

DAIRY PIPELINE

2021 WISCONSIN MASTER CHEESEMAKERS



STEVE BECHEL

KIRK HANSEN

LARRY HARRIS

BRIAN JACKSON

This year, the Center for Dairy Research and Dairy Farmers of Wisconsin are celebrating the 27th graduating class of the Wisconsin Master Cheesemaker® program. This unique program gives experienced cheesemakers an opportunity to earn the title of Wisconsin Master Cheesemaker in a wide variety of cheeses.



analysis—this is done three times before they can graduate as a Master cheesemaker. All said, it takes about three years to complete, but, in the end, the cheesemaker receives the honor and respect of becoming a Master cheesemaker as well as the right to use the Master Mark® on their products.

To be eligible for the program, cheesemakers must be licensed Wisconsin cheesemakers for at least 10 years. Before applicants are accepted into the program, they must complete the Advanced Cheese Technology Short Course and one other workshop. In addition, applicants must undergo a plant visit where they lead a walkthrough of their facility and are given an oral exam. Once they are accepted into the program, participants must complete a list of courses and an intensive exam. In addition, the cheeses that they are being certified in are graded for flavor, composition and microbial

To date, 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. This year, the Wisconsin Master Cheesemaker® program welcomes two new members and two returning members.

“The individuals in this year’s class bring an impressive depth of knowledge and experience,” said Andy Johnson, coordinator of the Wisconsin Master Cheesemaker® program. “They also produce terrific examples of fine Wisconsin cheese.”

Please join CDR and DFW in recognizing the 2021 Wisconsin Master Cheesemakers. ➔



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New Master Cheesemakers



STEVE BECHEL

Eau Galle Cheese, Durand
Certified Master: Parmesan and Romano

Steve Bechel got into cheesemaking in 2000, when he went to work for his father-in-law, John Buhlman at Eau Galle Cheese.

“My first day was spent pulling 120-degree curd from the drain table and putting it into hoops, plus it was August so the temp and humidity in the make room was very intense to start with,” Bechel remembers. “After 10 hours of that and I was pretty shot, I thought what in the hell did I get myself into?”

In those early days, Bechel said he basically, went to work, ate and slept.

“As I started learning to run the vats and working on some of the equipment, I became very interested. What I thought was going to be a very repetitious job, became something new every day. It has now been over 20 years and I am still learning every day.”

In addition to learning about the science behind cheesemaking, Bechel said he really enjoys making cheese and working for a smaller company like Eau Galle Cheese. “One day I will be working on long term strategic planning, to sales and marketing, to logistics, to milk procurement, to DNR reporting, and everything else in between. It really is a variety and makes every day go by very quickly.”

Bechel said he had an “excellent experience” participating in the Wisconsin Master Cheesemaker® program.

“For me, it tied together all the bits and pieces of cheesemaking that I had gathered over the years. In addition to the learning, all the people involved in the program were exceptional to deal with and very helpful. It is truly a great program that I am very proud to have in Wisconsin.”

This year, Bechel earns Master certifications in Parmesan and Romano. “These are the first two cheeses I learned how to make, and Parmesan is still probably my favorite cheese. Most people think of it as a grating cheese only, but for me it is one of my favorite cheeses to eat by the slice or chunk.”

Overall, Bechel said he is very proud to join the ranks of Wisconsin Master Cheesemaker. “It has been a goal of

mine for a long time, and it means a lot for me to finally accomplish it. It was a lot of work but I’m so glad I did it and made it through.”

Bechel also recently discovered that Leo Buhlman, one of the founders of Eau Galle Cheese, earned a master certification for Swiss Emmentaler in the 1920s in Switzerland.

“It was exciting to find that I was going through a similar program as Leo, 100 years later. We are very fortunate that Wisconsin offers such a program!”



KIRK HANSEN

Nasonville Dairy, Marshfield
Certified Master: Cheddar and Jack

Kirk Hansen got his start in cheesemaking when he was a junior in high school. “I grew up on a dairy farm, my dad sold the cows, so I needed to find a job,” Hansen said. He went to the local cheese plant, Nasonville Dairy, and applied. As he was filling out his application, Ken Heiman, one of the three brothers who own the plant, recognized Kirk and hired him on the spot.

Hansen started out with the basics: filling and pressing hoops, taking blocks out. “First it was just a job but after time went by it got more interesting and I became more involved with the make processes.”

He has spent his entire 25-year career at Nasonville Dairy. In 2006, Hansen got his cheesemaking license. He remembers when he went to Madison to get his license, he read a flyer promoting the Wisconsin Master Cheesemaker® program. Hansen saw all of the requirements to complete the program and thought to himself, “Well, I’m never going to do that.”

Fast forward 15 years later and he is one of the newest members of the Wisconsin Master Cheesemaker® program. Hansen credits his colleagues Kim Heiman and Brian Jackson for encouraging him to give the program a try. Jackson is also a Wisconsin Master Cheesemaker.

He also credits his dad, Roger, who he put down as his mentor. “He always pushed me and taught me hard work.” Hansen needed hard work to complete the program, as he was completing the take home test portion of the program. As he was, the cheese plant was short-handed, and Hansen was putting in 12-hour days and then returning home and working on the take-home test. ➔

“It’s a good feeling of accomplishment. I never was number one at school,” he said with a laugh. But it was all worth it once Hansen got the call that he had successfully completed the program. There were calls of congratulations, smiles, fist pumps and handshakes around the plant.

Hansen earns Master certifications in Cheddar and Jack. He said he selected those cheeses because those are the varieties he works with most often. Nasonville Dairy is known, among other products, for its many flavored cheeses. Depending on the day, Hansen might be making Cheddar or donning a gas mask to make Horseradish Jack or Ghost Pepper Jack. But, Hansen said, that’s what he likes about being a cheesemaker, “I like working with the different varieties and trying new stuff. Every day is a little different.”

Returning Master Cheesemakers



LARRY HARRIS
Meister Dairy, Muscoda
Certified Master: Colby and Colby Jack

Larry Harris has been steadily working through the Wisconsin Master Cheesemaker program earning Master certifications in the major American style cheeses. In 2018, he earned certifications in Monterrey Jack and Cheddar. As soon as he graduated from the program in 2018, he applied again. This year, he gains Colby and Colby Jack certification. And he isn’t planning on stopping anytime soon.

“I want to make sure I have a good stable Master Cheesemaker mark in the major cheeses in the United States,” he said.

Harris is a lifelong cheesemaker who grew up around cheesemaking. At sixteen he began his first part-time job in a cheese plant and after attending courses at a local technical school, he began full-time at Meister Cheese in Muscoda, Wisconsin, where he still works today.

“I often tell those who apply for a job here that I can’t offer a job, I can only offer a career,” Harris said. “Cheesemaking is a lifestyle, not just a job.”

Harris stays busy at Meister Cheese, where in addition to cheesemaking, he also helps operate Meister Dairy’s whey plant. He said Meister Dairy also takes pride in its program development; everything at Meister Dairy is designed and built in-house. Among other things, this helps the plant develop good, consistent products.

For Harris, consistency is key to being a Master cheesemaker, “I think part of being a Master cheesemaker is to eliminate variability so that every piece of cheese was as good as the last one.”

For example, Harris points to several World Championships that Meister Dairy has won over the years. “We just took those winning cheeses off the pallet,” he said. “We didn’t do anything special. We want people to know that they are getting consistently high-quality cheese from us.”

Harris is a model Wisconsin Master Cheesemaker who is passionate about his craft and also proud to be part of an elite group of cheesemakers.

“It’s about honoring peers and trying to stand with an elite group,” Harris said of the program. “I’ve enjoyed the fact that the program challenged me and made me think about why I do things. It made my base stronger.”



BRIAN JACKSON
Nasonville Dairy, Marshfield
Certified Master: Feta and Asiago

Brian Jackson is one of the more experienced Wisconsin Master Cheesemakers with about 42 years of cheesemaking experience with a total of eight Master cheese certifications. Already certified in Cheddar, Colby, Monterrey Jack, Gouda, Muenster and Brick; this year he adds Feta and Asiago to the list.

“I picked Asiago because it’s probably my second favorite cheese; Cheddar is my favorite. I picked Feta because I’m currently making a lot of it,” said Jackson who works at Nasonville Dairy.

Looking back, Jackson said his cheesemaking journey started because he wanted a car. “When I turned 16, I wanted a car and my dad said, ‘Well if you want a car, get a job.’” Growing up in Greenwood, Wisconsin, there weren’t many options for employment for a teenager, so he ended up at the local cheese plant. It wasn’t easy work.

“I was washing hoops, boxing cheese by hand, hooping cheese by hand, flipping cheese; anything manual that’s what I did,” he said.

In 1985, he earned his cheesemaker license and started to appreciate the craft of cheesemaking. “It’s something different every day,” he said. It’s not the same old routine.”

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NEW SPORTS DRINK DEVELOPED AT CDR COULD REVOLUTIONIZE THE SPORTS DRINK INDUSTRY

GoodSport™ is utilizing the nutrition of milk to deliver a more hydrating, nutrient-packed sports drink.



GoodSport, a new sports drink developed in part at the Center for Dairy Research, has the potential to turn the sports hydration industry on its head. Entrepreneur Michelle McBride got the idea for GoodSport when her son started playing baseball.

“We didn’t want him drinking traditional sports drinks because they’re filled with artificial ingredients and too much sugar,” McBride said. “So, we tried some natural options, but he didn’t like the taste and I learned that they provided no better hydration than plain water.”

She studied up on hydration and found that milk is one of the most hydrating beverages available. Professor Ron Maughan (Loughborough University, UK) developed the Beverage Hydration Index where he compared the hydration efficacy of sports drinks, water, milk and other beverages and found that milk was extremely efficacious in rehydrating the human body.

“When I saw that, I thought, ‘Wow! Milk is packed with electrolytes and all of these other nutrients. I really should be able to make a sports drink out of it,’” McBride remembers.

McBride knew that developing a new product would be a serious undertaking. She enlisted the help of several experts including, Dr. Bob Murray, PhD, FACSM, an experienced sports nutrition scientist.

McBride started working with a lab in her home state to formulate prototypes out of milk. “They tasted pretty good, but I knew it wasn’t quite right – they were still milky,” McBride said. “I started looking for a dairy scientist who could help me and it was suggested that I reach out to the Center for Dairy Research.”

Support from CDR

CDR offers dairy foods companies access to scientific expertise in dairy research, technical support and education. CDR is funded by dairy farmers through the dairy check-off program and partners such as the Dairy Farmers of Wisconsin and the National Dairy Council. It is the Center’s goal to help companies and start-ups such as GoodSport to bring innovative, nutritious and profitable products utilizing dairy to the global marketplace.

At CDR, McBride was connected with K.J. Burrington who was CDR’s Dairy Ingredients, Beverages & Cultured Products Coordinator, and Vic Grassman, manager of the TURBO Program, a business accelerator and business support program at CDR. When McBride shared her idea of creating a sports drink using milk at the initial meeting at CDR, Burrington immediately knew McBride was on to something.

“I turned to Michelle and told her ‘I’ve been waiting 15 years for someone to bring this idea to us,’” Burrington said.

However, Burrington knew that using skim milk in the formulation would not provide the appearance, flavor or mouthfeel of typical sports hydration drinks. Instead, she suggested that milk permeate would provide the right sensory experience along with the carbohydrates and electrolytes needed to make a shelf-stable, sports hydration beverage.

So, McBride and Burrington created a new formulation that utilized milk permeate and McBride was pleased with the look of the product. Next was the taste test.

“I remember K.J. and I toasted cheers with our little sample cups when we tasted it,” McBride said. “Right away I knew we had done it and I literally cried tears of joy right there with K.J. in the lab. I was so happy.” ➔



Utilizing the Natural Goodness of Milk

Milk permeate is generated via the ultrafiltration of milk. In this process, the fat and protein is filtered out and used in other applications. What's left is milk permeate, which contains essential vitamins, carbohydrates and minerals like calcium, magnesium, sodium, and potassium. It has a



KJ Burrington, Michelle McBride & Vic Grassman, CDR

subtle, clean flavor with milk's natural nutrients and electrolytes, which makes it a perfect candidate as an ingredient in a sports drink.

"It's a really great tasting, refreshing and effective sports drink," Burrington said. "The beauty of it is all the nutrients found in this drink are naturally found in milk."

Utilizing milk permeate also helps boost the sustainability efforts of the dairy industry. In fact, some dairy companies dispose of their milk permeate because they don't have a market for it. Products like GoodSport will help increase the value of milk permeate.

"We're helping to create another beverage usage occasion for milk, which is refreshment and hydration," McBride said. "This could be a big opportunity for dairy."

More Hydrating than Other Sports Drinks

Early results indicate that GoodSport is something of a revolutionary product. With support from Dairy Management, Inc., Penn State University studied the hydration efficacy of a milk permeate-based hydration solution (GoodSport) by testing it against water and a traditional carbohydrate-based sports drink. The results of the Penn State study were published in May 2020 by *Nutrients*, a peer-reviewed journal focused on human nutrition published by MDPI. McBride was blown away by the results.

"The study showed that GoodSport provides rapid and significantly long-lasting hydration," McBride said. "They found that GoodSport stays in the body and provides hydration more than 2 hours after it's consumed. The results were significant."

Essentially, the study found that the combination of electrolytes and carbohydrates naturally found in milk permeate is very effective at hydrating at the cellular level. GoodSport promotes the body's cells ability to retain and hold more fluid providing superior hydration.

"There's real science that goes on behind hydration," McBride said. "It's very important that you have the right type and level of electrolytes and the right balance of carbohydrates. We're able to deliver that in every bottle of GoodSport from the natural goodness of milk."

GoodSport really stands out when it is compared to the leading sports drinks. For example, it is an excellent source of B vitamins and a good source of calcium. It contains 3 times the amount of electrolytes and 33% less sugar than traditional sports drinks. "We don't add any sugar, we just have the natural sugars from milk," McBride said.

Another important point is that GoodSport is a lactose free and shelf stable product. It can be found on the shelf with other sports drinks.

Product Development Support

Looking back on the product development phase, McBride is grateful that she was connected with CDR.

"We had help with trouble shooting a ton of issues that will come up with any dairy project," McBride said. "And any one of those issues can seem insurmountable if you're trying to solve them by yourself."

The GoodSport project also received help from CDR's TURBO program. "That program really enables entrepreneurs working in dairy to have access to incredible expertise. It really is almost unheard of."

In addition to bringing dairy into the sports drink industry, GoodSport is also focused on bringing positive change to sports and athletics. "We are certainly trying to elevate the world of sports nutrition, but we also want to bring greater purpose to the world of sports in general," McBride said. "We're really focused on inspiring a more positive sports culture."

GoodSport is available nationally on Amazon and [goodsport.com](https://www.goodsport.com) and will be available this spring at select Midwest retailers. 🌻

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CONTROLLING THE RISK OF ALLERGENS IN DAIRY PROCESSING

Technical Contributor: Alex O'Brien, CDR

Allergens are one of the many hazards that are a cause of great concern when producing food. In this article, we will cover the importance of knowing your supply chain and the origins of your ingredients (and any undeclared allergens those ingredients may come into contact with). We will also cover tips to avoid cross-contact of allergens in the dairy plant, including the steps to properly clean and validate tools and equipment.

Some sectors of the dairy industry, like ice cream producers, have experience working with multiple allergens but, typically in cheese, the main allergen of concern historically has been milk. However, as we see more creative cheeses and other dairy products with unique flavorings and ingredients, it's important to reassess allergen risks in the dairy plant to prevent unwanted recalls and deaths.

Although allergens may come from a biological source, they are considered a chemical hazard. Approximately 4% of adults and 8% percent of children have allergic reactions to common allergens and the number of individuals with food allergies is increasing. A study from the Centers for Disease Control (CDC) noted that there was about a 50% increase in food allergy prevalence in children from 1997-2011.

It's also important to differentiate allergic reactions, which can be life threatening, from food intolerances, which present more minor symptoms like gastrointestinal stress. Allergic symptoms can range from mild reactions, such as hives or stomach cramps, to severe and life-

threatening anaphylaxis. Due to this hazard, the Food Allergen Labeling and Consumer Protection Act (FALCPA) of 2004 was passed in order to help protect consumers with allergies. The Food Safety Modernization act has implemented that there be preventive controls in place for allergens.

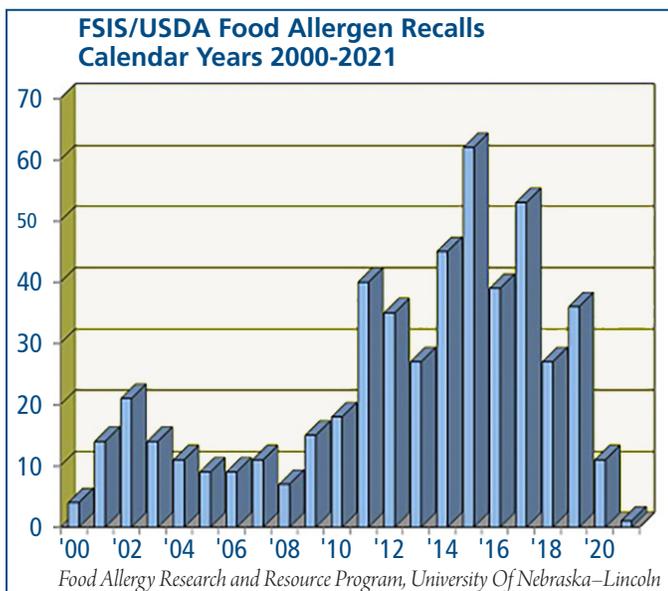
What is an Allergen?

An allergen is any substance that causes a person's immune system to overreact. The majority of food allergens are proteins, but there are other substances that may illicit an immune reaction. The amount of an allergen needed to initiate a reaction varies. Peanuts and tree nuts are among the most common and potent allergens; only a very small amount is needed to trigger an allergic reaction. There is currently no tolerance for any undeclared allergenic material in food, except for Japan (which allows 10 nanograms/gram).

Given the prevalence of individuals who are allergic to certain foods/ingredients, it is of the utmost importance that a food manufacturing facility identifies and controls the potential ways that an allergen can enter the product stream.

The FDA currently recognizes 8 allergens and considers them the "Big 8 Allergens." These are believed to cause 90% percent of all allergic reactions. The "Big 8 Allergens" are: milk, egg, fish, Crustacean shellfish, tree nuts, wheat, peanuts, and soybeans.

As discussed earlier, there are two main ways that allergens can make it into the product stream: through the supply-chain (undeclared ingredient) or through cross-contact (accidental transfer).



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FDA "BIG EIGHT" Food Allergens			
Milk	Tree nuts	Soybeans	Fish
Egg	Wheat	Crustacean shellfish	Peanuts

Supply-Chain Preventative Controls

Understanding the risks that the ingredients you use in your finished products is essential for avoiding costly recalls related to allergen contamination. This starts with your supply chain preventative controls. On a yearly basis, ask your suppliers to provide an allergen statement for all products that are supplied to you. This statement should include: 1. any allergens that are present in the product and 2. a notice if the product is produced on the same line as other allergens. If this product is indeed run on the same line as other allergens that are not declared in the product, ask for a validation of the supplier's cleaning →

methods to ensure that the allergens are being effectively removed from production equipment.

When developing new products, make sure that allergens and potential allergen risks are discussed before starting production. This should be part of a robust commercialization process. For instance, there are many new, creative recipes for cheese that include dipping or washing the cheese in various beverages such as beer or wine. In this case, you need to identify potential allergens such as wheat or gluten that may be in beer or the sulfites that could be in wine. There are also cheeses that include tree nuts and some European cheeses incorporate wheat products in the rind.

When using highly refined oils like coconut oil, soy lecithin, etc., make sure to request a statement from your supplier that states that the oil has gone through a refining, bleaching and deodorizing process, and is therefore considered highly refined. Each one these steps either uses chemical or physical means (filtration, centrifugation) to remove unwanted components like phospholipids, gums, free fatty acids, oxidation products

Basic Steps of the Oil Refining Process		
Alkali or chemical refining	Physical Refining	Main groups of compounds removed
Degumming	Degumming	Phospholipids, Gums, Proteins
Neutralization	-	Free Fatty Acids, Proteins
Bleaching	Bleaching	Pigments, Metals, Soaps, Proteins
Winterization	Winterization	Waxes, Saturated triacylglycerols
Deodorization	Deodorization/Deacidification	Volatiles, Free Fatty Acids, Proteins

<https://lipidlibrary.aocs.org/chemistry/physics/frying-oils/oil-refining>

and trace metals. Below is a table that lays out the steps of the oil refining process.

If the oil is processed with a cold pressed method or is a crude oil, then this would have to be labeled as an allergen under FALCPA. Have the supplier give you a formal statement that their process utilizes a refining, bleaching, and deodorizing process and therefore does not need to be labeled as an allergen.

Allergen Cross-Contact Risks

Cross-contact occurs when an allergen is accidentally transferred from one food to another. This is a very serious risk to your product stream. Here are some areas to focus on to reduce the risk of cross-contact in your plant.

Break rooms | Although break rooms may be overlooked when considering cross-contact risks, they pose a serious risk. For instance, consider what foods are sold in the vending machines. If you have several loose-nut candy bars or peanut-butter filled candies, these items have potential of reaching the product floor. Similarly, any foods that employees bring in and eat in the breakroom can reach the production floor as well. That is why it is so important to enforce GMP policies and have a robust handwashing program and sanitation program in your break room.

Lubricants | Food grade lubricants can be an unintentional source of allergen cross-contact. Ensure there are no allergens or like-allergens in the food grade lubricants you use.

Product equipment and tools | Having updated SSOPs and following proper verification that allergens are not present is paramount to keeping your tools and equipment free of from allergen cross-contact (see section below “Sanitation Standard Operating Procedures for Equipment and Tools”).

Aging Boards | When looking at tools and equipment, you should also consider your aging boards. If you use wood boards for aging, designate boards for different allergens, as it is much more difficult to remove allergen residues from wood as compared to stainless steel. To mitigate the risk even further, implement a color-coding system for allergens.

Sanitizer Wipes | It is important to remember that sanitizer wipes will not “kill” or inactivate an allergen. Allergens are not a microbiological hazard, but a chemical one. To protect against allergen cross-contact, ensure that you have a cleaning, rinsing and sanitizing program. Wipes are not enough to remove allergens from the surface of equipment and tools. This is also true when sanitizing hands. A sanitize wipe will still leave residual amounts of allergens on hands. ➔

Sanitation Standard Operating Procedures for Equipment and Tools

To reduce allergen risk, whether that allergen is coming from an undeclared allergen from a supplier or an allergen via cross-contact, it is of utmost importance to establish and follow Sanitation Standard Operating Procedures (SSOPs) when cleaning and validating equipment and tools.

The SSOPs for CIP manual cleaning can be validated by:

1. Cleaning the equipment you wish to validate.
2. Verify that equipment is visually clean.
3. Choose 3 different sampling locations, at minimum, and use a form of allergen verification (e.g. lateral flow devices, elisa testing, total protein swabs).
4. Swab and send to a 3rd party lab to validate the cleaning does not have the allergen present.
5. Run product and send the first batch of product in to be tested for the allergen.
 - a. Make sure to not release this material until allergen results come back negative.
6. If results indicate they are negative, then your cleaning procedure has been validated.

Sesame – A Change to the “Big Eight Allergens”?

Currently, sesame is considered an allergen, but it is not part of the “Big 8 Allergens.” That being said, the FDA held a public comment period on the draft guidance regarding voluntary disclosure of sesame as an allergen. This comment period ended 2/25/2021. According to the latest draft guidance from the FDA, “The FDA is recommending that manufacturers voluntarily declare sesame following the spice or flavor, such as, “spice (sesame)” or “flavor (sesame).” Sesame may eventually become part of the “Big 8 Allergens.”

Allergens Vary by Country

There is not a universal list of allergens recognized by all countries. In fact, each country has its own list of allergens. Take careful consideration if you are exporting your product and ensure that all allergens are properly declared. For example, South Korea considers peach an allergen. Allergen charts by country: <https://farrp.unl.edu/IRChart>

Additional Resources

This article touched on some of the main strategies to reduce allergen risks in a dairy plant but there are other important topics to consider, such as: proper segregation of allergenic foods or ingredients during receiving, storage, handling, and processing; product label review; and staff training.

If you have additional questions or want more information, you can contact CDR. In addition, the Food Allergy Research and Resource Program at the University

CDR HELPS DAIRY BEVERAGE START-UP WIN ENTREPRENEUR COMPETITION

With technical help and expertise from the Center for Dairy Research, Manny Lubin and Josh Belinsky, co-founders of Slate Milk, recently won MilkLaunch, a startup competition in New York state focused on accelerating dairy product innovation.

Slate Milk is an ultra-filtered, retort processed line of chocolate flavored milks. It is available online, in about 3,000 retail stores and growing quickly.

Lubin and Belinsky got the idea for Slate Milk in early 2018. “We both love chocolate milk,” Lubin said. “But everything that we found on the market was high in sugar, marketed for kids and it spoiled quickly.”



The two entrepreneurs took a look at the market and saw that dairy beverages like flavored milks, lactose free beverages, and high protein shakes were on the rise. “There wasn’t really a brand that covered all three of those categories,” Lubin said. “We realized that if we could create a product that holds a little weight in each of these three areas, we could be successful.”

In addition to being shelf stable, Slate Milk is sold in sleek cans with a clean, simple design. “Most of the chocolate milk we saw was sold in a carton that made us feel like ➡

of Nebraska-Lincoln has numerous resources for food producers: <https://farrp.unl.edu/farrpresources>. 🌻

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children and so we just wanted to help give chocolate milk a ‘clean slate,’” Lubin said.

Lubin and Belinsky developed three chocolate flavors (espresso chocolate, classic chocolate, and dark chocolate) but they wanted to create a vanilla flavor for the MilkLaunch competition. The competition is run by VentureFuel, a corporate innovation consultancy, in collaboration with the New York State Department of Agriculture and Markets and the New York Dairy Promotion Order Advisory Board. The competition was open to global applicants with sales under \$250,000 and the product needed to contain at least 50% fluid milk.



Before entering the competition, Lubin said that he and Belinsky were searching the internet, looking for retort experts who could help them develop a new formulation. Lubin said that while he and Belinsky have a lot of experience in the operation and marketing of a new business venture, they didn’t have a lot of expertise in the retort process. After looking online, they reached out to CDR.

“From our first conversation it was clear that the entire team at CDR had a lot of knowledge,” Lubin said. “It was clear that we could learn a lot from working with CDR.”

They worked with K.J. Burrington who was CDR’s Dairy Ingredients, Beverages & Cultured Products Coordinator and Susan Larson who is an associate researcher at CDR.

“It was great talking to K.J. and Susan and just hearing from them – the experts – what they would recommend based on what they’ve seen,” Lubin said.

The timeline to enter the competition was very quick—CDR and Slate Milk only had a couple months to develop a vanilla milk formulation. In addition, because of the global pandemic, Lubin and Belinsky couldn’t work with CDR staff in person. They had to rely on phone calls, emails and video calls to communicate.

“Good communication is critical when developing a product, especially when you can’t work together in person,” Larson said. “We did a lot of collaboration back and forth during the process so that we understood each other’s ideas and expectations.”

In addition to helping develop a formulation that would work well in a retort process, Lubin said CDR was also helpful in flavor development.

“Especially during a global pandemic, one of the most

challenging things was articulating the flavor that we were going for,” Lubin said. “I think K.J. and Susan did a great job interpreting our phone calls and bringing it to life.” After going through about 20 different vanilla flavorings, Lubin and Larson found a flavoring that fit the profile that they had in mind. “We didn’t want an overpowering sweetness, but we still wanted it to be sweet and indulgent,” Lubin said. “We want to make products designed for everyone; something that isn’t too dull but not something that is too overpoweringly sweet.”

At CDR, Larson said that she got started on the project by creating a couple of different “broad sweeping” formulations to give Lubin and Belinsky different options and to help quickly narrow down the formulation. Lubin and Belinsky went back and forth with CDR to ultimately create their new vanilla flavored milk.

“We did this all based on verbal communication,” Lubin said. “We went through a couple iterations with some slight variations before pitching it to the contest judges.”

At the MilkLaunch competition, Slate Milk beat out more than 50 other applicants and took home the top prize of \$150,000. It wasn’t easy; over 1,000 consumers and 8 expert judges voted on taste and assessed the company’s viability. Lubin and Belinsky are experienced entrepreneurs who have actually appeared on the television show Shark Tank where contestants pitch their business ideas or inventions. “We’ve gone through a few different pitches in our day,” Lubin said.

“It is pretty amazing that a start-up in Boston and dairy retort experts in Wisconsin can work together virtually and create a product that will hopefully be sold all over the country,” Lubin said.

For more information about Slate Milk, visit slatemilk.com 🌟

CDR TO EXPAND DAIRY BEVERAGE CAPABILITIES

This issue of the Dairy Pipeline features two stories about new and exciting dairy beverages. Later this year, CDR will be opening its Beverage Innovation Center to support the development of novel dairy beverages. Located in the new, three-story addition to Babcock Hall, the Beverage Innovation Center will include flexible, modular equipment necessary for the development of any type of new dairy beverage like high protein products, shelf stable beverages, filtered milks, ESL and aseptic products, and more. It will include both direct/indirect UHT processing, bottle packaging option as well as bag in box. Watch for more details coming from CDR. 🌟

CHEESE EXPO

GLOBAL ONLINE

April 6-8, 2021

Join CDR and WCMA for CheeseExpo Global Online, April 6-8, 2021. You'll find the same dynamic resources — industry innovation, world-class technical and marketing seminars, and key connections between suppliers and dairy processors. There will be three days of valuable programming, networking, and online exhibits including live Idea Showcases.

Be sure to attend the CDR technical seminars that are focused on those topics you said are important to you! Read on to learn more about what's been developed for you, and then be sure to register today. For more information, including registration, visit <https://cheeseexpogo.org>

2021 CDR CheeseExpo GO Technical Sessions

Tuesday, April 6

Optimizing Cheese Yield at the Vat and with the Right Formula | 1:30 – 2:15

Where Efficiency Meets Excellence: Maintaining Quality in Modern Manufacture

Moderator: Dean Sommer, Cheese & Food Technologist, CDR

- ◉ Maximizing Cheese Yield Efficiency at the Vat
John Jaeggi, Cheese Industry & Applications Coord., CDR
- ◉ Developing your Formula to Optimize Cheese Yield
Mark Johnson, PhD, Distinguished Scientist, CDR

Wednesday, April 7

Practical Applications of Process Data in Dairy Plants, Moderator: Dean Sommer, Cheese & Food Technologist, CDR | 1:30 – 2:15

- ◉ Steve Ejnik, Relco
- ◉ Larry Harris, Meister Cheese
- ◉ Joe Gardner, Wondware.

Artisan Focus: Cave – Aged Cheeses | 1:30 – 2:15

- ◉ Surface Microflora in Cave-Aged Cheeses, Ben Wolfe, Associate Professor, Biology, Tufts University
- ◉ A Look at CDR's New Affinage Capabilities
Andy Johnson, Assistant Coordinator, Cheese & Industry Applications, CDR.

Thursday, April 8

Microbes that Negatively Impact Cheese Quality and Advances in their Identification | 1:30 – 2:15

Moderator: Dean Sommer, Cheese & Food Technologist, CDR

- ◉ Identifying New Sources of Gas Formation in Cheese,
Rodrigo Ibanez, Scientist, CDR 

UPCOMING ONLINE CDR SHORT COURSES

The Center for Dairy Research is here to help you with dairy product training for your employees. Below is a listing of upcoming online CDR short courses. For the latest information or to register visit www.cdr.wisc.edu/short-courses

Food Safety Workshop (HACCP) Online

- May 5-6 (This course will take place live online.)

Advanced Cheese Technology Short Course Online

- May 10-14 (This course will take place live online. Attendees must complete Cheesemaking 101 before taking this course. Registration deadline is April 25.)

World of Cheese from Pasture to Plate Online

- June 7-10 (This course will take place live online.)

Cheese Grading Fundamentals Course Online

- June 29-30 (This course will take place live online.)

Note: Course sessions for all online trainings are recorded and can be view/accessed on-demand. 

CDR WELCOMES NEW EMPLOYEES



Aravind Chandrasekaran, Research Specialist

Aravind is a research specialist with who has experience working in highly regulated testing environments. He has previously worked in the pharmaceutical industry analyzing organic compounds via HPLC and osmometry. Aravind earned his B.S.A. in biology from the University of Texas at Austin and continues to utilize his knowledge and skills to help determine dairy product compositions and is excited to be a part of the CDR team.

Rebecca Hohlstein, Cheese Outreach Specialist

Rebecca joins CDR with 35 years of experience in the dairy industry, including technical support, training, product development, and troubleshooting. Over her career, Rebecca has taken many CDR short courses as well as presented. In her previous employment with industry culture houses, she has collaborated with CDR on many projects including starter culture performance, enzyme functionality, and industry problem-solving. She has a Bachelor's in biology education 



from Minnesota and a Masters in bacteriology from UW-Madison. She is very excited to join CDR, where her focus will be industry troubleshooting and trials, but will also include short courses and outreach.

Ben Ullerup Mathers, Research Cheesemaker

Previously a software developer, Ben's growing interest in fermentation and food production led him to accept a 3-month position at Uplands Cheese doing affinage for Rush Creek Reserve in the Fall of 2019. Finding a love for the art, science, and culture of cheesemaking, Ben then worked for the winter at Cedar Grove Cheese before returning to Uplands for the 2020 cheesemaking season. There, Ben became involved in all parts of the cheesemaking process, from vat to packaging, and received his cheesemaking license. Ben is thrilled that his thirst for more cheese knowledge and experience has brought him to the Center for Dairy Research, where he sees knowledge and passion working together to advance the industry.



Pat Polowsky, Training Facilitator

Pat works closely with CDR staff and industry experts in creating engaging learning materials for the dairy industry. A food scientist and product developer by trade, Pat has extensive experience creating technical teaching tools and communicating scientific information to a variety of audiences. He has Bachelor's and Master's degrees in Food Science, and is well-versed in instructional techniques and online learning methods. Pat hopes to combine his passions for food science and teaching to provide world class educational opportunities for the dairy industry. 🌟



SMUKOWSKI HONORED WITH BABCOCK AWARD

Marianne Smukowski, former CDR Safety and Quality coordinator, will be honored with the Babcock Award at CheeseExpo Global Online. Smukowski retired from CDR in February.

The Wisconsin Cheese Makers Association (WCMA) Babcock Award, named for Stephen Babcock, the famed agricultural chemist and University of Wisconsin professor, recognizes the contributions of those in education or affiliate organizations partnering with cheesemakers in the pursuit of dairy industry innovation and excellence. In addition to Smukowski, Dr. Bob Cropp, Professor Emeritus of the University of Wisconsin-Madison Department of Agricultural and Applied Economics, will also be honored with the award in 2021.



“When I heard I received the Babcock Award, I was surprised and deeply honored,” Smukowski said. “I thought how cool is it that I received the same award as my professor and mentor Dr. Bob Bradley. My advice: know your passion, do your best and never compromise your integrity.”

Smukowski worked with the U.S. Department of Agriculture and Land O'Lakes, Inc. before creating her own unique position at CDR, where she was Dairy Safety and Quality Coordinator. A guardian of food safety and quality for the dairy industry, Smukowski worked with producers in Wisconsin and beyond. She was also the technical adviser for the Wisconsin Master Cheesemaker® program, and the 2019-20 President of the American Cheese Society. Smukowski has also served as a judge for the WCMA World and U.S. Championship Cheese Contests. 🌟

Masters continued from page 3

Jackson likes the challenge of the Wisconsin Master Cheesemaker® program. He remembers when he first applied to the program he wondered what he had got himself into.

“After getting further into the program you realize the knowledge, people, resources and education are endless,” he said. “It’s a really excellent program if you’re willing to put in the work.”

Looking ahead, Jackson said he has already applied to the program to earn what he hopes will be his ninth and tenth certifications. He said he has applied for Cheese Curd and Queso.

“When will I stop with the program? I don’t know. Probably not until I retire,” he said with a laugh. 🌟

Center for Dairy Research

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DBIA GRANT APPLICATIONS DUE APRIL 30

The Dairy Business Innovation Alliance (DBIA) is accepting applications until April 30 for its next round of grants. DBIA, a partnership between the Center for Dairy Research (CDR) and Wisconsin Cheese Makers Association (WCMA), will be distributing \$1 million in grants. Grant information and applications are downloadable on the DBIA website and are due by 5 PM on April 30. For the grant application and information, visit www.cdr.wisc.edu/grant-program.



Dairy enterprises (farmers, entrepreneurs, processors, etc.) in Illinois, Iowa, Minnesota, South Dakota and Wisconsin are eligible to apply. Grants of up to \$50,000 will be awarded through a competitive process. Eligible project categories are:

- ▶ Dairy farm diversification through dairy product development, specialization, packaging and/or marketing strategies.
- ▶ Creation of value-added dairy products (use milk to manufacture cheese, yogurt, beverages, etc.).
- ▶ Enhance the value of a dairy commodity or by-product through product development or alternate use (e.g., converting liquid whey permeate for animal feed into a product for human consumption).
- ▶ Creation or expansion of a program for exporting dairy products.

Interested applicants are encouraged to watch a free, recorded webinar. The webinar provides more information on the DBIA grant program, gives tips about the grant application process and answers questions. To access the webinar www.cdr.wisc.edu/grant-webinar-spring-2021

DBIA staff also encourage potential applicants to view the “Let’s Get Started” webinar series prior to applying for a grant. The webinars are available www.cdr.wisc.edu/dbia-webinars. The webinars share state and federal resources that can be helpful for dairy and farm businesses who wish to apply for a DBIA grant. For example, if an applicant needs help developing a business plan or a project budget, DBIA staff encourages them to contact their local Small Business Development Centers.

Sign Up for DBIA Updates: Sign up to receive email updates from DBIA, including grant information and other news – www.cdr.wisc.edu/dbia-updates-sign-up-form



DAIRY PIPELINE

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