



## Eastern Tennessee Clean Cities Workshop

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## Presentation Outline

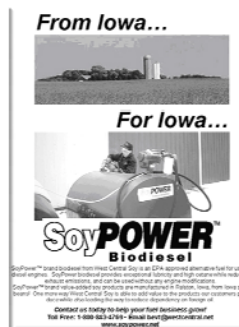
- REG's History in Soy Biodiesel
- Producing and Marketing Quality Biodiesel



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## Strong history for soy biodiesel

- 1940s: West Central, farmer owned coop, began crushing soybeans for food and feed
- 1996: First biodiesel plant built in Ralston, Iowa as a way to add value to co-op members' soybeans.



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## Biodiesel industry leadership

- 2002: REG builds nation's largest biodiesel plant adjacent to soy crush facility (12 million gallons)
- 2004-2008: Five 30 million gallon per year plants built  
60, 35 and 45 mgly plants added to network
- Growing demand prompts feedstock commercialization
- 2008: REG rebrands biodiesel to be marketed based on fuel characteristics.



### REG-9000™ Product Lineup

REG-9000/1	REG-9000/5	REG-9000/10
Cloud Point -2 - +2°C (28-38°F)	Cloud Point 3-7°C (31/-45°F)	Cloud Point 8-12°C (46-54°F)



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**OUR SOYBEAN CHECKOFF.**  
*Effective. Efficient. Farmer Union.*

**YOUR SOYBEAN CHECKOFF IS HERE.**  
Growing demand for soy by working to develop the U.S. biodiesel industry.

Thanks in part to the efforts of your soybean checkoff, biodiesel continues to be a fast growing renewable fuel in the United States - increasing production from 25 million gallons in 2004 to nearly 700 million gallons in 2008.

"The biodiesel industry appreciates and supports the investment that soybean farmers and the soybean checkoff have made in our industry over the past years. It has helped immeasurably in the growth and development of this industry, and our industry would not be where it is today without the help and the assistance of the soybean farmers and the soybean checkoff."

*Gary Haer*  
Gary Haer  
Vice President Sales & Marketing  
Renewable Energy Group

www.ussoybean.org

## REG and USB/ASA

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-Gary Haer  
Vice President Sales & Marketing  
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## Renewable Energy Group® Overview

- The most experienced sellers of biodiesel in the US - since 1996. **Currently marketing approximately 25%** of all biodiesel marketed in USA.
- **Sold 110 million gallons in 2007, expect sales of >200 million gallons in 2009.**
- Distribution through some of US's leading terminal-operators
- REG's commercial scale facilities, production expertise and **BQ-9000 Accreditation** meet customers' demands for consistent quality, quantity and supply assurance
- **REG distribution advantages**
  - Lower transportation costs than other producers
  - Long-term contracts and high volume allowed REG to negotiate advantageous turns
  - In a tight market, REG established itself as a **reliable supplier**
- Current production capacity at **9 plants of 300 million gallons.**



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## Soy biodiesel's place in RFS-2

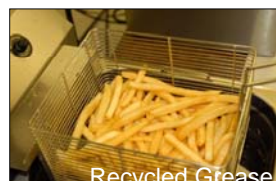
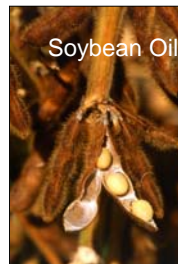
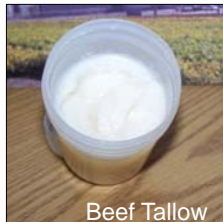
- The soon to be in place RFS-2 will grow the market from about 300 million gallons today to over 1 billion gallon by 2012
- Soybean oil will account for the majority of the feedstock to meet the RFS-2 targets
- Animal fats, waste greases and other feedstock is limited in supply and will make up only 200 to 300 million gallons per year
- Several REG network plants adjacent to soybean crush facilities



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## Which one of these doesn't belong?



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## Feedstock overview

- Biodiesel can be made from many feedstocks (collectively called **triglycerides**)
  - Vegetable oils (soy, rapeseed/canola, palm, etc.)
  - Animal fats (pork CWG, beef tallow, poultry fat)
  - Used oils (yellow and brown grease)
- Feedstock should only affect fuel properties if biodiesel is made well:
  - Cloud point / CFPP
  - Oxidation stability
  - Cetane number
- Production skill and plant technology, not feedstock, determines biodiesel quality.



## Utilizing multiple feedstock

- REG network plants utilize a multiple feedstock strategy that currently includes soybean oil, choice white grease, beef tallow, poultry fats, canola oil, corn oil from ethanol production and other virgin fats and oils.
- REG is also currently researching other alternative feedstocks
- REG markets biodiesel based on the finished product's fuel attributes including cloud point, Cetane value, oxidative stability, etc.; not the feedstock source

## Soy vs. Animal Fat

- **Advantages** of animal fat methyl esters

- Higher Cetane
- Better oxidation stability
- No sterol glucosides
- Lower iodine value (under the EN 14214 limit)

Specification	100% SME	100% AME
Cetane	48	> 53
Oxidation stability	3 - 6 hr	> 6 hr
Sulfur	< 1 ppm	5 -12 ppm
Cloud Point	0 - 1 °C	6 -15 °C

- **Disadvantages** of animal fat methyl esters

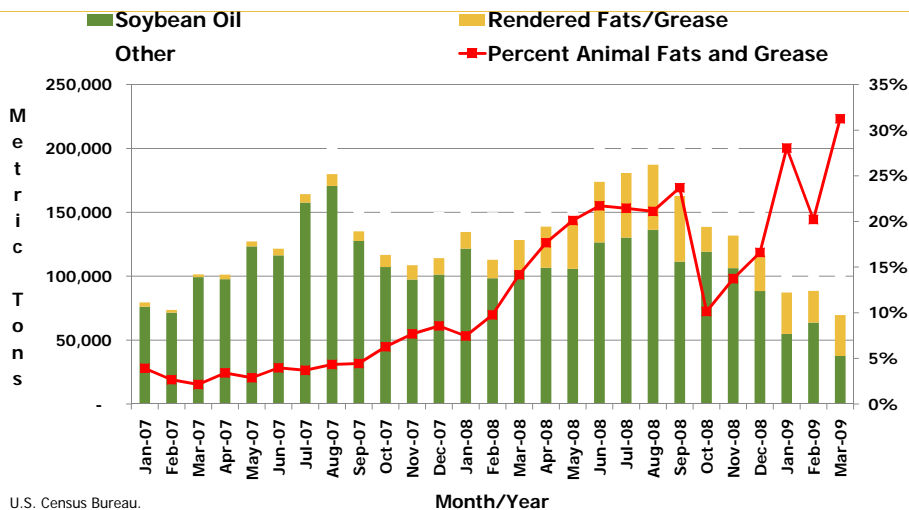
- Higher cloud point than soy methyl esters
- Unique processing challenges—experience required!



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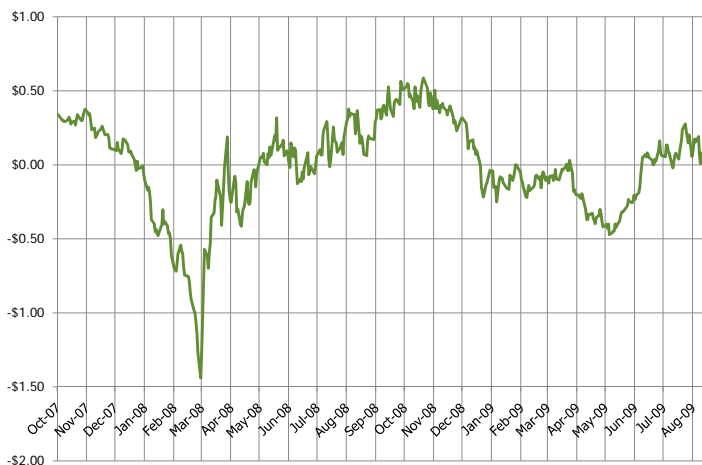
## Monthly U.S. Raw Material Usage for U.S. Biodiesel Production (2007-2008)



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### Heating Oil vs Soybean Oil Spread

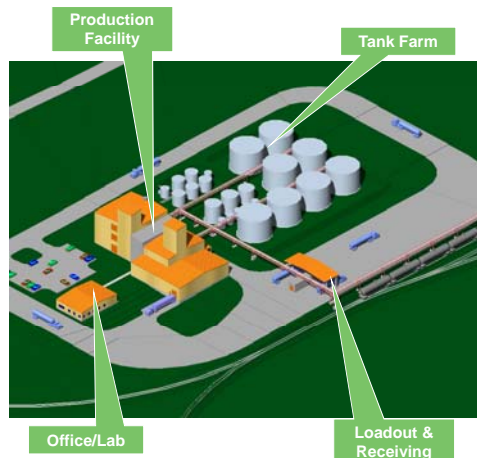


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### REG Production & Operations (USA)

- REG Network: REG owned and managed
- Nine biodiesel plants fully constructed and operational (302 MGY)
 

Ralston, IA	12 MGY
Albert Lea, MN	30 MGY
Wall Lake, IA	30 MGY
Newton, IA	30 MGY
Washington, IA	30 MGY
Dubuque, IA	30 MGY
Algona, IA	60 MGY
Houston, TX	35 MGY
Danville, Ill	45 MGY
- Most plants can run on multiple feedstocks
- All plants are either BQ-9000 certified or slated to become BQ-9000 Producers
- REG Marketing and Logistics is a BQ-9000 Marketer.



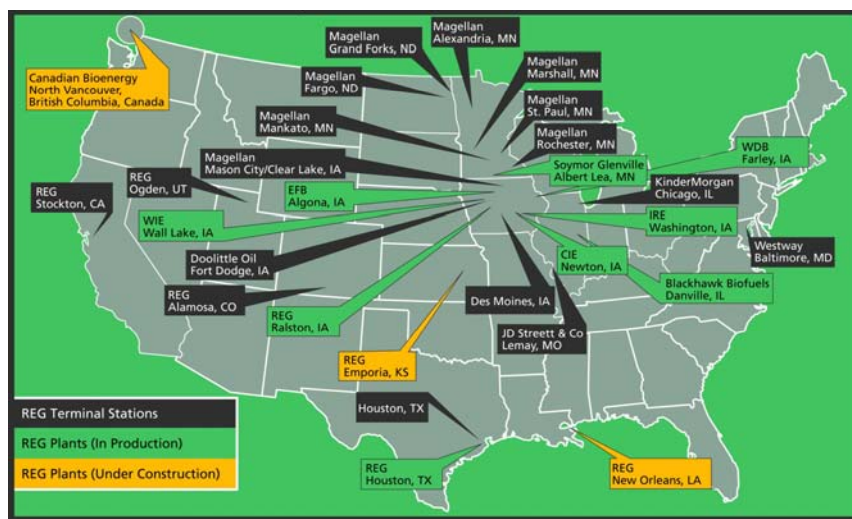
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# REG Network



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# National Distribution Infrastructure



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## Biodiesel Challenges

- Distribution
- Competitive Pricing
- Quality
- RFS Implementation
- RIN's valuation
- Pipeline access
- Feedstock mix
- Tight credit markets

