

cleanenergy.org

Southern Alliance for
Clean Energy



Farm-Scale Biodiesel

ACEEE

Ag Forum

Des Moines, IA

Our Goals

Promote advanced biofuels & biopower for:

- **Energy Independence & local energy supply**
- **Displacement of fossil energy**
- **Boost rural economy**
- **Cleaner fuel and energy**
- **Slow global warming**

Our Projects

Region-wide, state-level, federal level:

- Building Alliances for Bioenergy (Pine 2 Energy, 25x'25, SAFER)
- Promoting Biopower (I.e., REPS, co-firing, CHP, gasification)
- Promoting Advanced Biofuels (cellulosic ethanol, sustainable biodiesel)
- Evaluating/promoting carbon credits for ag & forestry
- Promoting On-Farm EE and RE: (I.e., 9006/REAP, audits, T.A.)
- Identifying global warming advocates in the Ag community
- Tracking Farm Bill, RPS, RFS
- Educating on Farm Energy Opportunities

How Do We Measure Up?

	BIOFUELS (MGPY)	Biodiesel (MGPY)	Ethanol (MGPY)	CellEth (MGPY)
FL	276.9	143.5	110.0	23.4
GA	431.4	117.0	214.4	100.0
NC	271.4	101.4	170.0	0.0
SC	211.0	101.0	110.0	n/a
TN	320.7	15.7	205.0	5.0
TOTAL	1,511.4	573.6	809.4	128.4

Number of Plants per State (Planned and/or Built)			
	Biodiesel	Ethanol	CellEth
FL	5	4	3
GA	14	5	1
NC	11	5	1
SC	5	1	0
TN	13	3	1

Biodiesel Constraints

High feedstock prices:

Soy oil and poultry fat prices are high, tied to petrol?

Waste oil, animal fats in limited supply, growing demand.

Not enough oilseed crops produced:

Canola and rapeseed could double or triple our supply.

R&D on oil-yield maximization, jatropha, algae oil.

Lack of crush facilities:

Local / farmer / cooperative owned crush facilities?

Chicken-or-egg situation for farmers.

Farm-Scale Crush

- Soy, Canola, Rapeseed, Camelina, Sunflower, Industrial Peanuts
- Markets or use for meal (livestock)
- Time & Money?

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.

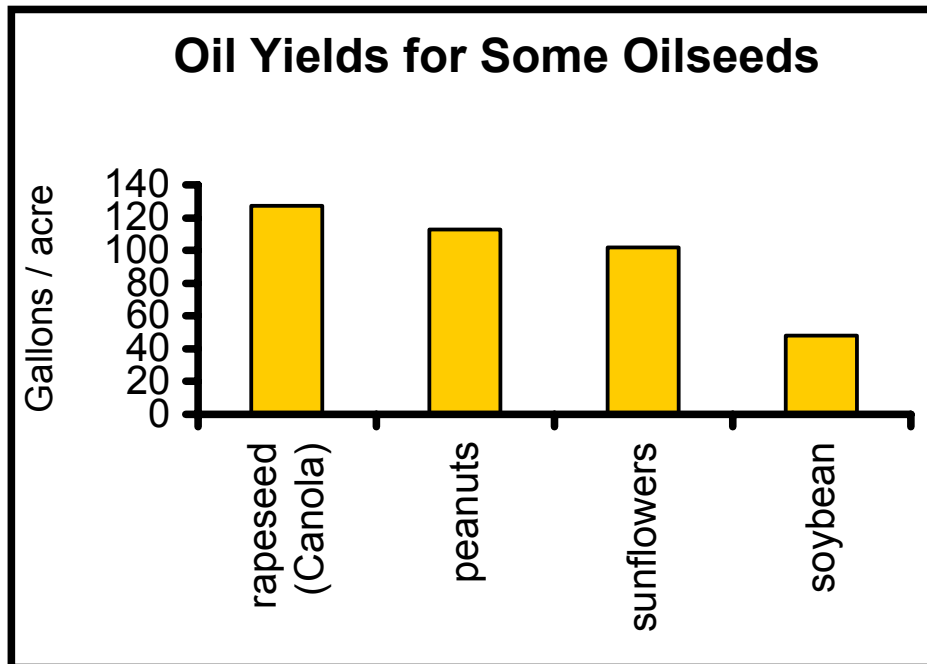


Illustration of a small-scale screw press crusher, 1 ton per day.

Sustainable Biodiesel

Brundtland modified: “Biodiesel that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

- **Feedstocks:** No rainforest palm-oil, WVO is better than soy and canola, animal fats? algae and jatropha?
- **Processes:** Energy efficiency is crucial, Methanol recovery is key, solar-thermal is great, biomass heat good too, water impacts and use?
- **Scale:** Small is beautiful. Tiny may not be so pretty.

Canola: Production in Southeast

- Fits in current rotations (in place of wheat)
- With soy, could yield up to 160 gallons per acre
- Expanding: <40 acres in '05-'06, ~ 300 in '06-'07, ~1,500 acres projected for '07-'08



Canola harvest at Open Grounds Farm,
Beaufort, NC, June 2007. Photo:
Nicholas George

Waste Vegetable Oil

- Ideal for small-scale fuel production
- Uses local, recycled feedstock
- Superior life-cycle energy ratio



SACE ReFuel Project

- Campus-sized fuel production
- Oil collected with vacuum truck
- Retail station will also incorporate blending to B20



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Questions?

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