



Feeding a Hungry World

*Opportunity and Obligation
For U.S. Agriculture*

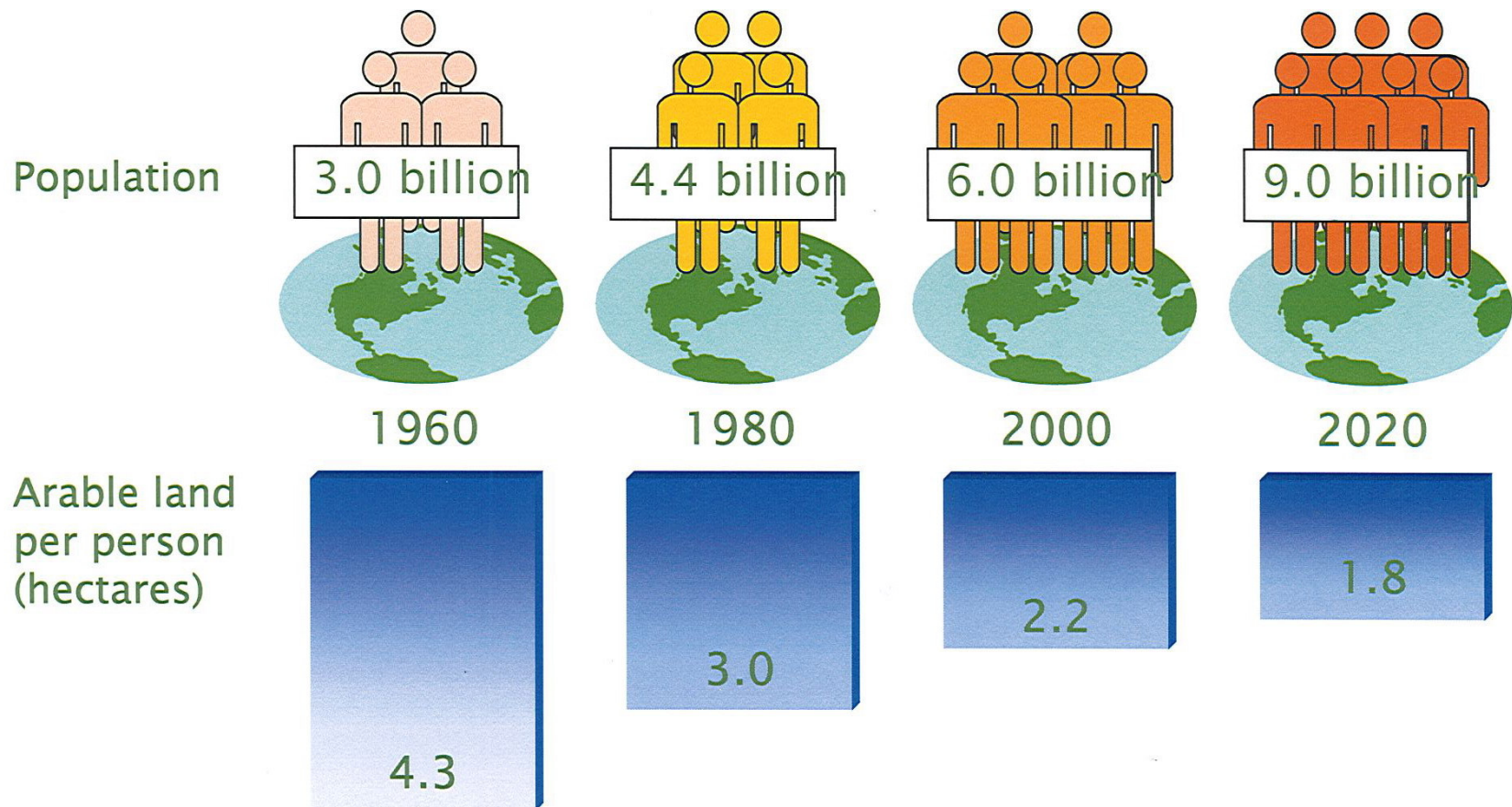
Douglas Nelson

Executive Vice President, General Counsel
and Secretary

October 6, 2009



Feed 2X People Using Same Land Area



Source: Situationsbericht 2004

Productivity and Sustainability

- World population is projected to grow from 6.8 billion to more than 9 billion by 2050
- Global food production will have to increase by 70% by 2050 to meet increased need

Source: United Nations Food and Agricultural Organization

Productivity and Sustainability

Need for 70% increase in food production

Finite global land and water resources

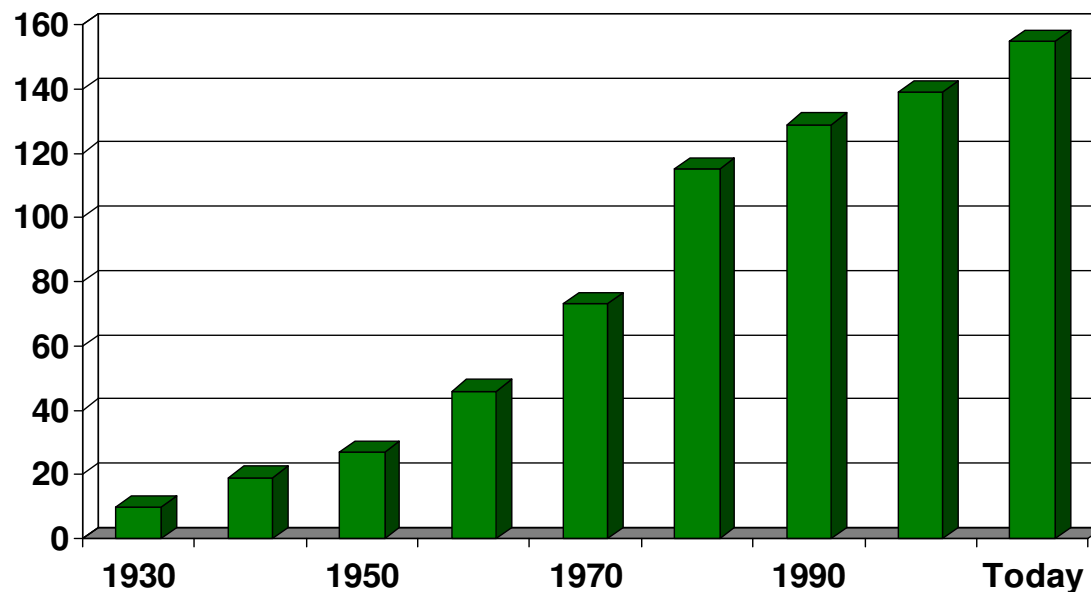
90% of growth in crop production will come from increased yields and cropping intensity

*Source: United Nations
Food and Agricultural Organization*



U.S. Agriculture Track Record

**Number of People Fed
Per U.S. Farmer**



American Farm Bureau Federation

**In 1930, the
average U.S.
farmer fed
10 people.**

**Today, that
number is 155.**



U.S. Agriculture Track Record



- **Corn yields**

- 1930 – 20 bushels/acre
- 1960 – 55 bushels/acre
- Today – 162 bushels/acre (est.)

- **Wheat yields**

- 1930 – 14 bushels/acre
- 1960 – 26 bushels/acre
- Today – 45 bushels/acre

- **Per-cow milk production**

- 1930 – 4,500 lbs./cow
- 1960 – 7,030 lbs./cow
- Today – 20,450 lbs./cow

U.S. Ag Productivity Drivers

- The adoption of modern business and management practices on the farm
- The application of safe, proven agricultural technologies



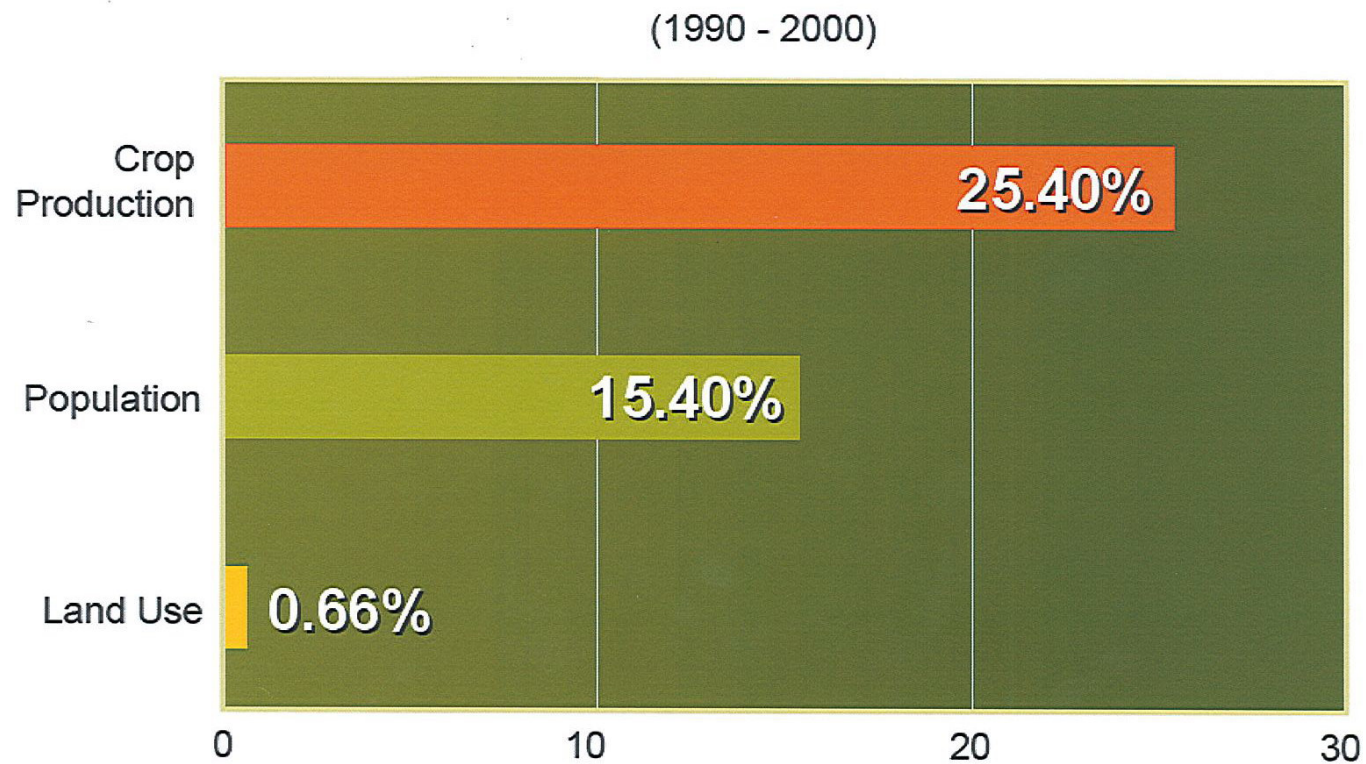
Proven Results

The adoption of modern business practices and advancing science and technology have made agriculture more productive ...

and resulted in more environmentally friendly and sustainable production practices.



Crop Productivity Increases



Source: FAO Stat 2004

Productivity and Sustainability



“Without the increased yields in cereal grains that were realized between 1950 and 2000, we would have had to put an additional 1.2 billion hectares (3 billion acres) into production to achieve the 2000 harvest.”

Dr. Norman Borlaug
2007 Congressional Gold Medal
Acceptance Speech



Before the Use of Insecticides and Fungicides (1850s)

- 50% of U.S. crop production consumed by insects.
- 75% of fruit crops rotted in orchards.
- Fields were abandoned.
- Fruits and vegetables in the markets were diseased and insect-damaged.

Apple: Codling Moth



By 1904, all commercial apples sprayed

Blueberry Maggot



**In the 1920s the FDA seized cans
because of maggots**

Without Insecticides, U.S. Crop Production Would be Much Lower

Crop	% Reduction	Billion Pounds
Apples	- 93	9.2
Oranges	- 61	9.0
Peaches	- 54	1.0
Peanuts	- 50	1.9
Potatoes	- 29	11.9
Tomatoes	- 52	13.4

Grower Income Benefits: Fungicide Use

- Growers gain \$15 in income for every \$1 spent on Fungicides

Rise of Organic Agriculture

- For the past 10 years, one of the big agricultural “stories” has been the rise of organic farms. The press often refers to organic foods as having been grown without the use of pesticides but the reality is ...
- Organic farmers use insecticides and fungicides too.

Organic Apple Production: Northeastern U.S.



Apple Scab


Rutgers

Lime Sulfur

- 10 gallons/acre

Wettable Sulfur

- 12 pounds/acre



Herbicide use has
contributed substantially
to increased crop
production in the US.



The Buried Menace



Each acre of U.S. cropland contains **50 to 300** million buried weed seeds.

Millions of people killed weeds in U.S. fields into the 1950's.



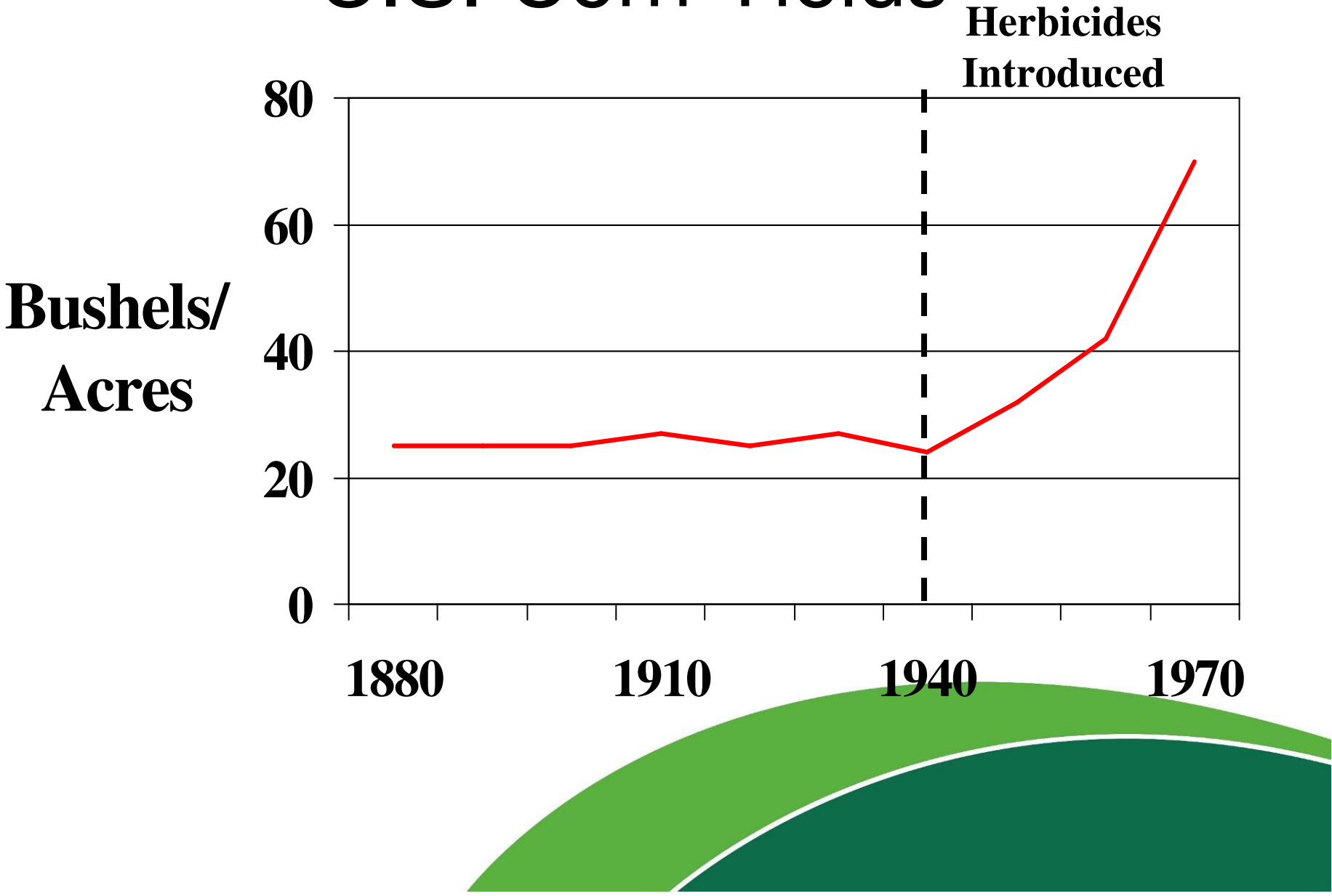
Carrot Yields Reduced 70%

Zero Weed
Competition

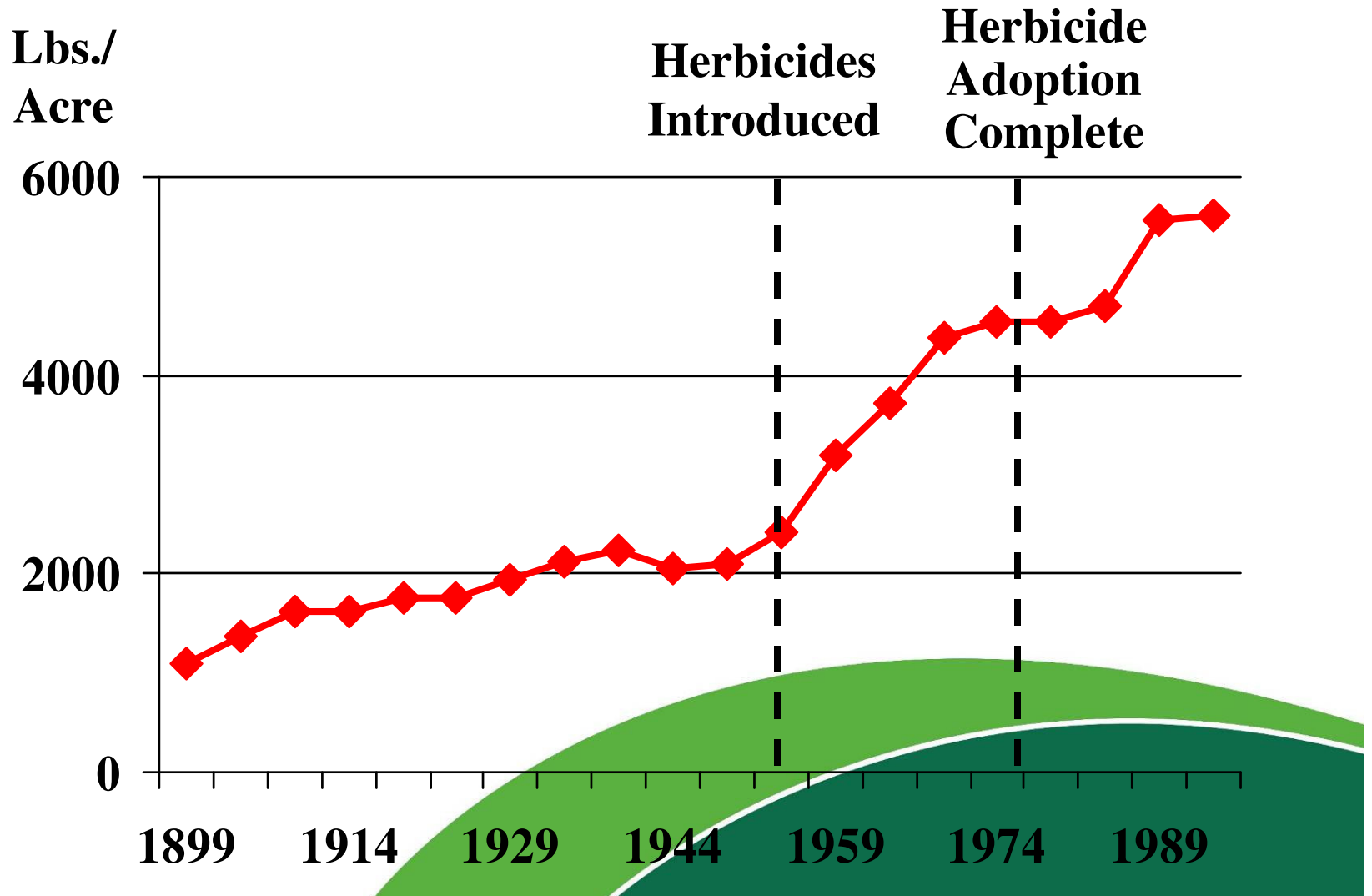
Season Long
Weed Competition



U.S. Corn Yields



U.S. Rice Yields

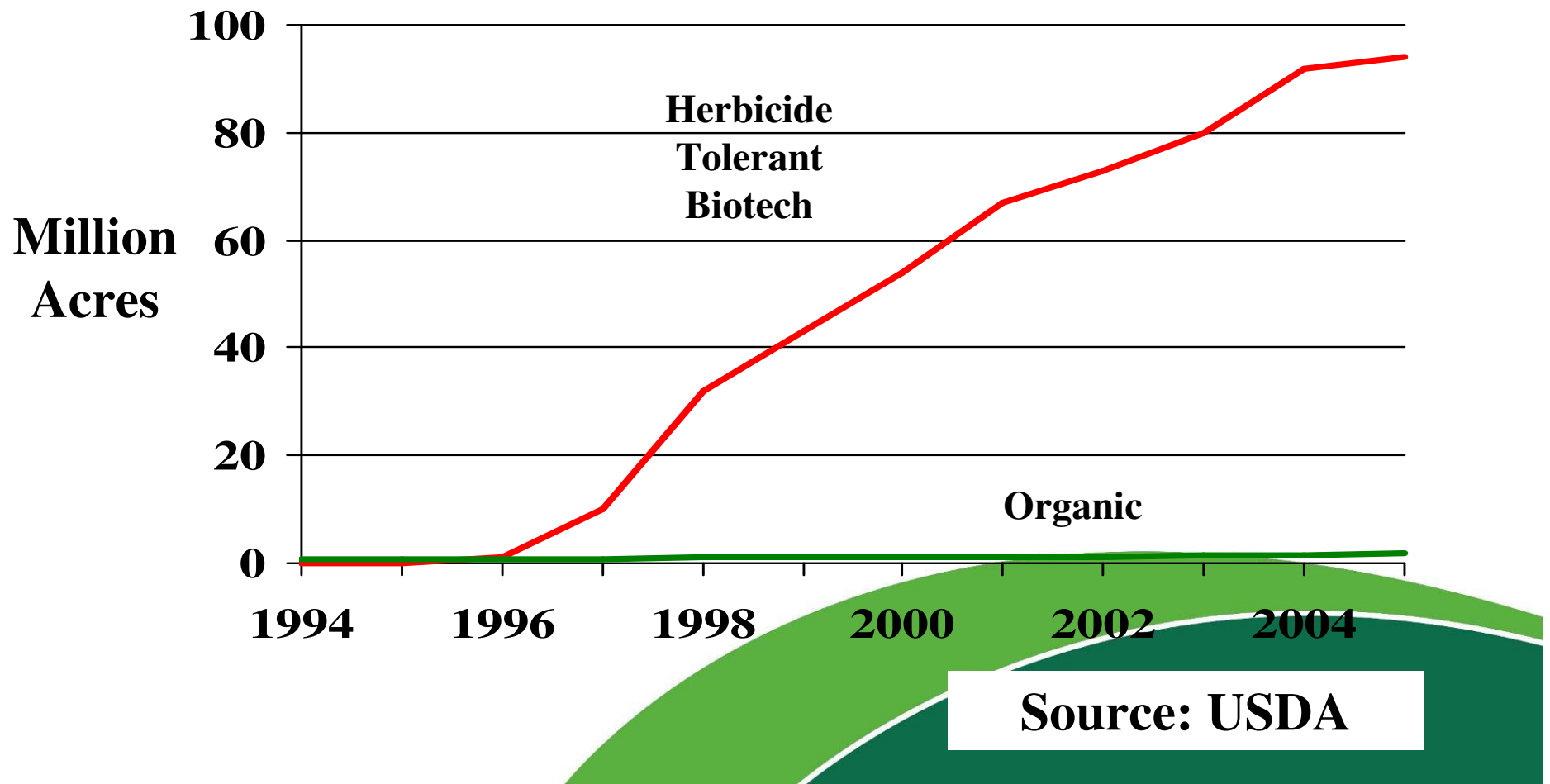


Rice Yields and Herbicides: Land Conservation

- Rice yields doubled with herbicides.
- To maintain rice production without herbicides, twice as many acres would need to be planted.



U.S. Crop Acreage



Conclusion

