Biodiesel Benefits and Production

Wythe County Farm Bureau
would like to propose to the towns of
Wytheville , Rural Retreat and Wythe County
that we make Biodiesel
from waste vegetable oil to be used
in the county school buses.
Wythe Country Farm Bureau
is willing to fund in part the
initial training and the feasibility
of this project.

- It decreases the country’s dependence on imported petroleum
- It will save our taxpayers money
- It will improve the air quality for our children who riding the school buses

What is biodiesel?

- Biodiesel is a renewable diesel fuel substitute. Biodiesel is made by chemically combining any natural oil or fat with an alcohol such as methanol or ethanol.

Difference between Biodiesel and Straight Veg Oil

- SVO
  - Extra Heated Fuel Tank
  - Heated Fuel lines and Filter
  - Must Start And Stop on Regular Diesel
  - Cost For 2000 PSD F250 $2900
- Biodiesel
  - None to Minor Modification on Diesel Vehicles

Biodiesel offers many advantages:

- **It is energy efficient. 3.2/1 energy ratio, ethanol has a 1.3/1 energy ratio.**
- **It can be used in most diesel equipment with no or only minor modifications.**
- **It can reduce global warming gas emissions.**
- **It can reduce tailpipe emissions, including air toxics.**
- **It is nontoxic, biodegradable, and suitable for sensitive environments.**
- **It is renewable, It is made in the United States from either agricultural or recycled resources.**
- **It can be easy to use if you follow these guidelines.**

Biodiesel can be used in several different ways. You can use 1% to 2% biodiesel as a lubricity additive, which could be especially important for ultra low sulfur diesel fuels (ULSD, less than 15 ppm sulfur), which may have poor lubricating properties.

National security!!! It decreases the country's dependence on imported petroleum.

You can blend 20% biodiesel with 80% diesel fuel (B20) for use in most applications that use diesel fuel.

You can even use it in its pure form (B100) if you take proper precautions.

Are there any negatives?

- **1) Primarily that it's not readily available in much of the nation, although availability has jumped considerably in the last five years. Commercial consumption jumped from 500,000 gallons in 2000 to 15 million gallons in 2001 to 75 million gallons in 2005.**

- **2) Biodiesel will clean your injectors and fuel lines. If you have an old diesel vehicle, there's a chance that your first few tanks of biodiesel could free up all the accumulated crud and clog your fuel filter.**

- **3) It has a higher gel point. B100 (100% biodiesel) gets slushy a little under 32°F. But B20 (20% biodiesel, 80% regular diesel - more commonly available than B100) has a gel point of -15°F. Like regular diesel, the gel point can be lowered further with additives such as kerosene (blended into winter diesel in cold-weather areas).**

- **4) Old vehicles (older than mid-90s) might require upgrades of fuel lines (a cheap, easy upgrade), as BD can eat through certain types of rubber. Almost all new vehicles should have no problem with BD.**

- **5) Finally, the one emission that goes up with biodiesel is NOx. NOx contributes to smog. We feel that a slight increase (up to 15%) in NOx is greatly offset by the reduction in all other emissions and the major reduction in greenhouse gasses.**

Biodiesel Production Possibilities

- Using the rough guideline that a pound of oil or fat will give a pound of biodiesel, we can use the total production of fats and oils in the U.S. to estimate the potential impact of biodiesel on total diesel consumption.

Total Annual Production of Oils in U.S.

- Vegetable Oil Production (Billion pounds/yr)
  - Soybean 18.340
  - Peanuts 0.220
  - Sunflower 1.000
  - Cottonseed 1.010
  - Corn 2.420
  - Others 0.669
    - Total Vegetable Oil 23.659

Total Annual Production of Fats in U.S.

- Animal Fats (Billion pounds/yr)
  - Edible Tallow 1.625
  - Inedible Tallow 3.859
  - Lard and Grease 1.306
  - Yellow Grease 2.633
  - Poultry Fat 2.215
    - Total Animal Fat 11.638

Some Perspective

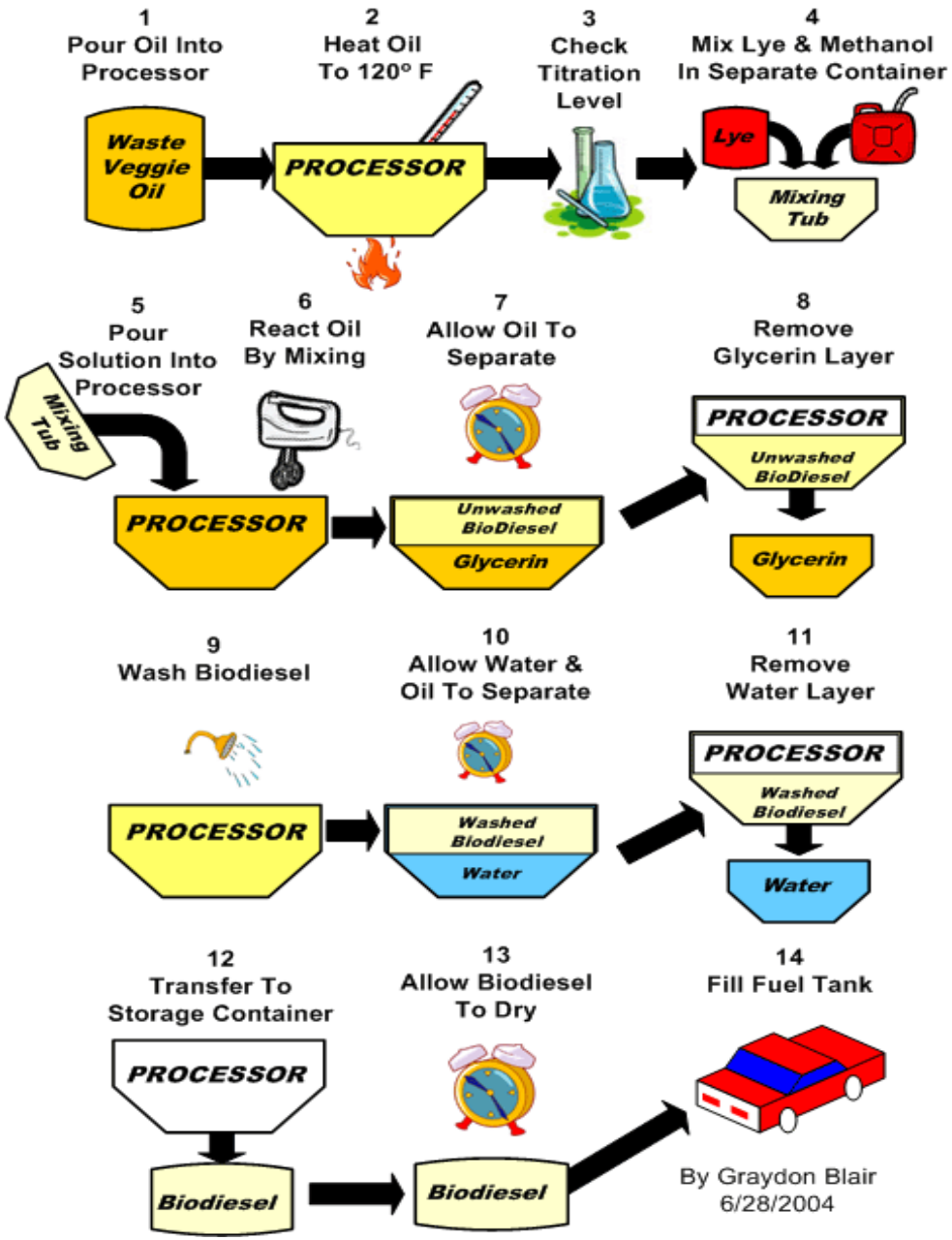
- At about 7.6 pounds per gallon of oil, total U.S. production of oil and fats would equal 4.64 billion gallons of biodiesel.
- If all of the vegetable oil and animal fat were used to produce biodiesel, we could replace about 14% of the current demand for on-road diesel fuel.
- If you could reclaim 70% that would be about 10% of the on-road diesel

How much does it cost

If the oil is free you can make it for about $.70 to $1.00 gallon

How Do We Make Biodiesel

How Biodiesel is Made




U.S.
CRAFTMASTER


METHOXYDE
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Gaston
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Processor Footprint