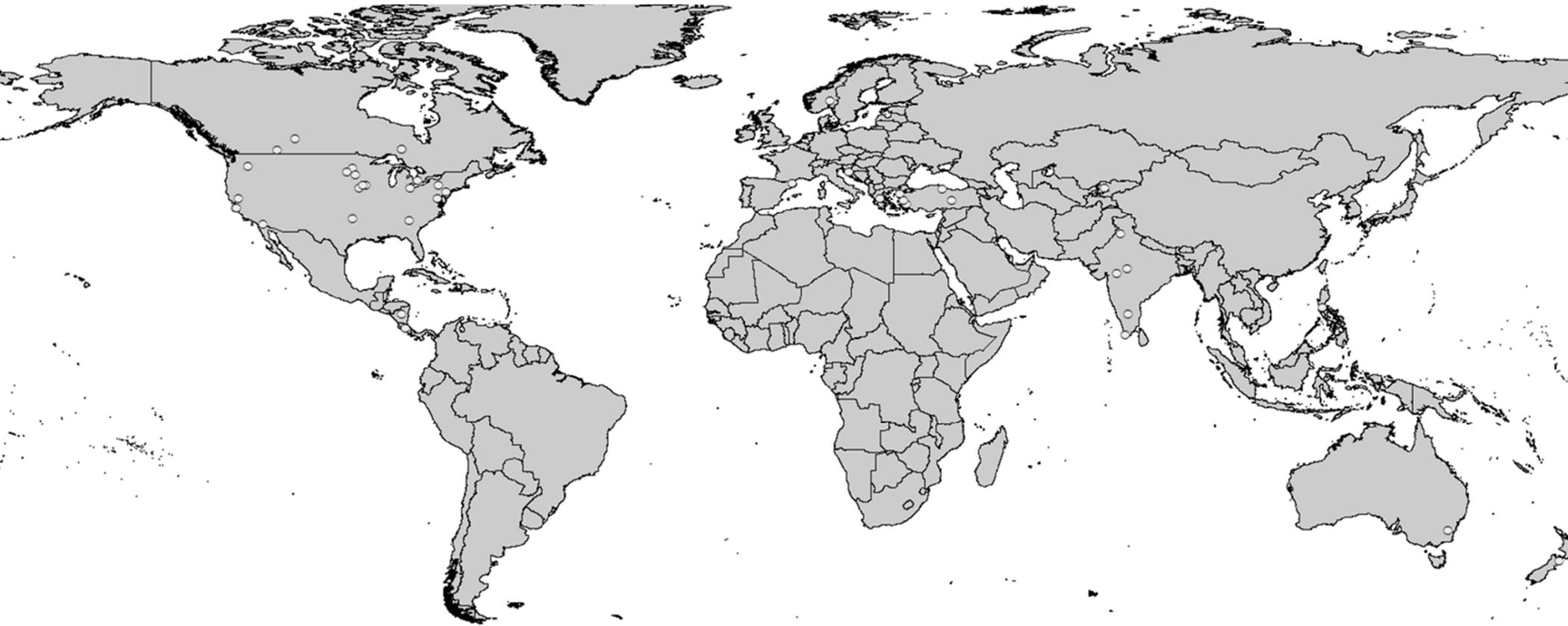


Organic Profitability Around the World



John Reganold
Regents Professor of Soil Science & Agroecology
Washington State University

Overview

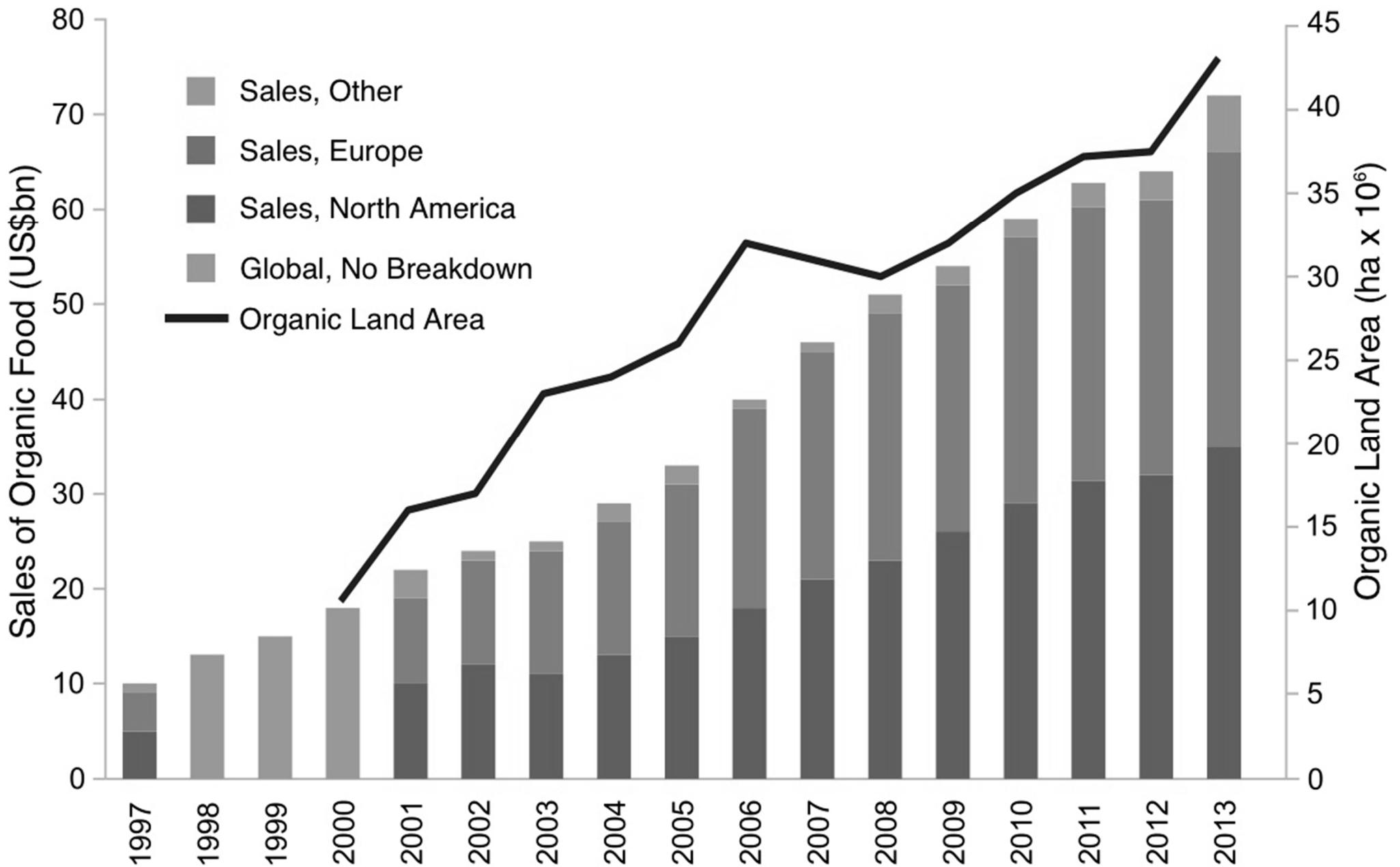
- ◆ **Financial performance of organic and conventional farming**
- ◆ **Beyond economics: How sustainable is organics?**
- ◆ **Future of Organic Farming**



Size of Organics in U.S.

- **Organic food and beverage sales have grown between 5 and 26% each year since 1991.**
- **Total food sales have grown in the range of only 1 to 5% a year since 1991.**
- **Organic food and beverage sales in 2015 represented almost 5% of U.S. food and beverage sales (up from 0.8% in 1997).**





Annual Global Market for Organic Foods and Land Area of Organic Production

Global Meta-analysis: Comparing Apples with Oranges

- **The financial performance of organic and conventional agriculture was examined in a meta-analysis of a global dataset spanning 55 crops grown on five continents over 40 years**
- **How the study evolved**
- **Kinds of crops examined and countries involved**
- **Strengths and weaknesses of a meta-analysis**

(Crowder and Reganold, *PNAS*, 2015)

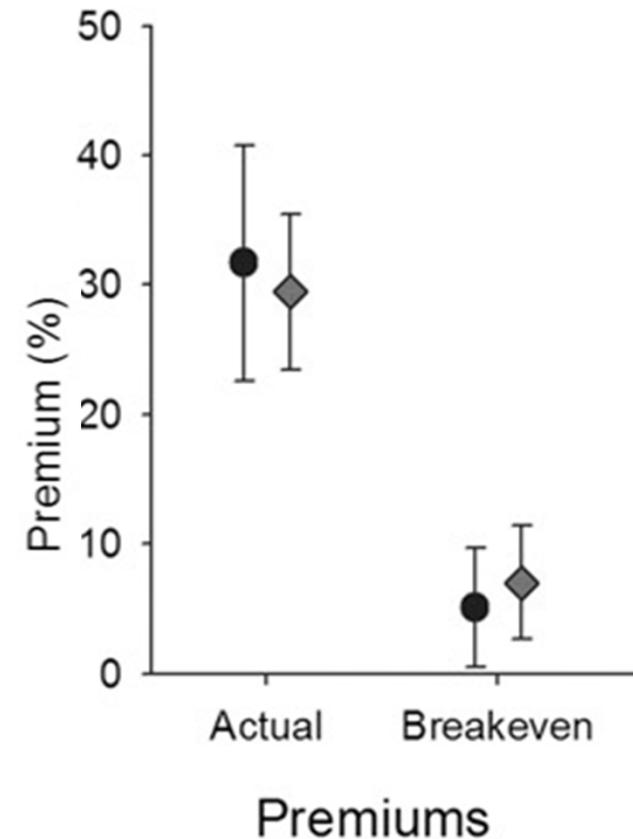
Economic Performance

- **Under actual conditions with price premiums, organic agriculture was significantly more profitable (22 to 35% greater net present values) and had higher benefit/cost ratios (20 to 24%) than conventional agriculture.**
- **When organic premiums were taken away, net present values (-27 to -23%) and benefit/cost ratios (-8 to -7%) of organic agriculture were significantly lower than conventional agriculture.**

(Crowder and Reganold, *PNAS*, 2015)

Economic Performance

- Although premiums were 29–32%, breakeven premiums necessary for organic profits to match conventional profits were only 5–7%, even with organic yields being 10–18% lower.
- Total costs were not significantly different, but labor costs were significantly higher (7 to 13%) with organic farming practices.
- Profits neither accounted for externalities nor ecosystem services.



(Crowder and Reganold, *PNAS*, 2015)

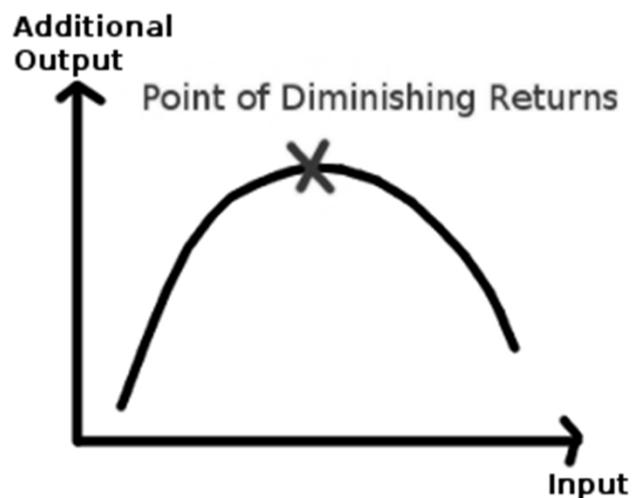
Externalities

- **Few economic studies have accounted for negative externalities (environmental costs) or positive externalities (ecosystem services), with associated monetary values, in organic and conventional comparison studies.**
- **Putting a price on the negative externalities caused by farming, such as soil erosion or nitrate leaching into groundwater, would make organic agriculture even more profitable, given that its environmental impact is less than that of conventional agriculture.**
- **One study: A switch to organic production would lower the external costs of agricultural production in the United Kingdom by 75%, from £1,514 million per year to £385 million per year.**

Ecosystem Services

- **Ecosystem services are the many life-sustaining benefits we (humans) receive from nature—clean air and water, fertile soil for crop production, pollination, and flood control.**
- **Agricultural ecosystem services include, for example, predatory beetles and parasitic wasps providing biological control of insect pests, or soil biota providing nutrient cycling.**
- **The few studies done generally show that organic practices increase the ability of farms to provide some economically significant ecosystem services relative to conventional practices.**
- **Factoring in such differences in economic comparison studies would likely make up for price premiums awarded to organic products.**

Economic Performance



- **Transitioning to organics can be economically challenging and more information intensive.**
- **After transition, the net return per acre for organic compared to conventional farms is generally higher because of good yields and price premiums.**
- **Net returns do not account for externalities or ecosystem services.**

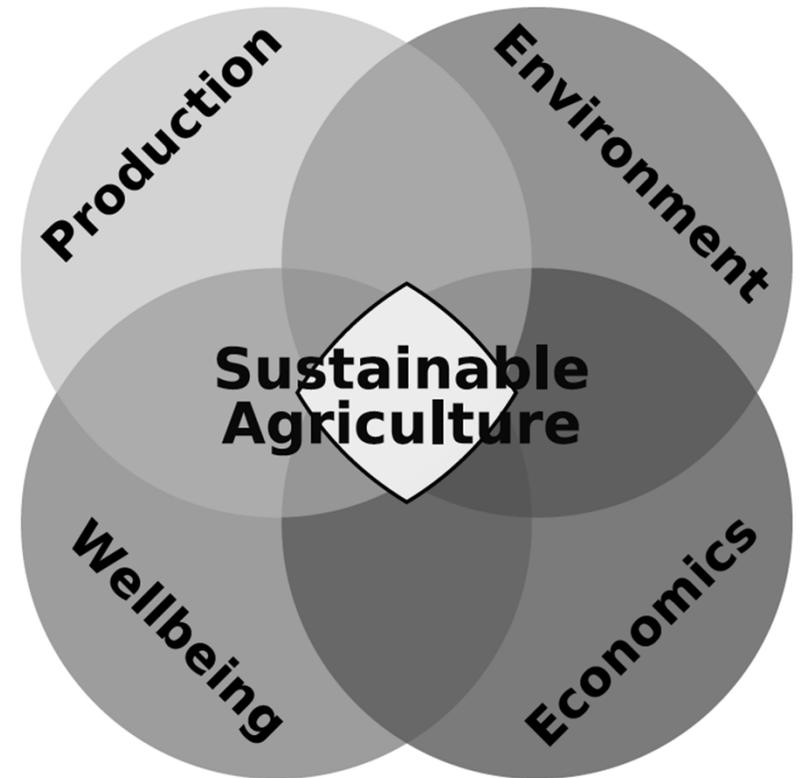
Economic viability is only one of the four main goals of agricultural sustainability.



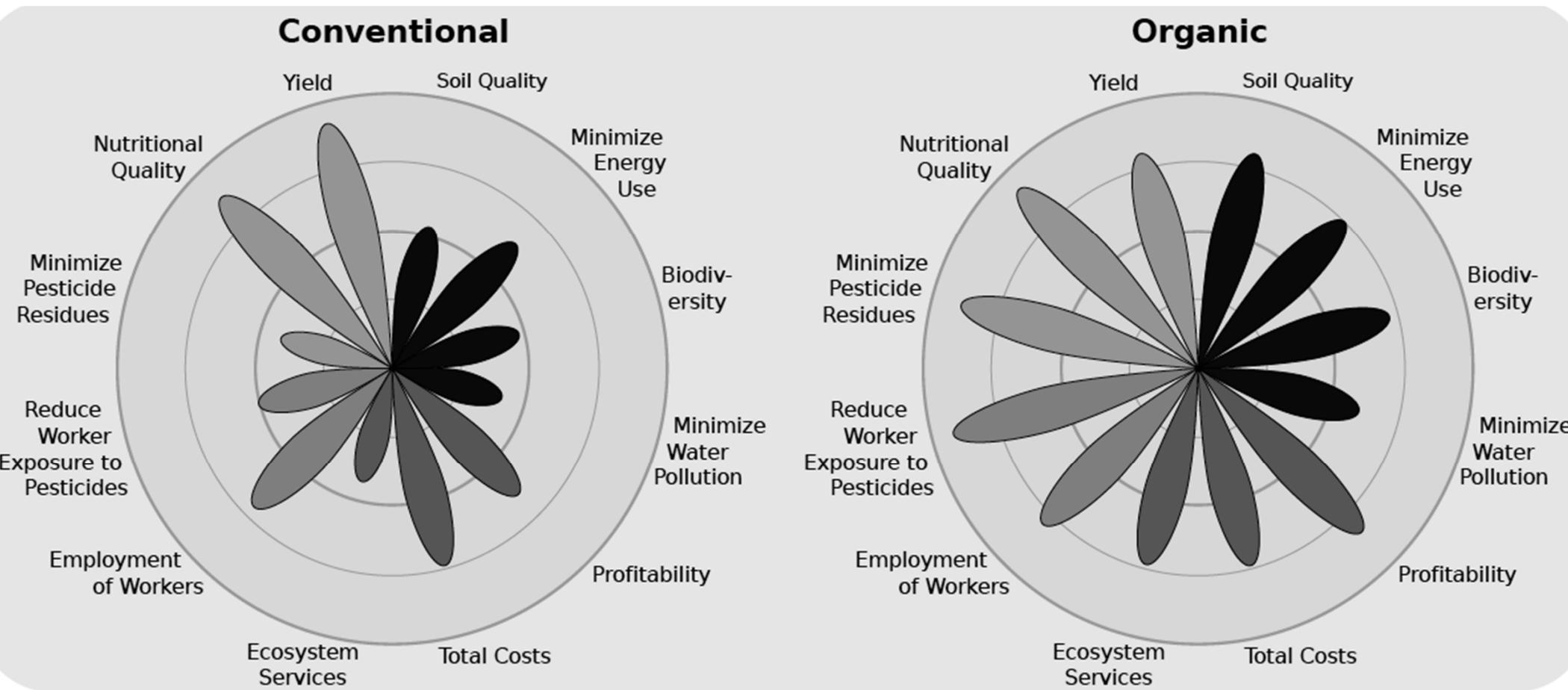
Indicators of Sustainable Farming

- ◆ **Economically Viable**
- ◆ **Adequate Yields of High Quality**
- ◆ **Environmentally Safe**
- ◆ **Socially Responsible**

For any farm to be sustainable, whether it be conventional or alternative, it must meet each and every one of the four sustainability criteria.



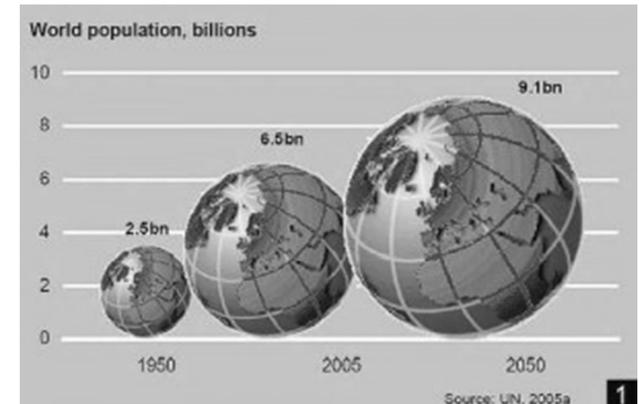
Assessment of Organic Farming relative to Conventional Farming in the Four Major Areas of Sustainability



(Reganold & Wachter, *Nature Plants*, 2016)

Future of Organic Farming

Can organic farming systems play a significant role in feeding the human population?



Yes. And so can other innovative farming systems, such as conservation agriculture, integrated, mixed farming, and alternative livestock systems.

These other innovative farming systems share common practices and values with organic farming, such as rotating crops, protecting soil and water, and maintaining rural communities.

Transforming Global Agriculture

***The mounting environmental, economic, and social impacts of conventional agriculture call for a transformation of agriculture to more innovative farming systems.**

***Such innovative systems exist but are not widespread. We need the diversity of all of these innovative systems.**



Organic Positives

***Organic farming has room for growth: From 1% of the cropland today being organic to 10 to 20% by 2050.**

***Research has shown that organic farming can grow abundant and affordable food while protecting the environment, helping farm finances, and contributing to the well-being of farmers and farm workers.**

***Consumers are seeking out organic and alternatively grown foods at grocery stores and farmers' markets.**



Challenges

***Incentives for appropriate markets, reform of farm-related policies, and reorientation of publicly funded agricultural science are needed to accelerate implementation of more organic and other innovative farming systems.**

***Lower yield is less of an issue if society can learn to take into account the other three attributes of organic and other innovative farming systems: Enhancing economic, social, and environmental sustainability.**



"I assure you the animals didn't suffer.
All of our meat comes from animals who died
naturally of old age while vacationing in Miami."
© T. McCracken mchumor.com