

WSU Bioenergy meeting notes from discussion – March 10, 2006

## Biofuels

### 1. Educational needs

#### **Biodiesel**

How to make biodiesel on farm

What to do with the by-products

Fuel quality issues

Livestock feed needs in region; how much meal can they absorb?; ask Joe Harrison for dairy

Need to understand the different markets for oil from the crops – e.g. food processing industry

(French fries); go to higher value use first to help make profitable

Agronomics of growing oilseeds; stand establishment, weed control, winter hardiness, yield potential; poor results in the crop-fallow region (Frank Young); possible issues: use of GMO varieties for weed control? necessity of insecticide sprays?

Economics of growing oil seeds vs other crops

Evaluating oil seed contracts

Agronomics – risk; spring vs winter; cross-pollination, contamination of brassica seed crops

Ag policy – subsidy issues

#### **Ethanol**

Few needs at present

Do a publication on current status in WA

R&D – hybrid poplar for cellulosic ethanol

How to collect feedstocks

N supply – legumes with crops

Wheat variety selection for straw

Western WA risks with specific crops

Forest residues – quality of feedstocks

#### **Biofuel Roadmap**

Where are we? Where do we want to go?

For biodiesel, roadmap in progress

For other areas, not yet

Feasibility study of biodiesel production; collection of other studies, emphasis on economics; for WA, what could make it work? Sensitivity analysis; reality check; also discuss other alternatives (e.g. ethanol) and why they might be a better or worse choice

Separate our WSU response – production of biodiesel (processing, fuel quality, etc.) from producing the oil in state; is more feasible and more likely to meet the political reality

### 2. Capacity to deliver

Canola production handbook in progress – Don Wysocki (OSU) and Stephen Guy (UI)

Educational opportunities in the works:

- Bioworks in Bellingham, makes small scale biodiesel reactors; potential to do traveling demos with a unit; Kim Lyons
- Whitman CD – portable crusher for on-farm demos in July; Steve Van Vleet
- Paterson ARS field day – biofuel crops; biodiesel production demo; Hal Collins; include agronomics, economics, equipment,
- have biofuels part of Palouse Conservation Field day – Dave Huggins
- Irrigated ag session on biofuels planned in Tri Cities – Hal Collins and An Hang

Key presenters – Don Wysocki, Jack Brown (UI)

### Biopower

Sunlight + N + water = biomass

Reality of production requirements and costs

Do a paper on biomass to energy as a better alternative for WA – more distributed biomass feedstocks already; hurdle is the cellulosic ethanol process

Anaerobic digesters – first one in operation over a year in Lynden; intense monitoring by WSU; new pilot digester started up in Pullman (Shulin Chen); several other digesters committed to build; increasing interest, including small-scale technology; need to answer EPA air quality questions, economics for the dairy; have adequate resources for digester education right now; field days in Lynden, Pullman; several presentations around the state

No federal research dollars for digesters, more potential at state level

Electric grid – burn biomass and put on grid; is widely used in WA in lumber industry; could link to electric cars and plug in hybrids

Poplars – thermal energy is best efficiency; power plant siting to use waste heat

Compare poplar combustion to other renewable sources – hydro, wind

Gasification of biomass – lignin/cellulosics; the one demo in the state has not panned out (grass seed straw in Spokane)

Co-location of ag and forestry for biopower – is a strength in WA; e.g. straw to wood products plants

Distributed gasification as a strategy ?

Biomass to biofuels rather than to electricity may be more important in WA since we have abundant and inexpensive electricity right now

Plug in hybrid electric vehicles (PHEV) – advanced vehicle initiative in Wenatchee is exploring how to launch this

### Next Steps

Core group to continue:

Mike Wolcott

Dave Sjoding, Kim Lyons (WSU energy program)

Create web resource on canola production (Hans Kok is exploring)

- there is a Canadian guide on line

Create an internal list serve on bioenergy – keep people posted on events, developments, grant opportunities – Mike Wolcott, Wood Material lab will explore a Blog site