

The Future is Here: The View from U.S. Soybean Fields.

What does this mean, how do we
get to long term sustainability and
resilience?

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Long-term Resilience and Sustainability:

How Do We Get There?

How do we feed 9 billion people while dealing with:

- **Changing weather patterns**
- **Diminishing natural resources**
- **Environmental impacts**

Where are we going and how do we get there?

- **Destination depends on perspective**
 - What is resilient?
 - What is sustainable?
 - Who defines the destination?



Where are we going and how do we get there?

- **Proper path?**
 - Will practices and management systems be prescribed or mandated?
 - Will farmers have freedom to innovate?
 - Will environmental regulations or demand for farm products govern production?



Agriculture Needs to Define the Destination and Pathway

- **Research to define what is truly sustainable**
 - Environmentally
 - Socially
 - Economically
- **USB-funded Research to Identify BMPs**



USB STUDIES IMPACT OF CROP ROTATION ON SOIL HEALTH



- Evaluating tillage and residue management impacts on soil flora and fauna biodiversity
- Impact of soybean rotation with grain crops on soil health



IRRIGATION MANAGEMENT

USB is funding irrigation management research and extension activities to improve irrigation effectiveness and efficiency



HERBICIDE RESISTANCE MANAGEMENT

- USB is funding research to identify best management practices to control glyphosate-resistant pigweeds
- USB has also developed the *Take Action* program to help farmers prevent the development of herbicide-resistant weed populations



POLLINATOR HEALTH

- USB is funding research to determine the benefit of honeybees to soybean pollination
- Project is also looking at the nutritional benefits that bees derive from soybean pollen and nectar



Agriculture Needs to Define the Destination and Pathway

Soy Sustainability Protocol

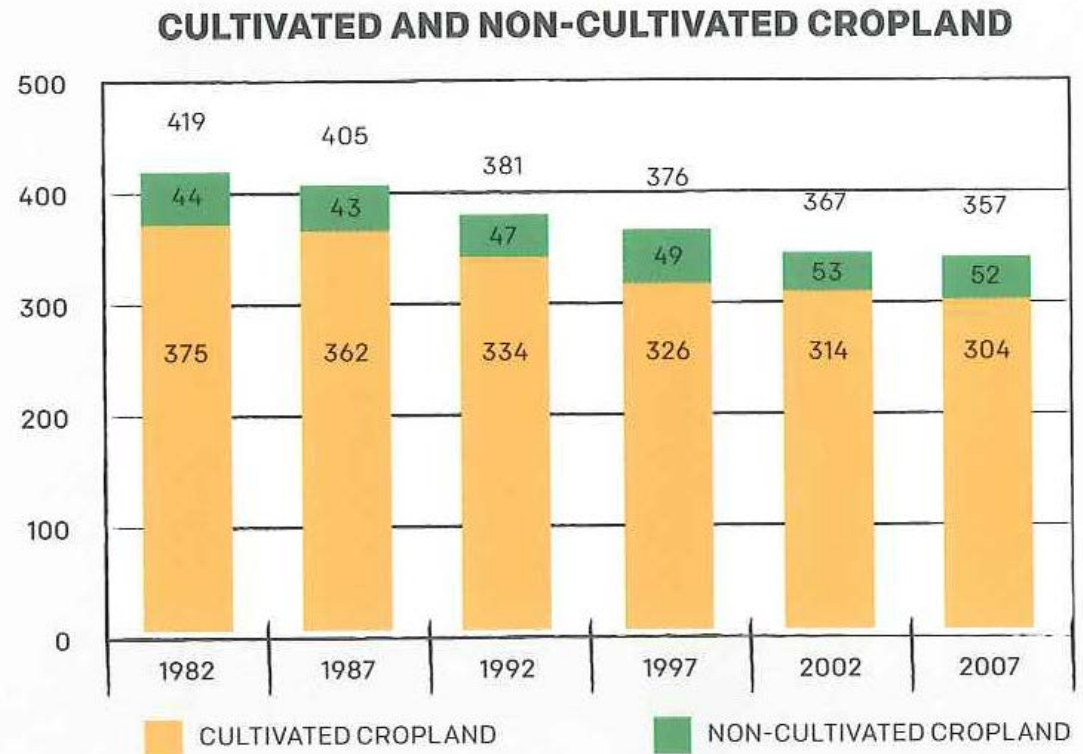
- Biodiversity and high carbon stock production control measures and regulations
- Production practices, control measures and regulations
- Public and labor health and welfare control measures and regulations
- Continuous improvement of production practices and environmental protection control measures and regulations



Biodiversity and High Carbon Stock Production Control Measures and Regulations

10% of available U.S.
cropland is taken out of
production to protect
sensitive areas

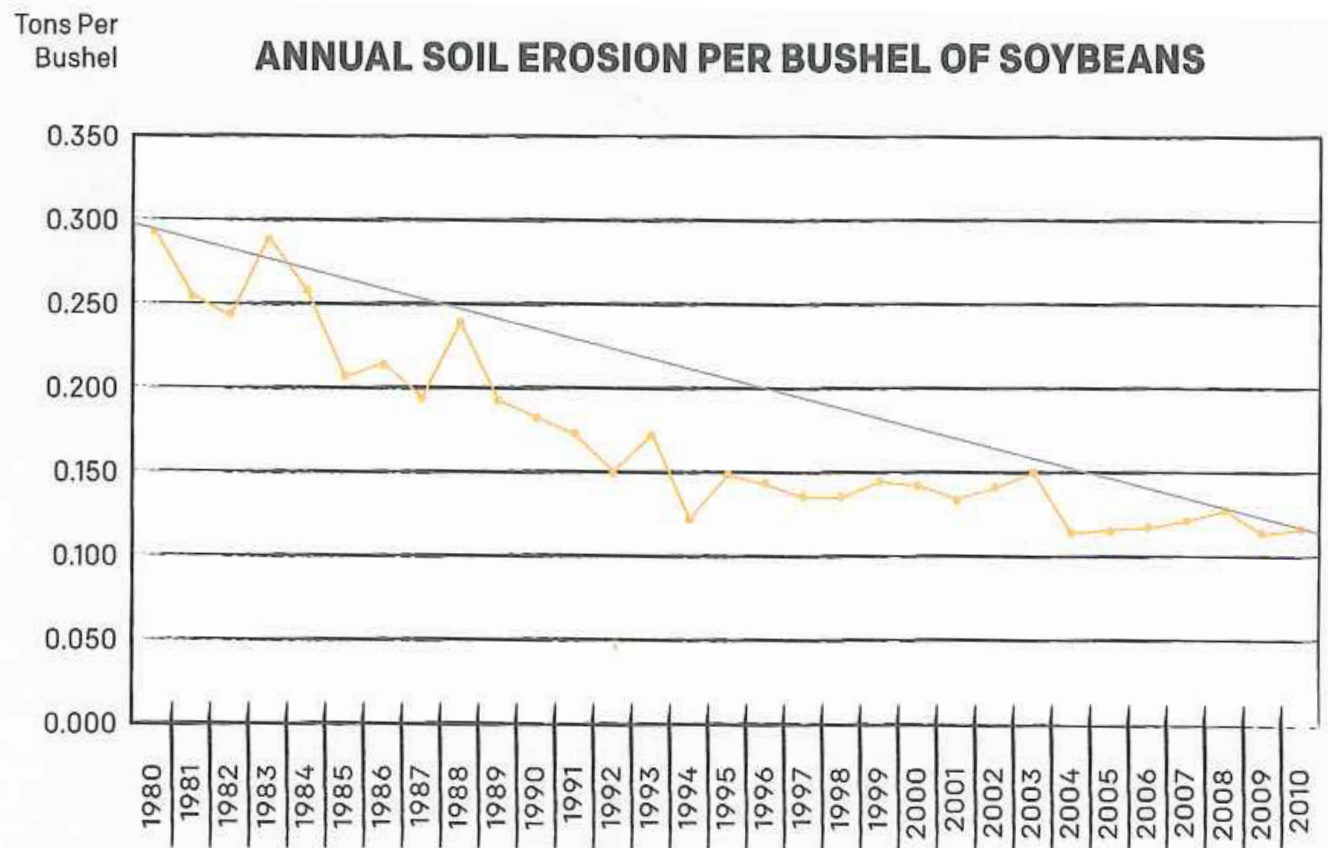
USDA commits over
\$6.5 billion annually in
conservation funding



Production Practices, Control Measures and Regulations

Soil erosion decreased by 66% per tonne of soy production since 1980.

Since 1980 soy production has increased by 96% with 8% less energy use.

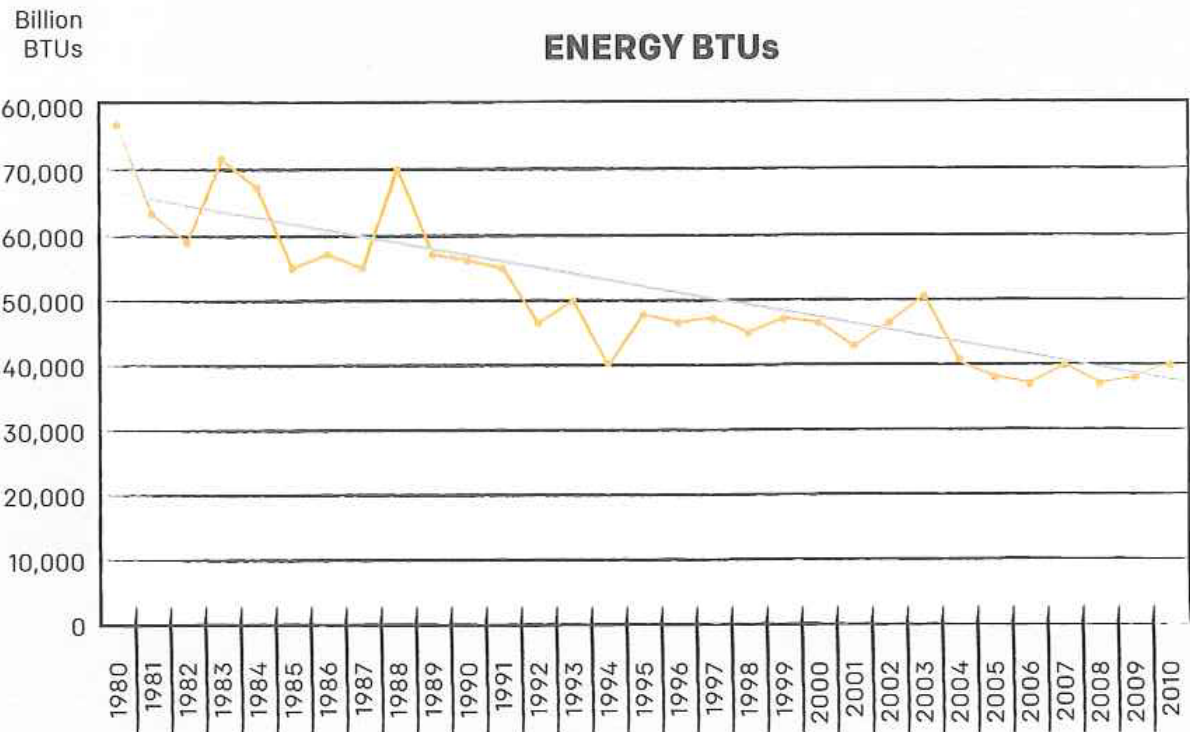


Continuous Improvement of Production Practices and Environmental Protection Control Measures

Energy use has decreased 42% per tonne of U.S. soybean production since 1980.

Greenhouse gas emissions have decreased 41% per tonne of U.S. soybean production since 1980.

91% of U.S. soy travels to export position by barge or rail.



How the Soy Sustainability Assurance Protocol Works

- Annual Internal Audit by Producers
- Third Party Independent Audits by USDA-FSA
- International Certification
 - Shipment-specific documentation

Documentation of Producer Performance

- Environmental and Socioeconomic Indicators of On-farm Agricultural Production in the U.S.
- Life Cycle Analysis of Soybean Production and Soy Industrial Products



Partners on the Journey

Agriculture Needs to Define the Pathway

But, we need to partner with others to make the journey successful

- **Farmers have always innovated, adapted to change to meet crop demand; but now faster**
 - Need increased focus on research & tech transfer
 - Need to join with non-traditional partners
 - Food brands and grocers, Conservation groups, etc.
 - Need to communicate our vision for resilience and sustainability



EXAMPLES FROM MY FARM

NO-TILL



EXAMPLES FROM MY FARM WATERSHED MANAGEMENT



EXAMPLES FROM MY FARM BIODIVERSITY



Conclusions

- **Agriculture has to be active about resilience and sustainability**
- **Need to define our target, where we are going**
- **Must recruit partners that share our vision and create effective collaborations**





Thank you!