

## **Impact Assessment Challenges with Emerging Fuels**



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### **New Uncertainties**

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- **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.**

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## 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**

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