

# VERMONT BIODIESEL WORKSHOP



*“Nurturing a Sustainable Biodiesel Industry in Vermont”*  
Vermont Statehouse, September 22, 2004

Following are answers to a sampling of questions posed by workshop participants gathered at the time of on-line registration. The Vermont Biofuels Association, VT Agency of Natural Resources and the National Biodiesel Board provided the answers for this workshop fact sheet.

You are encouraged to utilize the extensive *search engine and fact sheets* located on the website for the National Biodiesel Board at [www.biodiesel.org](http://www.biodiesel.org). Almost any question of a technical nature has been answered with cross-references to academic, governmental and industry studies conducted over the last ten+ years for a variety of markets.

## **Supply, Feedstock and Production Questions:**

### **Is biodiesel, of a consistently high quality, readily available in Vermont?**

Currently there is limited distribution in Vermont but it is increasing. You can order imported ASTM certified biodiesel made from Midwest soy for purchases of 250 gallons up to rail car volumes. There are also limited quantities available of “98% pure” locally produced biodiesel (B100), very suitable for off-road use, made from waste vegetable oil (WVO). The first filling station in VT to sell B20 (20% biodiesel blended with 80% petroleum) began pumping just four weeks ago. Let your local fuel dealer or filling station know that you are interested in purchasing biodiesel or biodiesel blends.

### **How much biodiesel could be produced in Vermont?**

Estimates from the VT Fuel Dealers Association put the total annual use of distillate (diesel) fuels in Vermont at about 300 million gallons. It has been estimated that Vermont could eventually produce 5% to 15% of our distillate fuel needs using biodiesel made locally from WVO, animal fats and agricultural crops including algae. From another perspective, the development of this potential is up to the consumer and other market forces. The forecast nationally is that by 2020 biodiesel producers could be supplying 10% of the domestic market.

### **What oil crops are suitable and economically realistic for Vermont?**

In the Midwest, soy (oil) is the primary feedstock for biodiesel and in Europe, canola (rapeseed) is the dominant crop. Research is underway as to the economic feasibility of growing oil crops in Vermont. The crops most suitable for producing oil for biodiesel in Vermont right away are soy, mustard seed, canola/rapeseed, and sunflower. There has been extensive government and private research into the potential of algae as a biodiesel feedstock because of its very high oil to weight ratio. Industrial hemp is another seed oil crop also capable of producing a number of by-products, however it is still a politically controversial crop in the US. The economic success of seed oil crops

in Vermont will involve innovation and cooperation in order to capture the most value from any particular crop and its by-products.

**Can the seed meal from the processing of oil crops be used as quality livestock feed?**

Yes. The growing of seed oil crops and the production of biodiesel would yield a variety of by-products, such as livestock feed, and other products that would be beneficial to agricultural, industrial and consumer markets.

**What is the potential for establishing co-operative businesses to collect waste oil, grow crops and produce and distribute biodiesel in Vermont?**

The growth of a biodiesel industry in Vermont would seem to favor cooperative business models. Producer/user co-ops or partnerships could share the costs of setting up production facilities and collecting waste oil for the benefit of their member/partners. Farmer cooperatives could share the expense of seed, and equipment and realize lower fuel costs through shared investment in crushing and production facilities. Further collaboration by growers and producers could reduce marketing costs and build a Vermont brand of fuel and by-products.

**I am a skeptic on the issue of whether Vermont will be able to compete in the production of liquid fuels. What alternative conclusions have been reached that might alleviate my concerns?**

The concern is understandable. While biodiesel is successfully and profitably produced in the Midwest, Europe and elsewhere, a “New England” model, adapted to the agricultural scale and climate of our region, has yet to be tested. There are however, several start-up businesses in Vermont that have analyzed the costs and market potential and have concluded that they can compete, once a certain output has been reached. Further profits and competitive advantages exist as these producers diversify and add value to their by-products.

**Is Biodiesel the same thing as raw vegetable oil?**

No. Fuel-grade biodiesel is produced from vegetable oils or animal fats and meets industry specifications (ASTM D6751) in order to insure proper performance. Raw, filtered vegetable oil can be burned as a fuel but only after modifying your engine and your vehicle’s fuel system. No equipment modification is necessary in order to burn biodiesel.

**I am considering producing biodiesel for use “on the farm”. Is this a good idea?**

While this is certainly possible, keep in mind that local zoning regulations must be adhered to. Right now the issue of backyard small-scale biodiesel production is an unknown for most town planners and select boards, so the best thing to do is communicate your interest and find out what may be necessary. Even though biodiesel is non-toxic there are health and safety concerns if you are producing on even a small scale.

**Market and Economic Questions:**

**What are the current (and projected future) costs of biodiesel?**

The answer depends on whether you are considering a retail price at the pump or a contract rate for winter heating. Prices will vary by volume and the only sure way is to contact your local dealer for a quote. Expect to pay about \$0.20/gal more for B20 at the pump in Vermont right now. A gallon of locally produced B100 costs approximately \$2.00 and Midwest ASTM B100 goes for a

“street price” of about \$2.88/gal. Industry projections are that, over time, the price of biodiesel will be competitive with the rising cost of petroleum.

### **Is there legislation (or a tax incentive) in place that supports the use of biodiesel for transportation, off-road vehicles and home heating?**

Several VT bills were introduced in 2004, in both House and Senate, that were designed to reduce (or eliminate) the state excise tax (\$0.26/gallon) at the pump or the 6% sales tax for heating fuel if the fuel sold contained a minimum of 20% biodiesel (B20). Two of the bills received hearings in the House and Senate Transportation Committees but went no further. Similar legislation has passed in several states, including Texas, Minnesota, N. Dakota and Illinois and this has spurred demand for local production and sale of biodiesel blended fuels. It is likely that the 2005 VT legislative session will again have the chance to consider bills that would promote the production and use of biodiesel.

### **Should the State be involved in helping to develop a Vermont biodiesel industry, using waste vegetable and/or locally grown oil?**

Local producers in states with healthy or growing biodiesel industries have received assistance during their initial growth through a variety of mechanisms including State development grants, tax incentives and legislation. One of the goals of this workshop is to lay the foundation for further consideration of some of these and other options.

### **Are there State regulations to produce, store, transport, use or sell biodiesel?**

Yes. There are local, state and federal regulations and permits that need to be in order to produce or sell biodiesel, whether or not it is mixed with petroleum. Biodiesel is registered as a fuel with the EPA and B100 is designated an alternative fuel with the US DOE. As soon as biodiesel is blended with any amount of petroleum, the blended fuel is regulated the same as petroleum and the permitting process becomes more complicated. For more information on regulations pertaining to the production, storage, use and tax issues for biodiesel and biodiesel blends you may need to contact your local select board, county planners, VT Dept of Labor and Industry, the VT Dept of Environmental Conservation (Vt. DEC, attn: Judy Mirro), the VT Agency of Transportation and/or the Internal Revenue Service.

## **Environmental Questions and User Concerns:**

### **I want to learn more about biodiesel and how it relates to human health.**

A substantial amount of information can be found by searching various government and private websites, for example the *Reports Database* of the National Biodiesel Board ([www.biodiesel.org](http://www.biodiesel.org)), the U. S. Department of Energy ([www.doe.gov](http://www.doe.gov)) and the U. S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov)).

While all engine exhaust can represent a threat to human health and the environment, based on tests conducted by the EPA, emissions from a properly modified and well-maintained engine operating on biodiesel are less for some exhaust constituents, namely carbon monoxide, hydrocarbons and particulate matter. However, engine emissions of nitrogen oxides (an ozone forming precursor) may be the same or greater, depending on the blend rate. As for emissions of sulfur dioxide, most biodiesel fuels contain no to very low levels of sulfur, hence no to low levels of sulfur dioxide emissions. Standards that take

effect on conventional diesel fuel in 2006 will minimize the difference in sulfur dioxide emissions between these two fuels.

### **Can I use biodiesel in my existing diesel engine, landscaping equipment or boilers?**

Yes. Biodiesel works in any diesel engine [or equipment that burns diesel fuel, i.e. heating equipment] with few if any modifications to the engine or the fuel system. Biodiesel has a solvent effect that may release deposits accumulated on tank walls and pipes from previous diesel fuel storage. The release of deposits may clog filters initially and precautions should be taken.

### **Will biodiesel work in cold New England weather?**

ASTM grade B20 is reliable to -38F (provided the petroleum portion is cold weather variety diesel). It is usually necessary to use biodiesel blends (B20) when the storage temperature drops below 35F. With indoor or underground storage, higher concentrations of biodiesel can be used year round. The *pour point* for neat [B100] Biodiesel is between 35F to 50F.

### **Will engine and equipment warranties be honored if biodiesel is used?**

You can search [www.biodiesel.org](http://www.biodiesel.org) for a list of vendors who specifically honor warranties when using biodiesel. Best policy is to call and ask the manufacturer. Manufacturers basically say that they warranty their product, and not the fuel. Also specify ASTM certified fuel for use in new equipment that is still under warranty. Knowing that your fuel is ASTM certified is assurance that you are using a quality tested product that should not cause warranty problems.

### **When will Vermont allow the sale of new diesel-powered cars?**

At the present time, tailpipe emissions from new diesel powered cars do not meet the California emissions standards adopted by Vermont and a number of other Northeast states. Manufacturers may still sell these vehicles in Vermont, provided they offset the increased emissions from these vehicles with the sale of a sufficient number of low emission vehicles; however, no manufacturer has yet to take advantage of this option. It is expected that the use of ultra-low sulfur diesel fuel, required by Federal law in 2006, will enable manufacturers of new diesel-powered cars to meet California emissions standards.

### **There seems to be a great opportunity to improve air quality in and around schools by increasing the use of biodiesel in school buses. Is there evidence of this in other States?**

Pollution from diesel vehicles has health implications for everyone, especially children. The use of biodiesel can reduce that threat. Because it works in any diesel engine with few or no modifications, biodiesel offers schools a relatively inexpensive option for an immediate solution to air quality concerns. As a result, several thousand school buses in the US are running on blends of biodiesel and reporting success.

