



# Ag Innovation News

Oct-Dec 2021, Vol. 30, No.4

The newspaper of the Agricultural Utilization Research Institute



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Since my first introduction to AURI, it was clear that this organization's success over the past three decades is due to the dedication of the staff. Thanks to their tireless work and commitment to the organization's mission, AURI has grown to into a premier ag and food innovation organization befitting the state of Minnesota. It's rare to work for an organization with such a devoted staff and I am extremely proud to be leading this team.

Which is why it's bittersweet for me to announce the retirements of two of AURI's talented staff. Earlier this summer Rod Larkins (Sr. Director of Science and Technology) and Toby Magsam (Associate Accountant) announced their retirement and their departures to the organization. Rod, who served AURI with distinction by leading our technical team the past 10 years will be missed. He brought a broad range of expertise to the organization. His enthusiasm and energy for food and ag innovation matched the high level of respect he enjoyed from throughout the ag and food industry. I will always be honored to have called him a colleague.

Toby, whose efforts may have been less visible to the outside world, was just as integral to AURI—in different ways. She was committed to the organization's fiscal responsibility and her stability to this role was second to none. What's more, Toby had been with AURI since 1997, which in itself is something to be celebrated. Over the years Toby spent with the organization, she saw many changes and her level of institutional knowledge was an asset I always valued.

Losses like these are not unexpected, what differentiates successful organizations from others is their ability to identify and hire superlative individuals to build on the contributions from past employees. I believe this to be the case for AURI. Over the past few months AURI has welcomed new staff to the technical and finance teams who will be integral to the organization's future successes.

First, as a replacement for Rod Larkins, AURI welcomes Dr. Luca Zullo. Luca comes to this organization with significant experience from Cargill, Shell Research and years spent working with several early-stage companies - leading or supporting the transition to commercialization from early-stage R&D. Among those, he led the development of a venture for a bio-ethanol derived chemicals business resulting in the construction of a world-class production site which now provides biobased solvents to the paint and coating industry. Luca will lead our technical team and I have great expectations for him as he settles into AURI.

Also, AURI welcomed two additions to the finance team in the last 12 months. Amy Lund joined AURI in an accountant role in October 2020 and Linda LaPlante started August 1 as a new accountant. Amy, who previously worked for the Grand Forks Region Economic Development Corp as a financial coordinator, brings a passion for agriculture and innovation, which drew her to AURI. She brings a wide range of accounting skills, a bright outlook, integrity and a strong work ethic to our workplace. Linda comes to AURI as an accountant after a 27+ year career as a controller in private industry. While in that position, she was responsible for all facets of financial statement production, cash management, payroll and benefits coordination, accounts payable, reconciliations, GSA contract administration, sales tax and 1099 filings.

Please join me in welcoming Luca, Amy and Linda! I am confident these new team members will strengthen AURI and will play a significant role in the future success of this organization. If you'd like to learn more about these new team members or anyone else on AURI's talented staff, be sure to visit our website at [auri.org/about-auri/staff/](http://auri.org/about-auri/staff/).



By AURI

This quarter, Ag Innovation News highlights one of its newest board members, Sen. Gene Dornink. In addition to his role on the Board of Directors, Sen. Dornink is also a member of the Minnesota Senate's Agriculture and Rural Development Finance and Policy Committee. Read on to learn more about his background and goals for the future.

AIN

Please tell our readers little about your background.

GD

I am a lifelong Minnesotan who was raised on a family dairy farm. I spent my career working as a Union Carpenter and later started a small business. I graduated from Austin Vocational School with a carpentry degree and worked in resident construction. I worked as a member of the Carpenter's Union #1382 in Rochester for 22 years. In 2009, I was laid off in a tough economy. Instead of losing faith, my family and I worked tirelessly to build a successful business which we still operate today.

AIN

Which ag-related issues are most important to you?

GD

I have real concerns about the implementation of California Car standards in Minnesota. It is alarming to our farming community based on discussions and would be detrimental to many. The California policies around animal agriculture are also causing our MN farmers to rethink how they run our livestock operations.

AIN

What do you think is the biggest challenge faced by farmers today?

GD

Farmers continue to face many challenges and must be innovative and resilient. One of the major challenges this year is drought. We need to do everything we can to support our Ag and rural communities. Listening to producers and the agriculture community during difficult times to develop and advance favorable policy solutions is one way to support the agriculture industry.

AIN

What are your goals as a new board member?

GD

I am hoping to meet and get to know the dedicated members of this organization and learn more about the great work being done. There are many issues to tackle, and I look forward to being a part of it.

AIN

How can Minnesota best support its agricultural industry?

GD

We can best support our agriculture community by being out with them and taking time to listen. There are real areas where we can support the community. The best way to find these solutions is to work with the agriculture organizations that advocate so tirelessly on our farmers behalf.

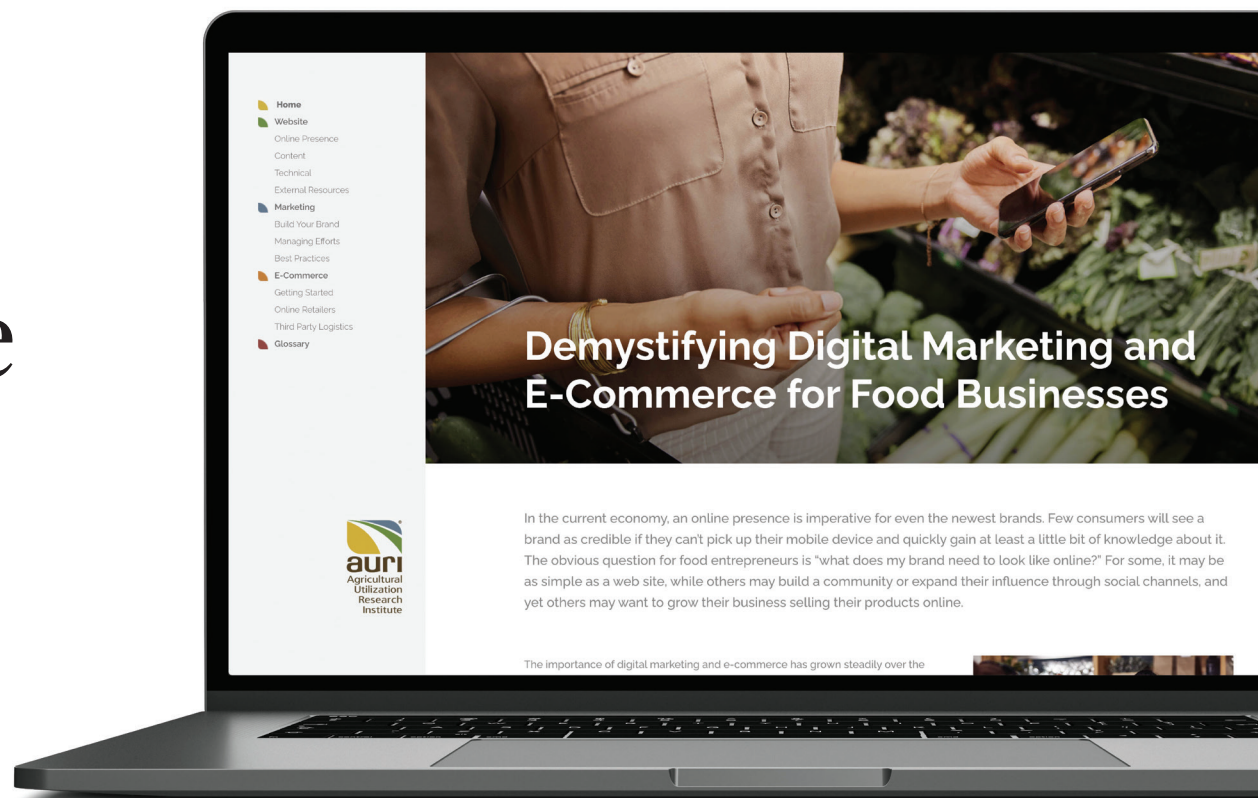
AIN

What goals do you hope to achieve in your current term within the MN Legislature?

GD

My goal always is to represent our community to the best of my ability. We need strong voices and representation in St. Paul, especially during these challenging times. I'm looking forward to working with our agriculture community and groups to better serve farmers. I'll be there for agriculture!

# AURI Publishes E-Commerce and Digital Marketing Guide



The COVID-19 pandemic forever changed how consumers discover new products and make purchases. It also disrupted how businesses sell their goods and tell their stories to stand out in a crowded marketplace.

Food and beverage businesses were uniquely impacted by this seismic shift. Curbside pickup and online ordering are now nearly universal practices as businesses were forced to find new ways to generate revenue to stay afloat. As a result, an effective digital presence and online commerce platform is essential for businesses of any size.

According to Hartman Group, consumers spent 29% of their weekly grocery budget online in June and July 2020 compared to 10.5% for year 2019. Industry research concludes that e-commerce grew by 300 percent from 2013 to 2017, and in 2021 nearly 18 percent of global retail sales will occur online. Further research from McKinsey & Company found that 92 percent of people who tried online shopping in 2019 became “converts” to the practice.

To stay relevant and profitable, companies large and small shifted their business plans and distribution systems. For many, this new way of doing business presents questions about where to invest time and resources and the best tools to utilize to increase sales and customer loyalty.

To address these issues, AURI partnered with Clutch Performance, to develop an e-commerce and digital marketing guide for food entrepreneurs. The research was published as an online module as part of the organization’s food business toolkit. The project was funded, in part, by the Minnesota Department of Agriculture.

“The timeliness of this project was obviously something we couldn’t predict, but the information contained in the guide is absolutely critical for businesses. Having a coherent e-commerce and digital strategy and an understanding of some of the data points and tools available is the first step to telling the story of your business and showing the value of your product,” said Shannon Schlecht, AURI’s Executive Director. “This project also addresses a gap in the marketplace. A lot of AURI’s work on the food side is in product development and process development.

One of the things we have noticed, however, is that there is work to be done to help businesses market good ideas and spread market awareness.”

An effective digital marketing and e-commerce strategy is custom designed to fit the needs and goals of an emerging company. The first goal of the guide is to describe the different tools available to entrepreneurs to help make informed decisions on topics like websites, social media and online storefronts to sell goods. The guide has content and visual examples for each section, examples of existing Minnesota food businesses that are effectively using the various platforms and links to additional resources.

“We were both seeing and hearing that many small food businesses didn’t know how to get started when it came to generating online sales,” said Jason Robinson, AURI’s Business Development Director-Food. “At the same time, we saw a massive rise in e-commerce as a regular shopping approach for consumers. To close this gap, we built this online module to help business owners ‘get smarter’ and create a baseline of knowledge that would accelerate their learning curve to make better decisions and grow their revenue faster.”

To match the subject matter, the guide’s format was designed as an online experience. It is available as an online microsite through AURI’s website. It is easy to navigate and to skip ahead to specific sections.

It answers three key questions: How do businesses best connect with customers in a digital space? How do businesses then convert that connection into sales? Finally, once a sale is complete, how do businesses deal with the logistics of shipping their products? There are key takeaways in each category.

Building a digital presence to connect with customers can be an easier process than many business owners envision. There are many existing platforms, like WordPress, that don’t require a web design background for a user to create an effective and engaging website. An online shopping cart allows consumers to purchase goods direct from businesses rather than at a grocery store or retail outlet. There are more options available than just Amazon. Clutch identified several third-party platforms businesses can use to support e-commerce efforts.

“As you think about bringing a product to market, this resource will be very helpful to educate yourself on the options available and the pros and cons of each. When it comes to digital marketing, it is very easy to spend your money and your energy as a business owner on things that won’t necessarily help you reach customers,” said Jen Wagner-Lahr, AURI’s Senior Director of Commercialization. “The guide does a really good job of laying out the options and then the pros and cons of each. Ideally, entrepreneurs would review this guide as they are starting out in real time to get those questions answered so they don’t start down the wrong path and have to adjust their focus later in the process.”



“There are many options businesses can use to expedite growth that don’t require a ground-up solution. For example, there is even one that allows farmers to sell their produce directly to consumers,” said Robinson. “I hope food business owners take away that you don’t need to spend as much money as you might think on an e-commerce platform. I also hope this guide helps those business owners understand that effective online marketing requires consistent and targeted consumer engagement. It is not a one-size-fits-all approach.”

Once businesses have found their customers and made a sale, they can’t overlook the importance of shipping their products. The guide identifies tools and strategy considerations of delivery.

“You don’t want to spend more money in shipping than you can sell your product for. Where the rubber really hits the road is understanding the right approach to logistics and building an efficient process. That is a vital component to the underlying business model,” Robinson said.

The audience for the guide is an entrepreneur with an idea for a product ready to scale up, or an existing small to medium-sized business ready to catch up in these fields.

## Ag Innovation Partnership

AURI partnered with Clutch, a Minneapolis-based marketing company that specializes in working with food businesses. Dave Miller, the Vice President of Clutch’s Food Business, said that for many businesses the guide will be helpful to focus their efforts. Most small businesses don’t have dedicated marketers. Busy entrepreneurs must use their time effectively to get the most return on e-commerce and digital marketing, Miller noted.

“When businesses start thinking about how to use social media, or video or an online shopping cart, the key is to be realistic. Ask yourself what your business needs and what tools do you need to meet those goals? Focus in on one or two things and don’t try to do too much,” he said. “If you have an hour or two a week to devote to marketing, how can you best use that time?”

Miller said another helpful resource devotes itself to explaining the purpose and the audience of the different social media channels.

“Social media is great for small and emerging businesses. It’s free and you can connect directly with customers. But you need a coherent strategy to get the most out of it,” he said. “A YouTube channel is not the same as your Facebook page. They have different audiences and different purposes. Understanding those uses is a key to optimizing your content on social media.”

Like the Aquaculture Report, AURI’s staff identified the e-commerce and digital marketing guide as an important component of the 2020 Ag Innovation Partnership. Each year AURI puts out a call for submissions from businesses, researchers, entrepreneurs and producers, encouraging them to submit a proposal. AURI reviews and selects projects based on the submissions most closely aligned with AURI’s mission of supporting innovation and creating long-term economic impact. Project selection is based on how the proposal meets an agriculture sector need.

The selected projects receive AURI’s resources, funding and support to help businesses turn their ideas into reality and catalyze innovation in the state’s agriculture industry. Also, there is a requirement of all applicants to share in the project cost by contributing at least 25 percent of the dollars, hours or value of the project. Each project selected aligns with one of AURI’s core focus areas: biobased products, renewable energy, coproducts and food. The information generated from each project is available to the public in order to help producers, entrepreneurs, businesses and agriculture processors.

AURI will announce areas of interest and solicit proposals for the fifth year of the AIP program this fall.

“We have been talking about e-commerce for a while. The shift to a digital focus has been gathering steam and it was significantly amplified with COVID-19. There is a lot of interest in new and different ways to reach customers with our food clients,” said Wagner-Lahr. “This guide is a timely and informative resource for those discussions that are happening in real-time right now.”

# REINVENTING ON THE FLY



- Ryan Rosenthal and Mike von Fange can attest to the fact that being an entrepreneur isn't easy, nor is it for the faint of heart. The duo demonstrates the agility necessary to stay in business when challenges arise.
- Rosenthal and von Fange began pondering the idea of starting their own food business back in 2013.

“We were rooming together at the time and mutually frustrated with the lack of convenient and delicious food options that met the values we sought of local, clean, organic and sustainable,” Rosenthal recalls. “We started researching the market opportunity thinking that many other people probably shared this same problem and the original concept for Simpls was born. We were able to miraculously secure a bank loan and off we went.”

Rosenthal says Simpls opened their first store location in September 2014 in the downtown Minneapolis skyway system. They produced scratch-made soups that were convenient for people working in a bustling downtown. Rosenthal describes Simpls' business model as what would result if 7-Eleven and Whole Foods had a baby.

“Small footprint convenience stores with the food values you expect from Whole Foods. We operated a commissary kitchen that supplied the stores with fresh food daily, with the idea that the stores could be smaller without a kitchen at each location and the product more consistent,” Rosenthal says. “We grew to three store locations in Minneapolis by the spring of 2020.”

## ALONG CAME COVID

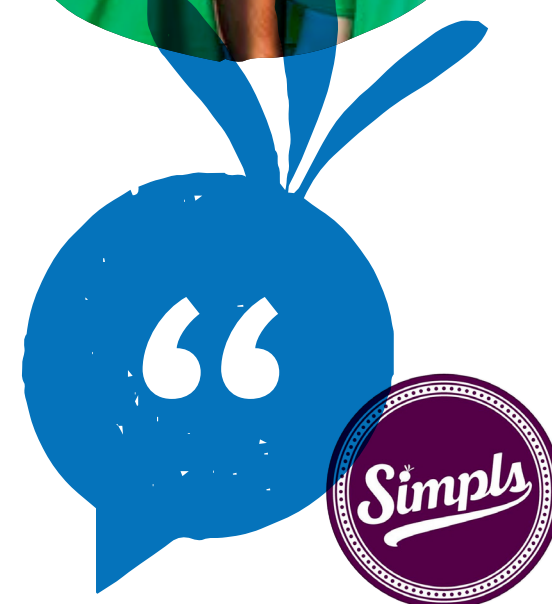
Simpls grew into a lively business with three Minneapolis locations and as many as 28 employees. It seemed Rosenthal and von Fange worked their business model to perfection. Then the COVID-19 pandemic emerged and changed everything.

“All of our store locations were in areas that were almost entirely dependent on commuter traffic, so that shut off overnight as work went remote for safety,” Rosenthal explains. “We had no choice but to close the locations.”

The closings were supposed to be temporary, but the move turned out to be permanent. Closing stores was difficult enough, but it was even harder cutting staff.

“For the next two weeks we went through a brutal struggle of laying off all of our staff and liquidating as much inventory as possible. It was an extraordinarily difficult time,” Rosenthal says.

Not ready to give up, the duo wasted little time reinventing themselves. Instead of operating storefronts, Simpls repackaged their inventory into a frozen product they could sell to their customer base at their homes.



- We launched it and the customer support was incredible,” Rosenthal says. “We were able to rehire about a third of our staff right away and we have been continuing to grow this business segment since.”



 **A NEW WORLD**

COVID-19 caused seismic shifts in many U.S. industries. This was especially true for the food and restaurant sectors. An AURI analysis, pandemic-driven restrictions forced restaurants to adopt pick-up and delivery options often backed by e-commerce platforms, and to improve their online presence to stay visible and relevant to consumers. Also, according to data from IBM's U.S. Retail Index, the pandemic accelerated the shift away from physical stores to digital shopping by roughly five years.

"Shifts in consumer needs brought about by uncontrollable external forces can significantly impact the current value proposition of a brand or food business," says Jason Robinson, AURI food business development director. "In the case of Simpls, nobody was commuting to work for over a year, so a person-to-person sales model would not work."

Robinson learned of Simpls at the start of the COVID-19 pandemic restrictions from a mutual friend who wanted to make sure that the company had access to the help they needed to pivot their business model. At the time, Simpls was exploring several different options. Robinson helped them assess the technical feasibility of those various concepts.

"From a business development point of view, simply having a sympathetic and savvy ear to bounce and evaluate ideas can save a business like Simpls significant time in the long run, by quickly discarding ideas that definitely won't work and honing in on those that might," Robinson explains. "The owners have settled on their current business model and have demonstrated enough success to have faith in what they are doing, to the point that we were able to open a project with them focused on compiling nutrition label information across their entire range of soups."

"Prior to Covid, Simpls was selling its soups to consumers to eat on-site at their retail locations, so no nutrition facts were required," explains AURI Senior Food Scientist Lolly Occhino. "After Covid, they shifted to an e-commerce model where packaged soups were sent out to consumers and nutrition labels were expected."

AURI worked to develop nutrition facts and standardize recipes for Simpls' 16 flavors of soup, ranging from Thai Lemongrass Chicken to Cajun Gumbo.

"Simpls proved their resiliency when Covid hit," Occhino says. "They pivoted to an e-commerce model which allowed them to stay in business. They are now considering expanding their line with frozen pizzas and are also planning to move into wholesale sales."

Rosenthal says AURI's assistance was very valuable to Simpls as they charted their new business course.

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- **"AURI has been an outstanding resource for us as a**
- **small business," Rosenthal says. "We were evaluating**
- **kitchen and co-manufacturing last winter and were**
- **provided with a wealth of information and contacts**
- **to explore during our decision-making process.**
- **That helped us navigate the right path for us. For**
- **a small business, having that level of support at an**
- **affordable rate is just huge. We hope to continue**
- **working with AURI as we scale up, and we think that**
- **there will be great value in connecting with other**
- **innovators in the food and ag sector through AURI."**
- 

 **FORWARD FOCUSED**

Rosenthal says Simpls' primary product remains scratch-made frozen soup. The soups were what Simpls was best known for in their stores, and the soups translate well to frozen delivery. Customers have responded well to the new business model.

"We had a fantastic winter of growth in 2020 and early 2021," Rosenthal explains. "Customers have been very receptive to having goods delivered to them at home and I think acceptance of that was clearly accelerated by the pandemic. We still have not rebuilt to the sales levels we had pre-pandemic, but we believe by the end of 2022 our new business will be much larger than it would have been in its previous version."

Simpls will soon launch a second frozen product, which will be naturally leavened, handmade frozen pizzas. They've also been working with AURI to incorporate Kernza®, a perennial wheatgrass, that is a relative of wheat, into their recipes.

"Knowing the Simpls mission also focused on supporting regenerative agriculture, we were able to fold in awareness of an emerging climate-positive perennial grain cropping system in the early stages of commercialization in Minnesota," Robinson states. "Kernza grain is harvested from intermediate wheatgrass, the commercialization of which has been a focus area for AURI since 2019."

"From our perspective, it's an incredible grain with so much potential in sustainable farming and we want to be a part of getting into the marketplace to help create demand," Rosenthal says. "We will soon launch a summer soup with Kernza as the base grain. AURI has been a great resource to connect us to suppliers and to learn more about the current state of the supply chain for Kernza. It's clear they are playing a crucial role of connecting supply and demand."

 **COMMUNITY GOOD**

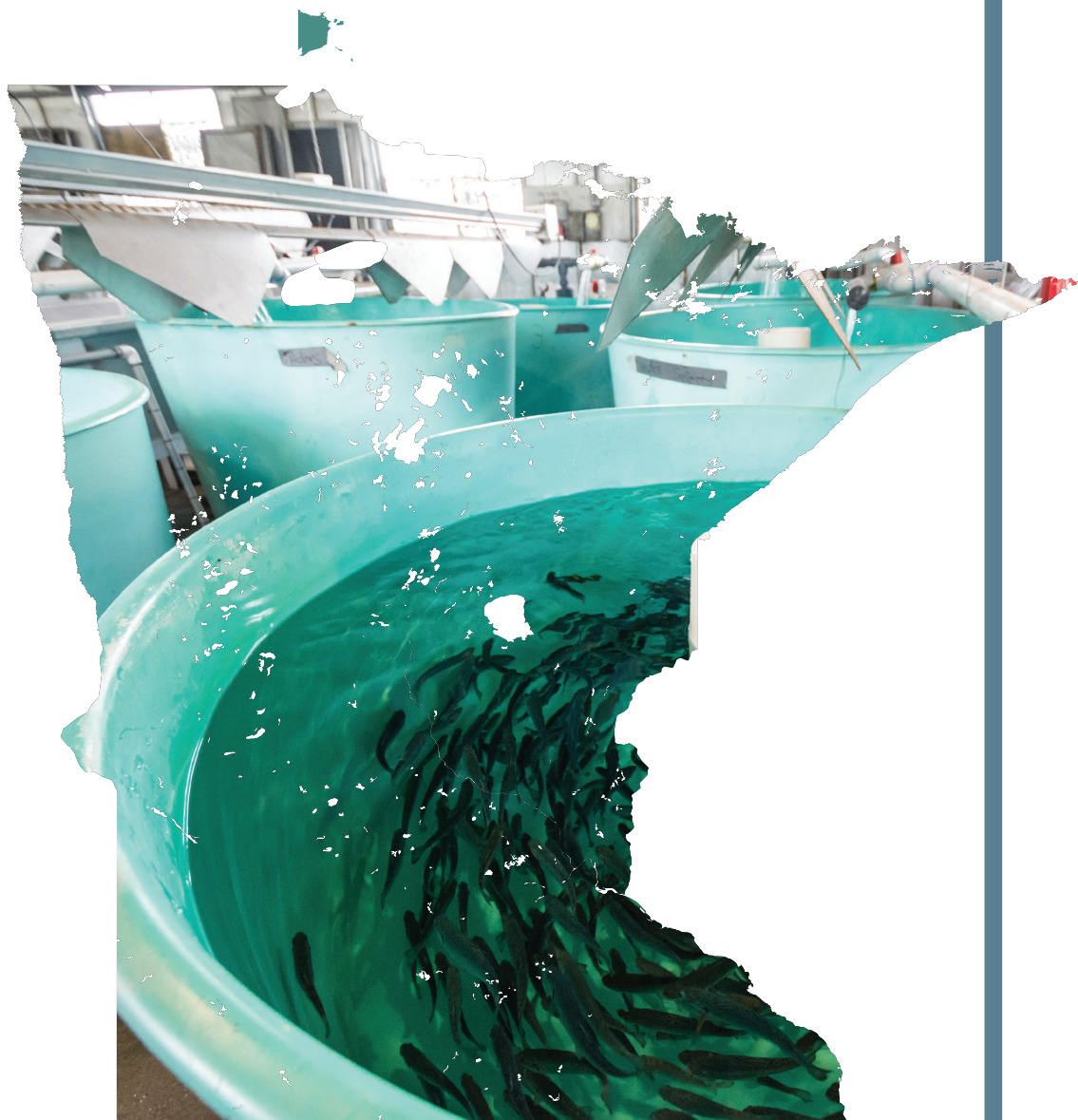
More than just providing healthy meal options, social responsibility has been a Simpls focus since its formation. For each quart of frozen soup purchased, Simpls donates a bowl of soup to health care workers or people in need.

"It's always been important to Mike and me that our work is contributing positively to people and the planet and that we use our business as a force for good. That has only risen in importance for us on our journey. We think it's vitally important to be a part of addressing the biggest issues we face in our community as it relates to food; food insecurity, equitable access to healthy foods, climate change and food system sustainability and resiliency," Rosenthal explains. "We want to be a community partner that creates win-win solutions, and in the long run, solving these issues will create a healthier market and thus better opportunity for businesses to thrive."

Rosenthal and von Fange have weathered many of the challenges presented by COVID disruptions and have emerged with a different approach than they'd originally intended. Their store closures were supposed to be temporary, however they soon recognized that focusing on commuter traffic was unsustainable and remote work was likely to substantially change how business gets done. Simpls shift to e-commerce and home delivery has changed their process, but not their purpose.

"The new vision for our company is to create adventurous farm to fork frozen foods ordered online and cheerfully delivered to your door. Ultimately, we are solving the same problem we set out to solve in 2013, but now centered on convenience at home rather than out and about," Rosenthal says. "Amazingly, after a very brutal year of dramatic change, we now feel more optimistic about where we're headed, and the opportunity ahead than we did before the pandemic. For that, we are very grateful."

**To learn more about Simpls products and mission, visit [simpls.com](https://simpls.com).**



# Working to Grow Aquaculture in Minnesota

Aquaculture— the cultivation of fish and shellfish for food—is the fastest growing segment of global food production. Experts place the industry’s value at more than \$160 billion, and by 2030 production of farmed fish is projected to globally reach 120 million tons, an increase of over 30 percent from 2018, according to industry experts. This growth dovetails on the explosive growth in protein products, of which aquaculture undoubtedly plays a role to help meet the growing protein demand from consumers.

There is great potential to capitalize on this explosion in demand within Minnesota to create employment and economic impact for related sectors in the form of fish feed, fish health and byproduct utilization. In response, food fish producers and those with aligned interests in growing the aquaculture industry in Minnesota, are looking for solutions to improve viability.

Many factors drive the growth in the industry, including technological developments, increased production, and a growing understanding of the health benefits of fish consumption. Aquaculture will also play a major role in feeding the world’s population. Many regions around the globe, including the United States have invested significant time and resources into aquaculture creating opportunities for joint ventures and partnerships in Minnesota.

These factors present exciting opportunities for Minnesota’s agricultural community. To better understand the current landscape and to strategize how the state’s ag sector can capitalize, the Agriculture Utilization Research Institute recently published an original research report on the state’s aquaculture industry as part of the organization’s Ag Innovation Partnership (AIP) program.

The report illustrates several key findings. It also identified issues and action steps that should be addressed for an aquaculture industry to grow and thrive in Minnesota. There are ample reasons why an aquaculture industry can succeed in Minnesota. Consumers are interested in buying and eating more fish, and they are increasingly looking for “locally-grown” options for shrimp, salmon, walleye and other species.

A thriving industry doesn’t just benefit aquaculture business owners. There are positive outcomes for related industries and for other Minnesota grown crops. “Supporting a burgeoning ag industry like aquaculture goes to the heart of AURI’s mission of championing value-added agriculture to the economic benefit of the state and the region,” said AURI’s Executive Director Shannon Schlecht.

“We have seen a lot more interest from clients in the aquaculture space in the past few years. Growing this industry in Minnesota has tremendous potential to benefit producers and local economies,” Schlecht said. “This guide compiles critical information in one place to help businesses get started and grow. With the right tools and support, there is no reason why the aquaculture industry cannot take hold in Minnesota and become a driver of economic activity for Minnesota like the poultry, turkey and pork markets that we have already.”



The right conditions are in place for an aquaculture market to accelerate rapidly in Minnesota. There are many ways AURI can support this development, said Jen Wagner-Lahr, AURI's Senior Director of Commercialization.

She envisions a system where aquaculture ripples throughout the state's economy. Minnesota crops are used to reduce fishmeal imports. Technology developed by Minnesota businesses can help producers effectively raise and process fish. The fish waste created in the farms could have many different uses as a coproduct or a renewable source of energy. Food scientists at AURI's facilities could help producers with labeling and storage issues and help educate the public on how to prepare fish and shellfish.

"There is definitely a ripple effect for other Minnesota crops and coproducts which is the name of the game we play. Anytime we can support a project that finds new markets and new opportunities, it is an easy decision to get involved," said Wagner-Lahr "What we are seeing now is a lot more people are involved and stepping up to support this opportunity. And when we have projects like this that are starting to gather a lot of steam, we try to create a hub for the activity. That is where AURI can really add value."

The research will serve as a resource and educational tool for decision makers, industry, academia and others to expand market opportunities in Minnesota, resulting in a positive shift in public perception, and serving to inspire successive projects with clients and stakeholder partners. In addition to the industry study, AURI also conducted a consumer research survey to better understand current consumption behaviors, perceptions of food fish and industry development, and market potential.

More than 50 percent of respondents said they would buy more, and pay more, for locally grown fish and seafood. A majority also said that Minnesota-raised fish is more sustainable and safer to eat than fish raised outside of the state. More than 80 percent said aquaculture facilities are good for the state's economy. Nearly half of respondents are interested in learning more about fish raised in the Minnesota.

**"The results show that there is a pretty strong interest in eating more fish among consumers, but also indicated that there are some barriers that need to be addressed in order for that to happen," said Harold Stanislawski, AURI's Business Development Director. "We need to do more outreach and we need to dig deeper into how we market locally grown fish to consumers. AURI definitely has a role in those discussions to help grow and connect the market, that we know exists, with the locally raised fish and seafood."**

## Recommendations and Next Steps

The report suggested hiring a state aquaculture coordinator to provide support and resources to help ensure producers are up to date on everything from best management practices to regulatory information. It also concluded that there needs to be a favorable investment framework for businesses to encourage innovation and development and access to capital.

Work should be undertaken to shape awareness, attitudes and understanding of the availability of Minnesota farm-raised fish with consumers, grocery stores, restaurants, and the financial and agricultural communities.

One key step is already underway. The state of Minnesota, through the Department of Agriculture, recently brought together a group of policy makers, stakeholders, producers, researchers and business development specialists to chart a path forward for the aquaculture sector through a formal Minnesota Aquaculture Plan. AURI is part of the working group and the recently conducted research and consumer survey report will be a central resource guiding the group's efforts.

"AURI's report is so important because it sets the framework of the opportunity and the hurdles that we have to overcome. We will continue to build on this work," said Clarence Bischoff, President of the Minnesota Aquaculture Association. "With good market research and some additional funding streams, we can carefully develop new aquaculture companies that can handle the cost of the startup process and quickly grow and start providing good paying jobs and producing a healthy, quality source of food. We believe this can one day become a billion-dollar industry in Minnesota."

In addition to a statewide report, Bischoff also hopes to establish a statewide Aquaculture Resource Center to help marshal resources and provide additional support. He also wants to work with the state's colleges and universities to establish training programs for those interested in pursuing a career in aquaculture.

## Ag Innovation Partnership

Minneapolis-based research and marketing firm Russell Herder compiled the aquaculture report as part of AURI's Ag Innovation Partnership program.

"Globally, aquaculture is one of the fastest-growing food industries, with more and more consumers gravitating toward this source of protein. Bolstering the U.S. food fish industry could offer long-term food security benefits while presenting an opportunity for Minnesota's aquaculture industry to become an even more significant resource for supplying fresh, unique products to consumers," said Carol Russell, the CEO of Russell Herder. "The research study examines consumer opinions and preferences, and how these insights can provide actionable information to inform and support the expansion of work already underway across the industry."

AURI's AIP program is a competitive process. Each year AURI puts out a call for submissions from businesses, researchers, entrepreneurs and producers, encouraging them to submit a proposal. AURI will begin accepting proposals for the fifth year of the AIP program this fall. Project selection is based on how the proposal meets an agriculture sector need.





## DIGESTING A *New Energy Future*

Increased focus on sustainable energy and the push for low-carbon fuel sources are powering renewed interest in the potential for a proven technology which adds value to underutilized products.

Anaerobic digestion uses bacteria to break down organic materials in the absence of oxygen. The process results in several products, including solids called digestate, and liquids, which are sometimes rich in nutrients like nitrogen, potassium, and phosphorus. The key output from digestion, though is biogas, consisting primarily of methane, carbon dioxide, ammonia, and some sulfur compounds. Biogas is a promising source of renewable natural gas that is usable as an alternative to fossil fuel-derived natural gas.

In the United States, anaerobic digesters are commonly associated with large dairy operations. Larger animal agriculture operations sometimes require digesters as a way to manage manure. However, there is also tremendous potential in using municipal waste and food processing waste as digester feedstocks for significant biogas production.

“Most digesters have historically been on dairies, but there are digesters associated with poultry, swine, and beef cattle waste as well,” says Rod Larkins, recently retired AURI senior director of science technology. “The reality is that animal waste has already been digested by the animals, so it’s not as rich of a stream for anaerobic digestion as, for example, food waste or vegetable processing waste. Minnesota is fortunate to have several ag processing industries that have organic waste streams.”

Larkins says many processors struggle to generate value from those processing leftovers and often have to pay for disposal. Turning those coproducts into a low-carbon energy source is appealing on many fronts.

“We naturally think about sugar beet and vegetable processing in the state, they all end up with high levels of organic waste streams that are candidates for anaerobic digestion,” Dr. Luca Zullo, AURI’s current senior director of science technology explains. “So is food waste from restaurants, waste from grocery stores, and any organic waste that ends up in the garbage every day. We are exploring those different waste streams as potential for anaerobic digestion.”

## BIG PICTURE

AURI has researched anaerobic digestion for years using a variety of ag-based feedstocks. Currently, a semi-trailer sized portable anaerobic digester is set up at the AURI Waseca facility to help evaluate various feedstocks and evaluate various feedstocks. But the organization is also working with thought leaders across the state to identify opportunities and roadblocks for larger-scale anaerobic digester projects.

“The low carbon fuels interest creates new opportunities for renewable natural gas and anaerobic digestion is a method to create value from agricultural products produced in the state,” says Shannon Schlecht, AURI executive director. “The formation of a thought leader group and identifying collaborative opportunities with this group brings multiple benefits to AURI as we do not have the expertise in-house to advance this on its own and utilizing other industry experts helps us better define constraints and opportunities to accelerate investment and implementation of this technology.”

“As we looked at this whole area, we saw it was ripe with opportunity,” Larkins says. “As the country and the world is turning more towards green feedstocks, this is certainly a good opportunity to generate green, renewable natural gas and fertilizer systems to support agriculture.”

The thought leaders group includes representatives from a range of small and large businesses, government and academia.

## ENERGY DRIVERS

AURI has long focused on helping Minnesota’s agribusinesses utilize various processing streams to generate new revenue streams. The effort to use ag processing products and other organic waste streams for energy production is being augmented by a push for more sustainable fuel sources.

“What’s driving this interest is commitments by industry to become carbon neutral or net-zero greenhouse gas emitters,” Schlecht says. “This movement requires new investment and changing processes to meet those bold commitments. Anaerobic digestors utilizing agricultural materials can play an important role in meeting those commitments.”

Larkins says among the issues holding back large-scale digester projects is permitting. He says some people don’t want a digester in their area because they have the impression a facility will have an odor. Larkins says digester technology has advanced, making them less visible and more efficient.

Economics also play a limiting role, but economic incentives could help grow the potential for large-scale anaerobic digesters.

Funding of digester systems is also a limiting factor. Depending on the size, farm-based systems may cost from several hundred thousand dollars to up to \$15M, while larger-scale facilities, often aggregating feedstock from multiple sources or integrated with industrial or public wastewater facilities, are considerably more expensive and may cost over \$50M and up to \$100M.

“Finding financing to do that is another blocking issue that we’ve identified,” Larkins adds.

There are challenges to establishing a large digester, but the tide seems to be turning in favor of the technology.

“California has significant incentives for renewable natural gas. California’s transit system is using natural gas as a transportation fuel. Renewable natural gas is a substantial component of what’s currently being used in California to fuel vehicles,” Larkins explains.

## ASSESS AND RESPOND

AURI has developed a project proposal in partnership with the University of Minnesota to identify and quantify organic waste streams in the state of Minnesota. Having a handle on the available feedstocks is a key step to understanding the economic feasibility of using digesters to produce renewable natural gas.

“Anaerobic digestion has typically only worked for larger operations and part of this effort will be to look at community models to determine if a collaborative model utilizing waste streams from producers, processors, municipalities, etc. is economically feasible in the current environment,” Zullo says.

In many previous instances, farmers have been asked to be ones to operate digesters on their farms. Larkins envisions a system more closely modeled after other ag processing systems.

“The highly successful anaerobic digestion systems nationally and internationally are systems that are set up independent of a farmers’ daily operations. Think about an ethanol plant. Farmers bring corn into a facility run by professionals,” Larkins says. “The way anaerobic digestion systems will likely operate best is when they’re run by professionals with farmers or the ag processing companies as customers that provide feedstocks and utilize the digestate.”

Schlecht says AURI’s formation of an industry thought leader group for Minnesota is a key step forward to ensuring that both the business and technical aspects of larger scale anaerobic digestion align for de-risking opportunities and adding new value streams for farmers and ag processors across the state. With more states considering low-carbon fuel standards and more companies pledging to reduce their carbon footprint, the time to invest in utilizing livestock and processing waste streams to produce renewable natural gas could be now.

“I’m excited about the future, and I believe this thought leaders group can drive it,” Larkins says.

**To learn more about AURI’s work with anaerobic digesters, visit [auri.org](http://auri.org).**



## ABOUT AG INNOVATION NEWS

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Rolf Hagberg, photography  
Design by russellherder.com

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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## FOOD | AG | IDEAS WEEK

POWERED BY GROW NORTH

# Food AG Ideas Week Returns for its Fourth Year

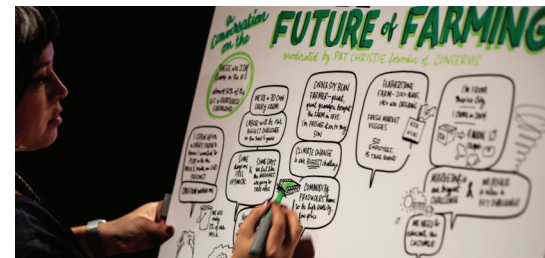
**This October Grow North is hosting Food | Ag | Ideas week (FAI), an event created to elevate and connect Minnesota's food and ag ecosystems while creating an invitation for the world to engage. The week-long event, which includes themed days and informational tracks for participants, will be held from Friday, October 1st through Thursday October 7th.**

Currently in its fourth year, FAI has become a popular event for individuals, entrepreneur groups and companies throughout Minnesota and the region thanks to its diversity of topics and perspectives from across food and agriculture. Each year, FAI brings together corporate, non-profit, and civic leaders to share perspectives on industry leading topics within sustainable agriculture, food innovation, and tech and food and society.

This year's event will be a little different from past years as there will be both in-person and virtual elements for attendees. Each track day will begin with a face-to-face networking breakfast event, where individuals can meet and discuss their backgrounds, their current endeavors and areas of interest. These will be followed by a series of virtual informational panel discussions on topics ranging from Minnesota's agricultural ecosystem to the CPG sector of the Upper Midwest. Then, each evening will conclude with more in-person networking opportunities at various event spaces around the Twin Cities.

“Serendipitous connections make the world go round and have been greatly missed,” said Allison Hohn, Executive Director of Grow North. “So, we are really excited to make those moments happen again by bringing people together in one place and giving them the platform to share ideas and discuss opportunities.”

Another difference this year is a larger focus on business and entrepreneurship across socially disadvantaged communities. Hohn said, some of the things that have bubbled up in the past year with everything that's happened locally, nationally and globally from an equity standpoint, is people are starting to ask the tough questions and shed light on where inequities have been across socially disadvantaged communities—how can we better support and ensure programs are in place and questions are being asked? That's more prominent across many of the FAI conversations.



## What can participants expect?

Each day offers its own theme and supporting virtual educational panels for attendees, as well as in-person networking opportunities in the mornings and evenings. Some highlights of the event include:

- + A Keynote conversation between Dr. Mark Steffen, Chief Medical Officer for Blue Cross Blue Shield and Laura Driscoll, Chief Executive Officer of Project Well
- + A minority tradeshow event for women and BIPOC community members
- + A farm tour at Thousand Hills Lifetime Grazed
- + Virtual sessions on leading food and ag innovation topics
- + A live pitch event competition with cash prizes
- + Crash the Farmgate Happy Hour and TechStars demo day

**The cost of registration ranges from \$40 to \$100 for a week-long pass to all events. To learn more, visit [foodagideas.com](http://foodagideas.com)**

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