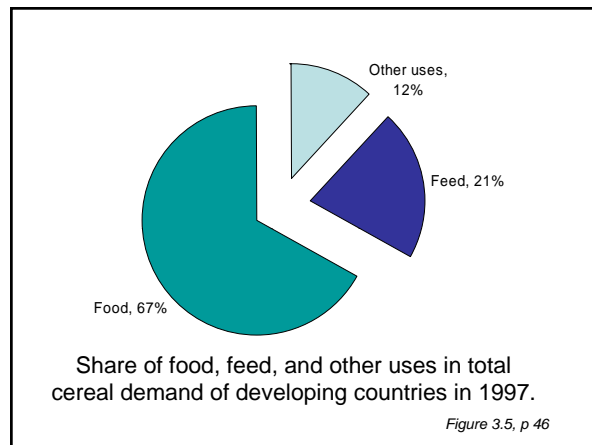


Figure 3.5, p 46

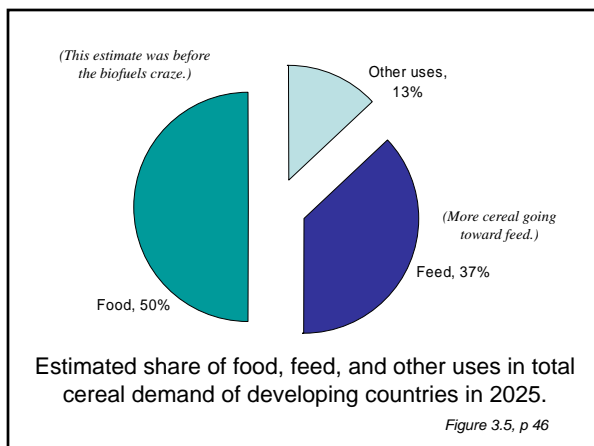


Figure 3.5, p 46

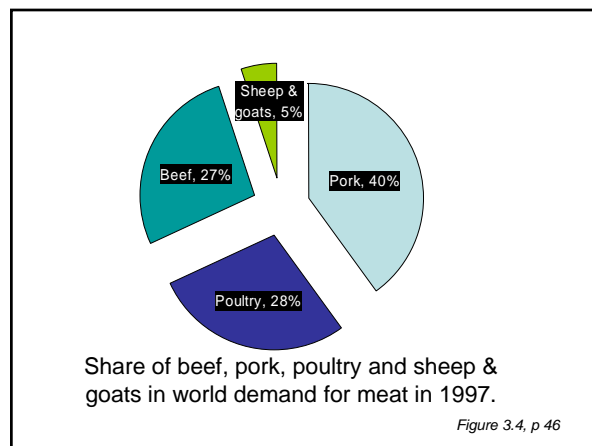
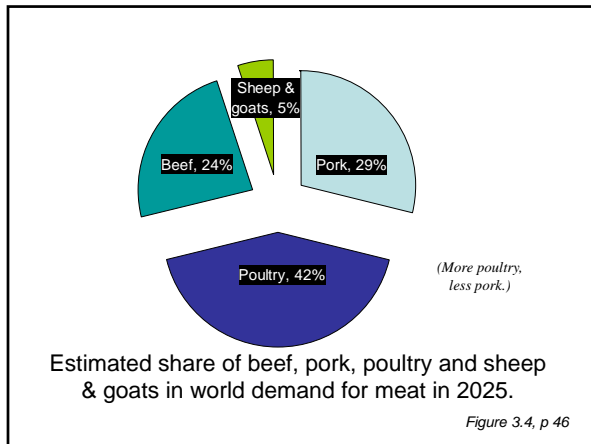


Figure 3.4, p 46



What if the efforts to end hunger falter?
The picture in Africa

- Political turmoil
- Calorie consumption would fall (11%)
- Malnutrition would be catastrophic

“... Africa's fate is also a larger, shared responsibility, related to trade, aid, and investment decisions in the rich countries of the North.”

What if?
The Asian picture

China and India -> 1/3 of world's pop'n

A need to rely on food imports...

People or Livestock?

Reduced meat consumption won't have that big an impact on the hungry.

Can productivity gains
starve off hunger?

“The overall conclusion is that the price of food in 2025 is especially sensitive to the rates of crop yield growth – or lack thereof – from investments in ag research, irrigation, and environmental protection.”

Water – a dwindling resource.

It is generally accepted that water scarcity “is the most serious environmental constraint on global agriculture production in the future.”

Consequences of climate change.

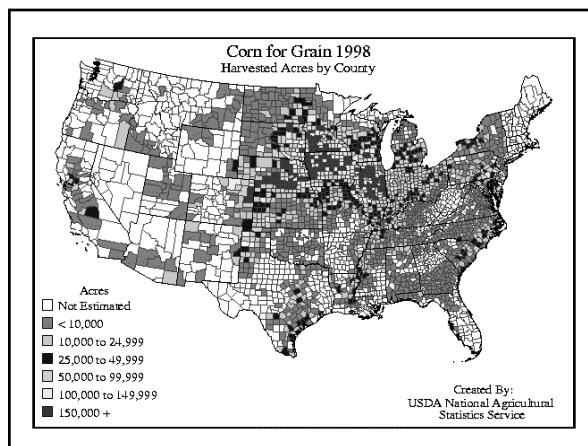
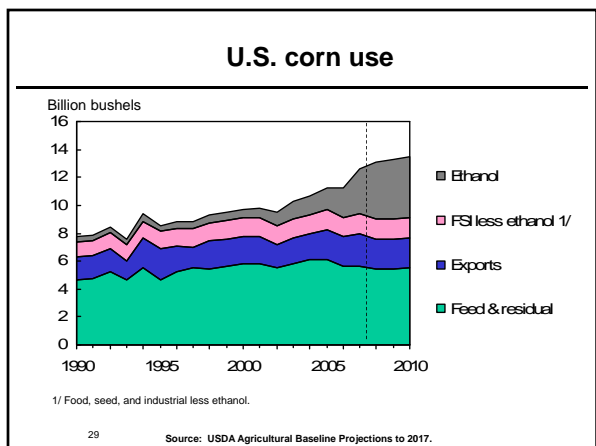
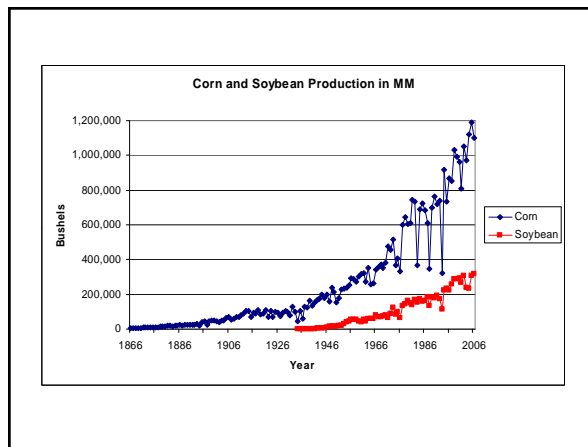
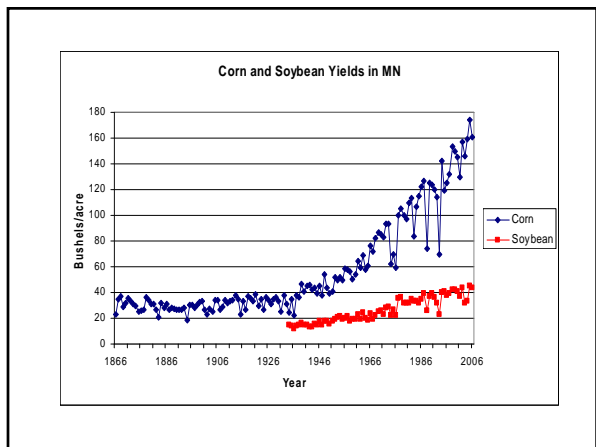
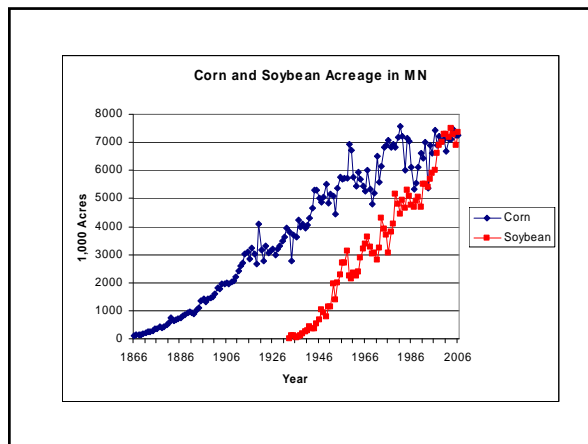
As of 1996 no consensus on the effects.....

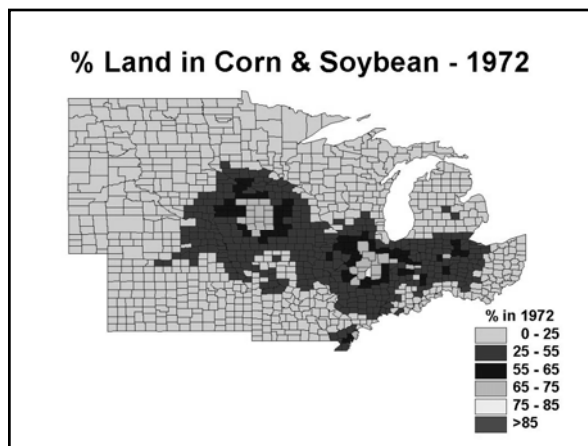
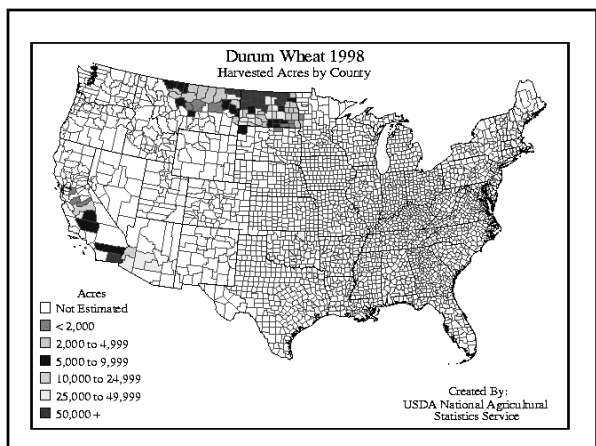
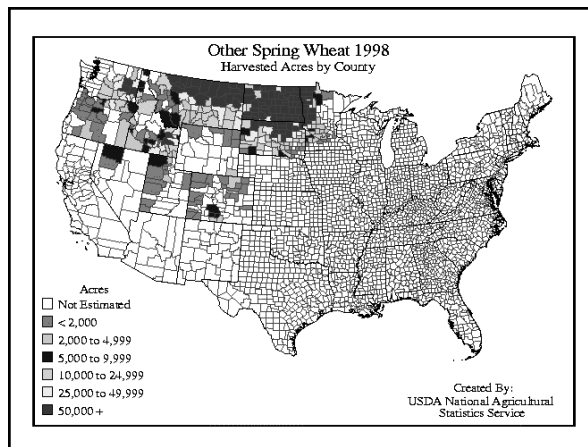
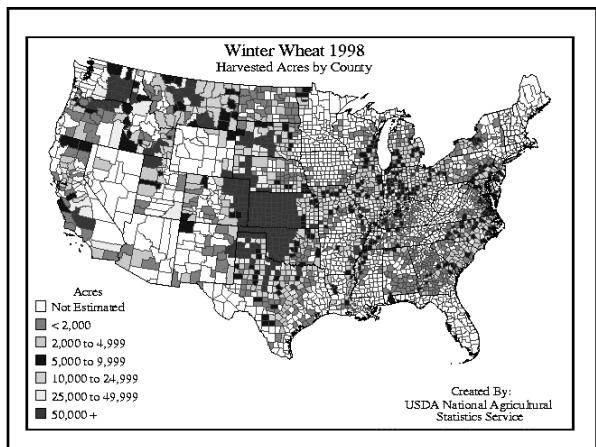
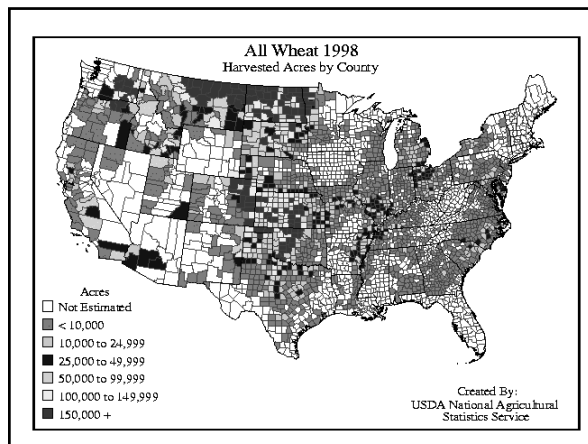
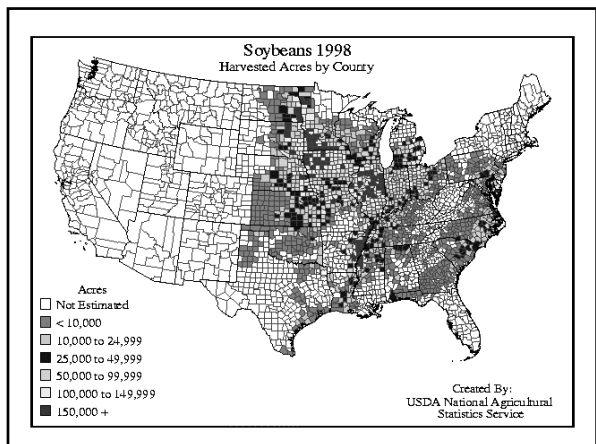
Tim Flannery. *Now or Never...*

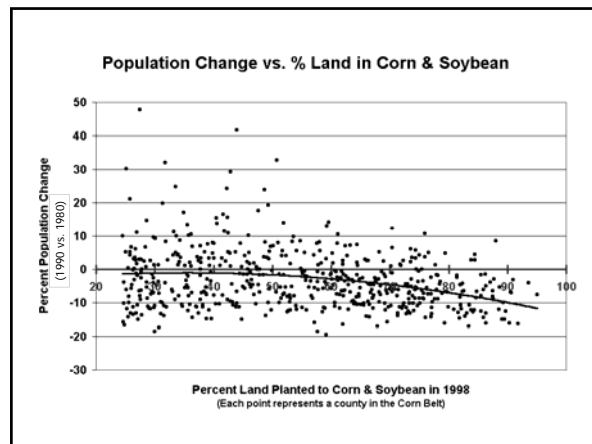
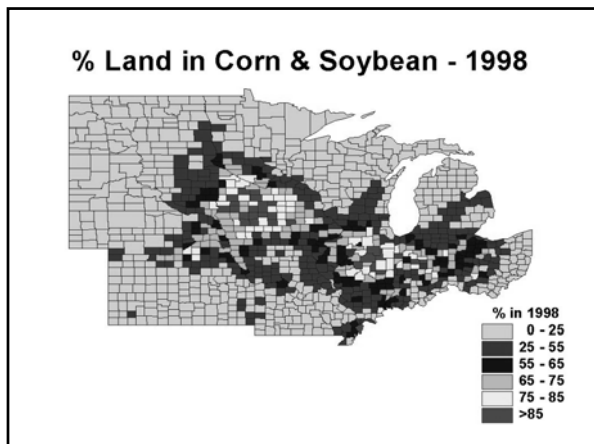
The role of trade.

Most governments intervene to promote domestic food production, to lower domestic food prices, or to limit imports.

	Corn	Soybeans
Seed composition		
% oil	5	20
% protein	10	35
% carbohydrate	81	25
Biofuel	Ethanol mix with gas	Biodiesel as diesel
1 st use in U.S.	American Indians	~1950s
What is a 'combine'?	What does it combine?	







The Corn-Soybean Rotation: A “Tragedy of the Commons”?

**Rational decisions, when taken individually,
 may become collectively irrational, similar to
 the concept of the “tragedy of the commons.”¹**

¹Garrett Hardin “The Tragedy of the Commons” *Science* 162, p1243 (1968), and “Extensions of The Tragedy of the Commons” *Science* 280, p682 (1998).

The Corn-Soybean Rotation

**At some point the increased dependence on the
 corn-soybean rotation may become a liability,
 not an asset.**

**We may find that what works effectively for
 the individual farmer may cease to work
 effectively when most all farmers in a region
 come to rely on it.**