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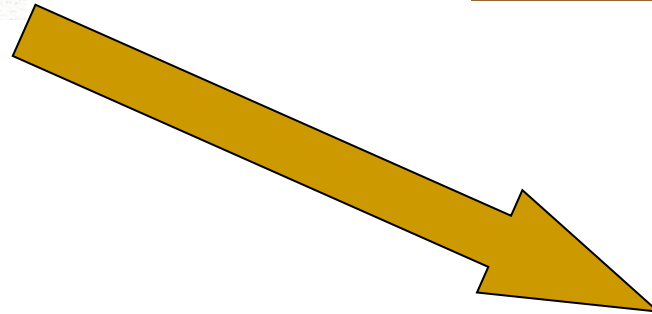
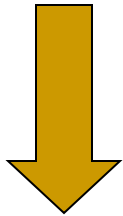
# 2009 On-Farm Small Scale Biodiesel Update

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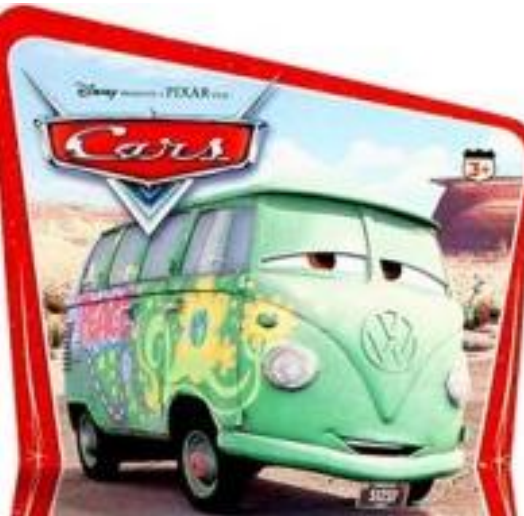
Steve Huntzicker, Bill Halfman, Jerry Clark, Jon Zander ,  
Trisha Wagner, Bob Cropp & Carl Duley  
La Crosse, Monroe, Chippewa, Trempealeau, Jackson,  
Pepin & Buffalo County Agriculture Extension Agents





# BioFuel in the News

Wisconsin Soybean Board helped to sponsor a 1985 bus that traveled to Mississippi filled with disaster relief workers



Virgin Atlantic flies jumbo jet with biofuel



**“Filmore” – Disney Movie CARS  
Runs on “sweet tasting organic fuel”**



# Biodiesel Project

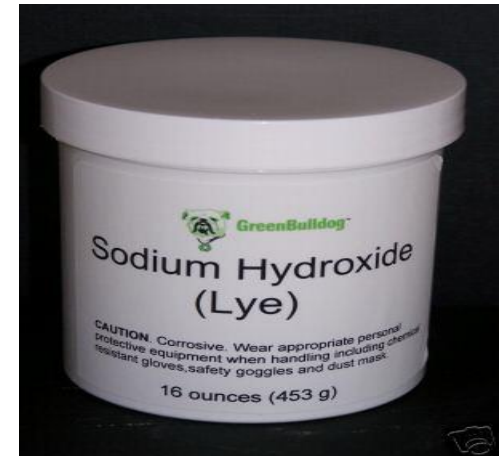
- Evaluate the feasibility of on farm, small scale, biodiesel production
- Grow the oil crop, press and refine
- Use the fuel in machinery and for heating the home and or shop
- Feed the meal to the livestock
- Goal: to see if it is economically viable

# Crop Production



## Capital Equipment

## Operating Costs



## Purpose

# First decide your purpose





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# You Decide Why You are Producing

- Increase profit on your farm businesses
  - Separate business
  - Miser
  - Environmentalist
  - Patriot
  - Tinkerer
  - Other
-

# Ownership Costs

Item	Cost - \$	Annual Cost
Press	10,000	2,500
Processing equipment	10,000	2,500
Furnace	5,500	1,250
Storage, Handling	2,000	250
Misc	1,500	300
<b>Total</b>	<b>\$29,000</b>	<b>\$6,800</b>



# Value of Oil and Meal

- 1 gallon of oil per bushel (8 pounds)
- 50 pounds of high oil meal
- @ \$0.20 per pound = \$10 per bushel value
- If selling soybeans at \$13 per bushel
  - Oil costs = \$3.00 per gallon
- If sell soybeans at \$15 per bushel
  - Oil costs = \$5 per gallon
- If meal is worth \$0.25 per pound = \$12.50 per bushel

# Production Costs - soybean

Production Costs	\$/gal
Cost of oil (- meal value)	0.90
Acid	0.01
Base catalyst	0.11
Sodium hydroxide	0.01
Methanol	0.20
Heat energy	0.03
Electricity	0.01
Labor	0.08
Ownership cost	1.25
<b>Total</b>	<b>\$2.60</b>

# Production Costs – market value - sb

Production Costs	\$/gal
Cost of oil - meal	3.00
Acid	0.01
Base catalyst	0.11
Sodium hydroxide	0.01
Methanol	0.20
Heat energy	0.03
Electricity	0.01
Labor	0.08
Ownership cost	1.25
<b>Total</b>	<b>\$4.70</b>

# Compliance w/ Government Programs

Fayette, 6-12% slope, T=5 t/ac/yr Fall chisel – sp, Spring disk

C-C-C-C	3.2 t/ac/yr
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C-SB-C-SB	6.6 t/ac/yr
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C-SB-Canola-C	5.5 t/ac/yr
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C-SB-SunFl-C	13 t/ac/yr
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# Compliance w/ Government Programs

Fayette, 6-12% slope, T=5 t/ac/yr, No-Till

C-C-C-C	1.2 t/ac/yr
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C-SB-C-SB	3.4 t/ac/yr
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C-SB-Canola-C	2.4 t/ac/yr
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C-SB-SunFl-C	6.5 t/ac/yr
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# Compliance w/ Government Programs

Fayette, 2-6% slope, T=5 t/ac/yr, Fall chisel – sp, Spring disk

C-C-C-C	1.7 t/ac/yr
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C-SB-C-SB	3.3 t/ac/yr
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C-SB-Canola-C	2.8 t/ac/yr
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C-SB-SunFl-C	6.1 t/ac/yr
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University of Wisconsin Extension  
Regional Renewable Energy  
Applied Research Project

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"Unleashing the power of the bean!"





# 2007 Biodiesel soybean plot

summary across 3 locations Sparta, Tomah, Alma

Variety	yield	% oil	% protein	Gal/acre
Brunner 2101 rr	46.6	19.7	33.9	76
Croplan 2020	46.5	20.1	34.2	77
Dahlco 9213	47.5	19.5	33.8	76
Kruger K195 rr/scn	43.9	20.1	33.9	73
Latham E1950 r	48.4	19.5	33.2	78
NK S21-N6	57.8	20.2	33.2	96
Pioneer 92M32	48.2	19.5	33.6	77
LSD 0.10	7.9	0.3	0.7	



# Sunflower Trials





# Sunflower Trials

Company	Variety	Yield lb/acre	% crude protein	% fat	Gallons oil/acre
Croplan	544	1550	18.4	29.4	54
Garst	4596	3001	14	38.4	141
Garst	4668	1914	18.1	32.2	73
Garst	4682	2321	16.7	35.6	99
Garst	4704	2591	16.4	34.8	108
Pioneer	63M52	2843	17.4	34.8	118
Pioneer	63M91	2392	17.3	34.8	99
Mycogen	8N358	1776	18.8	36.1	76
Mycogen	8N386	2357	20.2	36.8	103











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# Sunflower Challenges:

- Lodging
  - Weed Control
  - Birds
  - Unknowns – insect and disease control
  - Harvest equipment
  - Drying
  - Storage
-



# plots & projects

- **Economic of small scale production**
- **Research on oilseed crop production beyond soybeans**
- **Research on small scale production of biodiesel**
  - **Oilseed pressing**
  - **Biodiesel production**
    - **Quality testing**
  - **Value of meal**
- **Other ideas**

# Thank you!!!

- SARE Grant Funding
- Bill Wacker
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- Joe Greshik
- Joe Bragger
- Denise Baumgarten
- Ken Jereczek
- Dave Wagner
- Eric Johnson
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- Cashton FFA
- Tomah FFA
- UW Specialists
- Schmitz Brothers- Coles Valley
- Joe Ruedy
- Mike Schlessner
- DS Farms
- Ellis Enterprises
- Arcadia Cooperative
- Dan Kamla