



# Resources for innovation

## Analytical Chemistry Lab (Marshall, MN)

The focus of the analytical laboratory is to provide quality analytical and compositional data to promote value-added products from Minnesota agriculture commodities and coproducts. The analytical laboratory evaluates many sample types including foods, meats, coproducts and renewable fuels. **Capabilities include:**

- Chromatography
- Spectroscopy
- Wet chemical analysis
- Physical characterization

## Bioproducts Lab (Marshall, MN)

This facility is focused on one to 10 kilograms scale processing of agriculture commodities and coproducts. Processes are developed and demonstrated for producing increased value materials by fractionation, chemical conversion and purification. **Capabilities include:**

- Chemical processing of straw, stover and other biomass materials
- Extraction and characterization of oils and high-value components from oilseed meal and other feedstocks
- Transesterification and esterification reactions for demonstration of biodiesel processing
- Small-scale fermentation and digestion processes for production of fuels
- Distillation and evaporation for process development

## Microbiology Lab (Crookston, MN)

AURI's microbiology lab is used for the research and analysis of industrial products and to support projects that have the potential to introduce agricultural commodities as ingredients for industrial products. **Capabilities include:**

- Microbiological analysis
- Gas analysis

## Coproducts Utilization Pilot Lab (Waseca, MN)

This facility is the only value-added lab of its kind in the Midwest. It is used for the development of new uses for plant and animal coproducts that present environmental and economic opportunities. **Capabilities include:**

- Grinding
- Milling
- Size reduction
- Blending
- Pelleting
- Drying
- Product characterization
- Particle size analysis

# Coproducts

**Nearly every agricultural processor generates residue or coproducts.**

Creating new uses for these coproducts can create significant new revenue streams for Minnesota agriculture producers and processors.

### Crookston

(State headquarters)  
510 County Road 71, Suite 120  
Crookston, MN 56716  
**800.279.5010**

### Marshall

1501 State Street  
Marshall, MN 56258  
**507.537.7440**

### St. Paul

1475 Gortner Avenue  
St. Paul, MN 55108  
**651.624.6055**

### Waseca

P.O. Box 251  
Waseca, MN 56093  
**507.835.8990**





# Idea to reality:

Success stories

## Protein Resources

### Idea:

Because soybean meal cannot be fed to some animals due to the soluble sugars, AURI worked with Protein Resources and Minnesota Soybean on a possible solution.

### AURI's role:

Research was conducted to understand the nutrition of a low-oligosaccharide soybean meal that was easier on animals' stomachs. AURI assisted Protein Resources with product and process development for NutriVance soybean meal, a critical step in getting the product to market.

### Outcomes:

Protein Resources is now producing commercial-grade NutriVance and is currently shipping it to clients in the Asian markets.



## Minnesota Valley Alfalfa Producers

### Idea:

Minnesota Valley Alfalfa Producers (MnVAP) saw a need for a lower-priced, yet nutritious, substitute for alfalfa feed pellets.

### AURI's role:

AURI helped the co-op develop, formulate and test a lower-cost, blended-fiber feed pellet.

### Outcomes:

MnVAP will manufacture 5,000 tons of the new feed pellets in 2014, and plans to triple production in 2015.



# Services that nurture growth



## Applied Research

Through practical, applied research AURI identifies emerging opportunities to add value to agriculture products. This information is publicly available in order to help entrepreneurs and businesses generate ideas for new products and processes. More information is available at: [auri.org/focus-areas/coproducts](http://auri.org/focus-areas/coproducts)

### Tools

- Midwest biomass inventory assessment
- Minnesota biomass heating feasibility guide
- Crop residue valuation template

### Research

- Investigating drying technologies for post-digester solids
- Great Lakes Region food industry biogas casebook
- Utilizing ash as a nutrient source for corn
- Corn coproducts fed to finishing pigs
- Evaluation of glycerol in pig diets
- Microwave drying of wet beet pulp



## Hands-on Scientific Assistance

Scientists are available to provide consulting and technical services in the areas of:

- Product and process development
- Product evaluation and testing
- Sourcing materials, equipment and services

Labs are available to clients for hands-on testing and development. See more information about lab and capabilities on the back of this brochure.



## Innovation Networks

When deciding the feasibility of a new product or process, it is critical to have access to industry experts and a science-based network of people. With a broad range of networks, AURI can assemble the right people at the right time to help bring new products and processes to market.

## What is the Agricultural Utilization Research Institute?

AURI was created by the Minnesota legislature to foster long-term economic benefit for the state through value-added agricultural products. Its work encompasses the research and development of Minnesota agricultural commodities and products. AURI also supports product innovations or enhancements, helping entrepreneurs identify and expand new and existing markets.