



# Dairy Pipeline

Volume 28 Number 4

A Technical Resource for Dairy Manufacturers

## INSPIRING INNOVATION: HOW THE CENTER BEGAN

This past year the Center for Dairy Research celebrated its 30th anniversary. The very first dairy research center in the United States, CDR has a long history of serving industry through research, product development, training and technical support. The Center has always strived to bridge the gap between cutting edge research and practical applications, but there was a time when such a center was only a vision. Thankfully, Norm Olson, Ph.D. and a team from the Wisconsin

Milk Marketing Board (WMMB) and the University of Wisconsin-Madison saw what CDR could be and worked to develop the idea of a dairy foods research center. Without their leadership, insight and tenacity, and the support of dairy farmers and industry, CDR would not be what it is today.

This special edition of the Dairy Pipeline was created to honor those efforts and preserve the history of CDR. We thank all of you for the past 30 years and we look forward to many more.



### How it all Began

Long before CDR was conceived, dairy research played a prominent role at UW-Madison. The genesis of dairy foods research, instruction and outreach at UW-Madison can be traced to the development of the butterfat test by Stephen M. Babcock, Ph.D. The test received a great deal of attention from industry and that interest eventually led to the establishment of the first Dairy School in the U.S.A. in 1890. Located on the UW-Madison campus, the dairy school held a number of courses on milk analysis, buttermaking and cheesemaking. During the first 30 years over 3,200 students completed the course in dairying.

Over the next 40 years the attendance decreased, in part, due to a dramatic reduction in the number of dairy processing plants and the year-round operation of plants which made it difficult for staff to attend multi-month or even multi-week short courses such as The Dairy Manufacturing Short Course. Simultaneously, mechanization in dairy plants created the need for more highly trained dairy technologists than could be provided by graduates of the short course. A series

of initiatives were put in place to provide improved technical training to the dairy foods industry starting in 1960, but the need for a program that could bridge cutting edge research with practical education became increasingly obvious. Norm Olson, Ph.D., a UW-Madison Food Science professor at the time, saw this need and began to develop a concept for a center that could fulfill this role.

### The Walter V. Price Cheese Research Institute (WVPCRI)

In 1976, Dr. Olson formed the Walter V. Price Cheese Research Institute (WVPCRI). The institute operated as a center within the Department of Food Science, studying cheese and conducting basic research. In the beginning, graduate students performed much of the research and worked with Dr. Olson to disseminate the findings to the dairy industry. In 1979, the State of Wisconsin saw the value of WVPCRI's efforts and began allocating enough money to support two full-time researchers and five assistantships. The institute was well received by industry and by 1981 the staff had increased to 3 full-time and one part-time employee. →

While Dr. Olson was excited to see the institute growing, he still felt that Wisconsin needed a research center dedicated to dairy products. While the WVPCRI provided research insights to the industry, it was constrained by a number of factors and could not provide the industry with the amount of hands-on training and technical experience that Dr. Olson knew the industry desired. To develop a center that could provide this type of assistance, Dr. Olson knew that a great deal of funds and outside support would be necessary. As luck would have it, in the early 1980s, the country was looking at developing a mandatory milk marketing order that would allocate a portion of the milk check, 15 cents per hundred weight of milk, to assist in efforts that would increase demand for milk and milk products. In 1983, Congress enacted The Dairy and Tobacco Adjustment Act, which created the National Dairy Promotion and Research Board (NDPRB). A subsequent U.S. Department of Agriculture Order outlined the provisions for operating the national dairy producer checkoff program, which allocated the money to national and state level agencies that were tasked with supporting and promoting the dairy industry. The Secretary of Agriculture appointed the first National Dairy Board members in 1984 and plans were undertaken to establish marketing and research programs to increase the demand for milk and milk products.

### Wisconsin Research and Marketing Initiatives and the Development of a Dairy Research Center

In 1983, Wisconsin dairy farmers also voted to establish a mandatory milk marketing order which created the Wisconsin Milk Marketing Board (WMMB). This meant that for every 100 pounds of milk produced, Wisconsin dairy farmers contributed ten of the 15 cents to WMMB to support promotion, research and education for Wisconsin-produced dairy products while the remaining five cents went to the NDPRB for dairy promotion activities at the national level. Funding for research by WMMB started as grants to individual researchers at UW-Madison.



*Dr. Norm Olson, John Chilsen WI State Senator, Lawrence Weinstein President of the UW Board of Regents cutting a braided rope of mozzarella string cheese at the dedication ceremony for CDR offices.*



*L-R: Will Dahl, CEO (retired) WMMB, Leslie Lamb Dir. Research & Development (retired) WMMB, Norm Olson (retired) CDR Director, Leo Walsh, (retired) Dean Emeritus, CALS-UW Madison, John Lucey, current CDR Director, Len Maurer, Assoc. Dean Emeritus, CALS-UW Madison. Not shown – Neal Jorgenson, Emeritus Dean & Director, CALS-UW Madison.*

Dr. Olson and the WVPCRI began receiving project funding from WMMB soon after its establishment. The relationship was positive, but there were a number of issues in sorting through all of the projects that needed to be funded and determining which would be most helpful for the dairy industry. Dr. Olson saw that his idea for the research center might also help WMMB to support and coordinate more multidisciplinary research programs on campus.



**WISCONSIN MILK  
MARKETING BOARD**

WISCONSIN DAIRY PRODUCERS

In 1985, Dr. Olson decided it was time to discuss the creation of the center with WMMB. He had little support for his idea from other outside sources, but with the help of WVPCRI staff members Mark Johnson, Ph.D. and Scott Bush, Dr. Olson approached WMMB to see if it would be possible to develop a fund for operating a research center on the UW-Madison campus. Dr. Olson met with WMMB CEO Will Dahl and Director of Research and Education Les Lamb to propose that the center be funded by WMMB through the dairy checkoff program with the UW-Madison supporting the administration of the center. While Lamb and Dahl were interested in the concept, they also knew that some farmers were still quite upset about the dairy checkoff program and they knew they would need to develop the center in a way that clearly benefitted farmers. A trust fund was proposed as an initial funding solution. Essentially, farmers would commit a certain amount of money to a trust fund and the interest from the trust fund would be used to fund the operations of the new center. That way the success of the center could be monitored without significant risk to the farmers. Since the WVPCRI was located within the College of Agriculture

and Life Sciences (CALs), Leo Walsh, the CALs Dean at the time, became involved in the discussions. Again, not everyone at CALs felt that the center was a good idea and they knew there would be challenges, but Dr. Olson was successful in convincing his peers of the center's importance.



College of  
**Agricultural and Life Sciences**  
University of Wisconsin-Madison

Dr. Olson knew that to really help grow Wisconsin's dairy industry, the university and WMMB needed to join forces. Dr. Olson continued to show all of those involved that bridging cutting edge research with practical education was the best way to help industry. He wanted to help dairy manufacturers to learn what customers wanted and to develop those niche markets. Dr. Olson also saw the potential for increased technical education and outreach efforts.

After more than a year of meetings and campaigning for the center, WMMB and CALs came to an agreement. In 1986, thanks to the help of more than 41,000 dairy farmers, a \$1.5 million trust fund was set up through WMMB to create and fund the Wisconsin Center for Dairy Research (CDR) as a new center located in CALs. The 10-year irrevocable trust fund provided about \$100,000 in interest per year. This \$100,000 was used by CDR to fund basic administrative expenses. The university then agreed to provide money for the employee positions and contribute \$70,000 for support services. CDR became the mechanism by which WMMB funded dairy research projects on campus. In 1987 NDPRB agreed to provide \$500,000/year for dairy research, projects and programs at CDR. Today, WMMB and the NDPRB, through its agent Dairy Management Inc. (DMI), fund about 67 percent of CDR's operating

budget for programs, or just over \$3 million annually with the remaining 33 percent funded largely by industry.



Just as it is today, CDR was housed in Babcock Hall. It was dedicated in March 1986 and Dr. Olson was appointed as the Center Director. By 1987, CDR hosted its own annual meetings and co-hosted the Cheese Research and Technology conference. Based on this success, the national board became increasingly interested in opening other regional dairy research centers. Through the planning efforts and contract negotiations of the NDPRB and others such as C. A. Ernstrom, Professor Emeritus of Food Science, Utah State University, the NDPRB began to fund five additional dairy foods research centers in the U.S. in May 1987. Today, CDR remains one of six centers in the U.S.

## U.S. Dairy Food Research Centers



- 📍 California Dairy Research Center
- 📍 Western Dairy Center
- 📍 Midwest Dairy Foods Research Center
- 📍 Center for Dairy Research
- 📍 Northeast Dairy Foods Research Center
- 📍 Southeast Dairy Foods Research Center

*Continued on page 12*

## THANK YOU TO ALL OF THE CDR STAFF WHO HAVE HELPED TO MAKE THE CENTER POSSIBLE OVER THE LAST 30 YEARS.

Melinda Adams	Hong Jiang	Jim Path
Margaret Bade	Luis Jimenez-Maroto	Karen Paulus
Donald Barmore	Andy Johnson	William Peterson
Wallace Barrow	Christopher Johnson	Yanchao Ping
Rusty Bishop	Jeremy Johnson	Pat Polowsky
Curtis Blevins	Mark Johnson	Sarah Quinones
David Bogenrief	Daniel Jones	Beth Rettenmund
Amy Bostley	Kerry Kaylegian	Brian Riesterer
Tejashree Bund	Rebecca Kalscheuer	Juan Romero
KJ Burrington	Beth Kaziauskas	Alicia Rothe
Emily Caruso	Seth Keel	Tom Rowe
Carol Chen	Christian Kirk	Steve Rydzewski
J.P. Chen	Elise Lambert	Genevieve Sanders
Bene Coude	Catherine Landers	Carrie Saynisch
Michael Donath	Susan Larson	David Schroeder
Bilal Dosti	Brian Lietzke	Sandra Sekel
David Gaueman	Nathan Leopold	Mary Skalitzky
Joanne Gauthier	Nicholas Lepak	Karen Smith
Brian Gould	Lisa Lokken	Mark Smith
Rani Govindasamy-Lucey	Kyungwha Lim	Marianne Smukowski
Victor Grassman	Kit-Yin Ling	Dean Sommer
Erica Hammes	Yanjie Lu	Jessie Stankey
Orville Harris	Margaret Lubbers	Lessa Stefano
Lorraine Heins	John Lucey	Susan Strang
Jeff Henslin	Cynthia Martinelli	Rebecca Surles
Linda Hewitt	Bekah McBride	Tom Szalkucki
Tim Hogensen	Sharon Meyer	Mary Thompson
William Hoesley	Ray Michaels	Bill Tricomi
Kristen Houck	Sarah Minasian	Dan Turner
Carmen Huston	Joseph Minor	Jackie Utter
Dawn Hyatt	Gina Mode	Jeff VanSickle
Barbara Ingham	Mike Molitor	Emma Watry
Nils Irland	David Montgomery	Debra Wendorf-Boyke
Joey Jaeggi	Kathryn Nelson	Jean West
John Jaeggi	James O'Brien	Brenda Williams
	Norm Olson	Dana Wolle
	Don Otter	Wenhua P. Ye (Pam)
		Matt Zimbric



It’s been said that “nothing liberates our greatness like the desire to help;” and for the staff at the Center for Dairy Research (CDR), that certainly rings true. For more than three decades Center staff have passionately pursued the research, troubleshooting and education initiatives needed to help the U.S. dairy industry to achieve greatness. Whether it was developing a new product, understanding why crystals form in cheese or developing economic support services, CDR’s mission has always been to help the industry and that has been the defining factor in the Center’s success.

Over the last 30 years, Center staff have been honored to contribute to many projects that have impacted the dairy industry and food science community as a whole. Of course each success has been a team effort made possible only through support from dairy farmers, funders WMMB/DMI, manufacturers, industry leaders and more. In honor of these accomplishments, CDR staff would like to highlight a few of the defining moments over the last 30 years and thank industry for their continued support. It has been an honor to serve the industry for the past three decades and Center staff look forward to many more years of service.

### The Culture Revolution

From the very beginning CDR was meant to be a different kind of research center. Though the vision was certainly to have the very best scientists doing the very best work, Center creator Dr. Olson, also wanted to bridge the gap between the lab and the practical needs of the industry. In order to fulfill this goal, Dr. Olson set out to create a center that was modeled after a multi-disciplinary unit. The research program involved faculty from the Department of Food Science, Department of

Dairy Science, Agricultural and Applied Economics, Chemical Engineering, Nutritional Sciences, Biological Systems Engineering and Bacteriology plus the Food Research Institute and the Rheology Research Center. Dr. Olson also made it a point to hire scientists that had cheesemaking and industry experience, as he wanted to find new ways to connect with the industry.

One of the first successful industry connections involved working with culture houses to find more improved cultures for cheesemaking. The project developed when Dr. Olson and his team, which included lead scientist, Dr. Mark Johnson Ph.D. began to hear that cheesemakers were struggling with bitterness in their cheese. Eager to begin doing research that could be applied in industry, Dr. Johnson began experimenting with new cultures including *Lactobacillus helveticus*. Dr. Johnson had heard that the culture created a wonderful flavor in cheese, but he had trouble sourcing the culture since so few people were using it in their cheesemaking at the time. When he finally acquired some, he and the CDR team began experimenting with the culture in Gouda cheese and eventually discovered that not only did the culture help with eliminating bitterness, but it also created a wonderful nutty sweet flavor profile in aged cheese. Dr. Johnson’s applied research and partnership with industry led the way for a wide adoption of this culture in a variety of cheeses.

The research program only grew from there as the Center expanded and early staff such as Johnson, John Jaeggi, Carol Chen, Tom Szalkucki and later staff such as Kristen Houck, Juan Romero, Rani Govindasamy-Lucey, Amy Bostley, Carmen Huston and Bill Tricomi began shaping the Center into what it is today. Rusty Bishop took over

### CDR Staff Over the Years



1 Carol Chen & John Jaeggi 2 Jim Path & Joanne Gauthier 3 Matt Zimbric 4 Norm Olson 5 Bénédicte Coudé 6 Bilal Dosti

as director in 1993 and continued the focus on creating programs to support industry needs. Early projects such as those involving new types of chymosin, research on crystals in cheese, lowfat and pizza cheese and a new generation of Gouda cheese also began to shape the role CDR played in the industry. In fact, as CDR's role in the industry began to expand Dean Sommer was hired to facilitate aid for end users (e.g. pizza companies) a sensory program was started and several assistant coordinators such as Gina Mode were hired to help with cheese research and applications.

As the Center and the Cheese Research and Applications program grew, so did the need for research into additional areas including dairy ingredients, beverages, yogurt and more. KJ Burrington and Karen Smith, Ph.D. were there from the beginning of the Dairy Ingredients Applications group in 1997 thanks to support from the Wisconsin Milk Marketing Board (WMMB) and Dairy Management Inc. (DMI). Smith quickly began working on the processing side, helping companies to develop and test an easy to clean ultrafiltration membrane which is now widely utilized throughout industry. Smith also developed a number of easy to read manuals such as the *Dried Dairy Ingredient Handbook* that detailed the science of processing, helping the area to grow into its own program area, which now includes several staff and a pilot plant managed by Mike Molitor. Meanwhile, Burrington completed some of the very first research into permeate, working with CDR Applications staff and Land O' Lakes to uncover the unique salt replacement attributes of permeate and the buttery qualities it can bring out in baked goods. The group also worked on whey applications, whey protein powders, whey protein snacks and much more. Overall, the program was an early success story for the Center and for the industry.

Around that same time the CDR Safety and Quality program was also launched in an effort to provide more regulatory assistance and safety training for the growing dairy industry. Having worked with Dr. Johnson on an early HACCP pilot project, Marianne Smukowski was hired as the coordinator of the new CDR Safety/Quality program. With years of regulatory experience, Smukowski worked with CDR staff as well as Matt Mathison, Vice President of Company Communications and Technical Services at WMMB to develop the program and define industry needs.

“Over the last 20 years, CDR and WMMB have developed a food safety training model for Wisconsin that is utilized by others looking to recreate the same success in other states. This program was the first of its kind in the nation and has been successful in aiding industry. The return on investment has been huge,” shared Mathison.

Smukowski has continued to develop the program over the years, providing third party audits, aiding companies with recalls and serving as a liaison between companies



1 John Lucey & Bill Wendorff 2 Tom Szalkucki 3 John Jaeggi, Jim Path & Mark Johnson 4 Dean Sommer 5 Mary Thompson 6 Ray Michaels

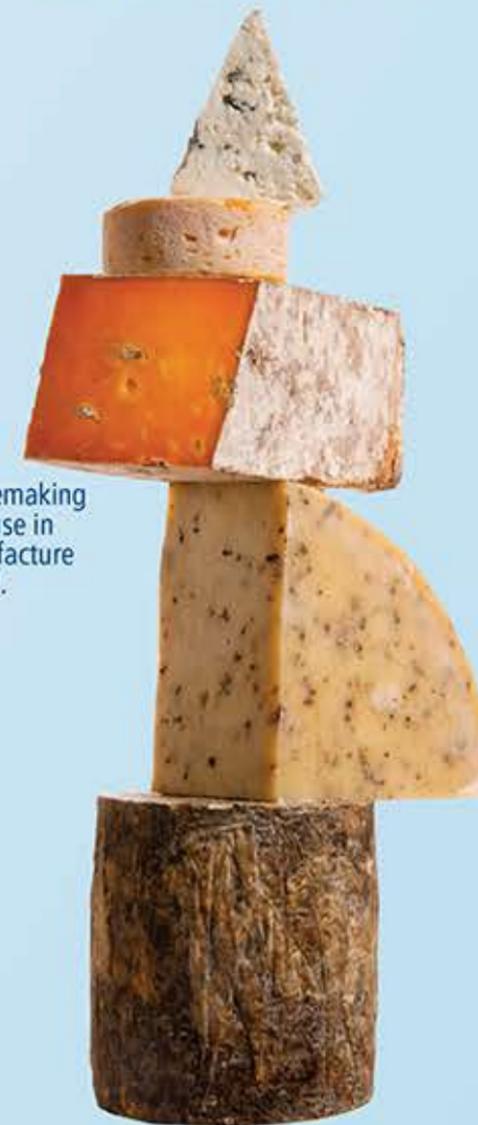
and organizations such as the Department of Agriculture Trade, and Consumer Protection (DATCP) the United States Department of Agriculture (USDA) or Food & Drug Administration (FDA).

Over the years, program areas continued to change and grow, but the goal remained the same, bridge the gap between research and application. Of course, getting all of this research out to industry presented its challenges. CDR needed to develop a way to build communications with the industry and luckily staff had just the solution.

### Industry Insight

Early on Bill Wendorff, Ph.D., a UW-Madison Food Science professor and member of UW-Extension began working with CDR staff to write the *Dairy Alert*, a technical publication for industry that highlighted recent research and answered frequently asked questions. As CDR began to grow, however, it became necessary for the Center to hire communication staff who could help to disseminate information, plan events at the Center and help to bring scientists from around the world to campus to aid the industry in understanding global dairy needs and manufacturing best practices. To facilitate further communication, CDR staff created the *Dairy Pipeline* in 1990. Wendorff became a regular contributor to this publication and helped it to grow into the global publication it has become today, reaching more than 3,000 people in dozens of countries. Editors including Sarah Quinones, Dave Gaeuman, Karen Paulus and →

Over the years CDR has been honored to be a part of many successful research and applications projects. A few are listed here. Thank you to all the companies and/or organizations who made this work possible.



**2016** CDR helps to develop Roelli Cheese - Little Mountain, an Alpine-style cheese that went on to win Best in Show at the 2016 American Cheese Society Competition

**2012** CDR helps develop Red Whey (tart cherry juice and whey protein beverage) collaboratively between CDR, Country Ovens Cherry De-Lite and the UW Athletic Department

**2012** CDR helps develop tera's whey® protein powder

**2012** CDR welcomes its 10,000 short course student

**2010** Mark Johnson awarded the NCI Laureate Award

**2008** CDR publishes its first technical handbook

**2007** CDR helps develop Nasonville Dairy Blue Marble Jack

**2005** CDR begins research work on no-fat Mozzarella for school lunch program; patent resulted from this work

**2004** CDR published paper on methods to qualify changes in the state of calcium during cheese ripening

**2001** CDR develops non-pasta filata pizza cheese (patent issued)

**1999** CDR helps develop Pleasant Ridge Reserve for Uplands Cheese

**1998** Norm Olson awarded the NCI Laureate Award

**1997** First class of the Wisconsin Master Cheesemaker® Program graduates

**1995** WCMA and CDR begin jointly hosting the Wisconsin cheese industry meeting

**1994** CDR and WMMB begins Wisconsin Master Cheesemaker Program® & yearly Artisan short course

**1992** The CDR Specialty Cheese Program begins (previously CDR did projects on specific varieties)

**1990** CDR publishes the first issue of the Dairy Pipeline

**1987** National Dairy Promotion Research Board begins funding CDR (NDPRB National Checkoff)

**1987** CDR develops a Wisconsin-style Havarti cheese

**1985** First computer program is used to assist cheesemakers in understanding milk standardization options and cheese yield

**1984** First annual cheese research and technology conference

**1984** Studies on the use of UF milk for cheesemaking start (earlier work on the use of RO retentates)

**2016** CDR staff grows to 37 with 30 student employees

**2016** Certificate in Dairy Processing (on-line) program begins

**2014** CDR helps Red Barn Family Farms develop Edun and Cūpola cheeses

**2013** Klondike Greek yogurt plant expansion; CDR assists with yogurt development

**2013** CDR is pivotal in the development of Smári Organic Icelandic yogurt

**2012** CDR wins national innovation award (i6); \$1M grant launches the TURBO program

**2011** John Lucey starts as CDR Director

**2007** CDR helps to develop Seymour Ader Käse in 2007, won Best in Class for Blue Veined Cheeses at the 2008 World Championship; this facility becomes one of the largest blue cheese plants in the U.S.

**2003** CDR begins research on new polymeric microfiltration membranes; PTI commercialized membranes in 2005

**2001** CDR developed the make procedure for Juustoleipa cheese

**2000** CDR discovered that permeate had salt reduction properties

**1999** CDR begins studies with cold UF milk to optimize use of on-farm retentates in cheesemaking (worked with TC Jacoby and Membrane System Specialists) work led to widespread use in cheese plants and also led to a manufacturer variance granted by the USDA to manufacture cottage cheese using UF milk. Original work with on-farm UF milk goes back to 1982.

**1997** CDR Safety program begins

**1997** CDR Industry Team launched

**1997** CDR Whey Applications Program begins

**1996** CDR staff grows to 22

**1993** Rusty Bishop starts as CDR Director

**1990** CDR staff grows to 14

**1990** CDR publishes a paper outlining the causes of calcium lactate defect in cheese; first studies at CDR go back to 1984

**1986** CDR is formed with WMMB support; Norm Olson is named the first director; number of employees; 2 full-time

**1985** WMMB staff and UW discuss creation of a dairy research center

**1984** First studies on *Lactobacillus helveticus* culture indicating that it could reduce bitterness and provide great aged cheese flavors

**1976** Walter V. Price Cheese Research Institute formed

## Center for Dairy Research

### Mission

The Wisconsin Center for Dairy Research proudly supports the foremost scientific expertise in dairy research, technical support and education. In partnership with the U.S. dairy industry, our goal is to bring innovative, nutritious and profitable products to the global marketplace.

### Vision

To be the premier scientific dairy research resource by having:

- Expert, dedicated staff
- State of the art facilities
- Relevant cutting edge research
- Unrivaled outreach and education

To turn knowledge and expertise into the dairy industry's success by bridging cutting-edge research with practical education and outreach.



Rusty Bishop, John Lucey, Mark Johnson & Norm Olson



CDR 20th anniversary staff photo, 2006



1 Mark Johnson & Emma Watry 2 Kathy Nelson & KJ Burrington 3 Becky Surlles 4 Jessie Stankey 5 Don Otter & Steve Rydzewski  
6 Becky Kalscheuer 7 Karen Smith 8 John Umhoefer, Rani Govindasamy-Lucey & John Jaeggi 9 Emily Caruso 10 Beth Rettenmund & Jeff Henslin

Bekah McBride also contributed to the publication over the years, ensuring that the bridge between industry and CDR remained strong. Later CDR Communication staff worked with CDR experts like Dr. Bob Bradley on additional educational materials such as the *Better Butter Book*. A website was also developed to house many of these materials.

In addition to the technical publications, Rusty Bishop, who succeeded Olson as the CDR director in 1993, also began to investigate new ways to share the latest CDR research projects with industry while allowing for an open dialogue and industry input. Thus began the CDR Industry Team (CIT), a program that allowed interested industry members to attend research forums to learn about the latest research and provide input on CDR's research topics and overall direction. The program was, and has remained popular as it helped to successfully bridge the gap between basic science and practical application. In fact, today 37 companies attend bi-annual CIT meetings to directly learn about CDR programs research from staff and students and to support the Center in its ongoing efforts.

“Building that team was one of the key things we did as a Center,” said Bishop. “It was about getting the industry directly involved in our activities.”

As the technology conferences became more popular, the Center and the Wisconsin Cheese Makers Association (WCMA) began to discuss even more ways to connect the industry with CDR's research. The Wisconsin Cheese Industry Conference (WCIC) and the International Cheese Technology Expo (ICTE) were born out of these conversations as both organizations were looking to co-host events that could further industry education efforts

and help move CDR research from the benchtop to the industry.

“Our co-hosted meetings with the Center for Dairy Research, initiated in the early 1990s, helped build the bridge between industry and the University,” said current WCMA Executive Director John Umhoefer. “It’s been a great symbiotic relationship. Our annual seminars have given CDR a direct conduit to share research and troubleshooting ideas with cheesemakers, and in turn, cheesemakers have built relationships with CDR staff through this reliable face-to-face contact, year after year. Our collaboration has made WCMA a more effective trade organization and I hope we’ve made CDR a better institution as well.”

### Short Courses

Of course, education has always been the cornerstone of the Center's mission. Whether it is through industry meetings, publications or in the classroom, bridging that gap between the lab and practical science has always been key. So, when Dr. Wendorff, began reinvigorating the dairy manufacturing short courses on the UW campus, Center staff were eager to get involved. As the birthplace of the dairy short course, UW-Madison had educated many of the state's cheesemakers beginning in 1890. After years of success, the program had lost its way due to the intense month long course that was originally required. Working to shorten the course and modernize the material, Wendorff began to see the vigor return and industry members, many of whom had family members in the original program, were thrilled to be able to attend courses at the same institution as their ancestors.

The program began small but quickly grew to include the more than 19 dairy short courses held annually

through CDR and the Department of Food Science. CDR hired Mary Thompson to run the communications and outreach program. Debra Wendorf Boyke later took over this role. In fact, in 2012 the short course program celebrated its 10,000 student since the program's reinvigoration. Of this milestone Wendorff said, "The modern dairy short courses have had many positive impacts but one of the greatest benefits of short courses is that they allow CDR staff to connect with the Wisconsin dairy industry. It is these interactions and connections that will continue to lead to greater outreach and greater success for Wisconsin."

### Specialty Cheese

As the short courses were growing in popularity, industry began to share concerns that specialty cheese imports from Europe were beginning to grow in the marketplace displacing demand for their commodity cheeses. CDR funder WMMB shared in this concern and so it was decided that the Center would bring in experts who could help educate U.S. cheesemakers on specialty cheese. While the Center's original outreach program, Worldwide Information and Technology Exchange Program (WITEP), worked to bring in dairy scientists and educators from around the world it was Jim Path, who joined CDR in the early 1990's who worked to incorporate specialty cheese education efforts into the short course program. In fact, Path crafted his outreach job, eventually being called the Specialty Cheese Coordinator, because as he said, his heart was always in specialty cheese. As the son of a UW-Madison dairy short course graduate, Path knew the power of hands-on education and the unique artistry that was an important part of cheesemaking. So, he set out to create short courses on specialty cheese that would help cheesemakers get that hands-on experience while learning the science and make procedures behind unique cheeses from around the world. Path spent a lot of time abroad working with cheesemakers and scientists



1 Bill Hosley 2 Gene Barmore 3 David Schroeder 4 Joey Jaeggi  
5 Mike Molitor 6 Yanjie Lu

to learn more about their cheese varieties and create relationships with professionals who were willing to share their knowledge with short course participants. As the number of specialty cheese short courses grew, so did the Wisconsin cheese industry. Path and WMMB were both happy to see this correlation and the success of their investment into specialty cheese education.

"The role of CDR has always been to develop scientific information and then help to transfer that to industry through training. In the case of specialty cheese it was this transfer of knowledge and expertise that made the program successful, effective and meaningful," said WMMB's Matt Mathison.



1 Susan Larson 2 Marianne Smukowski 3 Carmen Huston 4 Kerry Kaylegian & Karen Paulus 5 Kristen Houck & Amy Bostley  
6 Tom Szalkucki, Lessa Stefano & Joanne Gauthier 7 Jim Path 8 Hong Jiang 9 Gary Grossen & Rusty Bishop

## Master Cheesemaker

With the success of the specialty cheese program Path decided to pursue the development of a Master Cheesemaker program, something he had observed on his travels through Europe. Working with Mike Dean from UW-Extension and Andrea Neu and Cathy Hart at WMMB, Path and the team at CDR developed what is now known as the Wisconsin Master Cheesemaker® program in 1994. The program, which is the only one of its kind in the U.S., provides industry with an advanced education curriculum that allows Wisconsin cheesemakers to become recognized experts in a cheese of their choice. Members of the program must first be a Wisconsin licensed cheesemaker for at least 10 years. Additionally, participants must go through an intense application process, attend a selection of courses at CDR, participate in a rigorous regulatory program and complete a take home exam that has been said to take more than 50 hours. At the end of the program these talented cheesemakers are then dubbed a Wisconsin Master Cheesemaker and working through WMMB the cheesemakers can use the Master Mark® logo on their products to signify their accomplishments. Each member is also honored at an awards banquet and given a medal and ring or necklace with the Master logo as a way to showcase their efforts.

When Path retired from CDR in 2005 Marianne Smukowski, the CDR Safety and Quality Coordinator, began administering the program with the help of CDR Short Course Coordinator Joanne Gauthier and members of WMMB, including Matt Mathison, who has been particularly proud to see the program grow. “The Wisconsin Master Cheesemaker® program and the Master cheesemakers themselves have continued to demonstrate the craftsmanship and talent that can be expected from Wisconsin cheesemakers,” said Mathison. “This program and all that it stands for is another reason that Wisconsin is a cut above the rest when it comes to cheese.”



Today, the program includes more than 60 Masters and, in 2014 the program celebrated its 20th anniversary. Of that milestone Path said, “I’m so proud to know that the Masters will lead the dairy industry forward. It makes me feel so good to see them succeed and to know that I played a part in that. You know, a while ago, I saw an old creamery torn down and I realized, you can spend your life building bricks and mortar or you can build a legacy that goes on forever. It might not have your name on it, you might not own it, but when you’re a part of a legacy like the Wisconsin Master Cheesemaker® program, you just feel good about it. To see this program succeed is a dream and a gift.”

## Forward

Over the years, CDR staff have been involved in many research areas like cheese flavor chemistry, low fat cheese, milkfat fractionation, economics, food safety, bacterial genetics, cheese functionality and cheese yield. As CDR looks towards the next 30 years, staff hope to continue to build a legacy like the one described by Path. Though brick and mortar, such as the CDR and Babcock Hall expansion project is needed to create a high quality facility that can help industry to accomplish its needs, CDR’s legacy has always been about creating programs that industry can feel good about. A vital component has been the high quality staff that are passionate about growing the dairy industry. For the staff at CDR, particularly those who have been here from the very beginning, it is a dream to see the Center succeed and celebrate more than three decades of partnering with the dairy industry. From the staff at CDR, thank you to all those who made it possible, especially the dairy farmers who recognized early on the value a dairy research center could bring to the state. We look forward to many more years of partnerships and innovation. 🍌



1 Sarah Minasian, Gina Mode, Emma Watry 2 Dana Wolle 3 Bill Tricomi 4 Tim Hogensen 5 Dan Turner 6 Kit Yin 7 Pat Polowsky 8 Matt Mathison & John Lucey 9 Juan Romero 10 Bob Bradley & Luis Jimenez-Maroto 11 John Lucey, John Bodi, Tom Still, Ray Cross, Vic Grassman, John Umhoefer 12 Bekah McBride & Debra Wendorf Boyke 13 John Jaeggi, Bill Wendorff, Mark Johnson



# BREAKING NEW GROUND



For more than 30 years, CDR has been honored to partner with industry to bring innovative, nutritious and profitable products to the global marketplace. These partnerships with dairy farmers, dairy manufacturers and the academic community have been at the core of our success and for that we say thank you. As we look to the future it's clear that those relationships will continue to form our foundation and guiding principle, allowing us to grow over the next 30 years.

In fact, as we begin the next phase here at CDR, we are pleased to be partnering with industry and the University of Wisconsin to update and improve our current facilities. Built in the 1950s, Babcock Hall has served as a wonderful home to CDR for the past three decades but we are thrilled to be modernizing our facility to allow for new pilot plant equipment that more closely matches industry needs. This will include spaces like the dedicated areas for specialty cheese ripening rooms, an additional dryer for dairy ingredients and fermentation equipment for cultured products. We have also added more space for research and training activities. Industry has been the driving force behind this project and without their support, both financially and in terms of technical expertise, this much needed project would not be possible.

As we plan for this new building we are also continuing to look for ways that we can better serve the industry. Our goal has always been to turn knowledge and expertise into the dairy industry's success by bridging cutting edge research with practical education and outreach, which is why we are continuing to explore new training and outreach programs. In particular, we are exploring online training solutions that complement our current short courses while allowing us to reach more of the industry.

Additionally, we will continue to innovate when it comes to our program areas, adding or adjusting as new technologies or products grow. In particular, one area that has grown steadily over the last two years has been our entrepreneurial support through the CDR TURBO program. This program area has allowed CDR to provide Business Accelerator assistance, workforce development insight, technology transfer and more to companies across Wisconsin and the United States. In fact, since April 2014 the program has worked with 58 companies in need of business support.

While the future holds many new and exciting opportunities for the dairy industry, CDR remains committed to bringing the best applied dairy research to the industry as this promotes ongoing innovation and provides a supply of trained dairy graduate students. Thanks to the talented staff whose passion for helping the industry is second to none, CDR will continue to pursue innovation, using our latest research findings to reinvigorate our training efforts and enhance our troubleshooting solutions. We look forward to continuing our relationship with the industry, the Wisconsin Milk Marketing Board (WMMB), Dairy Management, Inc. (DMI) and dairy farmers, who have continued to support this research center and our mission. We are proud to play a role in such an exciting and growing industry and we look forward to a bright future. 🍌

Sincerely,

John Lucey, CDR Director

## Please join CDR in welcoming Andy & David

### Andy Johnson

*Outreach Specialist / Assistant Coordinator, Cheese Industry & Applications*

As a licensed cheesemaker with over a decade of industry experience, Andy Johnson brings a great deal of knowledge and expertise to CDR clients looking to develop and refine their products. Though his focus is on specialty cheese with an emphasis on sheep and goat, Andy is involved in nearly every aspect of the CDR Cheese Applications program. From cheese trials and plant visits to short courses and presentations, Andy's education in business as well as his previous experience as a cheesemaker in three states helps him to assist companies as they navigate all aspects of the industry. Andy is honored to aid U.S. cheesemakers and is passionate about his desire to help them to succeed and make an impact on the industry. ➡



**ADDRESS SERVICE REQUESTED**

## Dairy Pipeline

Center for Dairy Research  
1605 Linden Drive  
Madison, WI 53706-1565



☎ 608-262-5970    📠 fax: 608-262-1578

We welcome your questions and comments.

**Send to: Bekah McBride, Editor**

✉ [rmcbride@cdr.wisc.edu](mailto:rmcbride@cdr.wisc.edu)    📠 608-262-8015

**Technical Reviewers:** Debra Wendorf Boyke, Mark Johnson, John Lucey & Tom Szalkucki

### Newsletter Design

Tim Hogensen

Photos on pages 4, 5, 8, 9 & 10 CDR photo archives.  
Page 4 CDR directors photo & #4 photo on page 9  
© Mike Roemer Photography Inc.. Page 7 cheese photo  
© WMMB

The Dairy Pipeline is published by the Center for Dairy Research and funded by the Wisconsin Milk Marketing Board.

Follow CDR



[www.cdr.wisc.edu](http://www.cdr.wisc.edu)

### David Montgomery

*Outreach Specialist / Assistant Coordinator, Cheese Industry & Applications*

With experience in research and development and a passion for the chemistry of cheese, David brings a wide range of skills to those looking to improve the functionality of their natural or processed cheese. David's background in Food Science and his previous experience working with cheese sauces, cream cheese, processed cheese and various styles of natural cheese allow him to aid companies in pinpointing functionality issues. Additionally, David is able to provide industry education in these areas while assisting the Cheese Applications group in everything from cheesemaking to plant visits. David remains passionate about experimenting with cheese and enjoys helping companies to create outstanding products. 🍷



Continued from page 3

#### References

**Price, Walter V. 1976.** *The Department of Food Science, University of Wisconsin. Its Origin, Development and Activities.* Steenbock Library, UW-Madison. TX 341 P75

**Olson, Norman F. 2013.** *Compilations from UW-Madison Course Catalogs.* Faculty estimates were made by Dr. Norm Olson.

**Wendorff, W. L. and Price, W.V. The Dairy School – A Century of Service to the Industry (1890-1990).** Department of Food Science, College of Agricultural and Life Sciences, Cooperative Extension and University of Wisconsin Extension.

### Short Course Calendar:

- 📅 Cheese Technology, March 13–17
- 📅 World of Cheese, April 23–27

**For detailed information on each CDR short course: [www.cdr.wisc.edu/shortcourses](http://www.cdr.wisc.edu/shortcourses)**



Sign up for the electronic version of the Pipeline at [subscribe\\_pipeline@cdr.wisc.edu](mailto:subscribe_pipeline@cdr.wisc.edu)



Sign up for a hard copy of the Pipeline Newsletter  
Phone, fax or e-mail your mailing information.  
Change of address? Please help us keep our mailing list current!