Federal Assistance and Economics of Small-Scale Biodiesel Production

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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

Production Cost

Canola seed

Conversion Technology

Revenue

Canola Meal

Biodiesel
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

Operation Costs:
- Chemicals, Electricity: $1.45

Investment and Interest Costs:
- $1.82

Total Production Cost:
- $5.92
Revenue Generation

• Value of seed meal

$2.17 - $3.17 per gallon of biodiesel

USDA-ERS, 2012
## Cost Scenarios

<table>
<thead>
<tr>
<th>Ownership Scenarios</th>
<th>Total Production Costs ($/gallon)</th>
<th>Seed meal value ($/gallon)</th>
<th>Production Cost ($/gallon)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individually Owned</td>
<td>$5.92</td>
<td>$3.03</td>
<td>$2.89</td>
</tr>
<tr>
<td>Subsidized (25%)</td>
<td>$5.47</td>
<td>$3.03</td>
<td>$2.44</td>
</tr>
<tr>
<td>5 farmers</td>
<td>$4.44</td>
<td>$3.03</td>
<td>$1.41</td>
</tr>
<tr>
<td>10 farmers</td>
<td>$4.29</td>
<td>$3.03</td>
<td>$1.26</td>
</tr>
</tbody>
</table>
Further information

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