



Biodiesel

Opportunities, Benefits, and Issues

**presentation to:
Faster Freight Cleaner Air
East Coast**

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Biodiesel Defined

Biodiesel, n. -- *a fuel comprised of mono-alkyl esters of long chain fatty acids derived from vegetable oils or animal fats, designated B100, and meeting the requirements of ASTM D 6751.*

Official IRS and EPA definition – goes to fuel quality.





Biodiesel Attributes

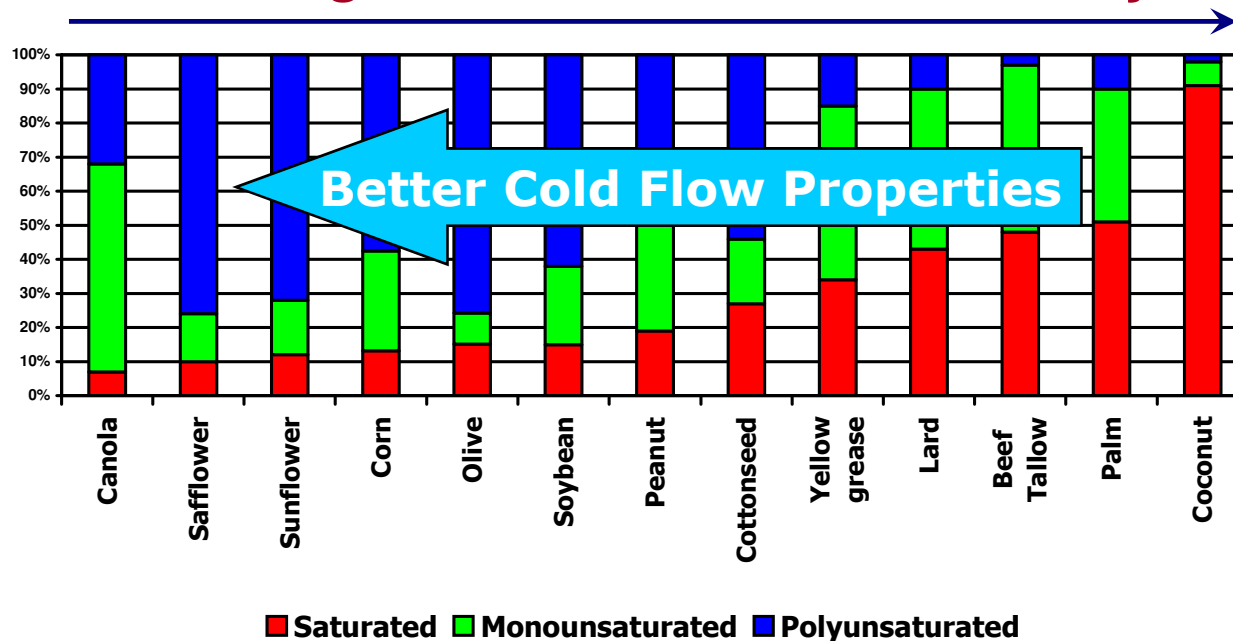
- Integrates into existing petroleum infrastructure; “pour and go”
- High Cetane (>50 vs. 42)
- High Lubricity (2% blend biodiesel increases lubricity by up to 65%)
- BTU Content (128,000 BTU/gal vs. 139,000)
- Cold Flow (3-10° F > for soy-based B20)
- Exceeds 2006 ULSD rule
- Warrantied by major OEMs
- Provides Unburnt hydrocarbons, CO, PM, and NOx benefits

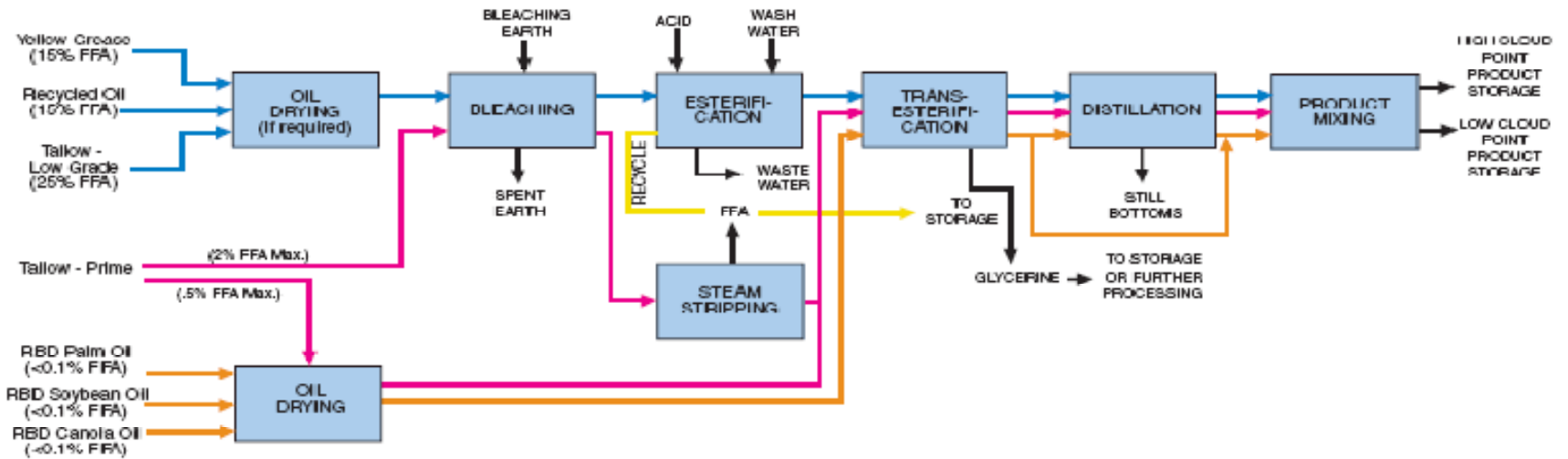
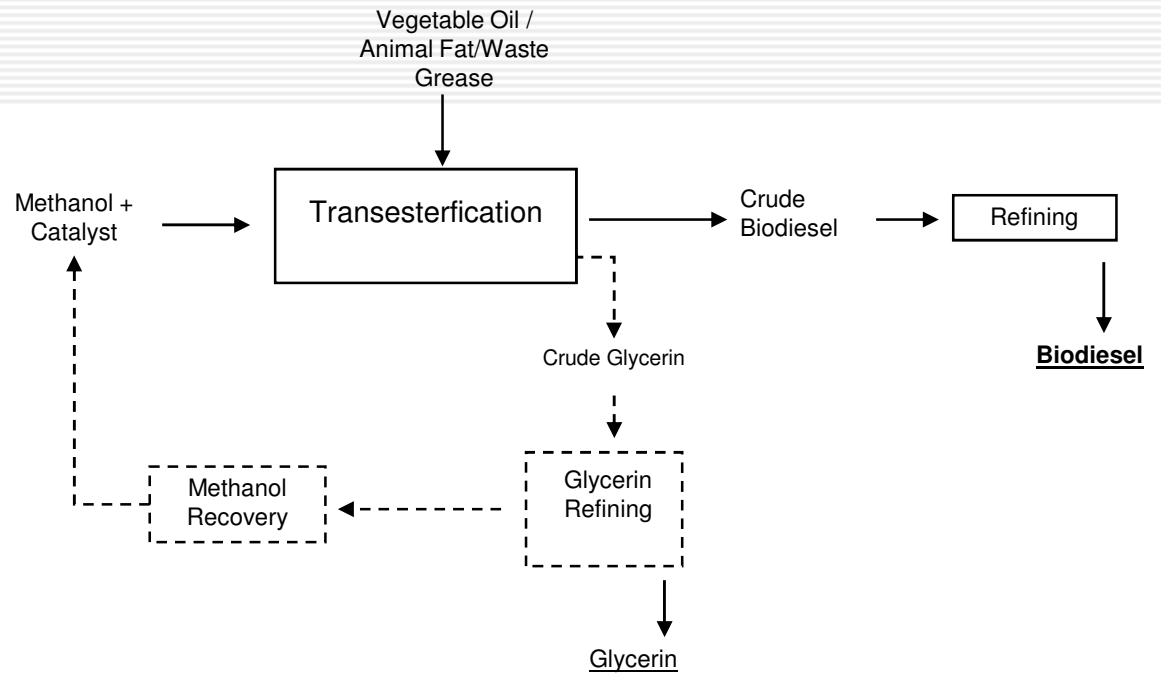


Biodiesel Feedstock Composition and Cold Weather Operability

- The cold flow properties of biodiesel fuels are dependant on the feedstock (specific type of oil, fat or grease) from which they are made, and are a strong function of the level of saturated fat.
- Animal fats, palm, coconut oils are more highly saturated
 - higher CN, higher cloud point

Increasing cetane number and stability →





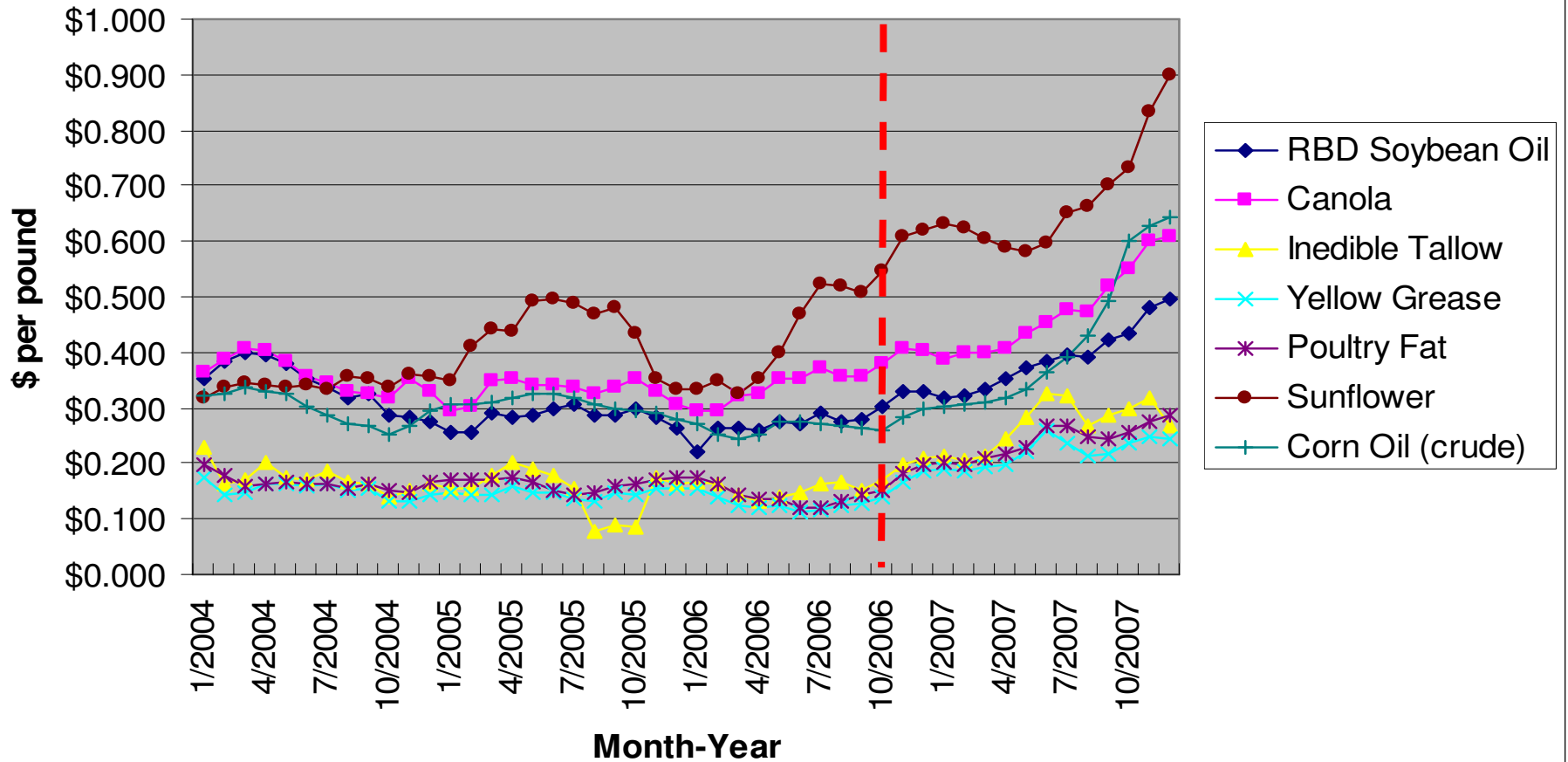


Concerns of Fleet Managers about Biodiesel

- Fuel Quality
- Engine Warranties
- Performance in Cold Weather
- Filter Plugging
- Degradation of Engine Parts
- Fuel Stability
- Price?



National Biodiesel Feedstock Prices





ASTM D 6751-07b Specifications (Full)

Free Glycerin	ASTM D 6584	Max 0.020 % mass
Total Glycerin	ASTM D 6584	Max 0.240 % mass
Flash Point (Methanol)	ASTM D 93	Min 130 °C (Max 0.2 % vol)
Acid Number	ASTM D 664	Max 0.50 mg KOH/g
Water & Sediment	ASTM D 2709	Max 0.050 % vol
Visual Appearance	ASTM D 4176	Max 2 Haze rating
Oxidative Stability	EN 14112	Min 3.0 hr
Sulfur	ASTM D 5453	Max 15 ppm
Cloud Point	ASTM D 2500	Report °C
Kinematic Viscosity at 40 °C	ASTM D 445	1.9 – 6.0 mm ² /sec
Sulfated Ash	ASTM D 874	Max 0.020 % mass
Copper Strip Corrosion	ASTM D 130	Max No. 3
Cetane Number	ASTM D 613	Min 47
Carbon Residue for 100% sample	ASTM D 4530	Max 0.050 % mass
Distillation, 90% recovered	ASTM D 1160	Max 360 °C
Phosphorous Content	ASTM D 4951	Max 0.001 % mass
Relative density at 60 °F	ASTM D 1298	Report
Na and K, combined	EN 14538	Max 5.0 ppm
Ca and Mg, combined	EN 14538	Max 5.0 ppm





Accredited Producer Focus

- A system for monitoring the **production** of biodiesel to the ASTM D 6751 specification.
 - Sampling
 - Testing
 - Storage
 - Retain Samples
 - Shipping

Certified Marketer Focus

- A system for the **handling and distribution** of biodiesel that maintains the fuel properties at the ASTM D 6751 specification.
 - Sampling
 - Testing
 - Storage
 - Retain Samples
 - Blending
 - Shipping





Biodiesel Certificate from a distributor to the final end-user



CERTIFICATE FOR BIODIESEL

Certificate Identification Number: 1136
(To support a claim related to biodiesel or a biodiesel mixture under the Internal Revenue Code)

The undersigned biodiesel producer ("Producer") hereby certifies the following under penalties of perjury:

1. BioEnergy Of Colorado, LLC. 801 West 56th Ave, Denver, Co. 80216 (34-2012847)

Producer's name, address, and employer identification number

2. Bridgman Oil Company. 109 Clay, Hutchison, KS 67501 (48-0896916)

Name, address, and employer identification number of person buying the biodiesel from Producer

3. January 8, 2007. Denver, Colorado

Date and location of sale to buyer

4. This certificate applies to 6698 gallons of biodiesel

5. Producer certifies that the biodiesel to which this certificate relates is:

100 % Agri-biodiesel (derived solely from virgin oils)

 % Biodiesel other than agri-biodiesel

This certificate applies to the following sale:

1136 Invoice or delivery ticket number

6698 Total number of gallons of biodiesel sold under that invoice or delivery

Ticket number (including biodiesel not covered by this certificate)

One Total number of certificates issued for that invoice or delivery ticket number

6.

Name, address, and employer identification number of reseller to whom certificate is issued (only in the case of certificates reissued to a reseller after the return of the original certificate)

7. Original Certificate Identification Number (only in the case of certificates reissued to a reseller after return of the original certificate)

Producer is registered as a biodiesel producer with registration number 2005-000763AB
Producer's registration has not been suspended or revoked by the Internal Revenue Service.

Producer certifies that the biodiesel to which this certificate relates is monoalkyl esters of long chain fatty acids derived from plant or animal matter that meets the requirements of the American Society of Testing and Materials D6751 and the registration requirements for fuels and fuel additives established by EPA under section 211 of the Clean Air Act (42 U.S.C. 7545).

Producer understands that the fraudulent use of this certificate may subject Producer and all parties making any fraudulent use of this certificate to a fine or imprisonment, or both, together with the costs of prosecution.

Printed or typed name of person signing this certificate

Mr. Thomas A. Davanzo

Title of person signing

Managing Member

Signature and date signed

January 8, 2007





OEMs Positions on Biodiesel

Engine Warrantees:

- Parts and Workmanship
- OEM's Don't Make Fuel
- OEM's Don't Warrantee Fuel
- As with diesel-- problems caused by the fuel are the responsibility of the fuel supplier



http://www.biodiesel.org/resources/fuefactsheets/standards_and_warranties.shtm





Thank You!

www.biodiesel.org

