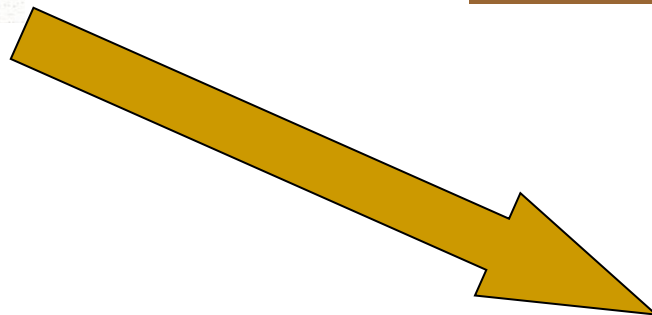
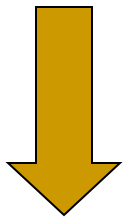
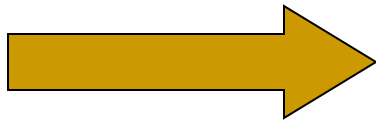

2010 On-Farm Small Scale Biodiesel Update



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Biodiesel Project - Purposes

- Evaluate the feasibility of on-farm scale, biodiesel production
 - Grow the oil crop, press and refine
 - Factor in fuel quality and safety
 - Use the fuel in machinery and for heating the home and or shop
 - Feed the meal to the livestock
-

First decide your purpose



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 **BIODIESEL**

“Unleashing the power of the bean!”

Sunflower Challenges:

- Lodging – **Poor ground – limit fertilizer**
- Weed Control – **excellent (little pricey)**
- Birds – **early variety seem better**
- Unknowns – insect and disease control – **watch out for white mold**
- Harvest equipment – **corn head –OK**
- Drying – **don't use dryer (field dry)**
- Storage - **???? Haven't dealt with**

Canola Challenges:

- Lodging - **not a big issue to date**
- Weed Control - **Round-up Ready**
- Birds - **not an issue**
- Unknowns – insect and disease control - **?**
- Harvest equipment - **field loss significant**
- Drying – **don't use dryer (field dry)**
- Storage - **???? Haven't dealt with**

FARM SCALE BIODIESEL PLANT CAPITAL INVESTMENT

Asset	Notes	Cost
Press	Swedish Type 70	\$7,700
Furnace	Multi-Fuel	\$6,410
Hp-100 Biodiesel Processor	Includes scale and testing equipment	\$10,500
Dry Wash Tower	Includes pump and calculator	\$1,034
Building	20'X40' pole barn w/ concrete floor	\$12,000
Building Modifications	Wiring, augers, storage, grain hoppers, fans, etc	\$1,500
Other	Pumps and misc	\$400
Total Investment		\$39,544

System Operating Assumptions

ISSUE	AMOUNT
Operation - Days/Year	182.5 Days
Canola or Sunflower Seed Biodiesel Production/Year	7,300 Gallons
Plant Labor Required/Year	91.25 Hours
Gallons of Vegetable Oil Required/Year	7,811 Gallons
Pounds of Vegetable Oil Required/Year	60,145 Pounds
Pounds of Canola or Sunflower Seeds Required/Year	150,708 Pounds
Tons Of Canola or Sunflower Meal Produced	52 Tons

OILSEED CROP OPERATING ASSUMPTIONS

ISSUE	AMOUNT
Canola Yield/Acre	1,945 Pounds
Canola Acres Required/Year	77.5 Acres
Total Cost (\$293/acre) To Produce The Canola Needed	\$22,708
Sunflower Seed Yield/Acre	2,500 Pounds
Sunflower Seed Acres Required/Year	60.3 Acres
Total Cost (\$314/acre) To Produce The Sunflower Seeds Needed	\$18,934

Estimated Cost to Produce Canola and Sunflower BioDiesel

Item	Canola (\$/gal)	Sunflower (\$/gal)
Oil Seed	\$2.97	\$2.70
Prod cost including labor	\$0.43	\$0.43
Overhead	\$0.79	\$0.79
Opportunity cost of capital	\$0.39	\$0.39
Estimated cost	\$4.58	\$4.31
Credit for Co-Product	\$1.58	\$1.18
BioDiesel Cost	\$3.00	\$3.13

Challenges to Date:

- Flash Point too high
 - Safety – methanol vapor levels - \$\$
 - Regulations
 - Dept of Commerce - ??
 - DNR – no problem w/ methanol recovery, water wash
 - Local – no problem
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