



oklahoma bioenergy center

cultivating the future of renewable energy

SMART SOLUTIONS: APPROPRIATE FOR OKLAHOMA

Presented at:

*Southern Legislative Conference
July 13, 2008*

Presented by:

*Robert Wegener, Deputy Secretary of Energy
State of Oklahoma*

Cellulosic ethanol



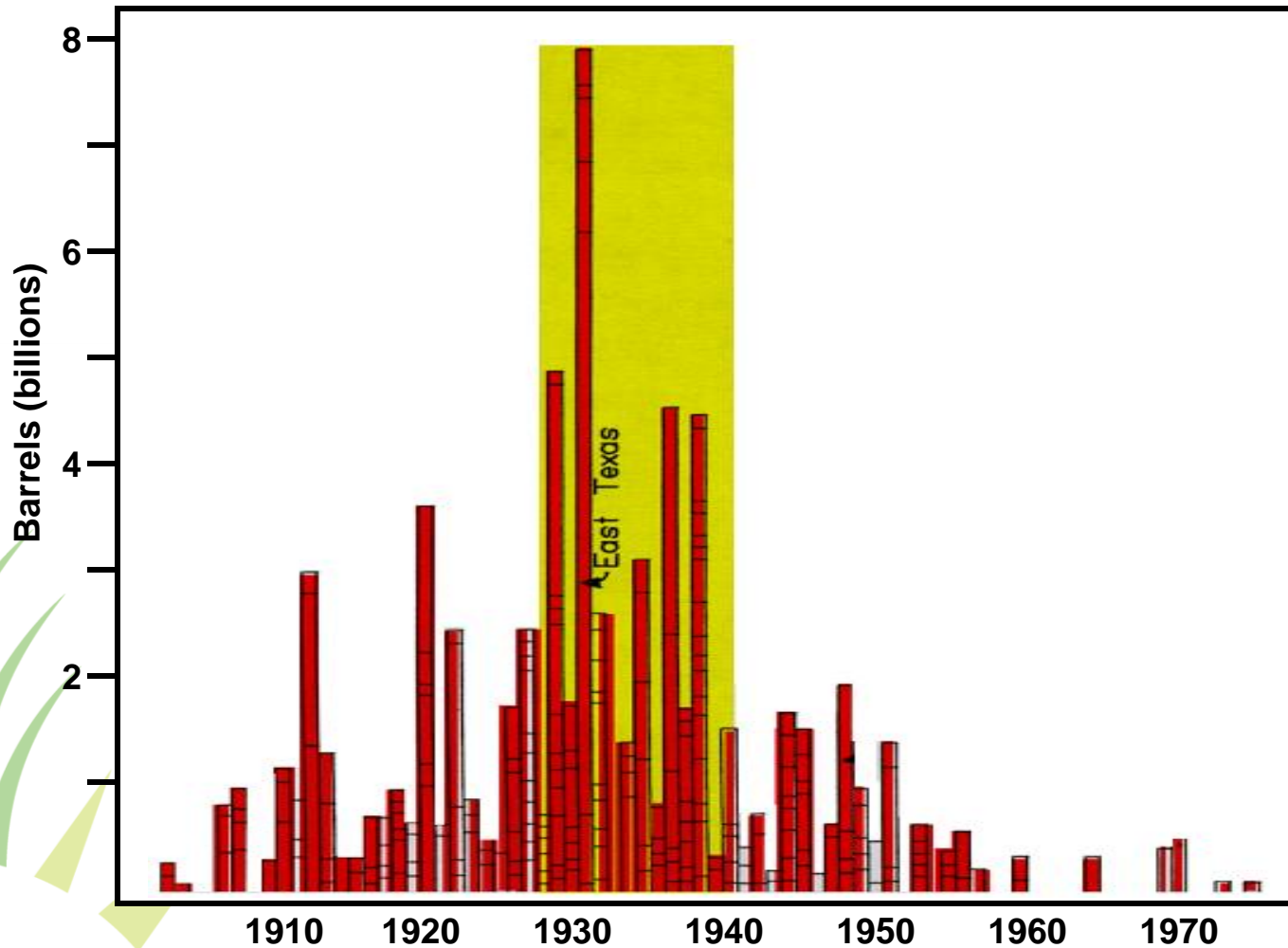
Why are we talking about biofuels?

**THE DAYS OF CHEAP,
SECURE, AND PLENTIFUL
ENERGY ARE OVER**



Major U.S. oil field discoveries

Lower 48 states - 100+ million barrel fields

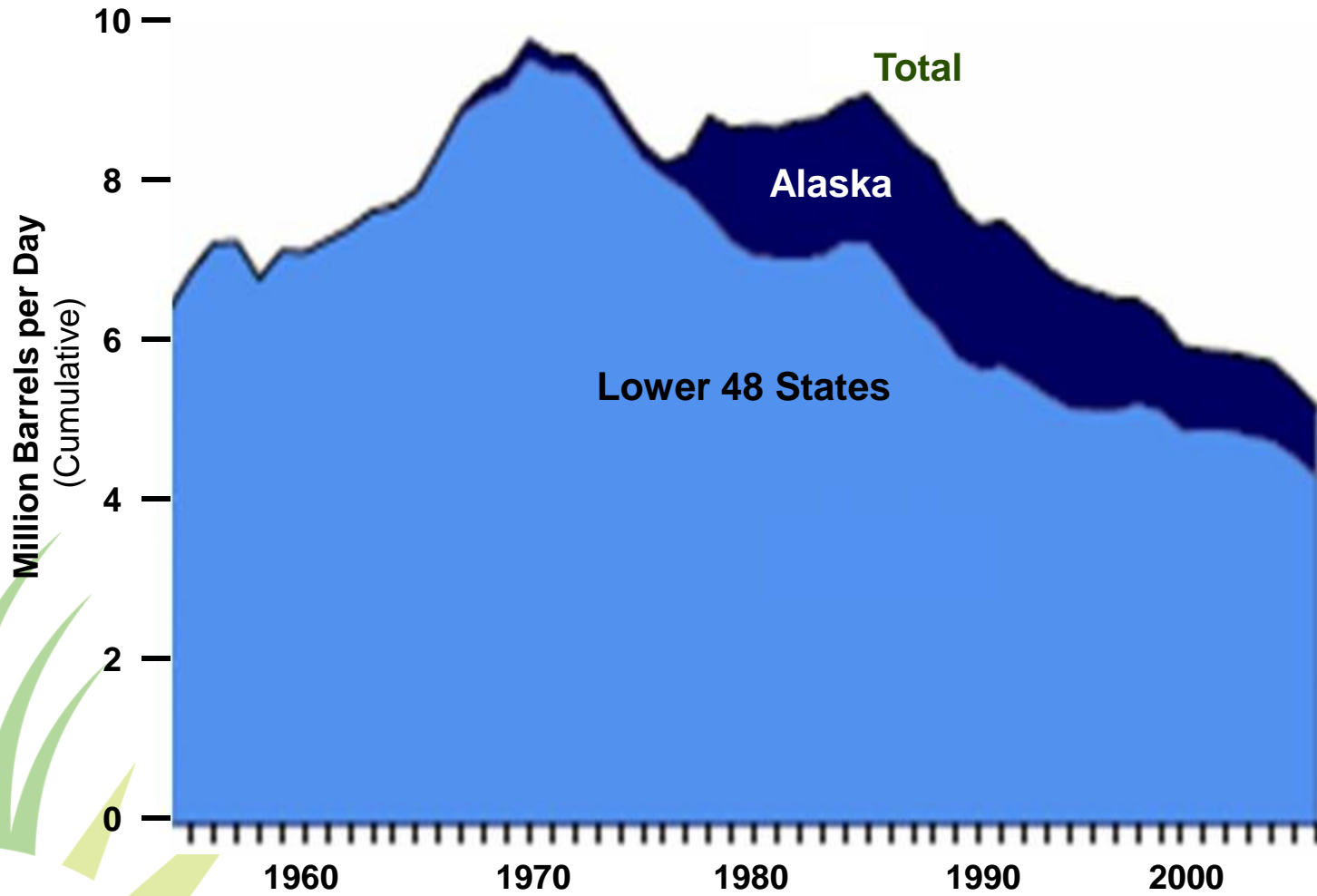


Oklahoma oil production

- **1925 – Peak production**
 - Approximately 275 million barrels
- **2005 – Return to the past**
 - 63 million barrels
 - Same production as 1912

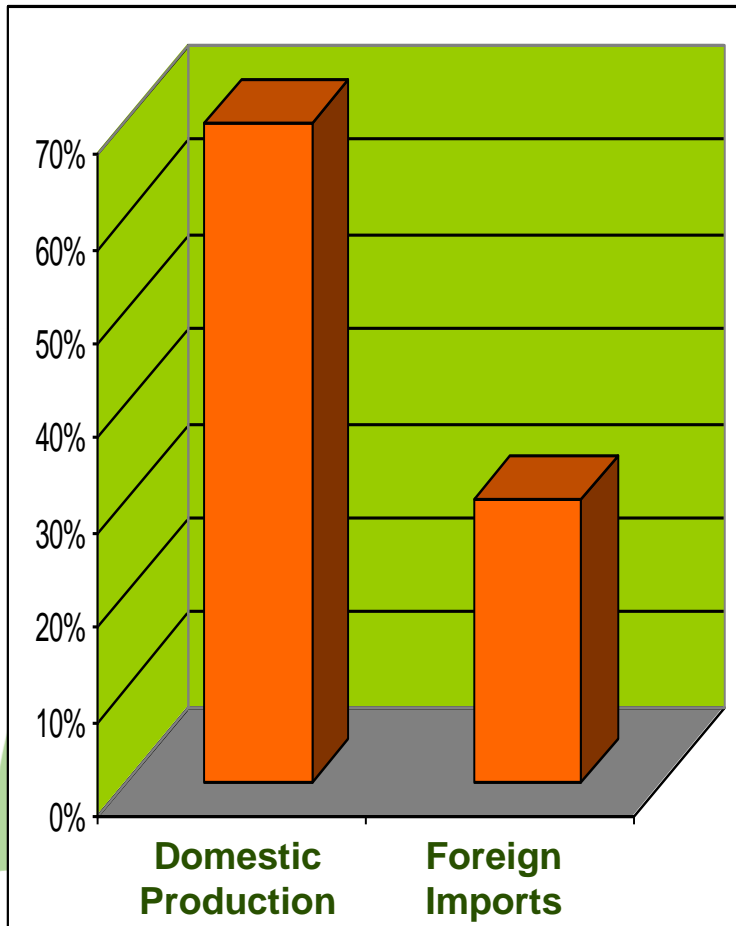


U.S. oil production 1950-2005

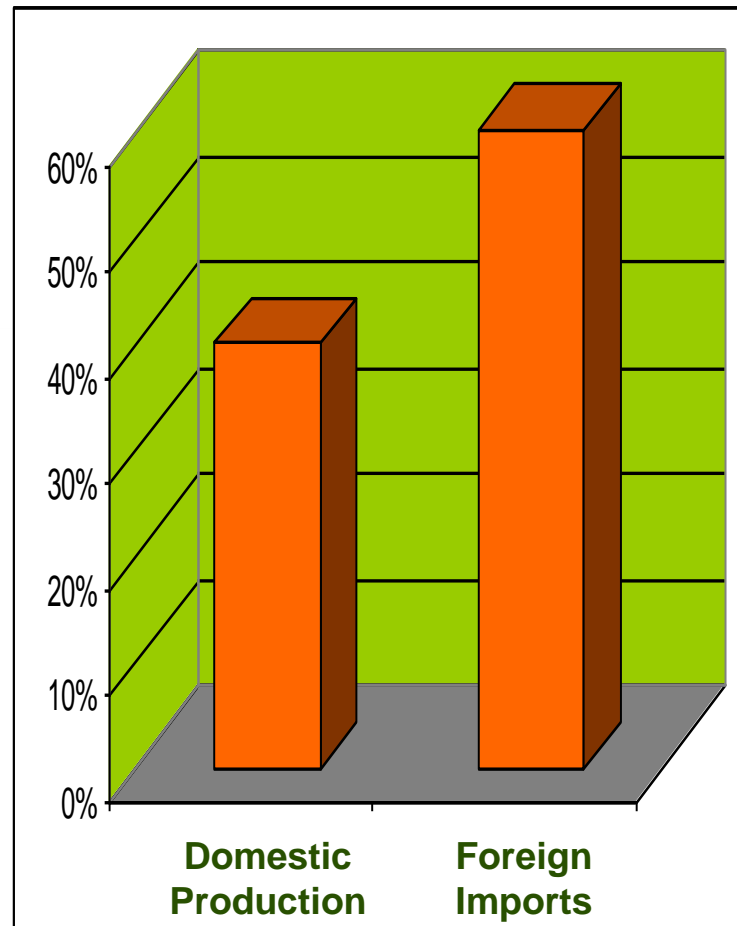


U.S. oil imports - 1970 versus 2006

1970



2006



China and India change the rules

- China and India make up **one-third** of the world's population
- Expected economic growth to 2025 = 5.9% per year
- Oil demand in China is 3x since 1980, turning from self-sufficiency to net importer
- 30,000 new autos per month in Beijing
- India introduces Nano

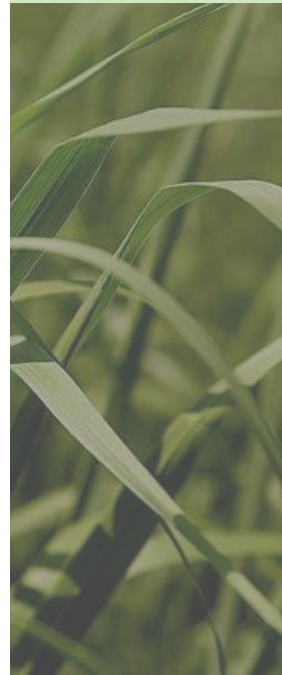


Tightening oil supply

- 2.3% average annual growth in oil production since 1965
- Current production: 85 Million BOD
- EIA estimates: 102-120 Million BOD
- Limiting factors:
 - Access to resources
 - Infrastructure costs
 - Geological complexity
 - Talent
- 70% of oil produced is from fields **30+ years**

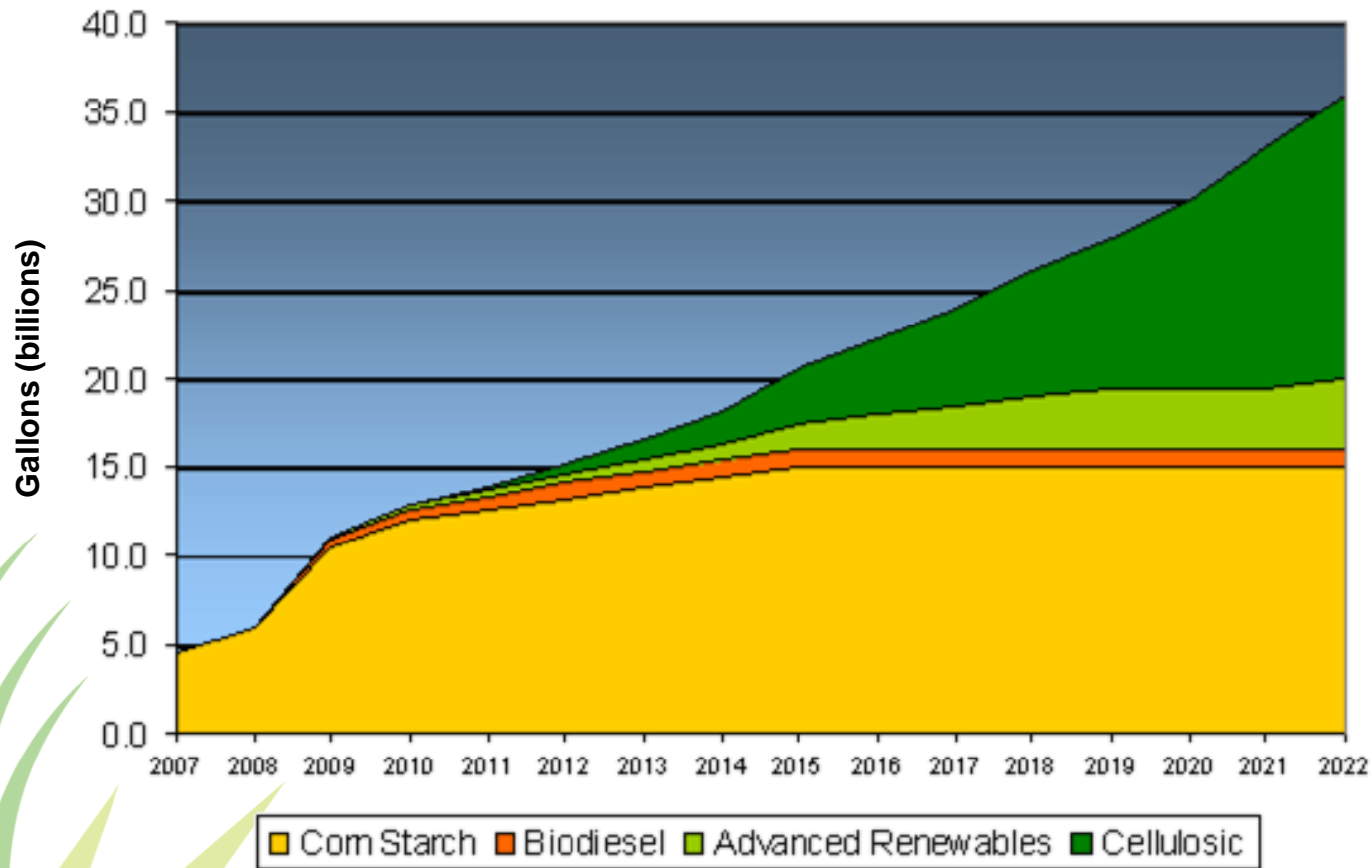


**The politics of global warming will
shape energy policy**



Alternative fuel mandates

Energy Independence and Security Act of 2007



Biofuels plays to America's strengths

Countries with Top Ten Oil Reserves

<u>Country</u>	<u>% Total Reserves*</u>
Saudi Arabia	22.9%
Iran	11.4%
Iraq	10.0%
UAE	8.5%
Kuwait	8.4%
Venezuela	6.8%
Russia	6.0%
Libya	3.1%
Nigeria	3.0%
U.S.	2.7%

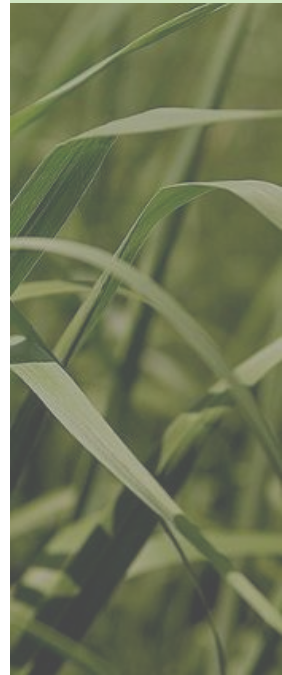
Top Ten Potential Biomass Producers

<u>Country</u>	<u>Total Acreage** (M acres)</u>	<u>Per Capita (acres)</u>
U.S.	1018	3.5
China	1369	1.1
Australia	1105	56.5
Brazil	651	3.7
Russia	535	3.7
Argentina	437	11.5
South Africa	246	5.6
Mexico	265	2.6
Ukraine	102	2.1
Turkey	103	1.5



Fortifying national security

- Reduce our dependence on unstable and often hostile governments
- Reduce our funding of international terrorists organizations



Revitalize rural economies

If the U.S. were to reduce oil imports and oil byproducts by 20% and replace that with homegrown biofuels:

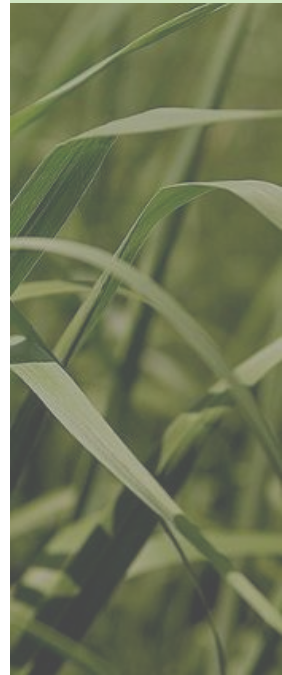
*In the course of one year – assuming an average oil price of \$50 per barrel – farm communities and other biofuel players would reap **\$50 billion** that would have gone to foreign oil producers.*

– **Business Week**, Nov. 13, 2006

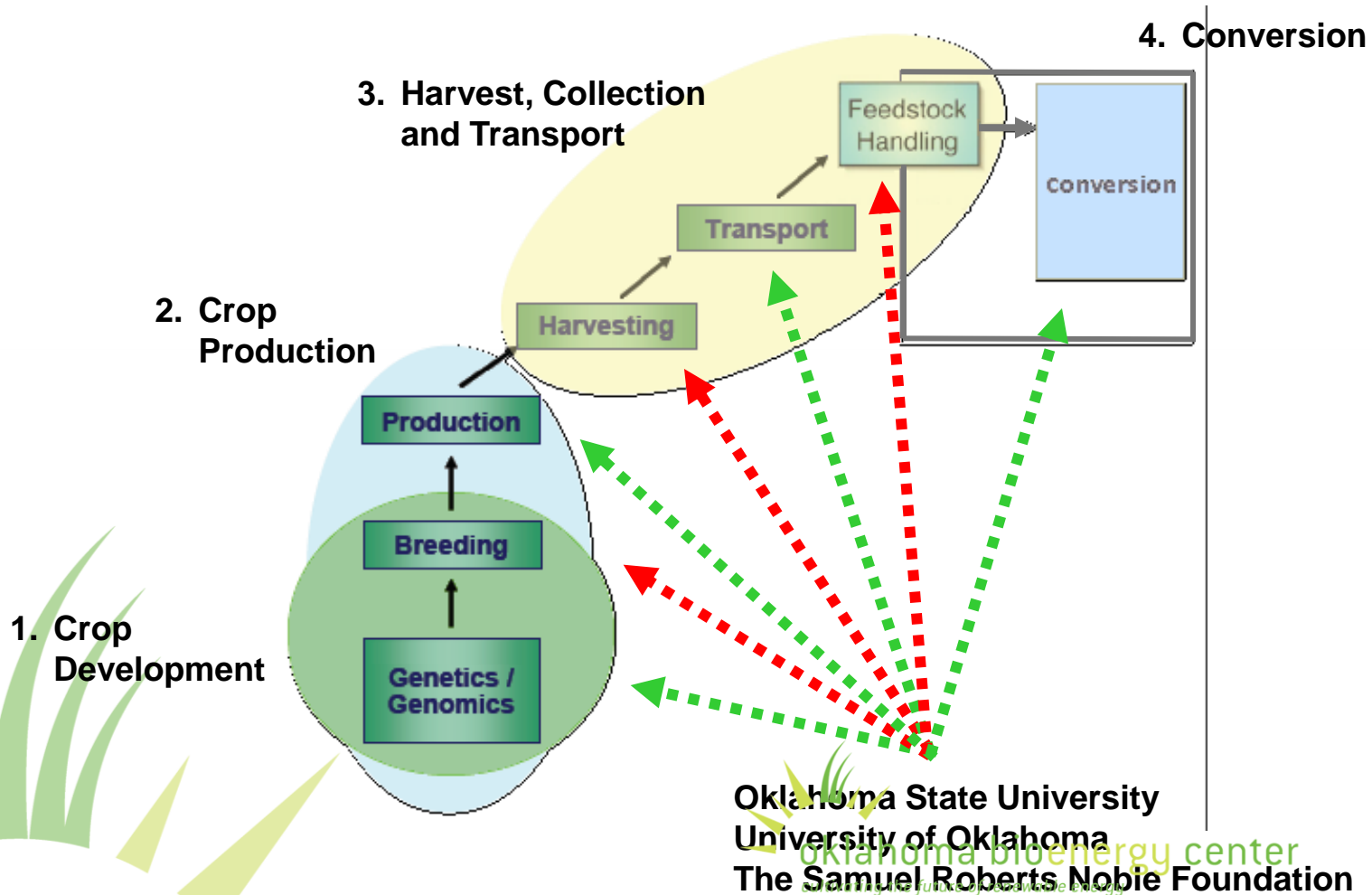


Oklahoma Bioenergy Center

- \$40 million over 4 years
- Contributing Institutions:
 - Oklahoma State University
 - University of Oklahoma
 - The Noble Foundation
- Purpose: Conduct the research and establish the outreach programs to foster the development of a biofuels industry in Oklahoma and **focused on Oklahoma**

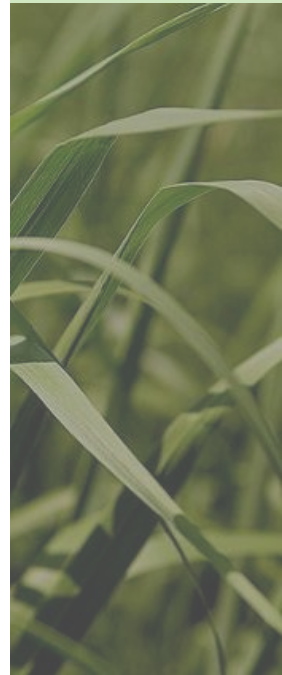


Oklahoma Bioenergy Center



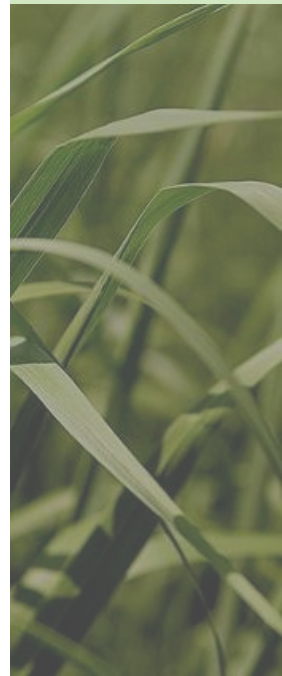
Why Oklahoma?

- Oklahoma's heritage industries: **agriculture** and **energy** production
- Abundant **natural resources**
- Existing, world-renown **research programs** at contributing institutions



Why this Center?

- Focuses on Oklahoma
 - Developing crops and crop systems for Oklahoma
 - Educating our agricultural producers
 - Establishing an industry in Oklahoma
- Improves opportunities for federal funding
- Improves opportunities for partnering with industry and other research consortiums



Remember, there is no **silver bullet** . . .

- Consider **all** fuel alternatives
- “Efficiency” is a **resource** not a sacrifice – and it is **cheaper** than alternatives
- **Research and development** is the passport to our energy future
- **Time is short** – we must work together

