

## Pilot Processing Plant North Dakota State University

1400 17th St. N., Fargo

### Mission

To develop or improve processes or products that add value to northern-grown crops by:

- providing space and services for researchers to demonstrate and conduct studies
- allowing industry and university researchers to come together to carry out testing

### Utilities

- Vacuum
- Sanitary sewer
- Compressed air
- Food-grade steam
- High-and low pressure steam
- City, soft and distilled water
- 120-, 240-, 480- volt electricity
- Walk-in cold room and freezer



### Equipment

- Steam-jacketed kettles
- Plate heat exchanger
- Solvent extractor
- Seed cleaners
- Screw presses
- Spray dryer
- Centrifuges
- Pumps
- Scales
- Mills

### North Dakota Food Processor License

#### Analyses Available

- Moisture content of solids and oils
- Free fatty acid content
- Kinematic viscosity
- Specific gravity
- Peroxide value
- Particle size
- Oil content



Hands-on learning offered to Food Science and Agricultural and Biosystems Engineering students

### Previous work with North Dakota processing facilities or processing of North Dakota commodities

- ADM
- Askegaard Organic Farm
- Barlean's Organic Oils
- Cargill Inc.
- Golden Valley Flax
- Kellogg's Co.
- Minn-Dak Growers Ltd.
- North Dakota Innovations
- Pizzey's Milling
- Red River Commodities
- Riviana Foods Inc.
- Skandia Mills

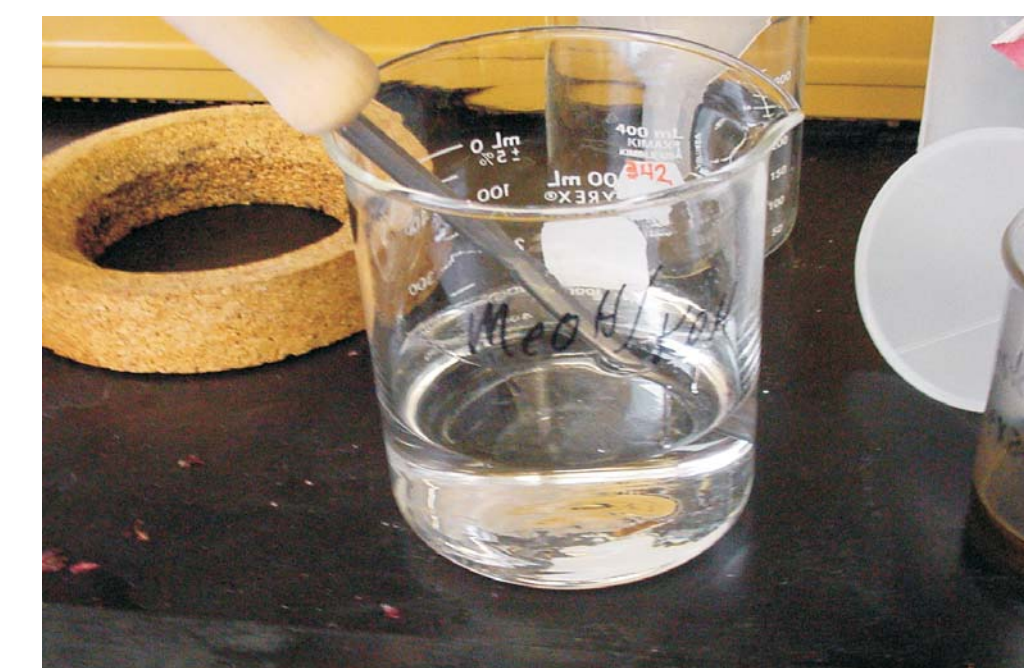
For more information contact the NDSU Agricultural and Biosystems Engineering Department at 701-231-7261 or send an email to Kristi.Tostenson@ndsu.edu



## Bench Scale Biodiesel Production

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### 1. Adding Methanol/KOH



Methanol/ potassium Hydroxide (KOH) Solution



### 2. Transesterification



### 3. Glycerol settling



### 4. Methanol removal



Vacuum line

### 5. Water washing



### 6. Drying



### 7. Final product

