The Basics:

Biodiesel from Recycled Vegetable Oil

New England Biodiesel Workshop

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About Griffin Industries

- Largest privately held rendering company in the U.S.
- In business since 1943
- Family owned and operated
- 1400+ employees
- Biodiesel operation since 1998
- Bakery, hides, fertilizer as well





What fueled the first diesel truck?



Biodiesel

BIC



What is Rendering?

Definition:

moisture

Rendering: to melt down by heating . . .
The extraction of





What is Biodiesel?

- Biodiesel is a <u>methyl ester</u> derived from a wide range of vegetable oils and related biomass (fatty acid) feedstock.
- Biodiesel is made through a conventional chemical process known as "transesterification."
- Review samples



Biodiesel Raw Materials

Oil or Fat Alcohol

Soybean Methanol

Corn Ethanol

Rapeseed

Cottonseed <u>Catalyst</u>

Sunflower Sodium hydroxide

Beef tallow Potassium hydroxide

Pork lard

*Used cooking oils (yellow grease), etc.



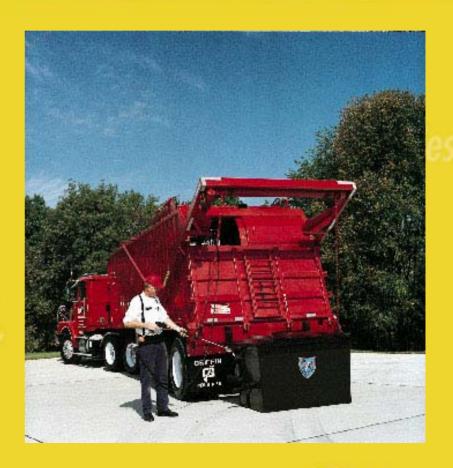
What is Yellow Grease?

Oil derived from vegetable oil (most commonly) and collected by renderers from restaurants around the country.



What do Renderers do?

- Provide service
- Provide a system (container)
- Clean raw product
- Test/Quality Control
- Sell





How is Yellow Grease Used?

- Animal Feed
- Cosmetics
- Ag chemical carrier
- Fuel in boilers
- Products such as rubber and plastics
- Biodiesel



Quantities in U.S.

Total Inedible Tallow and Grease: 10 Billion Pounds



Consumption

Domestic: 4.6 Billion Pounds

Export: 3.4 Billion Pounds

Total: 8.0 Billion Pounds

Available: 2.0 Billion Pounds



Total Yellow Grease

Production: 3.5 Billion Pound

Consumption: 2.0 Billion Pounds

Available: 1.5 Billion Pounds

BIODIESEL

* Translates into 200 Million Gallons of B100 or 1 Billion Gallons of B20



What is Brown Grease?

Grease derived from sewage traps at restaurants – also known as "trap grease"



Brown Grease

Has approximately 5 times the FFA's as yellow grease, therefore, brown grease is not acceptable for biodiesel production as a stand alone feedstock.



Market Values

Soy oil: 23¢/# or\$1.72/gallon

Yellow grease: 13¢/# or 97¢/gallon

* Brown grease: 6¢/# or 45¢/gallon



Renderers' Perspective

- Current Markets value of oils/greases is volatile, but goes up and down with soy oil prices
- Current Prices little higher than the past couple of years



How Markets are Changing

- World economy
- New international markets
- New uses biodiesel



Regulatory Concerns

Biodiesel concerns are centered on creating a level playing field with other feedstocks.

BSE is not a huge concern.



Yellow Grease Biodiesel Challenges

Equality in producer subsidies
(CCC)

Equality in end-user tax incentives

Equality = soy oil



Feedstock Impact on Fuel Quality

- Stability
- Emissions
- Cold Flow
- Price
- Color?

Biodiesel



Griffin's Bio G-3000 Quality

- Meets and exceeds ASTM Biodiesel Specification
- Onsite Technical Laboratory
- Martin Mittlebach, Univ. of Graz.
- BDI Established learning curve.
- Low cost producer, zero waste
- Guaranteed Quality



Questions?



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Biodiesel

