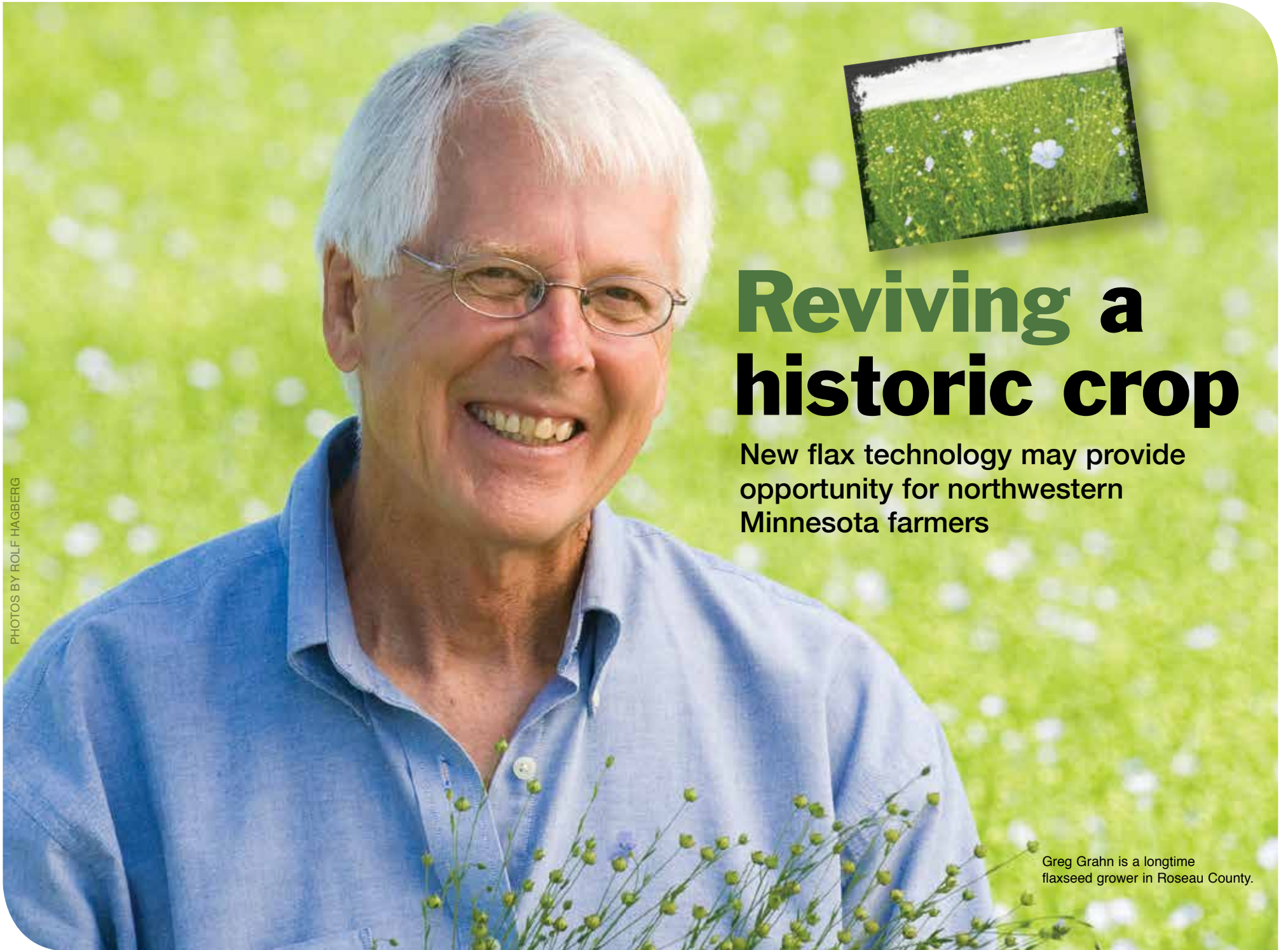




# Ag Innovation News

Oct-Dec 2013, Vol. 22, No. 4

The newspaper of the Agricultural Utilization Research Institute



PHOTOS BY ROLF HAGBERG

## Reviving a historic crop

New flax technology may provide opportunity for northwestern Minnesota farmers

Greg Grahn is a longtime flaxseed grower in Roseau County.

Quick-cooking wild rice creates new market Pages 2-3



Teen's banana bread helps build orphanage Pages 4-5



Miscanthus as a biofuel Pages 8-9



AURI clients take the national stage Page 12





# MINNESTALGIA PROVIDES NORTHWOODS NOSTALGIA

Wild berry company adds stone ground Minnesota wild rice products

Wild rice (top) is ground into quick-cooking polenta (right) and wild rice flour (left).



Jay and Lori Erckenbrack started Minnestalgia, formerly Minnesota Wild, in McGregor, Minn., in 1990.

PHOTOS BY ROLF HAGBERG



BY LIZ MORRISON

Jay and Lori Erckenbrack have been selling northwoods nostalgia for two decades.

Their company, Minnestalgia, produces more than 80 food products from “up north,” including maple syrup and sugar; wild berry jellies, jams and syrups; pancake mixes; and wild rice. Their Minnestalgia Winery makes distinctive honey and wild berry wines.

Now, the McGregor, Minn., entrepreneurs have introduced several new Minnesota wild rice products: stone ground flour, wild rice cereal and quick-cooking polenta. The products were developed with help from AURI Senior Scientist of Food & Nutrition Charan Wadhawan, who has assisted the company since its founding.

Jay Erckenbrack has worked in the wild rice industry since 1982. He once asked a veteran northern grower why people don't eat more of Minnesota's delicious native grain. The grower's answer: “Cook time.”

Steaming or boiling long grain wild rice takes 45 to 60 minutes. But Minnestalgia's stone ground wild rice cooks in less than six minutes, Erckenbrack says, a convenience for today's busy cooks. “You can have hot cereal or a great side dish in a few minutes.”

Nutritionally, ground wild rice is identical to whole grain wild rice, says Wadhawan, who did a comparative nutritional analysis for the company. That distinguishes it from instant wild rice, which has been pre-cooked and dried.

Ground wild rice is also easy to incorporate into other dishes, like chili, soup or casseroles, without a separate cooking step, Wadhawan adds. “Wherever you use regular white rice, you could replace it with ground wild rice.”

## FOODIE TRENDS

In addition to convenience, Minnestalgia's stone ground wild rice products tap into other current food trends, Wadhawan says.

For example, consumers are being urged to eat more whole grains for good health, a move that has even found its way into new federal school lunch requirements. Wild rice and wild rice flour are also gluten-free, another hot food trend. Gluten-free food offerings have expanded 200 percent since 2009, Wadhawan notes.

Wild rice dishes also appeal to health-conscious consumers looking for unique flavors and textures, Erckenbrack says. Wild rice polenta, for instance, can be served hot and creamy, like grits, or chilled, then sliced and fried. And it's a versatile vehicle for other flavors, like mushroom and onion, he adds.



Jay Erckenbrack adds the wild rice to a commercial stone grinder in order to produce quick-cooking stone ground wild rice (polenta) and wild rice flour.

## A TRIP TO GRANDMA'S

Erckenbrack started the company — formerly called Minnesota Wild — in 1990 to give consumers a taste of northern Minnesota's plentiful native foods. In addition to wild rice, the region's bogs and woodlands produce abundant wild fruit — chokecherries, high bush cranberries, red currants, blackberries, plums and more. The company buys thousands of pounds of hand-picked fruit and wild rice from dozens of independent suppliers, many from northern Minnesota's Leech Lake and Red Lake Indian Reservations.



Minnestalgia's cooked stone ground wild rice (polenta) with micro-dried blueberries, which are also sold at their store.

From the start, Minnestalgia jellies, syrups, and wines were meant to evoke memories of “a trip to Grandma's house,” Erckenbrack says. “My grandma on my mother's side made a delicious red currant jam. I can still see it. She always had fresh bread and rolls, and homemade jam and jelly. We're doing the same thing on a larger scale.”

Minnestalgia operates a 12,500-square-foot plant in McGregor, which includes processing and packaging facilities, a stone mill, a winery with a public tasting room, and a retail store.

Erckenbrack also does processing for other companies' brands, and Wadhawan often connects Minnestalgia with new food start-ups looking for a northern Minnesota packer.

## MINNESTALGIA STORES

Minnestalgia products are available in Minnesota specialty and gift shops, and direct from the company at its McGregor store or through its website: [minnestalgia.com](http://minnestalgia.com).

This spring, longtime Crow Wing County businessman Steve Foy opened a Minnestalgia outlet in Brainerd, Minn. He had carried a few Minnestalgia products at his home décor, antiques and fine furnishings store, Design Consign. “They sold really well, so we decided to become a distributor.” Foy's new 1,200-square-foot Minnestalgia shop, a store-within-a-store located in Design Consign, offers the entire Minnestalgia product line, plus custom gift baskets and mail orders.

Customers like the fact that the foods are “all natural and 100 percent Minnesota-grown,” says Foy, who has two decades of experience in the wholesale food distribution business. The wild rice and chokecherry products are especially good sellers, he says. “People say, I remember when my grandmother picked chokecherries.” ■



## AURI and Minnestalgia

### Idea to reality:

Minnestalgia, a northern Minnesota wild berry and wild rice processor, wanted to develop some new, quick-cooking wild rice products.

### AURI's role:

AURI Senior Scientist of Food & Nutrition Charan Wadhawan provided technical services, including product analysis, recipe testing, shelf-life evaluation, ingredient sourcing and nutrition facts.

### Outcomes:

Minnestalgia is now selling quick-cooking wild rice cereal and wild rice polenta in several flavors through retail specialty shops and its online store. Minnestalgia's product line includes more than 80 food items made in northern Minnesota, from wild rice to wild berry jellies, syrups and wines.



## Minnesota's Native Grain

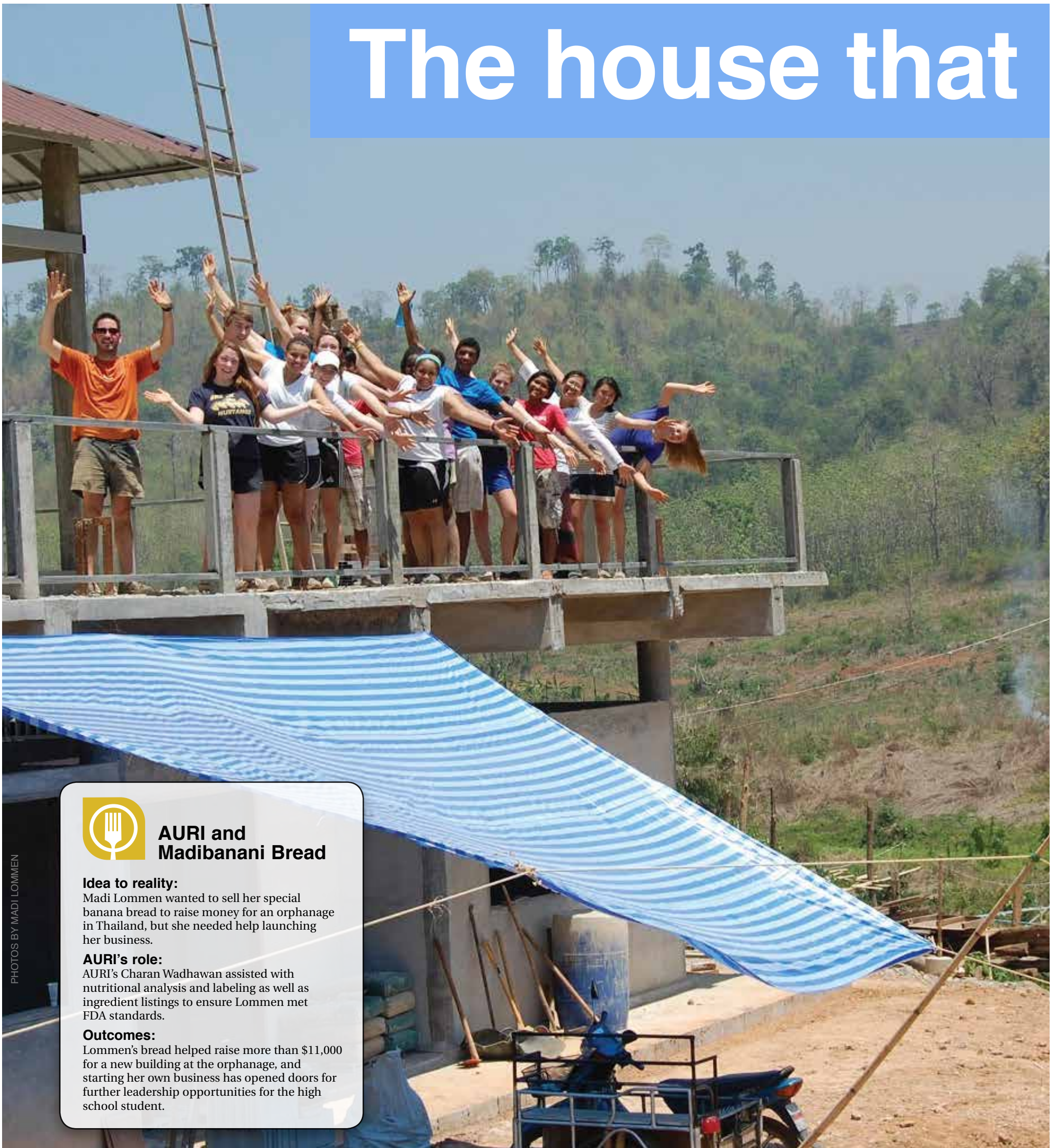
Minnesota was the first state to grow cultivated wild rice in constructed rice paddies. Today, the state is a leading world supplier of both cultivated wild rice and hand-harvested wild rice from natural lake stands.

Northern Minnesota farmers harvest from six to 10 million pounds of cultivated wild rice a year, according to the Minnesota Cultivated Wild Rice Council. Farmed acreage ranges from 10,000 to 18,000 acres a year, estimates Jon Dockter, associate director of the St. Paul-based grower group. In 2012, cultivated wild rice production reached 9.1 million finished pounds, he says.

Minnesota also has more natural stands of wild rice than any other state, according to the Minnesota Department of Natural Resources (DNR). Manoomin, the Ojibwe word for wild rice, grows in significant quantities on more than 700 Minnesota lakes, primarily in Aitkin, Itasca, Cass and St. Louis counties. The DNR estimates that Minnesota has about 61,000 acres of lake wild rice beds. Many of the larger natural stands are actively managed by Minnesota Indian tribes. By law, all Minnesota lake wild rice is harvested by hand, using the traditional canoe and flail method.■



# The house that



## AURI and Madibanani Bread

### Idea to reality:

Madi Lommen wanted to sell her special banana bread to raise money for an orphanage in Thailand, but she needed help launching her business.

### AURI's role:

AURI's Charan Wadhawan assisted with nutritional analysis and labeling as well as ingredient listings to ensure Lommen met FDA standards.

### Outcomes:

Lommen's bread helped raise more than \$11,000 for a new building at the orphanage, and starting her own business has opened doors for further leadership opportunities for the high school student.



# banana bread built



## Teen entrepreneur launches business to help Thai orphans

BY JONATHAN EISENTHAL

No, it's not made of banana bread. Or even gingerbread. But a very special home for children now exists in Thailand thanks to the efforts of six classmates from Breck School in Golden Valley, Minn., who each contributed countless volunteer hours to raise \$11,000 for a permanent roof over the heads of 23 children at the Children of the Forest orphanage in a remote, mountainous region of Thailand.

The ingenuity of one member of this group, Madi Lommen, who started a business selling banana bread, is an example of yoking together entrepreneurial spirit with the desire to change the world for the better.

## Brainstorming to meet a need

Through connections at Breck School, these six students learned that there were countless orphans spilling over into Thailand from Myanmar (Burma) and Laos. The children remain at the margin of Thai society because they don't speak the language and therefore have trouble getting even the most basic assistance.

When Lommen's class learned about this situation, they decided to use their spring break to travel to the orphanage to see how they could help. The experience created an instant bond between the Minnesota high schoolers and the young children of Sangkhlaburi, Thailand. The school group returned home vowing to help with the orphanage's most immediate need—a permanent structure to house some of the oldest children at the encampment.

To finance that first trip, Lommen baked and sold her own special banana bread at bake sales and other events. She had developed the recipe through many joyful hours of kitchen experimentation five years earlier, when she was 10. At that time, the delectable creation was dubbed by her family as “Madibanani.”

When the group returned from that first trip in March 2012, they began casting around for ideas about how to raise the money to build the house. Lommen kicked her business into high gear and researched how to be a vendor in Minnesota.

## Building a business

“I researched nonprofit status and found that with all the regulations, I could actually get more money to the kids by creating Madibanani as a for-profit,” said Lommen. “I put about half of the revenues back into the business to keep it going and then the rest went to Children of the Forest.”

Lommen elected herself “CBO, chief baking officer,” and she found a commercial kitchen near her home where she could more easily crank out the 30 to 60 loaves of banana bread she was selling every week. But one of the most important discoveries during her research was AURI's nutritional labeling services.

AURI's Senior Scientist for Food and Nutrition Charan Wadhawan, Ph.D., provided nutritional facts and ingredient listings for Lommen's three products: Madibanani Choccolotta (banana bread with chocolate chips), Madibanani Classic (banana bread in its unadulterated glory) and Madibanani Naturally (for the more health-conscious consumer, with raisins, dried cranberries and walnuts).

“In general when I conduct nutritional analysis, clients send me their formulation and processing information, and I input that into a nutritional program,” explains Wadhawan, who handles many analysis on variety of products. “I make adjustments for moisture loss and vitamin loss that occurs during baking, and I ensure that the serving size is in compliance with FDA rules. If something is out of range, say there's too much sugar or too much salt, then I discuss with the client if they want to reformulate their product.”

By the end of the Breck students' freshman year, Lommen's class had raised enough money for the project, but Lommen decided to keep at her business to help provide the orphanage with food, clothing and supplies. Along the way, Lommen developed a relationship with Kowalski's Markets, which carried her products, and helped to boost sales. She also takes orders via her website at [madibanani.com](http://madibanani.com).

In addition to AURI, Minnesota has other resources for startups. Lommen got a much-needed boost when she was approved for a \$1,000 grant through Women Venture in St. Paul.

“We want more small businesses in Minnesota,” said Wadhawan, “Small businesses are major job creators. To help get those businesses off the ground, we provide certain technical assistance.”

## Business opens future doors

With all the excitement generated by the fundraising project, word spread throughout Breck and during spring break 2013, 12 students made the trek to help build the new home at the orphanage.

Now in her junior year, Lommen is planning to continue Madibanani on a smaller scale. “The business was a platform to serve social justice,” says Lommen. “I want to do something service related. That could be a number of things. Working directly with people, or working in politics, changing laws to help people.”

Though Lommen no longer markets through the grocery store, she continues Internet-based sales so that she can continue to support Children of the Forest.

“I knew going into this venture that creating a business would benefit me more than any such class could teach me in school,” Lommen says. “Madibanani has landed me an opportunity to spend six weeks in Indonesia and an acceptance letter to a leadership school in Washington, D.C. These are chances of a lifetime that perhaps I wouldn't have been considered for if I didn't have something as eye-catching as my own business on my résumé.”

Naturally, Lommen enthusiastically recommends starting a business with a socially conscious motive in mind.

“The children in Thailand keep me going every day,” Lommen concludes. “I would recommend to others that they find a passion of their own. I believe passion is the key to success. If someone cares deeply enough about something, then the possibilities are unlimited.” ■

### madibanani

*noun*

1. Banana bread made by teenager Madi Lommen



Breck School students connected instantly with the children of Sangkhlaburi, Thailand, and decided to raise the money to raise a permanent structure for the orphanage.





PHOTOS BY ROLF HAGBERG

Northwestern Minnesota farmers are growing flaxseed and fiber in order to make soft linen fibers that can be knitted, like cotton.

BY LIZ MORRISON

Fields of sky blue flax could once again blanket northwestern Minnesota.

Farmers from Roseau and Marshall counties are growing flaxseed and fiber to be used in a new technology process for making soft linen fibers that can be knitted, like cotton.

If successful, this new technology could revive northern Minnesota's flax industry — once a major crop sector — and spur new value-added flax processing in the region, says Michael Sparby, AURI senior project strategist. AURI is helping the grower group explore new uses and markets for flax processing coproducts.





## Looking for experienced growers

Flax, a cool-season crop, has been grown in the northern Red River Valley since the early days of settlement, says Richard Magnusson, one of about 10 Roseau-area farmers who raised flax to be used in this new process this year. Flaxseed was crushed to make linseed oil for paint and other industrial products. By the 1950s, Minnesota flaxseed production topped 1.65 million acres.



But demand for linseed oil shrank with the introduction of latex paints. Cotton, and later synthetics, replaced linen in textiles and paper. Meanwhile, new crops, including perennial ryegrass seed, soybeans and sunflowers, moved into the northern Valley. Today, Minnesota flaxseed production has dwindled to a few thousand acres, grown for the health food market.

Roseau farmer Greg Grahn, a longtime flaxseed grower, direct markets golden flaxseed as a nutritional supplement, primarily through the internet. He has worked for many years with AURI Senior Scientist of Food & Nutrition Charan Wadhawan on food items utilizing flax. His website caught the attention of a new company that was looking for experienced flax producers to supply seed for its South Carolina growers, who raise flax as a winter crop. Grahn's internet business led the company to Roseau County.



"I thought this would be a good fit for our region," Grahn says. "We've been in the seed business up here for many years, and we have a lot of certified seed growers. We're also experienced flax growers. Everyone in our group has grown oilseed flax."

The region's micro-climate is favorable for producing flax fiber, in addition to seed, Magnusson says. After harvest, flax straw is left in the field for a few weeks. Natural moisture softens the raw fibers and loosens them from the inner core or shive — a process called retting.

"It appears that we have the right climate for retting," Magnusson says, "and we've grown flax and understand it. So we could be an additional fiber source — one that's counter-seasonal to South Carolina."

In the process of making the linen, the fiber is separated from the non-fibrous shives. Then the raw fiber is treated with a proprietary process to remove stiffening lignins from the flax, producing a linen fiber with cotton's softness and durability.

Roseau and Marshall county farmers planted about 3,000 acres of flax for the new venture this season. If this new technology takes off, and fiber production goes well, northwest Minnesota could eventually see a significant increase in flax acreage — 30,000 acres or more, Sparby says.

An expanded flax sector would add valuable diversity to the region's agriculture, Grahn says, just as grass seed production has done. "We've been growing grass seed since the 1950s, and it's been an advantage for us. Sometimes the grass seed has carried us when other commodity markets were down."

An additional crop in the rotation also has agronomic advantages for weed and pest control, Grahn adds.



Expanded flax production would make it feasible to build a local processing plant to separate the flax fibers from the shives, Sparby says, "so we'd only be shipping the usable fibers." Shives make up about 70 percent of flax straw. Now, this material is landfilled or spread back on cropped fields.

That's where AURI comes in. "We're trying to figure out what we can do with this waste product," Sparby says.

AURI scientist Al Doering led research at the Waseca coproducts pilot lab to analyze the physical and chemical characteristics of shives. The research looked at traits such as energy value, sorbency, and feed and fertilizer value.

One of the most promising markets for shives is bedding for compost dairy barns, where it could replace wood shavings, Doering says.

Shives also have good energy content, comparable to wood, and could be pelleted and burned in industrial biomass furnaces.

Another potential use is to soak up oil spills, Doering says, especially oil spills on water. Shives tend to repel water, allowing them to float.

This preliminary work on new uses "shows the vision and innovation of this group," Doering says. "They are developing new opportunities for the near term, and at the same time, looking at value-added opportunities for the future." ■



### AURI and flaxseed farmers

#### Idea to reality:

Northwestern Minnesota farmers are growing flaxseed and fiber to be used in a new process in which the flax is used to create soft linen fibers. The inner core of flax straw is a material called shives, which is considered a waste product. The Minnesota flax growers are looking for new uses and markets for shives.

#### AURI's role:

AURI analyzed the physical characteristics of flax shives and recommended potential uses for the material.

#### Outcomes:

If the new technology takes off, northwest Minnesota could eventually see a significant increase in flax acreage — 30,000 acres or more.





# GROWING GIANT GRASS

Central Lakes College exploring  
miscanthus production and processing

## ABOUT

THE PLANT:

BIOFUEL POTENTIAL:

ENVIRONMENTAL BENEFITS:

AGRONOMIC TRAITS:

PRODUCTION:

YIELDS IN CENTRAL MINNESOTA:

COST OF PRODUCTION:



BY LIZ MORRISON

Imagine a Minnesota farm field of grass more than 10 feet tall. The spiky plants are as dense as a jungle and grow for at least 15 years with few inputs.

This strange-looking crop is *Miscanthus x giganteus*, a perennial grass from Southeast Asia that could be grown in central Minnesota for biomass energy. Researchers at Central Lakes College Ag Center in Staples are testing cold-hardy strains of miscanthus and developing best management practices for the new biofuel crop. The field trials are supported by the state of Minnesota’s NextGen Energy grant.

Meanwhile, AURI has developed a “densification” process to turn harvested miscanthus into solid fuel pellets. The pellets can be burned in biomass furnaces or co-fired with wood or coal.

The collaborative effort could lead to a new agricultural biomass industry in central Minnesota, says AURI Associate Scientist for Coproducts Al Doering.

## MISCANTHUS IN A NORTHERN CLIMATE

Central Lakes College Ag Center is doing some of the first U.S. field trials of cold-hardy miscanthus hybrids, which were developed for northern regions by Mendel Biotechnology, Hayward, California. Central Lakes has three acres of established plantings and will add another three acres this year.

Miscanthus could be a nice fit for central Minnesota agriculture, says Central Lakes College Ag Center Director Robert Schafer, who is leading the research.

Wadena and Todd counties have an abundance of sandy, erodible soils poorly suited to row crops. Miscanthus grows quite well in poor soil, and provides permanent cover on sensitive lands, reducing erosion and runoff. In more productive farming areas, like southern and western Minnesota, miscanthus could be planted in grass waterways and stream buffers to protect soil and water, Schafer adds. The cold-hardy cultivars had excellent over-wintering survival rates, even during the open winter of 2011-12, when there was little snow to insulate the plants.

# MISCANTHUS

•Perennial grass from Asia •Grows 5 to 13 feet tall.

•Can be burned for combined heat and power, or used as a cellulosic ethanol feedstock.

•Perennial crop holds soil in place and sequesters carbon.

•Adapted to wide range of soils •Hybrids are sterile so plants must be vegetatively propagated •3-year establishment period and estimated 15-year stand life •Moisture sensitive •Cold-hardy strains available.

•Rhizomes planted with standard tree-planting equipment or potato-planting equipment •Harvested in early spring when grown for combustion, using conventional forage harvesting and baling equipment.

•About 6 tons per acre, dry matter basis.

•Estimated at \$15 to \$20 per acre in central Minnesota  
•High up-front planting and establishment costs.

Sources: NRCS, Iowa State University, University of Illinois, Central Lakes College, Staples, Minn.

In trials from 2009 to 2011 at the Staples research farm, miscanthus out-yielded other biomass energy crops, including switchgrass, wheatgrass, big bluestem, and a prairie grass blend. The top-yielding cultivar, *Miscanthus x giganteus Nagara*, produced about six tons per acre of biomass after the second year — three times the yield of the other perennial grasses tested.

Ongoing plot trials at the research farm are evaluating fertilizer and water needs, longevity, and crop production methods. Researchers are also exploring how to terminate the crop, a non-native species whose invasion risk is unknown. The goal is to develop best management practices to guide northern farmers.

## MISCANTHUS ECONOMICS

The most promising immediate use for miscanthus is as a solid fuel pellet for commercial or industrial biomass burners, says Doering. He developed guidelines for miscanthus processing at AURI’s pilot plant in Waseca.

Miscanthus produces a durable, low-moisture fuel pellet with a density similar to wood pellets, Doering says. Miscanthus also has desirable combustion characteristics, says Ranae Jorgenson, AURI analytical chemist. The energy value is similar to wood pellets. And the ash content, though greater than wood, is quite a bit lower than other common types of ag biomass, such as corn stover.

Preliminary estimates put the cost of raising and transporting miscanthus and manufacturing fuel pellets at \$95 to \$150 per ton. That’s quite a bit more expensive than wood pellets, which have dropped in price due to a glut of forest products.

Compared to expensive corn, though, miscanthus pellets look like a bargain for corn stoves, Schafer says. Central Lakes College will be testing the miscanthus fuel pellets next winter in its commercial corn furnace, which heats the school’s greenhouse and 14,000-square-foot Ag Center.

“This project highlights the value of collaboration and the R&D service AURI provides,” Doering says. “We offer not only data and technical expertise, but demonstrations, too.” ■



U.S. Senator Al Franken and Central Lakes College President Larry Lundblad visit a field where the college is growing Miscanthus to determine the feasibility of using the plant for biomass fuel pellets.

### Resources from AURI

AURI has published a “Feasibility Study Guide for an Agricultural Biomass Pellet Company.” The report contains technical and financial information, cost estimates, permitting requirements, market analysis, and other relevant data for a commercial fuel pellet plant. To access the report go to: [auri.org/2007/11/auri-biomass-pellet-plant-feasibility-guide/](http://auri.org/2007/11/auri-biomass-pellet-plant-feasibility-guide/).



### AURI and Central Lakes College

**Idea to reality:** Central Lakes College wanted to demonstrate the feasibility of growing and processing miscanthus for biomass fuel pellets. Researchers there are growing demonstration plots of miscanthus and devising best management practices for Minnesota farmers.

**AURI’s role:** AURI developed processing parameters for making miscanthus fuel pellets, and tested them for durability and combustion performance.

**Outcomes:** Miscanthus fuel pellets will be burned in a commercial corn furnace to heat the Central Lakes College Ag Center and greenhouse in Staples.

**Partners:** Central Lakes College, AURI, EPA NextGen Energy Grant





TERESA SPAETH, EXECUTIVE DIRECTOR | JEN WAGNER-LAHR, SENIOR DIRECTOR FOR COMMERCIALIZATION AND INNOVATION

# Identifying Future Opportunities for Minnesota

In most issues of *Ag Innovation News*, we share with you the latest happenings at AURI and perspectives on innovation in the Executive Director's column. In addition, one of our staff members also writes about the latest developments in agricultural innovation in the Seeing Around Corners column. In this issue, we are bringing those two columns together as we aim to share with you one of AURI's key strategic initiatives: identifying the highest-impact opportunities for agriculture in Minnesota.

Why is this a strategic initiative for AURI? One of AURI's key duties as directed by the state legislature is to "identify development opportunities for agricultural products." The development of these new products, as well as new processes using agricultural products, creates further economic

development and jobs for the state of Minnesota. As part of that effort, AURI began convening Minnesota's Research and Promotion Council research and/or executive directors in order to work together to identify those highest-potential opportunities and then work together to realize them.

In order to identify these opportunities, also known as aspirations, we went through a formal, research-based process called a Needs Assessment. This process looks at what we need to do to make Minnesota the best state in the world of agriculture in order to create more jobs, grow wealth and strengthen our economy. We start from a position of strength, examining what we're the best at, and what is needed to take advantage of those strengths in order to make us the best state in agriculture.

This needs assessment process began with face-to-face meetings of Research and Promotion Council (RPC) Forum participants and several one-on-one meetings with RPC staff. Based on those meetings and conversations, we identified 34 aspirational statements—or needs—that if met would position Minnesota agriculture for a strong future.

Then, we took those 34 statements and conducted a survey of 45 people: three individuals from each of the participating 14 Research and Promotion Councils and three individuals from AURI's Board of Directors. Twenty seven people responded to the survey. Read about the results below. ■

Based on the survey respondents' input as to the importance and feasibility of the 34 aspirational statements, we were able to narrow the list to 12 top opportunities (or aspirations) for the state of Minnesota. They are as follows:

- 1** There is a need to ensure that Minnesota policy/regulations are science-based and developed with agricultural industry leadership.
- 2** In the future, the public accepts that foods produced using genetic modifications and/or other types of biotech advancements have been developed in a responsible manner and provide a means to feed a growing world population.
- 3** Farmers in Minnesota should be able to access improved seed genetics that provide desirable traits (e.g., drought tolerance, weed and insect resistance, increased yield and quality attributes).
- 4** Agricultural research in Minnesota should be collaborative and impactful.
- 5** Collaboration between research institutions and the Research and Promotion Councils in Minnesota should be equitable, timely and rewarding.
- 6** Minnesota's higher education institutions need to retain appropriate teaching, research and outreach positions in order to serve the agricultural industry.
- 7** There needs to be greater consumer awareness and understanding of the ag industry's production practices and regulatory/inspection processes in Minnesota (e.g., BQA, pork quality assurance).
- 8** There needs to be adequate resources dedicated to infrastructure improvements in Minnesota (e.g., transportation, communications, energy, water and waste).
- 9** There is a need to ensure the public understands measures taken to control foodborne illnesses and is confident that food produced in the U.S. is safe.
- 10** Minnesota producers and processors need to be able to capture increasing worldwide markets for protein.
- 11** The nutritional value of food needs to be more apparent to consumers.
- 12** In the future, there should be an independent and unbiased mechanism for examining and/or interpreting policies and regulations in Minnesota.

So, now that we know these top 12 aspirations for the state, what's next? In addition to this strategic initiative, AURI is also working with the renowned Battelle Memorial Institute and a steering team of agricultural leaders from across the state to do an analysis of our state's capacities in agbioscience research and development. Agbioscience is the term used to refer to agriculture and associated biosciences. We will begin looking, with the RPC Forum and the Battelle steering team, for areas of alignment between the needs identified and the capacities we have as a state in order to form a strategy for the future.

Stay tuned to future issues of *Ag Innovation News* and *Ag Innovation Update*, our newsletter, for further developments in these areas as we look to provide a strategy for the state's agbioscience research and development that will set Minnesota up for further economic development and the creation of new jobs. If you don't receive either of these publications, contact [news@auri.org](mailto:news@auri.org), and we will subscribe you.

PHOTOS BY ROLF HAGBERG



## AURI'S CORE FOUR QUIZ

How much do you know about AURI's core four areas: food, renewable energy, coproducts, and biobased products? Take the below quiz.

### Food Products

Popcorn kernels should ideally contain what percent water, so that under heat the water will expand to steam and then pop the kernel?

- a. 6%
- b. 14%
- c. 32%
- d. 64%

Answer: b

### Renewable Energy

Minnesota produces approximately how many gallons of biodiesel a year?

- a. 2 million
- b. 750,000
- c. 60 million
- d. 86 million

Answer: c

### Coproducts

AURI has had an initiative to look at pelleted barley straw for what purpose?

- a. Small animal bedding
- b. Packaging
- c. Home brewing kits
- d. Odor control

Answer: d

### Biobased Products

A non-toxic fire-fighting product, TetraKO, has been created with what agricultural commodity?

- a. Milk
- b. Corn
- c. Camelina
- d. Wild Rice

Answer: b

## ABOUT AURI

The Agricultural Utilization Research Institute (AURI) helps develop new uses for agricultural products through science and technology, partnering with businesses and entrepreneurs to bring ideas to reality. AURI staff are skilled to walk clients through the entire development journey of bringing a new product or process from idea to reality.

## Service Areas: What We Provide

### Applied Research and Development

Through practical, applied research we identify 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.

### 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 help bring together the right people at the right time.

### 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.

### Learn More

- Contact one of the AURI Offices to speak with a project development director about your business.
- Visit [auri.org](http://auri.org) to see the latest research and learn about upcoming events.
- Sign up to receive the *Ag Innovations News* or the AURI electronic newsletter to stay informed about AURI projects and clients.
- Follow AURI on Facebook and Twitter to get notices about new research, upcoming events, where to find AURI at tradeshows and much more.

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## ABOUT AG INNOVATION NEWS

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*Ag Innovation News* is published quarterly by the Agricultural Utilization Research Institute to inform the food, agriculture and business communities and the general public about developments in innovative agriculture.

Electronic pdf copies of current and previous *Ag Innovation News* issues are available on the website: [auri.org](http://auri.org).

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## AURI clients earn **NATIONAL** recognition



Gluten-free macaroons  
named an *O! Magazine*  
“favorite thing”



Lily Bloom's Kitchen was featured in the August issue of *O, The Oprah Magazine's* list of O's “favorite things.” Lily Bloom's Kitchen produces gluten-free macaroons.

Here's what the magazine had to say: “Thanks to flavors like key lime and blueberry, the white- and dark-chocolate-coated coconut macaroons on a stick are some of the very best gluten-free treats out there.”

Learn more about these tasty macaroons at [lillybloomsKitchen.com](http://lillybloomsKitchen.com).



Nots!  
represents Minnesota at  
“Taste of the States”



PHOTO BY ROLF HAGBERG

Congratulations to Rob Fuglie on having his Nots! chosen to represent Minnesota at the National FFA Alumni “Taste of the States” in Green Bay, Wis. Nots! are a crunchy sunflower snack for those with nut allergies. Fuglie was also selected as an Emerging Entrepreneur of the Year 2013 by MState Colleges, and Nots! was named a semifinalist for the Minnesota Cup venture competition.

Learn more at [nots-snacks.com](http://nots-snacks.com).