SENSORY SUCCESS
New Food Product Evaluation and Sensory Laboratory Expands AURI Capabilities
Pages 6-7
BY SHANNON SCHLECHT  
AURI EXECUTIVE DIRECTOR

Happy New Year! I hope you celebrated the start of 2020 in good spirits with family and friends. Now that we’re a few days into the new year, I’m excited to share the achievement of several important milestones to expand AURI’s capabilities and enhance its client resources. The result being AURI is better positioning itself to make significant advances in the coming years.

First, toward the end of 2019 AURI added new infrastructure to its labs in Waseca and Marshall. In Waseca, AURI’s Coproducts Lab installed a new drying system as well as a decorticator and finisher. Both of which will be an invaluable resource for AURI’s work in Minnesota’s burgeoning hemp industry. What’s more, to accommodate an increase in project activity, the Coproducts Lab added another site location and now utilizes two separate lab spaces in the Waseca area.

AURI’s Marshall facility also expanded to accommodate the needs of our clients by opening a new Food Product Evaluation and Sensory Lab on the campus of Southwest Minnesota State University. This new facility was custom built and is a unique resource for food entrepreneurs, I invite you to read the article on pages 6-7 to learn more about it.

In addition to these expansions, I’m pleased to report that AURI began providing small scale product lots for market research purposes for companies to test their ideas at a slightly larger commercial scale to help move them accelerate their commercialization efforts. I expect this new capability to be popular among clients who are trying to be as efficient as possible in their go-to-market strategy.

Last, but certainly not least, as I write this letter AURI is in the process of electing its second at-large board position. This new board member will bring additional perspectives to the board of directors, which is beneficial for an organization such as AURI that encompasses such a diversity of work and opportunities. I look forward to sharing more information about AURI leadership in the next issue of Ag Innovation News, but in the mean time keep an eye on auri.org for an announcement.

In closing, 2020 is starting off on the right path to be a bright year for AURI. The staff and board worked hard throughout the past year in an effort to position the organization as one that powers the future and develops innovative solutions for the development of the food and ag sectors.

 starts off on the Right Path

AURI NOW PROVIDES
SMALL SCALE
PRODUCT MARKET
RESEARCH FOR
COMPANIES TO TEST
THEIR IDEAS AND
HELP MOVE THEM TO
COMMERICALIZATION
AT A FASTER PACE.

Board Spotlight

Q&A with Rep. Jeanne Poppe

Please tell our readers a little about your background?
I am a native of southeastern MN. I grew up on a farm about a mile outside of the city limits of Houston, MN. After graduating from Houston High School, I attended college in LaCrosse, Wisconsin and then transferred to the University of Wisconsin River Falls where I graduated with a BA in sociology. After a couple of years of working, I continued my education by going to Winona State University for a Master’s degree in counseling. I have worked as a county financial worker, a legal services paralegal, and a family counselor, prior to beginning my career with Riverland Community College. I recently retired after 28 years from my work as a college counselor. I have lived in Austin since 1984 where my husband and I raised our three children. I served on the Austin City Council for 8 years. I was elected to the MN House in 2004 and have served continuously since. I currently serve as chair of the House Agriculture and Food Finance and Policy Division.

What do you think is the biggest challenge facing farmers today?
It may be difficult to pinpoint one thing as the biggest challenge. Farmers are accustomed to taking risks and facing the usual ups and downs with weather and markets. It seems the biggest challenge or frustration is when they are subject to decisions made by others which doesn’t help their farming operation (and by perception or reality harms them).

Which Ag-related issues are most important to you?
Agricultural education, including growing the number of students within these programs in the state. If we have more agriculture educators, we will have more FFA chapters, which will lead to more students gaining exposure to agricultural education and future career opportunities in agriculture. Strengthening and increasing mental health resources for farmers. Growing possibilities for emerging farmers – including transitions from those wanting to retire to those wanting to begin farming.

How can Minnesota best support its agricultural industry?
Farmers generally make the best decisions they know how to make for their enterprise. So first and foremost, listening to our farmers and understanding their struggles and perspectives will go a long way in showing support. As the weather changes cause them to consider new practices for soil health and economic prosperity, the legislature should support research in new crops and animal welfare, as well as provide incentives for new ideas and transitions. Helping them increase their markets (locally and globally), helping them as they want to begin or retire from farming, and assisting them as they adapt to climate change and disease are all ways to provide support.

What are your goals as a new board member?
I want to be helpful to the operation and supportive of the entrepreneurial nature of the Institute.

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Starting Off On the Right Path

AURI EXECUTIVE DIRECTOR’S COLUMN

BY SHANNON SCHLECHT  
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Food Ag Ideas Week Brought Technology, Innovation, and Dynamic Speakers Together

Fresh, exciting new ideas, from beer to bees and data to dollars, dominated the panels and presentations at this year’s Food Ag Ideas Week, October 10-15.

This year’s annual event, was hosted by Grow North, an organization that connects food and agriculture venture fund investors and food and agriculture deal-makers and problem-solvers. At this conference, Grow North focused on the shifting demands for healthy and sustainable food and agriculture and tackled questions related to the changing agricultural landscape.

The New Uses Forum, created to accelerate innovation and investment in value-added agriculture, ultimately utilizing more Minnesota agricultural commodities as a result, has rapidly gained momentum and recognition. The forum featured businesses that sell to, buy from, or provide services to brewers, distillers and food manufacturers and showcased a range of topics.

At the Toro Company in Minneapolis, the Minnesota Ag Food Innovation Network (MAFIN) featured businesses that sell to, buy from, or provide services to brewers, distillers and food manufacturers.

The conference brought together varying views and conversations outside their traditional stances. These sessions, speakers, investors and growers convened in venues across Minneapolis and St. Paul, creating a dynamic platform of inspiring discussions surrounding the agriculture and food sectors.

The conference kicked off with an event organized by AURI in partnership with BupaE, a company that connects online farmers and customers.

From Field to Glass showcased innovations in brewing and distilling with locally sourced agricultural products. This event took place at The Lab, a production facility for beer creativity to brews and ferment recipes. This production facility and taproom features a rotational selection of small-batch brews and a terroir service, with an emphasis on quality and consistency for brews in residence as well as outside producers. The Lab is operated by BevSource, a provider of beer and beverage development, processing, sourcing and marketing services for new and established beverage breweries.

Brewing and distilling is a popular subject of a panel entitled “Innovating for an Edge.” Sandy Boss Follas, co-owner of Bang Brewing talked about the use of kernza, a perennial grain boasting a number of environmental benefits. Kernza provides a lot of benefits; it’s a self-sustaining wheat that is capable of boosting soil and water health while providing an incredible flavor profile,” Follas said. Bang Brewing is the third brewery in the state to add kernza to their menu.

This year’s event featured renowned speakers and business leaders who pulled out all the stops to share their expertise and experiences. The New Uses Forum was able to attract a wide range of attendees, from small farmers to large corporations.

The panels continued into the afternoon with “The Future of Agriculture: Investing in Innovation.” AURI Board member.

The second day was held at the Walker Art Center in Minneapolis. The Walker is an international art museum that offers several unique features and benefits as a venue to host the first day of events because it continues to attract up-and-coming artists and provides a rotating collection of art to patrons.

At the Walker, there were exciting discussions and presentations about the subject of the incorporation of technology at the farm level. AURI Co-Owner of Olson Organics of Cottonwood and AURI Board member.

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In addition to sensory characteristic analysis, researchers can use the lab to refine and improve products before they hit shelves. The new facility provides food producers with an additional opportunity to drive innovation through sensory analysis of food products. Businesses will also be able to take advantage of AURI's professional approach to test design and results interpretation to answer their critical product questions.

To begin with, lab professionals will recruit food panelists from the SMSU student body and the Marshall area. As the facility evolves and capabilities expand, the lab could bring in more highly trained sensory panelists to provide a more in-depth sensory evaluation capability.

The Food Product Evaluation and Sensory Lab is versatile and well-equipped. The facility also strengthens the collaborative relationship between AURI and SMSU. In addition to serving Minnesota's food entrepreneurs, this new facility serves as a professional test room for required coursework in SMSU's Culinary program.

A unique partnership between AURI and SMSU, and funding from the Minnesota Department of Agriculture and Minnesota Legislature, brought the Food Product Evaluation and Sensory Laboratory to realization. The lab was planned, designed, and funded through collaborative efforts by both organizations. As such, both AURI and SMSU will enjoy joint use of the facility for the benefit of their stakeholders throughout the region. Utilizing existing classroom space for the construction of the facility and existing SMSU food prep areas minimized construction costs.

The Agricultural Utilization Research Institute, in partnership with Southwest Minnesota State University (SMSU), the Minnesota Department of Agriculture and the Minnesota Legislature recently opened a new Food Product Evaluation and Sensory Laboratory on SMSU's campus in Marshall, Minn. The new facility provides food producers with an additional opportunity to collect and analyze qualitative and quantitative data about the sensory aspects of food—like taste, smell, sight, and feel. This is an important step for innovative food businesses as it shows how products could be adjusted to better meet consumer preferences as part of the commercialization process.

Professional sensory evaluations are costly and typically consist of highly trained professionals to tweak certain product characteristics. However, with the opening of this lab, AURI is able to offer beginning food product optimization services to startup businesses at an affordable price point. By using the services and technology at the lab, AURI's endeavors to help clients bring more preferred food products to the market faster.

AURI's clients have been asking for a resource with these capabilities for some time, said Shannon Schlecht, AURI's executive director. Consumer preference is fluid and hard to predict, thus in the competitive food product market, being able to test and measure food to deliver desired characteristics before bringing to market can be the difference between a product's success or failure. Receiving unbiased feedback on basic attributes like appearance, aroma, flavor and texture can help food producers eliminate less preferred products or refine and improve their products before they hit shelves.

"Most facilities focus on very specific attributes with trained panelists, which is a much more expensive endeavor. While this facility could provide that type of feedback as well, the focus will be on more general sensory characteristics to overcome initial hurdles or concerns around a market launch," Schlecht said.

The Food Product Evaluation and Sensory Laboratory on SMSU's campus in Marshall, Minn. The lab's benefits are immediate and long-term to the state's agricultural community and overall economy, said Lolly Orchino, AURI's Scientist of Food & Nutrition. From AURI's side, the lab provides sensory feedback from general consumers on various products to help accelerate a successful product launch into the market. By using this new center, companies can more quickly find the most desired product selected by the sensory panel to fine tune their launch which minimizes costs of developing other formulations at commercial market scale and more quickly accelerates sales growth with the best possible product introduction to the marketplace.

"Many small food businesses rely on friends and family to provide product feedback and direction for change. This new capability will enable business owners to receive unbiased product feedback, which is especially important while trying to establish a foothold in the marketplace," said Orchino.

"The opportunity to start businesses with their product introduced, and help give them the best opportunity to quickly accelerate sales with more desired products. It will also be a greatly educational resource for SMSU's Culinary department," said Schlecht.

From the SMSU side, the sensory laboratory is a resource for the Culinary students to obtain unbiased feedback on their academic work, on food product evaluations, and for educating their peers on what is palatable, and "market ready" product. The lab will also be a recruitment tool for SMSU and ultimately help draw more students into the field.

Linda Thompson, AURI's Organization Development Director who is based for SMSU and ultimately help draw more students into the field.

"We're excited to open the new Food Product Evaluation and Sensory Laboratory and we are deeply grateful to the Minnesota legislature, the Minnesota Department of Agriculture and Southwest Minnesota State University for their partnership," said Schlecht.

To learn more about the new lab, visit: auri.org/sensorylab or auri.org/about-auri/facilities/food-product-evaluation- and-sensory-lab.

By Dan Levine
Nan Larson, AURI’s Director of Innovative Agribusiness, gained momentum and recognition. “AURI started this event to create a platform for networking and exchange ideas,” Schlecht says. “To try to make sure there’s value in being able to have these one-on-one sessions.” How You Know Because of working with existing and emerging businesses, we support it, Schlecht says that an entrepreneur’s resource network greatly affects success. As the business axiom explains, “You don’t just know what you know, you’ve just made it known”. That’s why the New Uses Forum is open to anyone interested in innovation and enhancing ideas in the food and agriculture space. Last year, we had producers, entrepreneurs, Fortune 500 representatives, private equity, banks, cooperatives, members, political representatives and several other stakeholders organizations all at the same room for those dialogues,” Schlecht recalls. “At its core, the event brought the agricultural industry value chain players together to really focus on value-added challenges and opportunities. Resources are available to help businesses, but that support is only valuable if entrepreneurs know what’s out there and how to access it.” What amazes me each year is the ‘buzz’ throughout the roughly two-day sessions,” Schlecht says. “It’s often challenging to get them all to be ready to advance their ideas into the next phase of the previous session. That is testament to both the quality of the content the event curates, with regional and national partnerships and experts on various topics, but also participants engaging in dialogue to foster opportunities in this space.” AURI works in the areas of food, bio-based products, crop product utilization and renewable energy. Schlecht says all of those agriculture sector show promise and will be represented at the 2020 New Uses Forum. “The local food movement continues to create enthusiasm and interest for new products, as do sustainable food systems that can be further utilized into new opportunities,” Schlecht explains. “We also want to see great number of participants in the bio-based industry currently is growing, offering great opportunities for Minnesota and the New Uses Forum.” “We want these efforts to result in value creation in Minnesota because of shared knowledge,” Knetzgen adds, “and if we attract more investors to Minnesota, that’s a win. If we end up funding new products, that’s part of our goal as well.” Reversing the Pitch At the 2019 event, AURI launched a “reverse pitch” concept at the forum, which included industry challenges from larger food and agribusiness companies—agribusiness reverse pitching novel ideas 100 degrees. Leading food and ag companies gathered to share their industry challenges and then invited a mix of researchers, entrepreneurs, producers, and innovators to propose novel ideas to those problem areas. “The reverse pitch was a fantastic addition to the program to illustrate the range of innovation needs both in the entrepreneurial level and Fortune 500 level,” Schlecht says. “We are working to incorporate this type of platform again at the 2020 forum.” In addition to the reverse pitch, the April 2020 New Uses Forum will include keynote speakers and panel discussions addressing issues in food, bio-based products, renewable energy and crop product utilization. Other sessions will focus on innovations in the food and consumer trends. Reverse pitches will be available this time for networking. In addition, AURI will announce its 2020 Ag Innovator of the Year during the New Uses Forum. Still A Need AURI formed in the 1980s in response to the farm crisis when commodity prices were low, agriculture utilization. Other sessions will feature experts in capital resources and consumer trends as well as ample opportunities for new ideas to be showcased, value-added opportunities to further the ideation and commercialization pathway opportunity.” “What amazes me each year is the ‘buzz’ throughout the roughly two-day sessions,” Schlecht says. “It’s often challenging to get them all to be ready to advance their ideas into the next phase.” It is that an entrepreneur’s resource network greatly affects success. As the business axiom explains, “You don’t just know what you know, you’ve just made it known”. 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AURI STAFF COLUMN: SEEING AROUND CORNERS

stakeholder needs. This includes convening ecosystem expands and becomes more complex, ag landscape (e.g. hemp, cover crops, new agriculture.

40 interviews with stakeholder groups from throughout Minnesota’s agriculture.

BY AURI

Every biennium AURI conducts a broad scale research project, during which the AURI staff meets face-to-face with representatives from various ag-related stakeholder groups to gain insight into the current industry challenges and opportunities. The results of this research provide an opportunity to identify stakeholder priorities and industry sentiments while developing strategies towards strategic synergy and collaborative opportunities. In 2019 AURI’s staff conducted more than 40 interviews with stakeholder groups from throughout Minnesota’s agriculture.

This theme stems from a number of groups who referred to concepts like local sourcing and truth in labeling. These same organizations also indicated a desire for greater provincial and international relationships to remain competitive in global policies. What this tells us is that organizations are appreciating agriculture’s public image or moral position highly. This is important to recognizing opportunities, because it mimics a realization of growing consumer-based trends, to which the value chain must react.

In this case, AURI will undertake various steps to enable stakeholders to achieve their desired outcomes. First, AURI will build platforms and services intended to increase awareness and understanding of locally sourced products, while at the same time, the organization will explore, vet and catalyze commercialization of functional properties of MS-grown/raised agricultural products. AURI will also continue its value-chain work on novel crops via emerging crop roundtable opportunities to help develop strategic synergy and collaborative opportunities. The results of this research provide an opportunity to identify stakeholder priorities and industry sentiments while developing strategies towards strategic synergy and collaborative opportunities.

One of this theme’s stakeholders point ongoing concerns of uncontrollable obstacles. Resources vary quickly to acknowledge that part of their optimism was rooted in their belief the agriculture sector is on the cusp of enhanced scientific technologies and processes, new uses for commodities and ag residues, better consumer communications and significant advances in plant and animal health.

In order to support those opportunities, AURI will continue to optimize its facilities, equipment and technical knowledge as it relates to new and ongoing industry needs. At the same time, it will continue to expand its value-chain development to build new and emerging industry and improve existing and legacy supply chains.

AURI conducted Stakeholder Research

AURI staff received numerous comments throughout this research project about frustrations related to long-term down cycles, low commodity prices, limited equity and challenging farm transitions. Interviewees found that respondents felt these were all issues outside of their control, which contributed to a high level of financial and emotional anxiety and low morale.

AURIOAG INNOVATION NEWS • JAN MAR 2020

BY AURI

Enhancing poultry performance with specialized soy products

Customers “Rave” for the Cream

In Northern Minnesota, there are limited options for specialty foods and products that fulfill the dietary needs of the surrounding area. Many consumers who appreciate premium specialty foods or have dietary restrictions are forced to shop larger metropolitan areas and stockpile products due to limited local availability. This growing community is becoming more discerning with ingredients that are natural and bale familiar, simple ingredients. With that backdrop, the small town of Crosby is the perfect place to find a sustainable local base sourcing specialty products.

Virtual is a gourmet specialty store that’s focused on the unique needs of these consumers. They source products crafted from high-quality ingredients, as stated by owner Kirkman and Paul VonderWaal. Virtual features artisan cheese, charcuterie, packaged gourmet foods, spirits, wines, and other premium items from farms all carefully curated or crafted to the customer’s existing standards for depth and variety.

Born out of a personal need to indulge in the ice cream experience without suffering the side effects of lactose intolerance, Kirkman turned to AURI for assistance with the development of Virtual’s ice cream business, Rave Creamworks. To create lactose-free ice cream, an enzyme called lactase is employed through a process called hydrolysis to break down the milk sugar lactose into its more digestible building blocks: galactose and glucose. Lactase is provided in-depth technical guidance on the enzyme development and ingredient sourcing. As Kirkman’s launch date approached on page 12

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Current breeds of commercial broiler chickens and turkeys grow very quickly. To improve early growth and immune system development, industry research suggests that poultry producers should feed diets containing highly digestible ingredients and a lower amount of anti-nutritional factors (ANF).

Most feed ingredients, while providing valuable nutrients, also contain some ANFs in varying quantities. For poultry, due to the high protein and amino acid requirements, most of that protein comes from soybean meal, which is an excellent source of amino acids, but contains large amounts of oligosaccharides that can disrupt the digestive system of young birds. Through processing technology, the oligosaccharide content can be reduced while improving the protein concentration of the product.

An example of such a product is NutriVance® produced by Midwest Ag Enterprises. which subliminally reduces the ANI content, including oligosaccharides-raffinose, stachyose and rhamnose inhibitors.

The Minnesota Soybean Research and Education Council (MSREC) funded feeding trials with market turkey toms and broiler chickens to examine potential performance improvements with the inclusion of NutriVance® products in the starter diets of turkeys up to 6 weeks of age and broilers up to 6 weeks of age.

Turkey starter diets included NutriVance® at levels of 2.5 percent and 5.0 percent in broiler starter diets. In addition, products containing NutriVance® in the broiler diets might explain the lack of an effect for the control. However, NutriVance® at 5.0 percent or 2.5 percent Neptide or Fermotide tended to improve efficiency scores as compared to the control diet. For the 18 week trial, the EEI score increased from 10.48 to 14.87.

When looking to 6 weeks of age, NutriVance® at 2.5 percent resulted in the best turkey toms performance followed by Fermotide and Neptide products in control. However, NutriVance® for a shorter time period (0 to 2 weeks of age) was not effective. The short period of feeding evaluated in the broiler diets might explain the lack of an effect for the broiler chickens.

In conclusion, it’s important to process soy product exhibited reduced levels of anti-nutritional factors and increased protein content. Based on this research, an acceptable amount of NutriVance® in turkey diets is 2.5 percent for up to six weeks of age.
drew near, AURI also identified and helped scale up his recipe at a local micro creamery for ongoing production, including analytical confirmation of lactose hydrolysis.

Rave contracted with Autumnwood Farm in Forest Lake, MN, to manufacture their lactose-free, high butterfat ice cream mix, resulting in a velvety mouthfeel with the perfect “melt” – a truly indulgent experience. AURI provided product testing as well as technical assistance on the ice cream’s nutritional profile.

Rave has developed a strong following at Victual with store regulars and Kirkman recognizes a range of customers from lake dwellers to mountain bikers who have an appreciation for fine foods. With 16 different flavors, the shops best seller is the Pink Squirrel, a popular supper club drink that makes for a unique ice cream experience.

Rave Creamworks hopes to redefine ice cream for those suffering from lactose intolerance and provide people in the surrounding Crosby-Ironton area with a great tasting, natural ice cream that delivers a super premium experience in line with Victual’s consumer promise. The result is a rich, velvety smooth, full dairy lactose-free ice cream that truly everyone can enjoy.

In this little corner of Minnesota, the partnership of brands like Rave and AURI can lead to sweet success where you least expect it.