

# Federal Assistance and Economics of Small-Scale Biodiesel Production



# Presentation Outline

- Federal Assistance Programs
- Investment Costs
- Operation Costs
- Income Estimates
- Estimated Production Cost



# Value-Added Producer Grant

- Sell biodiesel
- \$75,000 for planning grants
- \$200,000 for working capital grants
- Eligible for  $\leq 50\%$  of project costs

# Renewable Energy for America Program

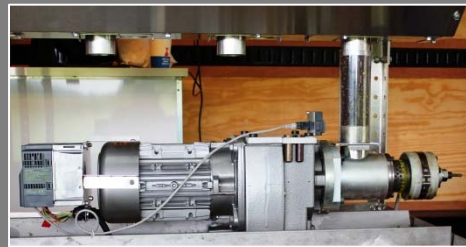


- Purchase and installation of renewable energy systems
- Grants: \$2,500 to \$500,000
- Loan guarantees: \$5,000 to \$25 million
- Eligible for up to 25% of project costs

# Biodiesel Production



Canola seed



Conversion Technology

Production Cost



Canola Meal



Biodiesel

Revenue

# 1. Equipment Cost

- Oil press unit: \$8,000
- Biodiesel processor : \$4,000 - \$5,000
- Methanol recovery: \$3,495
- Installation Cost: \$2,100
- **Initial Investment Cost: \$18,835**
  
- Estimated annual loan payment: **\$2,380.**
  
- Capital cost including interest per gallon of biodiesel with annual production
  - 1000 gallons: **\$2.73**
  - 1500 gallons: **\$1.82**
  - 2000 gallons: **\$1.37**

## 2. Operating Cost

- Chemicals: **\$0.60 per gallon**
- Maintenance Cost: **\$0.07 – 0.14 per gallon**
- Electricity: **\$0.77 per gallon**
  
- Total Processing cost per gallon of biodiesel with annual production
  - 1000 gallons: **\$4.23**
  - 1500 gallons: **\$3.27**
  - 2000 gallons **\$2.79**

### 3. Feedstock Cost

Feedstock production cost = \$160/acre  
(Buntin et al., 2013)

Canola Yield: 2100 lbs/acre  
(2012 National Winter Canola Variety Trials in Tennessee)  
(Stamm and Dooley, 2013)

Feedstock Cost = **\$2.15 – \$2.73 per gallon**



# Total Production Cost



Seed Cost  
**\$2.65**



Investment  
and Interest  
Costs  
**\$1.82**



Operation Costs  
Chemicals, Electricity :  
**\$1.45**



**\$5.92**



# Revenue Generation

- Value of seed meal

**\$2.17 - \$3.17 per gallon of biodiesel**



# Cost Scenarios

Ownership Scenarios	Total Production Costs (\$/gallon)	Seed meal value (\$/gallon)	Production Cost (\$/gallon)
<b>Individually Owned</b>	\$5.92	\$3.03	<b>\$2.89</b>
<b>Subsidized (25%)</b>	\$5.47	\$3.03	<b>\$2.44</b>
<b>5 farmers</b>	\$4.44	\$3.03	<b>\$1.41</b>
<b>10 farmers</b>	\$4.29	\$3.03	<b>\$1.26</b>

## Further information

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