

Impact Assessment Challenges with Emerging Fuels



December 8, 2010
Fuels Multimedia Evaluation
Public meeting



Dave Rice, Consultant to University of California
Tom McKone, University of California, Berkeley
Tim Ginn, University of California, Davis



New Uncertainties



- **As we move away from petroleum based fuels toward fuels derived from cultured plants and animal products there are new types of uncertainties.**
- **Chemicals used to:**
 - fertilize,
 - promote growth
 - Inhibit weeds and pests
- **Anthropogenic chemicals in water**
 - Brown/gray water used for fuel crops
 - Endocrine disruptors
- **Animal diseases**
 - Prions



Example: Round-Up



- **Glyphosate herbicide (Round-Up)**
 - Applied with surfactant
 - Polyethoxylated tallow amine (POEA)
 - Possible endocrine disruptor
 - Wildlife toxicity
- **Plants genetically engineered to tolerate Round-Up, e.g., soy, corn**
- **Little is known about fate of glyphosate during biofuels production and use.**



Example: Prions



- **Ancient, tough organic life form?**
 - Mad-Cow, Creutzfeldt-Jakob (humans)
 - Impacts brain and neural tissue through ingestion
 - Incurable, fatal
- **Structural stability**
 - Resistant to denaturation by chemical or physical agents
 - 1N NaOH in autoclave for 30 minutes
- **Current protection is through inspection and control of high risk food material**
- **Little is know about fate of Prions during production and use of biofuels using tallow**