

• Grant Described:
  – How soybeans are farmed Including:
    • On farm storage
    • Local coop/elevator storage
    • Transportation by:
      – Truck, rail, barge
• That leaves:
  – Wholesale bean purchase, storage, distribution
  – Soybean crushing
  – Marketing of protein meal and vegetable oil
  – Oil storage and wholesale purchases/distribution
  – Acquisition for biodiesel production
  – Wholesale fuel distribution
  – Retail fuel distribution
• Farmers sell whole beans
• Whole beans can be:
  – Exported as whole beans
  – Held in storage or traded to speculate on future market price
  – Sent to a crush facility.
• Whole beans can be stored without spoilage for long periods
  – Unlike sugarcane, beets, palm fruit bunches, etc. – none of these can be stored in raw form.
• At the Crush Facility:
• Vegetable oil is separated from protein meal and hulls
• To be economically viable, there must be a markets for meal and oil.
  – Otherwise beans will be left whole
  – Exported whole beans are crushed overseas
• At the Crush Facility:
• If demand for meal is high relative to oil, protein prices will be high.
• If demand for oil matches production, protein prices will be lower.
• The ratio of meal to oil is 4:1, so protein has 4 times the influence on the price equation.
  – Protein can drive demand for whole beans, oil cannot.
• Vegetable oil can be:
  – Crude de-gummed, Refined, Bleached, Deodorized

• Any of these can be:
  – Exported
  – Held in storage or traded to speculate on future market price
  – Sold on the domestic wholesale market

• Vegetable oil is stored in tanks under nitrogen or with antioxidants for long term storage.
• Integrated businesses vs. independent operators

• Crush facilities bring in some local grain direct from farmers. They also buy grain wholesale from all over.
  – They need that flexibility to optimize plant capacity, to take advantage of wholesale crop surpluses, or manage local shortages, etc.
• Integrated businesses vs. independent operators

• Some biodiesel plants are co-located at crush facilities.
  – This doesn’t guarantee them access to feedstock
    • Biodiesel must still compete with the wholesale market for other uses
    • Biodiesel plants may sit idle while oil goes to other uses if markets so dictate.
• Integrated businesses vs. independent operators
• Farmers are independent
• Most biodiesel producers are independent
• Independent operators faces some disadvantage in competitiveness
  – And would certainly be disadvantaged through certain chain of custody requirements.
Biodiesel: Advanced Biofuel, Here Now

**Diversity**

*Biodiesel is among the most diverse fuels in the world, with an expanding array of feedstocks.*

- Yellow Grease
- Canola Oil
- Animal Fats
- Soybean Oil
- Corn Oil from ethanol production
- Algae
- Cottonseed Oil? Camelina Oil?
Flexibility and Diversity is important
• Flexibility and Diversity is important
• Producers need flexibility to use the lowest-cost feedstock available.
• They need to be able to switch from soy to Canola or animal fat and used cooking oil
• They need flexibility to switch suppliers or sources based on season conditions
• There are many intermediaries in the physical supply chain for vegetable oil.
  – Producers, wholesalers, processors, speculators
• Commodity trading and derivatives:
  – Shares, futures, puts, takes, etc.
  – Many owners don’t take physical possession. Will their piece of paper be tied to a certified bean or a non-certified bean?