State Line Biofuels

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More information available:
www.vsjf.org
Outline of Presentation

• Location
• History & Vision of SLB
• Crop Production Background
• Processing
• Recent Developments & Next Steps
History and Vision

- Long-time Dairy Farm
- Sugar Operation (Maple)
- Waste Oil to Fuel – Early Days
- Oil Seed Trials – Started 2005
- Oil Milling (Oil and Meal)
- “Large” Batch Processor
- Contract Processing
- Seed Drier, Cleaner and Storage
- “Open Source” and “Self-Fueling”
Help from Others

UVM Extension
Vermont Sustainable Jobs Fund (VSJF)
US Department of Energy
McClure Fund
High Meadows Fund
Farm Viability Institute
VT Agency of Ag and Markets
Crop Production

- **Annual Trials**
  - Canola & Sunflower
  - Other crop trials
  - Always learning
- **Harvesting**
  - Massey-Harris 35SP (old)
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‘65 Massey-Harris SP35 at work

Biodiesel Samples, “Just like at the sugar house.”

Moisture tester

The “Bio-Barn” – Making use of gravity, the sun and shade.
Drying and Storage

- Used grain bin (1500 bu)
- Solar hot water collector (evacuated tube)
- Used radiator combined with drier fan
- Solar heat reduces drying time by approx. 50% compared to ambient air only
- Solar hot water is also used to heat up oil for biodiesel processing and can heat building (radiant floor)
BioBarn

- Built specifically for pressing oil and making fuel
- Wanted to move processor out of cow barn
- Designed to make use of free energy
  - Gravity / slope
  - Passive solar
  - Active solar
- Spill Containment
- Fire Safety
Processing

- Mill, Settle, Heat, Process, Filter
- 300 gal batch processor
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- Biodiesel processor
- Condenser for Alcohol Recovery
- Taby Press
- 500 gal Settling Tank
- 400 gal Process Tank
- 115 gal Mix Tank
- Explosion Proof Pump
- Canola
- Dry wash system and new storage tanks
Outreach & Education

- System Overview Handout
- Open Houses
- Speaking
- Publications
Challenges and Next Steps

• New crops and seed trials (oilseed and sugar crops)
• Crop rotations
• Tracking performance, measurement & record keeping
• Increasing storage capacity
• Truly renewable biodiesel
  – Local ethanol vs. methanol
  – Lye from wood wash or sweet sorghum ash
• Improve alcohol recovery
• Fuel quality monitoring
• Pelletizing meal
• Continue education & outreach