

CDR CELEBRATES BABCOCK HALL GRAND OPENING

On April 13, 2023, the Center for Dairy Research and UW-Madison Department of Food Science welcomed state and university leaders as well as dairy industry donors to the grand opening of Babcock Hall. Babcock Hall underwent a \$72.9 million building project that renovated the Babcock Dairy Plant and created a new, three-story addition for CDR.

“Having a world-class facility like this enables us to attract the best people in dairy research – including faculty, staff and students – to Wisconsin, where we are in an ideal location to serve the state’s dairy processing industry,” said CDR Director John Lucey. CDR was founded 37 years ago as a partnership between UW-Madison, the dairy industry and dairy farmers. Today, it is the largest dairy foods research center in the U.S.

CDR’s three-story addition to Babcock Hall is a state-of-the-art space including a training auditorium, applications lab, sensory area, a fully licensed pilot plant, cheese ripening rooms, cultured products innovation area, and offices for staff.

In addition, CDR has numerous pieces of new equipment, such as two horizontal APT cheese vats, a three-stage Sicca-Dania spray dryer, a Kalt copper-lined cheese vat, and, among others, new fermenter tanks for cultured products. The Center is also in the process of installing an aseptic beverage line to develop shelf-stable dairy beverages.



Photo: Michael King/UW-Madison CALS

Lou Gentine, center, chairman of the board of Sargento Foods, cuts through a braided rope of mozzarella cheese during a grand opening celebration for the Babcock Hall Dairy Plant and Center for Dairy Research at UW-Madison, April 13, 2023. Gentine is flanked by Randy Romanski, secretary of the Wisconsin Department of Agriculture, Trade and Consumer Protection, left, and John Umhoefer, executive director of the Wisconsin Cheese Makers Association, right.

Overall, the new spaces, like the pilot plant, and equipment greatly expand CDR’s capabilities, allowing staff to develop and research essentially any type of dairy product.

The building project was funded by the State of Wisconsin and UW-Madison. In addition, dairy industry partners donated more than \$18 million to the project.

“Huge credit goes to the donors to the project, who helped fund the project and encouraged state officials to support it,” Lucey said. “Wisconsin’s dairy industry has provided long-term support to CDR, and now we have this exciting new facility that will generate innovations to add more value to our state’s high-quality milk.” ➔



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CDR is also grateful for the ongoing, steadfast support of Wisconsin dairy farmers through the Dairy Farmers of Wisconsin (DFW). Their support allows CDR to carry out its work and mission of bringing innovative, nutritious and profitable dairy products to the global marketplace.



CDR was founded 37 years ago in a partnership between the dairy industry, state of Wisconsin and UW-Madison. Here is Dr. Norm Olson, first CDR director, WI State Senator John Chilsen and Lawrence Weinstein, President of the UW Board of Regents, at the original dedication ceremony for CDR.

CDR also acknowledges the vision of founder Norm Olson in creating CDR and the leadership of Rusty Bishop for setting the foundation for growing the CDR into the world class center it is today.

John Umhoefer, Executive Director of the Wisconsin Cheese Makers Association, added that the new facility will help Wisconsin remain a leader in the dairy industry. "I'm seeing real pride and excitement in the Wisconsin dairy community over the opening and operation of the new Center for Dairy Research. Bringing this building project across the finish line was a challenge and a key career goal for a lot of people in the dairy industry," said Umhoefer. "

UW-Madison Chancellor Jennifer Mnookin also participated in the ceremonies and acknowledged the partnership that made the building project possible.

"We know very well that moving food science and the dairy industry forward is not a job for the university alone or for industry alone. It requires partnership," Mnookin said. "This project shows what we can accomplish when the university, industry, and government work together."

For more information on the Babcock Hall building project, visit <https://www.cdr.wisc.edu/building-project> 🌻



John Lucey, CDR Director, Randy Romanski, DATCP Secretary, John Umhoefer, WCMA Executive Director, WI State Senator Joan Ballweg and Glenda Gillaspie, CALS Dean, at the grand opening celebration.



Photo: Michael King/UW-Madison CALS
UW-Madison Chancellor Jennifer Mnookin speaks during the grand opening celebration.



Photos from CDR building tours.

YOGURT MONOGRAPH SERIES: RHEOLOGY

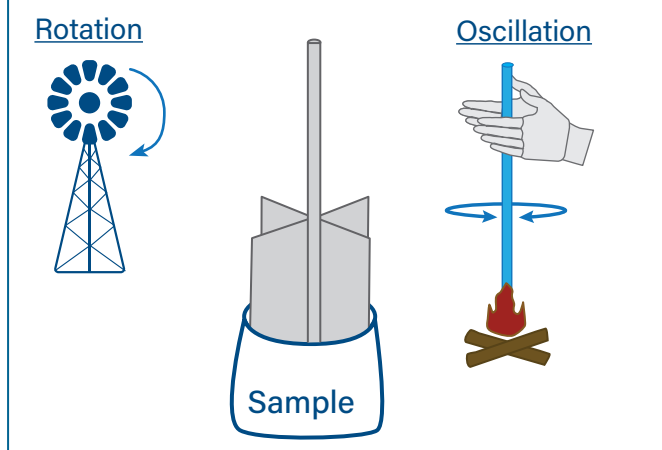
Technical Contributor: Daniel Wilbanks, CDR

This is part of a CDR Monograph Series focused on yogurt production. Watch for further installments of this series in the Dairy Pipeline.

To determine the textural properties of a material we must first probe it. For example, a foreign substance resting in a bowl could be fluid or solid. We would need to shake or touch the bowl to determine how it responds – i.e., to see if it “flows” or not. Rheometers similarly measure responses from a material by probing it, which is performed by a geometry in an oscillating or rotating motion (Figure 1). Most foods are complex and possess both fluid (viscous) and solid (elastic) properties and are referred to as viscoelastic materials. Rheology, then, is the study of deformation and flow.

Rotational rheology probes the sample in a clockwise or counter-clockwise motion and is often used to determine the viscosity of a material. Viscosity (η) is the resistance to deformation (flow) and is itself a ratio of the stress required to maintain a particular speed, or shear rate of the geometry (Equation 1). For many viscoelastic materials the viscosity is not a material constant, but changes based on how much stress is applied to the sample and for how long. For instance, the harder and longer yogurt is stirred, the thinner the texture becomes as the gel breaks or yields.

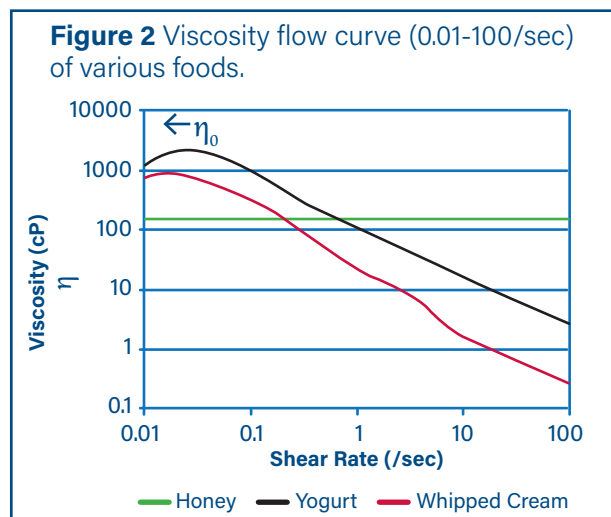
Figure 1 Illustration of a vane geometry probing a sample in either rotation or oscillating motion.



$$\text{Equation (1) Viscosity } (\eta) = \frac{\text{shear stress}}{\text{shear rate}}$$

Shear thinning materials like yogurt cannot be adequately described by a single viscosity value – as an example try to determine which material in Figure 2 has the highest

viscosity. Shear rate sweeps, as demonstrated in Figure 2, can be performed to describe a range of viscosities from very low to very high shear rates. A mathematical model can then be built to describe the viscosity of a material across the range of shear rates tested, or a single viscosity value can be reported for a particular shear rate if desired. Generally, the viscosity at low shear rates (η_0) describe the material under low strain (at rest), while higher shear rates ~ 50 /sec (η_{50}) relate to the mouthfeel.



For the flow curves shown in Figure 2, yogurt and whipped cream exhibit similarly high viscosities at low shear rates (η_0). Think about yogurt and whipped cream if left undisturbed; both products at rest exhibit solid-like behavior indicative of a very high viscosity. However, the structure of whipped cream is weaker than yogurt and its viscosity deteriorates – or thins – more rapidly under stress. The degree to which the viscosity thins under shear forces can be quantified from math models obtained via flow curves. If you’ve ever consumed whipped cream, you’ve likely experienced its thin mouthfeel compared to yogurt. In contrast, honey exhibits a constant viscosity at a particular temperature. Viscous stabilizers such as starch, xanthan gum, and galactomannans reduce the shear thinning index of yogurt, leading to a higher viscosity under high shear.

The yield stress of a gel, which is the minimum force required to induce flow, can also be calculated from flow curves. By understanding the desired performance of a product, such as the texture of yogurt on the spoon (η_0) or the mouthfeel (η_{50}), product developers can use rheology to measure the textural properties of yogurt and adjust their formulation or processing parameters to meet those specifications.

To learn more about yogurt rheology at CDR, contact Daniel Wilbanks at dwilbanks@cdr.wisc.edu. 🌻

DAIRY FOOD SAFETY RECALLS IN THE UNITED STATES AND CANADA: 2022 IN REVIEW

Technical Contributor: Alex O'Brien, CDR

Compared to other food and beverage products, dairy foods have a good track record of food safety. Along with pasteurization, the fermentation process, water activity, acidity and salt levels in many dairy foods can help protect against pathogens. In addition, the dairy industry works hard to maintain the quality and integrity of its products. Of course, the industry needs to stay alert and continue to get better.

The purpose of this article is to give insight to the dairy industry on what we need to better prepare for the future from a food safety perspective. Recall review is an important and routine task to complete on annual basis with your food safety team when conducting HACCP/ food safety plan validations.

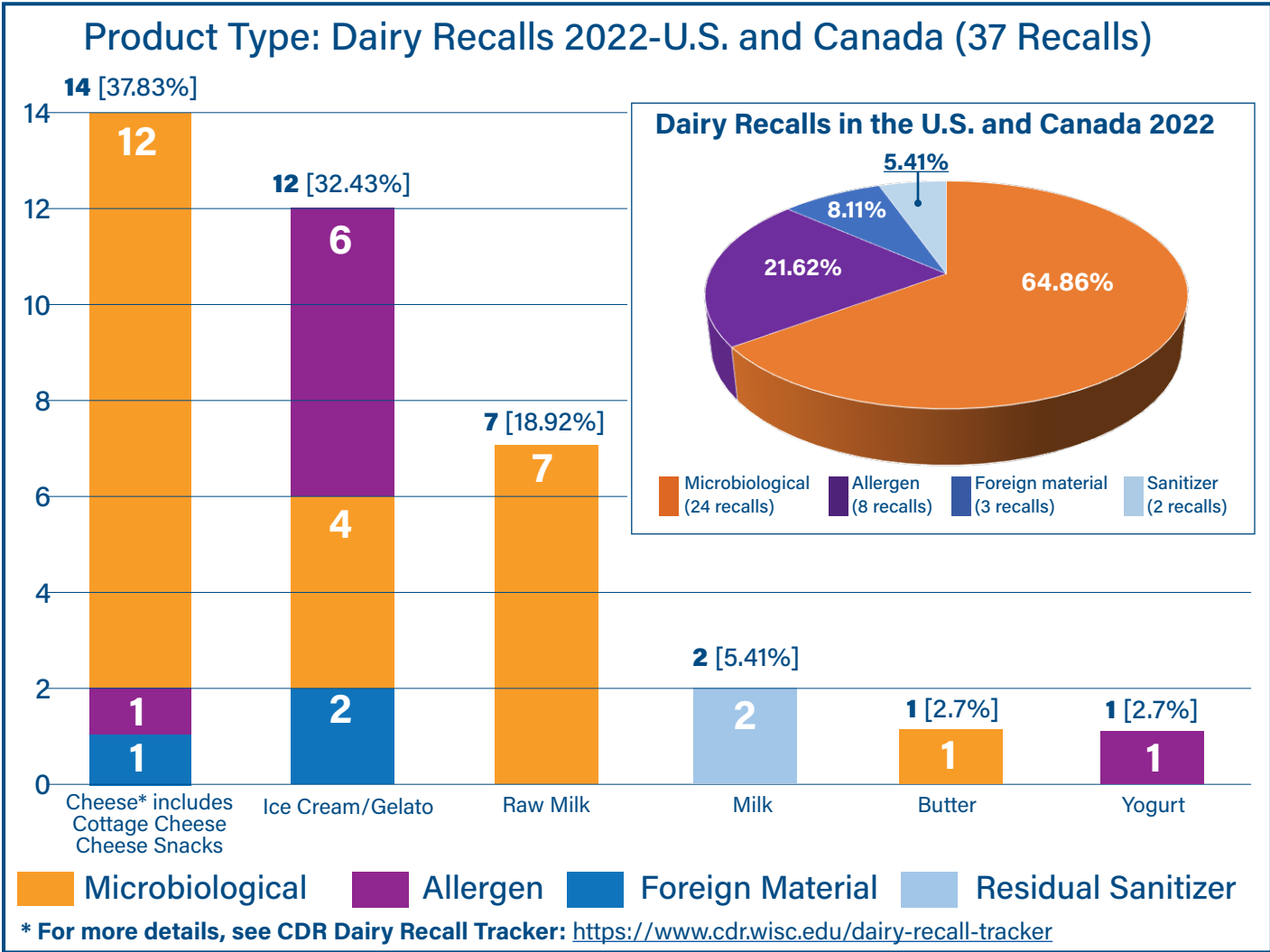
A Look at the 2022 Dairy Processing Recalls

There were approximately 37 recalls in dairy for the United States and Canada last year. The top dairy products recalled were cheese and ice cream.

Out of the approximate 37 recalls in 2022 for dairy in the United States and Canada, ~65% (24) of the recalls were caused by a microbiological contaminant. For cheese (Cheese, Cottage Cheese, and Cheese Snacks), ~86% (12) of recalls were caused by a microbiological contaminant. Over half (7 out of 12) of these microbiological recalls were due to *Listeria monocytogenes*.

Improper Labeling/Undeclared Allergens

For ice cream and gelato, half of the recalls (6) were due to undeclared allergens. Four of these 6 recalls occurred due to issues with the packaging process, specifically, packaging ice cream in the incorrect containers. The other 2 ice cream and gelato recalls were due to not declaring the item on the packaging. ➡



The majority of these problems look to be product changeover procedures and label/packaging review. This is why it is critical that the firm has a good handle on the ingredients coming in, having allergen statements, cleaning validations, and thoroughly reviewing labels before they are finalized.

Also, if designing new labels or reformulating products, don't forget to declare the allergens! Allergens are a misbranding issue, not an adulteration issue. To avoid issues related to undeclared allergen, you need to ask two questions:

Is one of the 9 major allergens present in my ingredients/finished product?

Is this declared on the label?

State/Regulatory Findings

Recalls are just a consequence of the issues going on every day in a plant. This is evident in reporting from state agencies.

The Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) reported that the top three categories of debits/findings during dairy plant visits in 2022 were:

1. Good Manufacturing Practices violations

2. Protection from contamination issues

3. Inadequate sanitation practices

During the fall 2022 meeting of the Dairy Food Safety Alliance Food, safety leaders reported that similar results were found throughout the Midwest.

All of the issues and violations pointed out above by DATCP are basic prerequisites to run a dairy plant. These are relatively basic issues that should be easily avoided if plants are following basic GMP and safety practices. So, why are these issues in our dairy plants? There could be several reasons for this particular breakdown.

- 1. Labor shortages
- 2. Retention/turnover
- 3. Improper training
- 4. Language barriers in training

Post-Pasteurization Contamination

For all pasteurized products (assuming the pasteurizer is running properly), the only way for pathogens to be present in the final product is by contamination from improper sanitation or by employees, water, or equipment after the product has been pasteurized.

The vast majority of the 2022 dairy microbiological recalls are due to post-pasteurization contamination. This confirms the symptoms of what regulators are reporting as findings in plant inspections. Proper sanitation, sanitary design of equipment, employee compliance with GMP's, along with environmental monitoring, separation of raw and ready-to-eat areas, and finished product testing work together to help prevent product from being contaminated and leaving the building.

When analyzing FDA warning letters, there are many references regarding the lack of sanitation preventive controls identified at steps that are prone to contamination in the environment. The Standard Sanitation Operating Procedures (SSOP's) were primarily viewed as pre-requisite programs through the older school HACCP way of thinking. With FSMA, whenever there is a risk of contamination from the environment, identifying which pathogens are a concern (*Listeria monocytogenes*, *Salmonella spp.*, etc.) and elevating your SSOP to be a sanitation preventive control is the expectation.

A major difference between now and a decade ago, has been the advent of Whole Genome Sequencing (WGS). In July 2022, Big Olaf Creamery had a recall of their ice cream and in September 2022, Old Europe had recalls of their Brie and Camembert. In both cases, sources were found based off of WGS linking environmental samples collected at the facility to individuals that had consumed the contaminated product. It was found that Big Olaf Creamery did not have any available handwashing sinks at the entrance of the production areas, which is a major GMP issue. Old Europe's environment was found to have *Listeria monocytogenes* and issues with sanitation procedures. This further bolsters the importance of not only having solid SSOP's but having a robust environmental monitoring program. This program is like

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Here are several GMP adherence resources to help dairy plants:

GMP signage: <https://go.wisc.edu/jc2nxx> (English) and <https://go.wisc.edu/sa3eqb> (Spanish)

WCMA Onboarding videos: <https://go.wisc.edu/cy4a8s>

CDR "Tool Box Talks" (2 minute videos): <https://go.wisc.edu/nu469a>

Spanish language GMP Training Video: <https://go.wisc.edu/2x13uc>

CDR Handwashing Video: <https://go.wisc.edu/xn17n7>

Onsite, customized food safety training (including Spanish language options) available from CDR and DFW.

2023 WISCONSIN MASTER CHEESEMAKERS

The Center for Dairy Research (CDR) and Dairy Farmers of Wisconsin (DFW) are excited to celebrate the 29th graduating class of the Wisconsin Master Cheesemaker® program. This year's class includes four new and one returning Master cheesemakers.

"Each of these dedicated cheesemakers has worked so hard over the past 3 years to get here," said John Jaeggi, coordinator of the Wisconsin Master Cheesemaker® program. "From plant interviews and walk throughs, cheese sampling and testing, required course work and a final exam that can take up to 40 hours to complete – these cheesemakers have earned the title of Wisconsin Master Cheesemaker."

To be eligible for the Wisconsin Master Cheesemaker® program, cheesemakers must be licensed Wisconsin cheesemakers for at least 10 years. Before applicants are accepted into the program, they are required to complete CDR's Advanced Cheesemaking Short Course and one other workshop of their choice. In addition, applicants undergo a plant visit where they lead a walk-through of their facility and must pass an oral exam.



Kirk Auchue, Tony Hook, Ryan LaGrander, Ben Shabler, Timothy Stearns

Once they are accepted into the program, participants complete a list of courses and an intensive exam. In addition, the cheeses they are being certified in are graded for flavor, composition and microbial analysis—this is done three times before they can graduate as a Master cheesemaker. All said, it takes about three years to complete, and, in the end, once successful, the cheesemaker earns the honor and respect of becoming a Master cheesemaker as well as the right to use the Master Mark® on their products.

More than 90 cheesemakers have earned the title of Wisconsin Master Cheesemaker in dozens of varieties of cheeses. Many Wisconsin Master Cheesemakers have earned multiple certifications in different cheese types/styles.

Please join **CDR** and **DFW** in recognizing the 2023 Wisconsin Master Cheesemakers.

New Master Cheesemakers

KIRK AUCHUE

Saputo Cheese, Black Creek

Certified Master: Cheddar



While attending college, Kirk Auchue got a job at the Saputo plant in Fond du Lac that changed the course of his life. "I became a cheesemaker and I decided that's what I wanted to do," Kirk said. "The challenge was there, and it was a trade that I could start very young in my life and continue on."

Kirk moved up quickly in the plant, earning his cheesemaker and pasteurizer licenses and attending short courses at CDR. When a cheesemaker retired at the plant, Kirk got the job and continued a family tradition of working in the dairy processing industry.

"My grandfather was a buttermaker," Kirk said. "He had his own company in Coleman and then he moved to Fond du Lac and worked for Borden's. So, it was just kind of a cool way to relate to my grandfather."

Since Kirk's start at the Saputo plant in Fond du Lac, he has filled several different roles and plant locations for the company, including a 13-year stint as a production supervisor at the Saputo plant in Black Creek. Kirk is currently a technical service coordinator in Black Creek, where he oversees about 48 different recipes.

"I'm in coordination with the plant to keep the recipes all in line," he said. "They change seasonally plus we make cheese with rBST free milk, non-GMO milk, organic milk, Kosher milk. We might make up to 4 different recipes a day, so it's a lot all together." ➡

Kirk enjoys the challenges of cheesemaking and is particularly proud of the cheesemakers and other staff he works with in the plant.

“When I first started here everyone was just pushing buttons, things had been so automated,” Kirk remembers. “Working with them, now they’re checking their sets when they need to be cutting the cheese, they’re looking at their drop pHs, they’re making adjustments on their own as far as either ripening times or increasing rennets or cultures as far as what they need to hit.”

This year, Kirk joins the ranks of Wisconsin Master Cheesemakers with a certification in Cheddar. As Kirk says, “I like the flavor of Cheddar. I like aging it too and using different adjuncts to create different flavors... There’s so many different things you can do with Cheddar. It’s my favorite cheese.”

Kirk thanks his mentor Gregg Palubicki who took him under his wing early in his career and helped him get started. In addition, Kirk thanks Kevin Sweeney of Saputo for supporting him.

When Kirk received the call notifying him that he had graduated from the Wisconsin Master Cheesemaker® program, he said he let out a big sigh of relief. “It was an incredible accomplishment for me,” he said. “It was a lot of hard work, but I enjoyed it.”

He added that he spent about 50 hours on the exam, “The way they have it set up, you have to research those answers and say where you got it from. You learn a lot more than if you’re just asked because you’re looking for that answer but you’re also learning other things. I thought that was really cool.”

TONY HOOK

Hook’s Cheese Company, Inc.,
Mineral Point
Certified Master: Blue Cheese



Tony Hook was one of the early Wisconsin cheesemakers to focus on specialty, artisan cheeses. He, along with his wife Julie, had been making cheese for distributors at their plant in Mineral Point when, in the early 1990s, the Hooks took some of their cheese to the Dane County Farmers Market.

“One of our niches at that point was that we aged some Cheddar out,” Tony said. “Nobody else was doing that.”

The Hooks soon gained a following and they began to focus more on specialty cheeses. In 1997, they started making Blue Cheeses in addition to their aged Cheddar. Today, Tony makes an original Blue Cheese, Gorgonzola, Tilston Point (an English Stilton), and Blue Paradise (a double crème Blue Cheese). In addition, the Hooks make Blue Cheeses with sheep, goat and mixed milks. With that long history, it’s no surprise that Tony is earning his Wisconsin Master Cheesemaker medal in Blue Cheese.

“Blue Cheese is really fun to make,” Tony said. “We’ve developed seven different styles. It’s one of our main focuses.”

Tony got his start in cheesemaking right out of high school when, in the summer of 1970, he went to work for Bill Ienatsch at his cheese plant in Barneveld. One of the highlights was making large, 200-pound wheels of Swiss.

“We were mostly making Monterey Jack and some Cheddar but he still kept one copper kettle so we’d make Swiss for the locals and for the tourists who came through,” Tony said. “We made a wheel probably every two months or so.”

Around 1977, Tony, along with his wife Julie, began managing and making cheese for a cooperative cheese factory outside Mineral Point called Buck Grove. In 1987, the Hooks purchased and moved to the current Hook’s Cheese plant in downtown Mineral Point and the farmers closed Buck Grove and became the Hook’s patrons. The Hook’s cheese plant is in a historic building that was once a hotel. The make room was actually the livery stable for the hotel. Over the years, the building has housed a vet clinic, a firehouse and in 1929 was first converted into a cheese plant.

In 2001, the Hooks started focusing on making more cheese for their own label and increased their specialty cheese production. Tony credits the Dairy Farmers of Wisconsin, Dairy Business Innovation Center, and CDR for helping promote and develop Wisconsin specialty cheeses.

“We’ve really grown the artisan cheeses,” Tony said. “And now we’re up to probably dollar-wise four times as much sales as we used to have when we were running full time but that’s because we’ve increased the price on artisan cheeses as opposed to selling it as a commodity.”

Tony is proud to further his reputation and graduate from the Wisconsin Master Cheesemaker® program. ➡

"It's a very good program and there are so many learning opportunities that it's very helpful," he said. "Things that I wouldn't have even guessed are out there that CDR has available for everybody and it's great. So, it was one of those things I wanted to prove I could do it and it was a great learning experience."

He added that all of the assets in the state, like the Wisconsin Master Cheesemaker® program and the Dairy Farmers of Wisconsin, are helping grow the Wisconsin cheese industry. "Europe isn't the best cheese in the world anymore," Tony said. "Wisconsin's right up there if not even better."

BEN SHIBLER

Pagel's Ponderosa Dairy/Ron's Wisconsin Cheese, Kewaunee
Certified Master: Mozzarella



Ben Shibler got into cheesemaking "by accident." After he graduated with an associate degree in forestry and wildlife management, he had a hard time finding a job in the field, so he took a position at a local cheese plant.

"I knew they paid well, and I didn't want to live at home forever," Ben said. "So, I got a job there while I was looking for something in my field. And then I never left the dairy industry."

He started out working the night shift, doing the "grunt" work of scrubbing tables and other sanitation work but soon started getting promoted.

"A year and a half after I walked into my first cheese plant, I got my cheesemaker license and just never looked back," Ben said. "I ended up being good at it and liking it and I just never thought about forestry and wildlife management ever again."

Ben said he enjoys the challenge and physicality of cheesemaking. "It's a really fun trade for someone who learns by visual and physically doing it," he said. "It's a very hands-on job especially in an old school set up like we have. We don't have a lot of automation; it's hands-on, open vats so you're up to your elbows in it."

Today, Ben is the operations manager and head cheesemaker for Ron's Wisconsin Cheese, which is owned by Ponderosa Dairy. The job involves a bit of everything from cheesemaking to sales.

"It's kind of like I run my own company," Ben said. "That's

kind of what John [Pagel] told me when he hired me seven years ago."

As a self-described high-strung, energetic individual, Ben has thrived in the role. Among the many different cheeses he makes, he is known for his Mozzarella, which he sells a lot of as string cheese and cheese "whips."

"My first day ever in a cheese plant was working with Mozzarella," Ben remembers. "So, there's a little bit of sentimental value there. Growing up in Wisconsin, there was numerous places you could get some of the best string cheese in the world in the Green Bay area so that was a staple growing up."

This year, Ben joins the ranks of Wisconsin Master Cheesemakers with a medal in Mozzarella. He is honored and said it's like joining the hall of fame of cheesemakers.

"It means a lot to me personally to achieve that level of success and also to be recognized in front of the whole industry of my peers," he says. "In an industry I never thought I'd even be working in no less. I thought I'd be counting leaves on trees right now somewhere in northern Wisconsin not becoming one of the state's Master Cheesemakers."

He added that the Wisconsin Master Cheesemakers® program provides a valuable opportunity for cheesemakers to get better and boost their knowledge.

"You can ask questions of the graders and mentors in the program and bounce ideas off them," he said. "It really makes you increase your knowledge of the process and the science and that just makes you a more valuable asset not just to your company but to the industry... It increases our knowledge. The science of the industry and it just makes for better, more robust products."

TIMOTHY STEARNS

Land O'Lakes, Kiel
Certified Master: Cheddar



While other high school kids were flipping burgers or bagging groceries, Timothy Stearns got a job at the local cheese plant.

"After school I'd go in for a couple hours and wash tubs," Timothy said. "Then that summer, after I graduated, I got a full-time job there filling up the 640 barrels."

Timothy was soon immersed in the work and earned his ➔

cheesemakers license only a couple years after first setting foot in the plant. It was at this time that he took some of his first short courses at CDR.

“It was kind of cool to learn the science behind the things I was doing hands-on in the plant,” he said. “That was when cheesemaking kind of opened up and it was exciting to learn more.”

Timothy also has a tremendous resource right in his family – his uncle Dan Stearns is a retired Wisconsin Master Cheesemaker, formerly of the Agropur plant in Weyauwega.

“Dan is a huge mentor for me,” Timothy said. “He kind of gave me that benchmark for what a Master Cheesemaker should be... He’d always talk about cheese with me, but he wouldn’t just hand feed me everything. I had to show interest... I was always trying to pull as much information as I could out of him and just trying to be a sponge and learn.”

This year, Timothy joins his uncle in the prestigious ranks of Wisconsin Master Cheesemaker with a certification in Cheddar.

“I’ve always been in Cheddar,” he said. “I kind of almost grew up around it.”

Now Timothy is Master Cheesemaker at the new Land O’Lakes plant in Kiel where he is making and aging Cheddar. “I’m helping oversee the cheese make,” he said. “Everything from the cultures to the cheese make, the grading. Being at the front line of that is really exciting.”

The Land O’Lakes plant in Kiel processes over 3 million pounds of milk a day. The plant fills up one of its 10 60,000-pound cheese vats about every 22 minutes. “We’re putting a lot of cheese through,” Timothy said.

The team at the Land O’Lakes plant in Kiel also does a lot of cheese grading. Timothy said he had just finished grading eight loads of 40-pound blocks. “We were selecting which ones to put into aging, which ones to pull for mild cheddar,” he said. “We’re looking for blocks that we think will age and develop some really nice flavor.”

From the beginning of his career, Timothy said he has always tried to push himself and keep getting better. Early on he knew he wanted to try and become a Wisconsin Master Cheesemaker.

“Any position I was in, I wanted to improve myself and

put myself in the best position,” he said. “CDR and the short courses and now the Master program has really helped me dive into it and learn the art and science of cheesemaking.”

It’s pretty awesome,” he added. “There are not a lot of Master Cheesemakers and it takes a lot to get into the program. So, it’s pretty cool.”

Returning Master Cheesemaker

RYAN LAGRANDER

LaGrander’s Hillside Dairy, Stanley
Certified Master: Cheddar, Cheese
Curds



As a third-generation cheesemaker, Ryan LaGrander literally grew up above the family cheese factory.

“It was kind of a unique upbringing living right above the vats,” he said. “Cheesemaking was something I got into at a very young age. I enjoyed it and it was hard work, but you always felt good at the end of every day knowing you accomplished something.”

In 1960, Ryan’s grandfather, Dannie, purchased the plant now known as LaGrander’s Hillside Dairy. In the early 90s, his dad, Randy, took over the plant. Ryan started working in the cheese plant in grade school and took a full-time position in the plant after college. Now, Ryan and his brother, Joe, are continuing the family business as owners of LaGrander’s Hillside Dairy.

“I run everything from the cheese production to the farms to the customers,” Ryan said. “A lot of my time is spent with the actual cheese production; making adjustments and working to fulfill our customer’s needs.”

Ryan is also continuing the family tradition of Master Cheesemakers – his father, Randy, graduated with the class of 2003 and 2006. In 2017, Ryan earned his first Master certifications in Colby and Monterey Jack. This year, he is adding Cheddar and Cheese Curds. Ryan said he chose those cheeses because they fall in line with the products that they offer.

“Cheddar and Cheese Curds kind of go hand in hand as curds are part of the Cheddar process,” he said. “We’re also one of the largest producers of Cheese Curds for the appetizer and snack industry. It was really just a natural fit to get the certification in Cheese Curds.” ➡

As a Master Cheesemaker, Ryan prides himself on continually improving.

“We’re always making adjustments and small improvements every day,” he said. “It’s really rewarding to look back on how those small improvements add up over time and reflect in the finished product. And then seeing the consumers enjoying your product and coming back for more; it really validates everything.”

He added that completing the Master program is a great opportunity to learn more about the cheesemaking process, “It definitely gets you to think a lot more about why you’re doing things... It really opens your eyes and

makes you really look at your process and try to make improvements.”

With four Master medals, Ryan sees the Wisconsin Master Cheesemaker® program as an important asset for the state’s cheese industry.

“I’m really honored to be a part of it and to be included with the other Master Cheesemakers,” he said. “It’s a pretty tight knit community; everyone knows everybody. It means a lot to go through the program and be recognized for completing it.”

For more details, www.cdr.wisc.edu/master-cheesemakers 🌟

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a heart monitor for your plant and tells you how effective the sanitation programs/procedures/Master Sanitation Schedule, foot traffic flow, and sanitary design of your plant is actually working.

In February 2021, El Abuelito had some of their cheese recalled. This recall could have been avoided as well. Besides the major lack of any food safety programs, the FDA issued a warning letter 8 months prior to the recall that found (adjacent to food contact) *Listeria inoucu* and *Listeria greyi* on zone 2 surfaces. If there was an environmental monitoring program (with the help of other pre-requisite programs of course) it would have at least identified there was a consistent issue and corrective actions would have occurred. This facility was only swabbed for coliform and ATP. The lack of appropriate corrective action lead to the inevitable post-pasteurization contamination.

Fluid Milk Issues

One outlier of these recalls has been in pasteurized milk. It is being reviewed at the National Conference on Interstate Milk Shipments (NCIMS) conference if there needs to be an investigation over controls on sanitation chemicals due to two recalls that occurred because of cleaning chemicals and sanitizer getting into the milk. Typically, recalls on pasteurized milk are few and far between. Incidents like this make us re-evaluate the strength of the sanitation pre-requisite programs. Pasteurized milk did not have any other reported recalls besides these two residual sanitizer incidents.

Raw fluid milk continues to be a high percentage of the total dairy product recalls, even though it occupies a much lower share of the total dairy product volume. There are many discussions in state legislatures to remove the barriers of selling raw milk, but there have been no new well-designed studies to prove this is a safe practice.

Dairy Product Recall Summary

Here is a summary of the dairy industry products that had the most recalls in 2022.

CHEESE - Cheese is dealing with the same old foe: *Listeria monocytogenes* and we have to get back to the basics of following GMP's, separation of raw and ready-to-eat, proper sanitation, and sanitary equipment design.

ICE CREAM - Allergens are the biggest reason for ice cream recalls. Creating accurate labels, and applying proper allergen preventive controls (Label review and changeover procedures) will help reduce recalls in ice cream.

RAW MILK - Pasteurization is an excellent tool that ought to be used. With no competitive cultures and optimal growth conditions, the risks associated with raw milk currently outweigh any potential benefits.

For a **comprehensive list** of the 2022 dairy recalls, visit <https://www.cdr.wisc.edu/assets/caption-images/USA-and-Canada-2022-Dairy-Recall-Summary.pdf>

For more information and resources related to dairy safety and quality, visit <https://www.cdr.wisc.edu/safety-quality>

New CDR Dairy Recall Tracker: This webpage gives links to articles of dairy recalls by month. Visit the Dairy Recall Tracker at <https://www.cdr.wisc.edu/dairy-recall-tracker> 🌟

CDR WELCOMES NEW EMPLOYEES

Michael P. Gay, CEcD, Development Specialist

Michael is a Certified Economic Developer (CEcD). He identifies new funding opportunities for CDR as well as strategic business development opportunities where the Center can partner with other entities, start-ups and technologies to help drive innovation in the dairy industry. He has previously worked for 30 years in economic and business development, most recently in Puerto Rico where he led a global team to help attract Foreign Direct Investment (FDI) in the biosciences (pharma, med device, and GCT), aerospace and tech industries to the Island.



Brad Harkins, DBIA Cheesemaker

Brad brings a lot of valuable experience to his position as a DBIA Cheesemaker. He previously worked on the University of Wisconsin-Madison campus as an inventory control coordinator and driver. Before coming to campus, Brad worked at Yodelay Yogurt as an Operations Manager. Brad has his pasteurizer license and is PCQI certified.



Matt Hophan, Procurement Assistant

Matt handles purchasing and other financial matters for CDR. He previously worked in the University of Wisconsin-Madison's Division of Information Technology and is familiar with university policies and procedures.



Photo: Michael King/UW-Madison CALS

Lindsey O'Brien, Dairy Foods Trainer

Lindsey has a diverse background in food safety/quality management and research. She has a decade of experience in the dairy industry, working in the manufacture of American-style and Chevre cheeses. Lindsey also researched food borne pathogens in foods for 11 years at the University of Wisconsin-Madison's Food Research Institute. She holds a BS degree in Bacteriology from the University of



Wisconsin-Madison. Her main focus at CDR is to develop and deliver training to dairy industry professionals. Her involvement in the dairy industry began as a child, riding along to farms with her father, a cattle breeder. Lindsey is proud to continue to serve the dairy industry and contribute to CDR's mission of education and outreach.

Mark Schleitwiler, Outreach Program Manager - Mentor

Mark has a wealth of experience in the dairy industry, having worked for many years leading operations, finance, regulatory and HR functions. As a CDR mentor, Mark works closely with dairy processing plants and employees and provides support and guidance on a variety of issues. 🌻



Photos from CDR grand opening events.

Upcoming CDR Trainings

The Center for Dairy Research is here to help with dairy processing training. Below is a listing of upcoming CDR short courses and other training opportunities.

- * Buttermaking Comprehensive (in-person) – June 6-8
- * World of Cheese from Pasture to Plate (in-person) – June 13-16
- * Buttermaking Apprenticeship (in-person) - August 7-11
- * Cheesemaking Fundamentals (online, self-study) - Opens September 6
- * Dairy Ingredient Fundamentals (in-person) - September 7
- * Cheesemaking Fundamentals (in-person) - September 12-13
- * Cultured Dairy Products (in-person) - September 14-15
- * Advanced Cheesemaking: Italian-Style Cheeses (in-person) - September 19-21
- * Fundamentos de elaboración de queso (presencial) - September 26-27
- * Advanced Cheesemaking: Artisan Cheese (in-person) - October 10-12
- * Cheese Grading & Evaluation (in-person) - October 17-19
- * Dairy Beverage Application (in-person) - October 24- 25
- * Advanced Sanitation Training (in-person) - November 2

For the latest information or to register visit www.cdr.wisc.edu/short-courses



DAIRY PIPELINE

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