

# GROWING MINNESOTA'S ECONOMY

Annual Report for Fiscal Year 2014

AURI saved jobs  
made jobs possible  
it possible implementation  
GREAT STARTING POINT invaluable tool  
**strategic partner**  
very grateful for the partnership depth and breadth of knowledge  
**kind of government program that should be expanded**  
A big thank you to AURI  
enabled us to reach further  
nothing but good invaluable staff and resources  
OUTSIDE THE BOX formulation optimization and commercialization  
**our go-to group**



## ***Invaluable...strategic partner... saved jobs...AURI made it possible.***

Hearing from clients that the Agricultural Utilization Research Institute has helped is a highlight for all of us who work at AURI. The words you see on the cover of this report are quotes from just a few of the many people we've worked with over the years to discover new uses for agriculture commodities. Those discoveries, and the people who made them, are an integral part of AURI's story and success.

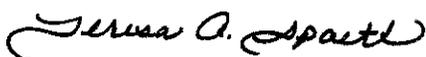
Many times, we don't realize that our day-to-day work may make history. For example, it was in AURI's first decade that some staff worked with Minnesota Soybean on the implementation of biodiesel in the state. Thanks to the work in that arena, biodiesel is now generating \$900 million in economic activity for Minnesota and offers a renewable, environmentally friendly fuel option. In addition, AURI and others continue to find new uses for the byproducts that result from the generation of the fuel, adding even more value to soybeans.

In another example, an AURI scientist worked on the development of soy-based Preference<sup>®</sup> and Destiny<sup>®</sup> surfactants, which are now sold by WinField, a subsidiary of Land 'O Lakes. The product increases pesticide effectiveness.

While we build, in part, off of the work of our scientists, just as important are the networks and experience of current and past staff and board members. We hear repeatedly from clients how AURI staff helped to connect them to resources they didn't know about and thereby increased the speed and success of their efforts to bring a new product or process to market. It takes time and diligent work to build these connections and resources that serve our clients, and we're grateful for the staff, board members and many partners and supporters around the state who are an important part of our network.

AURI was created in part as the result of a farm crisis—to help find new uses for and increase the value of Minnesota's agriculture commodities. Today, building on those who came before us, AURI is helping to create opportunities that go well beyond the farm—to all parts of Minnesota, rural and urban—to ensure a strong future. Through AURI, value is being added to the state's agricultural commodities, growing the economy through made-in-Minnesota products and processes.

Sincerely,



Teresa Spaeth, AURI Executive Director



### **AURI Board of Directors for FY14**

**Julie Bleyhl**  
Minnesota Farmers Union

**Art Brandli**  
Minnesota Wheat Research &  
Promotion Council

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Promotion Council

**Sen. Matt Schmit**  
Minnesota State Senate

The Agricultural Utilization Research Institute is all about partnering with businesses to build Minnesota's economy in biobased products, coproducts, renewable energy and food.



# GROWING MINNESOTA'S ECONOMY...

Clients who reported that "AURI significantly helped in addressing business concerns."

**85%**

Clients who reported that "AURI has improved your product/process significantly."

**83%**

Clients agreed that "AURI connected you to valuable resources/organizations."

**76%**

Clients who reported that "Because of your work with AURI, your business is more successful."

**85%**

Clients who reported that "AURI's programs and services have been vital to growing my business."

**86%**

Source: AURI 2014 Client Satisfaction Survey

# Kay's Naturals/Kay's Processing



Rolf Hagberg

**Idea to reality:** Create healthy snack foods that meet the nutrition needs of diabetics, those trying to lose weight and a general population that needs healthier food.

**AURI's role:** AURI scientists provided the business with product development and nutritional labeling assistance.

**Outcome:** Today, Kay's Naturals and Kay's Processing do annual sales in the seven-figure range, their products are in more than 9,000 stores nationwide, and they employ 25 people in the Clara City, Minnesota, area.



Rolf Hagberg

# Char Energy, LLC

**Idea to reality:** Build a mobile gasifier that can turn agriculture fibers into a charcoal-like residue, called biochar, that can be used for absorbing liquids, improving water quality and soil characteristics, and creating energy.

**AURI's role:** AURI gathered data to find out what chemicals and nutrients were in the biochar and tested its absorbency. Further work on this high-potential project is ongoing.

**Outcomes:** Char Energy was awarded a patent for their technology in November 2014. One future goal is to test the biochar's capacity for removing nitrates and phosphorous from water runoff.



Rolf Hagberg

# Fergus Foods/ Nots! Snacks

**Idea to reality:** Create a non-nut snack that appeals to those with nut allergies and build an allergen-free kitchen for the production of these and other foods.

**AURI's role:** AURI assisted in product and process development, trouble-shooting, shelf-life guidance, nutritional labeling, test market research and scale-up. In addition, AURI provided cost-share assistance for UPC labeling and to secure Non-GMO and Vegan Certifications.



**Outcomes:** Nots! owner Ron Fuglie recently opened an allergen-free commercial kitchen in Fergus Falls, Minnesota, and in 2014 Nots! Snacks increased revenue approximately 100 percent over 2013.

# PetCare Systems

**Idea to reality:** Swheat Scoop, a renewably-sourced cat litter, was initially made by Pet Care Systems—now part of Farmers Union Industries. The wheat-based product is all natural. Pet Care Systems continues to improve and create related products and processes to have a larger market share.

**AURI's role:** “AURI and their laboratories have been instrumental in improving the cost factors of the product,” explains Farmers Union Industries’ Chuck Neece. “They have worked on the processes that impact the efficacy of the product, tightening down quality control specs, so the product became more consistent.”



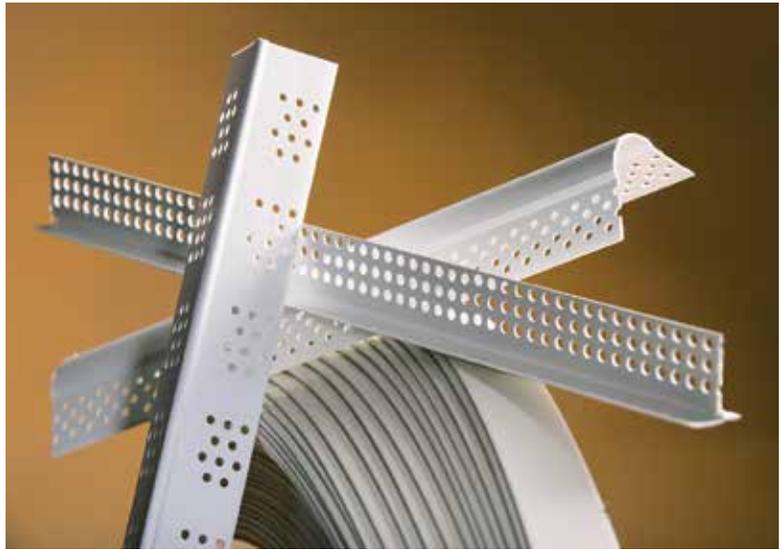
**Outcomes:** In a market that is seeking more natural products, the Swheat Scoop product line continues to grow. The cat litter is available in thousands of stores nationwide including Target, Petco, PetSmart and many other pet stores.

# Biobased Plastics

**Idea to reality:** The global bioplastics industry is developing rapidly. Minnesota industries needed an in-depth analysis of technology and market opportunities in this field.

**AURI's role:** AURI led a detailed study of the bioplastics industry to help Minnesota companies and entrepreneurs understand emerging opportunities in this field. AURI distributed the report to businesses that could commercialize the findings and led a forum to discuss the findings.

**Outcomes:** Several businesses that attended the bioplastics forum are in a variety of stages of developing bioplastics, and in several cases, AURI is assisting them in the efforts.



Rolf Hagberg

# Protein Resources



RHP Photo

**Idea to reality:** 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:** AURI and Minnesota Soybean conducted research to understand the nutrition of a low-oligosaccharide soybean meal that was

easier on animals' stomachs and shared that knowledge with interested businesses. AURI assisted Protein Resources with product and process development for NutriVance soybean meal, including testing and locating equipment necessary to get the product to market.

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



RHP Photo

# Redhead Creamery

**Idea to reality:** Alise Sjostrom had dreamed of owning a creamery since high school. In the spring of 2014, she and husband Lucas began production at their artisan cheese making plant in Brooten, Minnesota.

**AURI's role:** AURI provided cost-share assistance for scale-up and product development, pre-engineering related costs, and product analysis and nutritional fact labels. AURI also served as a resource for other needs as they arose, such as calibrating of their thermometers and boiler-related questions.



Rolf Hagberg



Rolf Hagberg

**Outcome:** Redhead Creamery, named after the predominant hair color of Alise and her sisters, will turn out 60,000 pounds of cheese a year, a combination of fresh cheddar cheese curds and aged cheddar cheese.

# Suntava

**Idea to reality:** Suntava, a Minnesota food-ingredients company, has come up with a natural alternative to Red Dye No. 40. Its proprietary hybrids of purple corn are a treasure trove of healthful food ingredients, from a natural red

colorant, to milled components for everything from snack bars to cereals.

**AURI's role:** AURI has assisted Suntava with a variety of product development activities since 2002.

**Outcome:** The Twin Cities-based Suntava continues to add products and also has plans to announce a groundbreaking nutraceutical. In addition, two beers based on Suntava's purple corn extract have launched into the marketplace.



Rolf Hagberg



Rolf Hagberg

# Bee Free Honee

**Idea to reality:** In 1999, former pastry chef Katie Sanchez was attempting to make apple jelly, but forgot an ingredient and discovered that the thick liquid tasted a lot like honey. Years later, Sanchez and business partner Melissa Elms are producing several Bee Free Honee products.

**AURI's role:** AURI scientists assisted Bee Free Honee with product development, nutritional analysis, labeling and a shelf-life study.

**Outcomes:** Bee Free Honee products are in over 1,000 retail stores and available worldwide online. Sanchez and Elms were also awarded a Local Producer Loan Program loan from Whole Foods.



Bee Free Honee



Rolf Hagberg

# MnVAP

**Idea to reality:** As alfalfa prices soared over the last two years, Minnesota Valley Alfalfa Producers (MnVAP) saw a need for a lower-priced substitute for alfalfa feed pellets.

**AURI's role:** AURI helped the co-op develop, formulate, and test a lower-cost, blended-fiber feed pellet.

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

# MINNESOTA Renewable Energy Roundtable

*A cornerstone AURI program*

**Began:** 2006, adopted into state statute in 2007

**Goal:** Bring together people from across the renewable energy industry to make Minnesota a national and global renewable energy leader

**Key focuses:** Networking, relationships and information-sharing essential to growing the industry

**Planning team:** Representatives from the Minnesota Department of Agriculture, Minnesota Department of Commerce, University of Minnesota, the Minnesota State Colleges and Universities System and AURI



## 2014 Events:

### The Changing Landscape of Woody Biomass Utilization: Where Does Renewable Energy Fit?

- Forestry and Woody Biomass Availability
- Biomass Chemicals and Advanced Biofuels
- Biomass Heating Opportunities

### Focus on Biofuels

- Status of Emerging and Existing Biofuels
- Higher Value Molecules
- Policy and Regulations

## 2014 outcomes due in part to the Minnesota Renewable Energy Roundtable and its partners work:

- There is increased interest in the direct combustion of woody biomass (wood pellets and wood chips) as a result of roundtable sessions on this topic.
- The increase in the biodiesel requirement for on-road diesel fuel has been discussed and supported at roundtable meetings for many years. In 2014, the next step in this increase was accomplished.
- The continuous improvement in operating efficiency at Minnesota ethanol plants has been an ongoing theme; there have been numerous such improvements at ethanol plants in recent years.
- The development of butanol production capacity at three Minnesota ethanol plants has been discussed in detail. There was significant activity in this area in 2014.

As 2015 begins, a plan is being developed to meet the changing needs and interests of this industry.





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