The National Biodiesel Industries Benefits to Animal Agriculture

Biodiesel is an advanced biofuel sustainably produced from vegetable oils, animal fats, and waste greases with 2014 U.S. production of 1.8 billion gallons and mandated in the national Renewable Fuel Standard to rise to 1.9 and 2.0 billion gallons in 2016 and 2017, respectively. A majority of biodiesel is derived from soybean oil, but animal fats such as inedible beef tallow, choice white grease, and poultry fat also contribute significant percentages of feedstock.

Animal agriculture is an important sector for biodiesel production and vice versa. Over a recent seven year period U.S. livestock and poultry producers saved nearly 6 billion dollars due to the use of soybean oil as a major biodiesel feedstock.

Kansas is a leading beef production state and as such utilizes significant amounts of soybean meal and generates considerable quantities of beef tallow. Animal fat co-products from slaughter such as beef tallow can be used as feedstocks and soybean oil as a biodiesel feedstock can help lower protein costs due to more available soybean meal. According to several recent analyses, the costs savings and enhanced revenue streams are significant.

Following are brief presentations that explain the total contribution the national biodiesel industry makes to the US beef, pork, and poultry industries, but also specifically to the Kansas beef industry in terms of lower feed costs and an enhanced revenue stream from inedible tallow.
Biodiesel’s Benefits for the Kansas Beef Animal Agriculture Industry

Animal agriculture is important to Kansas, as well as for biodiesel production not only in terms of using the animal fat co-products from slaughter as feedstocks, but soybean oil can lower protein costs for the livestock industry. Here are 3 major benefits biodiesel provides to the beef sector in Kansas:

1. Animal fat exports have declined significantly impacting the livestock industry. Using animal fats as biodiesel feedstocks has helped provide a ‘make-up’ market for these lost exports. This shows how the tallow market works with respect to biodiesel:

   ![Tallow Market Price Dynamics](image)

   For Kansas specifically, use of inedible tallow amounted to approximately $35 million in benefits.

2. Increases in biodiesel production directly translate into additional demand for soybeans and other vegetable oils, leading to more crushing, producing a greater amount of meal which helps lower the cost to livestock producers.

   ![Co-Product Demand Linkage](image)

   In Kansas, the impact of having greater amounts of soybean meal available due to increased national biodiesel production has been estimated around $7.8 million in 2013.

3. Crude glycerin from the biodiesel production process has significant energy/BTU value and has a tentative definition as an animal feed ingredient by the Association of Animal Feed Control Officials offering two other potential means of reducing costs to Kansas beef producers.

The biodiesel and livestock industries have a number of synergistic aspects for reducing input costs as well as increasing carcass value. For Kansas livestock producers a healthy biodiesel industry provided over $42 million dollars a year in aggregate benefits due to decreased meal expenses and use of inedible tallow as a feedstock.
The U.S. Biodiesel Industries Benefit to the National and the Kansas Beef and Pork Livestock Sectors

Presentation developed for Kansas Soybean Commission

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How does increased biodiesel production impact livestock production? The BIG Picture

Increased biodiesel demand means greater need for vegetable oils → More SBM and reduced feed costs due to lower SBM prices

Increased biodiesel production also means greater demand for animal fats → Additional revenue due to higher animal fat values

Glycerin, a by-product of biodiesel production, can provide an additional/alternate energy source for feed rations to help mitigate risk
Biodiesel Production Lowers Soybean Meal Costs for the Livestock and Poultry Industry

More Biodiesel Demand
Biodiesel creates more demand from vegetable oils. The price of soybean oil increases since there is more demand at a given level of supply.

More Soybean Production
This leads to more crush to meet the oil demand, thus increasing the demand for soybeans which in turn leads to higher soybean prices.

Lower Meal Prices
The increased crush also produces a greater supply of soybean meal, causing the price of meal to decline.

6 Independent Studies analyzed the relationship between greater soybean oil demand from biodiesel and soybean meal prices and found that an increase, on average, from 2006/2007 to mid-2014/2015 of soybean oil by 11 cents/pound with soybeans increasing by $0.63 per bushel, soybean meal declining by $21 per ton, and a lower national feed cost impact of $5.9 billion.
### Estimated National Impact of Biodiesel Production on the Dairy and Beef Industry’s Meal Costs

#### Dairy Cow Meal Savings (Annual)

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<th>Meal in Complete Ration (T/hd)</th>
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#### Feeder-to-Finish Steer Production Meal Savings

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<td>$25/T Meal Price Savings</td>
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Estimated Impact of Biodiesel Production on the Pork Industry’s Meal Costs

Breeding Sow Meal Savings (Annual)

- Meal in Complete Ration (T/hd): 0.10
- Soybean Meal Cost ($/hd): $25/T
- Meal Price Savings: $2.50

Wean-to-Finish Hog Production Meal Savings

- Meal in Complete Ration (T/hd): 0.07
- Soybean Meal Cost ($/hd): $25/T
- Meal Price Savings: $1.69
Biodiesel Demand for Animal Fats Generates an Additional Revenue Stream for the Beef Livestock Industry

- Declining export markets
- Approximately 25% of U.S. animal fats are utilized for biodiesel production; a significant feedstock source
Relationship of Animal Fat Prices with Respect to the Biodiesel Increases in the Renewable Fuel Standard (RFS)

Higher animal fat demand due to the RFS leads to higher prices.

Higher animal fat prices do little to stimulate higher livestock production.

Animal fat supply is basically fixed, and prices remain at elevated levels.
National Demand Areas for Inedible Tallow, Choice White Grease, and Poultry Fat and Revenue Enhancements to the Beef, Pork, and Poultry Sectors

**Beef Tallow**
- $16.08 increase in value per head on a national basis
- $567.59 MM estimated national aggregate contribution to industry from biodiesel demand in 2013

**Choice White Grease**
- $1.24 increase in value per head on a national basis
- $165.59 MM estimated national aggregate contribution to industry from biodiesel demand in 2013

**Poultry Fat**
- $0.01 increase in value per head
- $51.20 MM estimated aggregate contribution to industry from biodiesel demand in 2013
The National Biodiesel Industry and Its Beneficial Impact to the Kansas Beef and Pork Industries

- The annual feed bill for the Kansas beef industry in 2014 was around $7.8 million less due to biodiesel production.

- For Kansas beef production approximately $35 million of revenue ("drop value") was injected into the value chain due to the use of inedible tallow for biodiesel production.

- In 2014, for the Kansas pork industry, annual average feed costs have been estimated to be around $2.8 million less due to biodiesel production.

- Kansas pork production saw over $2.1 million of revenue ("drop value") back to their total production operations through the use of choice white grease nationally.
New Uses: Crude Glycerin

Food and Tobacco Products: used to add moisture and sweetness to these products. It also has preservative qualities.

Pharmaceuticals: cough syrups, elixirs, and gel caps

Oral Care Products: gives products such as toothpastes and chewing gums a sweet taste without contributing to tooth decay

Personal Care Products: helps prevent moisture loss, ideal ingredient in makeups, skin lotions, shampoos, and deodorants

Industrial Uses: used in the production of plastics, foams, explosives, resins, and coatings

Animal Feeds: can be applied directly to feed or used to manufacture pelletized feed

Fuel Sources: burns well at high temperatures
Key “Takeaways” of U.S. Animal Agriculture, Kansas Beef, Pork and Biodiesel

- Increased biodiesel production is reducing feed costs, increasing values of animal fats, and adding a potential energy source for your rations.

- Animal fat export markets have been declining and biodiesel use has “backfilled” that lost demand.

- Use of the glycerin by-product from biodiesel production has potential to add value for processing plants as an alternate energy source or, as now approved, a feed source.

- For Kansas beef producers a healthy biodiesel industry provides over $42 million dollars a year in aggregate benefits due to decreased meal expenses and use of inedible tallow as a feedstock.

- For Kansas pork producers, nearly $5 million dollars per year was realized due to use of choice white grease and decreased feed costs because of the national biodiesel industry.