National Biodiesel Board
1331 Pennsylvania Ave., NW, Suite 512
Washington, DC 20004
(202) 737-8801
www.biodiesel.org

Testimony of Manning Feraci
National Biodiesel Board Vice President of Federal Affairs
Before the U.S. House Committee on Agriculture
Subcommittee on Conservation, Credit, Energy and Research
May 6, 2009

Summary of Testimony:
There are significant economic, energy security and environmental public policy benefits associated with the domestic production and use of biodiesel. Though the U.S. biodiesel industry has experienced growth since 2004, biodiesel producers find themselves in the midst of a severe economic crisis that threatens the nation's ability to domestically produce low carbon, renewable diesel replacement fuel. In 2009, we anticipate production of biodiesel will be less than half of 2008 levels and utilize approximately 15% of the nation's overall production capacity.

The U.S. biodiesel industry is not seeking the creation of new programs, but is simply asking for expedient implementation of a stable, reliable policy framework that will allow the industry to weather the current economic storm and meet the readily attainable goals established for Biomass-based Diesel by the Renewable Fuel Standard (RFS-2) program, as enacted in the Energy Independence and Security Act (EISA) of 2007 (P.L. 110-140). Accordingly, industry asks the Environmental Protection Agency (EPA) to ensure that the statutory 2009 volume goals for Biomass-based Diesel are enforced.

RFS-2, by statute, requires EPA to consider significant indirect emissions when calculating the greenhouse gas emission (ghg) profile of biofuels. Sound science and common sense dictate that a fair, honest evaluation of international land use decisions account for substantial factors completely unrelated to biofuels production such as forestry, subsistence farming and cattle ranching. The ghg score of a biofuel should be based on sound science and not be penalized due to unrelated factors that are driving land use changes, many of which are difficult to account for in ghg emission modeling. In addition, the same standards and evaluation must be applied to petroleum diesel fuel - the fuel to which Biomass-based Diesel is being compared for purposes of determining its ghg emission profile.

As the RFS-2 rulemaking process moves forward, EPA should work constructively with stakeholders to implement a workable program that can meet the RFS-2 volume goals for Advanced Biofuels. The EPA should not structure the program in a manner that restricts feedstock for low-carbon diesel replacement fuel to only animal fats and restaurant grease by disqualifying vegetable oils as an eligible Advanced Biofuels feedstock. Vegetable oils account for more than sixty percent of the feedstock that is available to meet the RFS-2 Biomass-based Diesel targets, and the RFS-2 goal of displacing petroleum with low carbon renewable fuel simply cannot be met if vegetable oils are disqualified from the program. This outcome is not consistent with either sound science or sound energy policy.

Lastly, U.S. agriculture has historically realized increased productivity and yields over time. As technology improves, it is reasonable to assume that these gains in efficiencies will continue. Further, there is a powerful economic incentive for agriculture producers around the globe to adopt more efficient practices. As these efficiencies are realized in the future, the potential impact of land use change due to biofuels production will be further diminished.

****

Chairman Holden, Ranking Member Goodlatte and Members of the Subcommittee, I thank you for the opportunity to testify today on behalf of the National Biodiesel Board (NBB) about the importance of the Renewable Fuels Standard to the U.S. biodiesel industry and the potential impact Indirect Land Use Change (ILUC) assumptions could have on implementation of this worthwhile program.

About NBB: NBB is the national trade association representing the biodiesel industry as the coordinating body for research and development in the United States. It was founded in 1992 by state soybean commodity groups who were funding biodiesel research and development programs. Since that time, the NBB has developed into a comprehensive industry association which coordinates and interacts with a broad range of cooperators including industry, government and academia. NBB's membership is comprised of biodiesel producers; state, national and international feedstock and feedstock processor organizations; fuel marketers and distributors; and technology providers.

Background and Industry Overview: Biodiesel is a diesel replacement fuel made from agricultural oils, fats and waste greases that meets a specific commercial fuel definition and specification. The fuel is produced by reacting feedstock with an alcohol to remove the glycerin and meet the D6751 fuel specifications set forth by the American Society for Testing and Materials (ASTM International). Biodiesel is one of the best-tested alternative fuels in the country and the only alternative fuel to meet all of the testing requirements of the 1990 amendments to the Clean Air Act.

Biodiesel is primarily marketed as a 5% blending component with conventional diesel fuel, but can be used in concentrations up to 20%. It is distributed utilizing the existing fuel distribution infrastructure with blending occurring both at fuel terminals and "below the rack" by fuel jobbers. Biodiesel is beginning to be distributed through the petroleum terminal system. To date, biodiesel is available in over 40 fuel distribution terminals. In the past year, two major pipeline companies have successfully tested B5 blends in pipelines, and the biodiesel industry has committed funds to continue to study the technical needs required for moving biodiesel through U.S. pipelines. Already, biodiesel is moved through pipelines in Europe and extending that capability in the U.S. would significantly increase biodiesel penetration in the U.S. diesel fuel market.

Biodiesel Public Policy Benefits: There are compelling public policy benefits associated with the enhanced production and use of biodiesel in the U.S.

Biodiesel Reduces our Dependence on Foreign Oil: Biodiesel can play a major role in expanding domestic refining capacity and reducing our reliance on foreign oil. The 690 million gallons of biodiesel produced in the U.S. in 2008 displaced 38.1 million barrels of petroleum,

and increased production and use of biodiesel will further displace foreign oil. In addition, biodiesel is an extremely efficient fuel that creates 3.2 units of energy for every unit of fuel that is required to produce the fuel.

Biodiesel is Good for the Environment: Biodiesel is an environmentally safe fuel, and is the most viable transportation fuel when measuring its carbon footprint, life cycle and energy balance. The U.S. Department of Agriculture (USDA)/Department of Energy (DoE) lifecycle study shows a 78% reduction in direct lifecycle CO2 emissions for B100. 1 billion gallons of biodiesel will reduce current life cycle greenhouse gas emissions by 16.12 billion pounds, the equivalent of removing 1.4 million passenger vehicles from U.S. roads. In 2008 alone, biodiesel's contribution to reducing greenhouse gas emissions was equal to removing 980,000 passenger vehicles from America's roadways.

Biodiesel's emissions significantly outperform petroleum-based diesel. Research conducted in the U.S. shows biodiesel emissions have decreased levels of all target polycyclic aromatic hydrocarbons (PAH) and nitrited PAH compounds, as compared to petroleum diesel exhaust. These compounds have been identified as potential cancer causing compounds.

Biodiesel is the only alternative fuel to voluntarily perform EPA Tier I and Tier II testing to quantify emission characteristics and health effects. That study found that B20 (20% biodiesel blended with 80% conventional diesel fuel) provided significant reductions in total hydrocarbons; carbon monoxide; and total particulate matter. Research also documents the fact that the ozone forming potential of the hydrocarbon emissions of pure biodiesel is nearly 50% less than that of petroleum fuel. Pure biodiesel typically does not contain sulfur and therefore reduces sulfur dioxide exhaust from diesel engines to virtually zero.

The Biodiesel Industry is Creating Green Jobs and Making a Positive Contribution to the Economy: In 2008 alone, the U.S. biodiesel industry supported 51,893 jobs in all sectors of the economy. This added $4.287 billion to the nation's Gross Domestic Product (GDP) and generated $866.2 million in tax revenue for federal, state and local governments.

By conservative estimates, there is domestic feedstock available to support 1.77 billion gallons of annual biodiesel production in the U.S. The domestic industry has the capacity to support this level of production. The production of 1.77 billion gallons of fuel would support 78,619 jobs; add $6.660 billion to the GDP; displace 97.8 million barrels of petroleum; generate $1.345 billion in revenue for federal, state and local governments; and reduce greenhouse gas emissions by 27.4 billion pounds - the equivalent of removing 2.38 million passenger vehicles from U.S. roads.

The Biodiesel Industry Stimulates Development of New Low-Carbon Feedstocks: The feedstock used to produce U.S. biodiesel has increasingly diversified, with waste products such as animal fat and used restaurant grease (yellow grease) making up a larger portion of the feedstock used to produce fuel. Biodiesel production is currently the most efficient way to convert lipids into low-carbon diesel replacement fuel, and as a result, industry demand for less expensive, reliable sources of fats and oils is stimulating promising public, private and non-profit sector research on new alternative feedstocks such as algae.

Algae's potential as a source of low carbon fuel has been well documented, and a stable, growing biodiesel industry is necessary if the U.S. is to eventually benefit from the commercial scale production of algal-based biofuels. The NBB estimates that for every 100 million gallons of

biodiesel that is produced from algae, 16,455 jobs will be created and $1.461 billion will be added to the GDP.

U.S. Biodiesel Industry is Facing Severe Economic Hardship: Despite recent growth, the industry is in the midst of an economic crisis. Plants are having difficulty accessing operating capital. Volatility in commodity markets; reduced demand and inability to compete in the European marketplace are making it difficult for producers to sell fuel. Lastly, uncertainty relating to federal policy that is vital to the industry's survival is sending inconsistent signals to the marketplace and undermining investor confidence.

If prolonged, this downturn will lead to a severe retraction in U.S. biodiesel production capacity. Due to current market conditions, less than one-third of the industry's facilities are currently producing fuel. NBB estimates that absent any change in federal policy, U.S. biodiesel production will likely fall to 300 million gallons in 2009, which would cost the U.S. economy more than 29,000 jobs. This situation threatens the nation's ability to meet the advanced biofuels goals established in the 2007 Energy Bill.

A Reliable Policy Framework is Needed for U.S. Biodiesel Industry: The U.S. biodiesel industry is not seeking the creation of new programs. Instead, common-sense improvements and thoughtful implementation of existing initiatives will help the industry survive in this difficult economic climate. Specifically, a multi-year extension of the biodiesel tax incentive and successful implementation of a workable RFS-2 are needed if the nation is to reap the future economic, environmental, and energy security benefits associated with the production and use of biodiesel. For purposes of today's testimony, I will focus on RFS-2.

The Energy Independence and Security Act and the Renewable Fuels Standard: The Energy Independence and Security Act (P.L. 110-140), enacted on December 19 2007, significantly expanded and improved the RFS.

By statute, RFS-2 provides for the use of 36 billion gallons of renewable fuels in the U.S. by 2022. The program establishes a use schedule for Conventional Biofuels and Advanced Biofuels. The schedule for Conventional Biofuels, which must reduce ghg emissions by 20% compared to the baseline fuel it is displacing, increases from 10.5 billion gallons in 2009 to 15 billion gallons in 2015. From 2015 through 2022, the use requirement for Conventional Biofuels remains constant at 15 billion gallons. Biofuel production facilities placed in service prior to enactment of P.L. 110-140 are exempt from 20% ghg reduction requirement that is applicable to Conventional Biofuels.

RFS-2 also establishes a use schedule for Advanced Biofuels that begins at 600 million gallons in 2009 and increases to 21 billion gallons by 2022. Within the Advanced Biofuels schedule, there are specific use and ghg reduction requirements for Cellulosic Biofuels, Undifferentiated Advanced Biofuels, and Biomass-based Diesel. The statutory date of enactment for the RFS-2 program is January 1, 2009.

Implementation of a Workable RFS-2 Biomass-based Diesel Schedule of Vital Importance to the U.S. Biodiesel Industry: For the first time, RFS-2 specifically requires a renewable component in U.S. diesel fuel as part of the program's Advanced Biofuels schedule. Specifically, RFS-2 requires the use of 500 million gallons of Biomass-based Diesel in 2009; 650 million gallons in 2010; 800 million gallons in 2011; and 1 billion gallons in 2012. Between 2012 and 2022, a minimum of 1 billion gallons must be used, and the Administrator of the EPA has the authority to set the use requirement at a higher level.

To qualify as Biomass-based diesel, fuel must reduce greenhouse gas (ghg) emissions by 50% compared to conventional diesel fuel. The EPA Administrator is provided the authority to reduce the ghg emission target to 40%. By statute, the Biomass-based Diesel requirement starts in 2009, and thus, is the first component of the Advanced Biofuels schedule to be implemented. Though fuels in addition to biodiesel will in all likelihood qualify for this schedule, the U.S. biodiesel industry is the only entity producing low carbon, renewable diesel replacement fuel at commercial scale that is readily accepted in the domestic marketplace.

As is mentioned earlier in this testimony, the U.S. biodiesel industry is in the midst of an economic crisis. Plants are closing and production is well below comparable levels from last year. The EPA has the regulatory authority it needs to implement a workable program that is consistent with sound energy and environmental policy, and successful implementation of RFS-2 will help create the market demand that will allow the industry to survive. A viable domestic biodiesel industry is in the nation's best interests, and expedient implementation of a workable Biomass-based Diesel program is a top industry priority. Accordingly, industry asks the EPA to take concrete steps to ensure that the 2009 volume goals established by statute for Biomass-based Diesel are enforced.

The Inexact Nature of Indirect Land Use Change (ILUC) Assumptions: As mentioned previously, renewable diesel replacement fuel must reduce ghg emissions by 50% compared to conventional diesel fuel to qualify for the Biomass-based Diesel program. The science pertaining to *direct* emissions is well established. The USDA/DoE lifecycle study was initially published in 1998, and has been continually refined and updated since this time. According to this model, biodiesel reduces ghg emissions by 78%.

By statute, RFS-2 specifies that significant indirect emissions are to be considered when calculating a renewable fuel's ghg emission profile. EPA has opted to account for ILUC, in particular international land use assumptions, in its ghg calculations as part of the rulemaking process. There is neither consensus in the scientific community nor a widely accepted methodology that could be deemed credible to accurately calculate the impact of U.S. biofuel production on international land use decisions. Nevertheless, the EPA's decision to rely on a questionable ghg methodology inaccurately attributes significant deforestation in South America to the cultivation of oilseeds such as soybeans and canola produced in the U.S.

The U.S. biodiesel industry currently produces the most sustainable fuel available in the marketplace. The NBB fully supports efforts and initiatives that are designed to protect sensitive ecosystems such as the rainforests in South America and Southeast Asia.

With that said, sound science and common sense dictate that a fair, honest evaluation of international land use decisions account for substantial factors completely unrelated to biofuels production such as forestry, subsistence farming and cattle ranching. The ghg score of a biofuel should not be penalized due to unrelated factors that are driving land use changes, many of which are difficult to account for in ghg emission modeling. In addition, the same standards and evaluation must be applied to petroleum diesel fuel - the fuel to which Biomass-based Diesel is being compared for purposes of determining its ghg emission profile.

It is our understanding that the EPA's methodology places significant emphasis on land use changes in Brazil. Specifically, the EPA attributes deforestation in the Brazilian rainforest to U.S. biodiesel production, and this dubious assumption is used as the rationale to penalize the ghg emission score of U.S. biodiesel produced from vegetable oils. From 2004 through 2008,

U.S. biodiesel production increased from 25 million gallons to 690 million gallons. If U.S. biodiesel production was causing significant land use change in Brazil, common sense would dictate land dedicated to Brazilian soybean production would have shown a corresponding increase.

Yet in 2004, soybean production in Brazil covered 22.917 million hectares. In 2008, soybean production accounted for 21.400 million hectares – a *decrease* of 1.5 million hectares. As U.S. biodiesel production increased by 665 million gallons, land dedicated to soybean cultivation in Brazil decreased by 1.5 million hectares – a real world outcome that casts significant doubt on EPA's preliminary assumptions and again highlights that other significant factors outside of U.S. biofuels production drive land use decisions.

Impossible to Meet Biomass-based Diesel Requirements Without Vegetable Oils as Qualifying Feedstocks: As the rulemaking proceeds and is ultimately finalized, a program structured in a manner that allows vegetable oils, including domestically-produced soybean and canola oil, to qualify as feedstock for the Biomass-based Diesel schedule is consistent with sound science and policy. Vegetable oils account for more than sixty percent of the feedstock that is available to meet the RFS-2 Biomass-based Diesel targets, and the use requirements established by this component of the Advanced Biofuels schedule simply cannot be met if these feedstocks are disqualified from the program. We are hard pressed to believe this potential outcome is consistent with the will of Congress or sound environmental policy that values the displacement of petroleum diesel with low-carbon renewable fuels.

Absent vegetable oils as a qualifying feedstock, biofuel producers will be forced to rely almost entirely on animal fats and yellow grease (used restaurant grease) to meet the RFS-2 Biomass-based Diesel requirements. The U.S. biodiesel industry estimates that even with the most optimistic assumptions, the most biodiesel that could be produced in a year from this pool of limited feedstock would be 410 million gallons. Though animal fats and restaurant grease are important resources for biodiesel production - and U.S. producers can make quality fuel that meets the ASTM D6751 fuel specification from this feedstock – there simply will not be enough of these feedstocks to produce the fuel needed to meet either the 500 million gallons of Biomass-based Diesel required in 2009 or the 1 billion gallons that is ultimately required in 2012. By contrast, there is ample feedstock to meet the Biomass-based Diesel schedule if vegetable oils are permitted as a feedstock.

It is also important to note other potential unintended policy impacts if the Biomass-based Diesel feedstock is limited to animal fats and restaurant grease. For example, this would add significant volatility and disruption in the markets as it pertains to the pricing of these commodities, and could compel entities not impacted by the RFS-2 program that currently use these commodities in the production of other goods to seek lipids from less-sustainable sources. In addition, given winter and summer fuel blending regimes that are widely accepted and used in the marketplace, a program that limits U.S. biodiesel production to animal fats and restaurant grease would in essence make the U.S. industry seasonal in nature. Neither of these unintended outcomes is consistent with sound energy or environmental policy.

GHG Calculations Must Account for Improved Agriculture Yields and Efficiency: U.S. agriculture has historically realized increased productivity and yields over time. As technology improves, it is reasonable to assume that these gains in efficiencies will continue. Further, there is a powerful economic incentive for agriculture producers around the globe to adopt more efficient practices. As these efficiencies are realized in the future, the potential impact of land use change due to biofuels production will be further diminished.

New technology will add significantly to the U.S. raw material supply. Though the feedstock used to produce U.S. biodiesel has grown more diversified over time, soybean oil has been the most utilized biodiesel feedstock to date in the U.S. Based upon historical yield trends, domestic production of soybeans will continue to increase. However, a major research focus of companies such as Pioneer and Monsanto has been to create "virtual acres" through stepwise enhancements in yield technology and/or oil content. Monsanto plans to introduce new technology that can increase soybean yields 9 to 11 percent. Pioneer, a DuPont Company, is commercializing soybean varieties that increase yields by as much as 12 percent. After years of research investments by the life science companies, these technologies have reached commercialization and are set to have a meaningful impact on soybean yields in 2010. More than 90 percent of U.S. farmers currently utilize herbicide-resistant soybean varieties, demonstrating farmers' willingness and desire to adopt technology that can enable improved profits through increased yields or decreased costs. If this same 90 percent of U.S. soybean acres adopted the new yield technology, more than 60 million acres could see a 10 percent increase in yield. This equates to more than 250 million additional bushels of soybeans (the equivalent of 380 million gallons of biodiesel) without increasing acreage in the U.S.

The same benefit can be achieved by increasing soybean oil content. Current industry genetic programs suggest 10 percent oil increases are achievable within the next few years, and increasing soybean oil content by that percentage would generate approximately 120 million gallons of additional oil if adopted on 50 percent of soybean acreage. New approaches for achieving even higher oil levels in plants are being actively researched. The NBB has partnered with the Donald Danforth Plant Science Center to identify novel approaches to enhance oil production in soybeans and other oilseeds. This work centers on the hypothesis that the ability to utilize available carbon limits oil production. Therefore, the Danforth Center's work will focus on engineering carbon sinks that will pull metabolites through the oil production process in plants. This is a three-year program that was initiated in 2008.

The soybean industry will continue to play a key role in providing feedstock for the biodiesel industry for years to come. Based upon current technology available to soybean producers, if processing capacity expands it is reasonable to project the production of at least 780 million gallons of biodiesel with existing soybean oil supplies in 2012. This estimate does not take into consideration soybean oil exports, amounting to more than 300 million gallons of soybean oil in 2008, which could be diverted into domestic biodiesel production. Nor does it take into account an estimated one billion bushels of soybeans that are exported and could be a source of biodiesel feedstock if the domestic crushing industry further expanded capacity.

In Conclusion: The provision in RFS-2 establishing the Biomass-based Diesel Schedule is consistent with energy and environmental policy that values the displacement of petroleum diesel with low carbon renewable fuels. Expedient implementation of a workable RFS-2 program is a top priority for the U.S. biodiesel industry that will allow the nation to continue reaping the economic, energy and environmental benefits associated with the increased production and use of biodiesel.

Chairman Holden, Ranking Member Goodlatte, and Members of the Subcommittee, I again thank you for having the opportunity to testify before you today, and I would be pleased to answer any questions you may have.