

# WISCONSIN CENTER FOR DAIRY RESEARCH

University of Wisconsin–Madison

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



## OVERVIEW

The Wisconsin Center for Dairy Research (CDR) is located within a licensed, operating dairy plant on the University of Wisconsin–Madison campus and is one of the premier dairy research centers in the United States. Building on Wisconsin’s tradition as the “Dairy State,” the center explores functional, flavor and physical properties of cheese/cheese products and other milk components used as ingredients and as finished products. CDR researches cheese make and dairy protein processing/separation procedures, use of dairy ingredients in foods, and technologies for product safety and quality. More than 30 researchers and scientists are involved in conducting basic and applied dairy research. The facilities (including a pilot plant) and equipment are extensive, allowing the center to not only create new products, uses and processes, but to also meet the unique needs of the food industry.

## RESEARCH FOCUS

- Explore and understand the functional properties of cheese and cheese products
- Recovery and/or modification of dairy ingredients, especially dairy proteins, to enhance value in food and nonfood uses
- Dairy food safety and quality systems
- Assistance to dairy manufacturers with product marketing, risk management and pricing issues

## CHEESE

The University of Wisconsin-Madison has a long and proud history of cheese research and outreach. The CDR extends the art and science of cheesemaking into the realm of specialty cheese innovation,

as well as cheese as an ingredient. Its licensed cheesemakers/scientists provide industry with training programs, research facilities, cheesemaking protocols for specific end use, and leading-edge technologies for adjusting the texture, taste and/or functionality of cheese in food applications.

The CDR cheesemaking pilot plant is located within the University of Wisconsin–Madison Dairy Plant, an operational dairy. This setting allows for flexibility in all aspects of the cheesemaking process. The facility is designed for manufacture of any retail cheese variety (fresh, cream, cottage, hard, soft, semisoft, surface-ripened, molded and eyed), process cheese and cheese food, plus cold pack.

CDR cheese applications staff, through consultation, pilot plant trials, applications laboratory evaluation, and on-site trials and visits, work in a confidential manner with all aspects of the dairy industry. From dairy producers and manufacturers to ingredients suppliers and equipment manufacturers, applications staff work with the entire cheese distribution system, including food-service, retail, wholesale, brokers, converters, warehouses, executive chefs and quick-service restaurants—wherever cheese is used in food application systems.

Through consultation, pilot plant trials, applications laboratory evaluation, and on-site trials and visits, staff members also provide direct technical support for the end use of natural, process and cold pack cheeses, as well as cheese in food applications.

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## DAIRY PROTEIN/INGREDIENTS

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CDR has an extensive program focusing on dairy ingredients. Working on a confidential basis, the program strives to meet the needs of regional and national dairy ingredient processors and food manufacturers. These needs include process, product and applications support. The dairy ingredient program and applications lab offer technical support for whey, buttermilk, nonfat dry milk, permeate, whey protein concentrate (WPC), whey protein isolate (WPI), individual whey proteins, milk protein concentrates and isolates, milk protein fractions and native whey protein. Services include information, training, seminars, process development, process troubleshooting, ingredient functionality testing and prototype development. Application areas of expertise are beverages, baked products, confections, dairy products, energy bars and prepared foods.

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## ANALYTICAL SERVICES

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Analytical services are offered to support projects carried out at the Wisconsin Center for Dairy Research. The analytical support group provides comprehensive chemical and microbiological testing services and follows EURACHEM-CITAC Guide CG-2 as QA guideline of nonroutine and R&D analysis of samples. Tests performed include crude protein, casein, true protein, milkfat, total solids and mineral content by reference methods. Enzymatic determination of lactose and galactose, protein profiles of milk and milk products by capillary electrophoresis, and cheese proteolysis are determined routinely. The CDR has capabilities to determine particle size analysis and fatty acid composition by gas chromatography and the oxidative stability of oils and fats. Rheological tests performed include texture profiles, cheese meltability and functional properties of milk products.

Microbiological dairy food safety and quality tests are routinely determined, including tests for coliforms, standard plate count, plus yeast and mold. Shelf life and microbial challenge studies are also performed.

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## SAFETY/QUALITY APPLICATIONS

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Providing an active approach to safety and quality, the CDR staff performs audits of dairy facilities, solves problems for dairy plants and reviews dairy facilities' good manufacturing practice (GMP) programs. CDR staff works with facility personnel to improve their GMP program and establish or modify an HACCP program. Staff members also interpret government regulations related to specific dairy products and dairy facilities and provide technical expertise in HACCP implementation and compliance with the Committee for the Assurance of Wisconsin Dairy Product Safety requirements.

In addition, cheese and dairy ingredients produced at CDR are monitored for microbial safety by the CDR Dairy Food Safety and Quality Applications Program.

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## DAIRY MARKETING AND ECONOMICS

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This program provides support for cheese and dairy ingredients through process economics and plant applications, benchmarking production characteristic profiles, identifying strategic management characteristics, performing plant cost/benefit analysis of HACCP adoption, developing alternative uses for dairy-based ingredients, and using software for standardization and cheese yield calculations. For more information on this program, visit our Web site at <http://future.aae.wisc.edu>.

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## SENSORY ANALYSIS

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This area designs, conducts and summarizes sensory analysis of cheese and dairy ingredients to meet the customers' needs. Evaluations include flavor, body/texture and appearance profiles, as well as cheese functionality for shredding/slicing and cooking applications. Panels conducted range from trained to focus group, from descriptive to consumer.

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## FACILITIES AND EQUIPMENT

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The CDR pilot plant facilities meet the needs of the dairy and food processing industry by offering access to smaller-scale equipment. The small-vat new product development capability in the cheese pilot plant helps evaluate new cheesemaking processes. The dairy ingredient pilot plant has the capability to perform milk and whey processing of all types to produce beverages, yogurt, ice cream, sauces, spreads, dips and salad dressings. In addition, the applications lab at CDR has equipment to test the functionality of cheese as an ingredient, including a full line of foodservice pizza ovens. CDR can also evaluate the functionality of dairy ingredients and formulate dairy ingredients into baked products and confections. The chemical and microbiological laboratories extend more than 5,000 sq. ft. and offer some unique testing capabilities.

## FACILITIES AND EQUIPMENT

### WISCONSIN CENTER FOR DAIRY RESEARCH/UW-MADISON PILOT PLANT EQUIPMENT

**CONTACT: THOMAS SZALKUCKI**  
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Wisconsin Center for Dairy Research  
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**EQUIPMENT:** Full cheesemaking manufacturing line located in a state-licensed, state-inspected, operating dairy manufacturing facility. Natural cheese manufacturing line includes multiple raw storage tanks, separator, homogenizer, HTST, and various membranes (RO, UF, MF) for full milk standardization based on any desired ratios or incorporation of any ingredient before pasteurization of cheese milk. Capabilities to manufacture any style and variety of cheeses.

- 30-gallon bulk starter preparation tank
- pH meters with computer hookup to continuously monitor pH reading in 4 vats or redox potential in 2 vats over the course of manufacture
- 4 Stoelting 600-lb. vats with variable-speed agitators and ¼-in., ⅜-in. and ½-in. knives
- 1 Kusel 5,400-lb. cheese vat
- 2 Kusel 600-lb. Double-O cheese vats
- 4 small 5-gallon capacity mini-cheese vats with automatic agitation with continuous pH monitoring
- Supreme steel fabricating cooker/stretcher (mixer/molder) Model 640 mixing machine; includes ends for string cheese, 5-lb. loaves with capability for 20-lb. block
- Stoelting pre-press with 4 separate pressing chambers (for pressing of eyed cheeses)
- EBR curd mill for cheddared slabs
- Miller horizontal cheese press with 2 air rams
- Kusel A-frame vertical cheese press
- DR Tech Carousel Cheese Vacuum Press for blocks and horns
- Stainless steel cheese forms (Wilson 10-, 20- and 40-lb. block, perforated Brick/Muenster hoops, 5-lb. round Muenster hoops)
- Plastic cheese forms of various sizes and shapes, including 10-lb. wheels (both Crellin and Fromagex), 5-lb. loaves, smaller sizes for 1-lb. Edam balls, Camembert, Ricotta and Panela baskets, etc.
- Stacked fiberglass circulating brine system
- Hot Pack Environmental Chamber Model 317532 for ripening mold and surface-ripened cheeses; off-site ripening also available upon request
- Warm room capabilities for eyed cheese storage
- Various cold storage capabilities with variety of temperature ranges for cheese ripening

**EQUIPMENT:** Full cream cheese manufacturing line. Cream cheese manufacturing line includes items listed below, as well as equipment listed under other categories. Processing lines include cheese vats, pumping line to collect whey and cream cheese, holding vessel, through packaging.

- Sharples Penwalt Model DS2 cream cheese separator
- APV Gaulin homogenizer Model M3, 2-stage minimum, 2 gallons of product
- Scherping Systems PT 30G 30-gal.-capacity swept-surface tank with heating/cooling capability

Cold pack and processed cheese manufacturing line. Cold pack and processed cheese manufacturing line includes items listed below, as well as equipment listed under other categories. Processing lines include mixing/cooking vessels, homogenization and blending. All direct steam comes from culinary steam source.

- Biro cheese grinder, Model 922, includes various plate sizes
- Stephan cold pack cheese blender, 10-lb. capacity
- Stephan high-speed cutter, Model UMC 5, 5-lb. capacity, direct and indirect steam with vacuum
- Pick Heater for jet cooking sauces
- Blendtech twin-screw process cheese cooker, Model CC 0025, 20-lb. capacity, direct and indirect steam with vacuum
- Gerstenberg Schröder scraped surface heat exchanger (SSHE), Model VP 90/50
- Stephan vertical cutter/mixer, Model 17 91, 50-lb. capacity, indirect steam only
- Gerstenberg Schröder emulsifying machine for water/oil emulsions
- Gerstenberg Schröder mixing and holding tanks

Other various equipment used in the processing, converting and packaging of cheese:

- Winning Designs stainless steel butter churn, 1-gallon capacity
- Lincoln Impinger oven, Model 1130, for baking of Juustoleipä
- Urschel cheese shredder, Model CC-D
- Multivac vacuum sealer with gas flush capabilities, Model C400
- Vemag V 500 robot cheese grinder and vacuum machine with guillotine cutoff
- Variety of portable holding tanks

\* Please note: Additional equipment may be obtained by the CDR on a project-specific basis.

**DAIRY  
INGREDIENT  
PROCESSING  
EQUIPMENT:**

- Three spiral-wound UF- or MF-compatible systems that contain multiple vessels
- One system using up to six 3.8-in.-dia. vessels holding two elements ea.
- One system using up to two 4.3-in.-dia. vessels holding two elements ea.
- One system using one or two 8.0-in.-dia. vessels holding one element ea.
- NF or RO operated with one 3.8-in.-dia. vessel, one or two elements long
- Ceramic microfiltration system (not UF)
- One single-stage spiral-wound membrane filter system (UF/MF)
- Ceramic membrane system (UF/MF)
- Pilot-scale plate evaporator capable of 200-400 lbs. water evaporation/hr.
- Pilot-scale spray dryer capable of 40-60 lbs. water evaporation/hr.
- Stephan mixer with 40-liter capability
- Homogenizer (two-stage)
- Two pilot-scale milkfat separators
- Small HTST/UHT pasteurizer
- Ion exchange chromatography system - 10L
- Tanks ranging from 5 to 100 gal.
- Gerstenberg Schröder scraped surface heat exchanger (SSHE)
- Gerstenberg Schröder emulsifying machine
- Swept-surface jacketed tank with heating and cooling (100 gal.)

**ADDITIONAL  
PROCESSING  
EQUIPMENT:**

- Ice cream: Emery Thompson, Taylor and Coldelite batch
- Taylor soft serve
- Ice cream: Tetra Pak continuous

**SUPPORTING ANALYTICAL EQUIPMENT**

<b>Moisture Analyzers</b>	Total solids, moisture
<b>Forced Air Ovens</b>	Total solids, moisture, total solids (nonfat)
<b>pH/mV Meters</b>	pH
<b>Balances (capable of reading to 1 mg)</b>	Fat, nitrogen, lactose, galactose, lactates, protein composition, acid degree value, titratable acidity, whey (undenatured) protein number, coliforms, yeast and mold, starter organisms, Lactococcus starter, non-starter lactic acid bacteria, Lactobacillus (hetero), standard plate count, ash, mineral analysis, triglycerides
<b>Immersion Sonicators</b>	Solutions, suspensions, degasification
<b>Centrifuges (various sizes to 25,000 rpm)</b>	Soluble nitrogen, milkfat separation

## SUPPORTING ANALYTICAL EQUIPMENT

<b>Centrifuge Rotors (fixed angle and swing bucket)</b>	Soluble nitrogen, milkfat separation
<b>Microcentrifuges</b>	Protein composition
<b>Microwave Mineralization Oven</b>	Mineral analysis
<b>Viscometer</b>	Viscosity
<b>Electrophoresis Tanks</b>	Protein composition (10 - 250 kD), protein composition (casein variants)
<b>Electrophoresis Power Supplies</b>	Protein composition (10 - 250 kD)
<b>Capillary Electrophoresis</b>	Protein composition (10 - 250 kD)
<b>Block Digesters (6 and 20 Place)</b>	Nitrogen content
<b>Automated Nitrogen Analyzer with Autosampler</b>	Nitrogen content
<b>Furnaces</b>	Ashing
<b>Cryoscope</b>	Freezing point depression
<b>ALP Analyzer</b>	Alkaline phosphatase
<b>Melt Meter</b>	Melt test
<b>-80°C Freezers</b>	Sample preservation, starter culture storage
<b>Low-Temperature Incubators</b>	Various microbiological tests
<b>Refrigerated Circulating Water Baths</b>	Sample preparation
<b>Rotary Evaporators (1 liter)</b>	Solvent evaporation
<b>Soxhlet Extractors (100 ml)</b>	Fat extractions
<b>Sample Homogenizers</b>	Sample preparation

## SUPPORTING ANALYTICAL EQUIPMENT

<b>Particle Size Analyzer (20 -2000 um) with Autosampler</b>	Particle size determination
<b>Inductively Coupled Plasma-Axial Optical Emission Spectroscopy with Autosampler</b>	Mineral analysis
<b>Gas Chromatograph-Flame Ionization Detectors with Autosampler</b>	Fatty acid composition, triglycerides, fatty acid sn- triglyceride positional analysis
<b>High Performance Liquid Chromatograph with Autosampler</b>	Phospholipids, carbohydrates
<b>Evaporative Light Scattering Detector</b>	Phospholipids, carbohydrates, triglycerides
<b>Drop Point Analyzer</b>	Melt point
<b>Walk-in Coolers (4°C)</b>	Sample preservation
<b>Commercial Deli-Style Slicers</b>	Melt test
<b>Vacuum Sealers</b>	Sample preservation
<b>Oxidative Stability Instrument</b>	Accelerated oxidative stability
<b>Chloride Analyzers</b>	Salt determination
<b>Shaker Water Bath</b>	Lactose

## COURSES, SYMPOSIA AND EVENTS

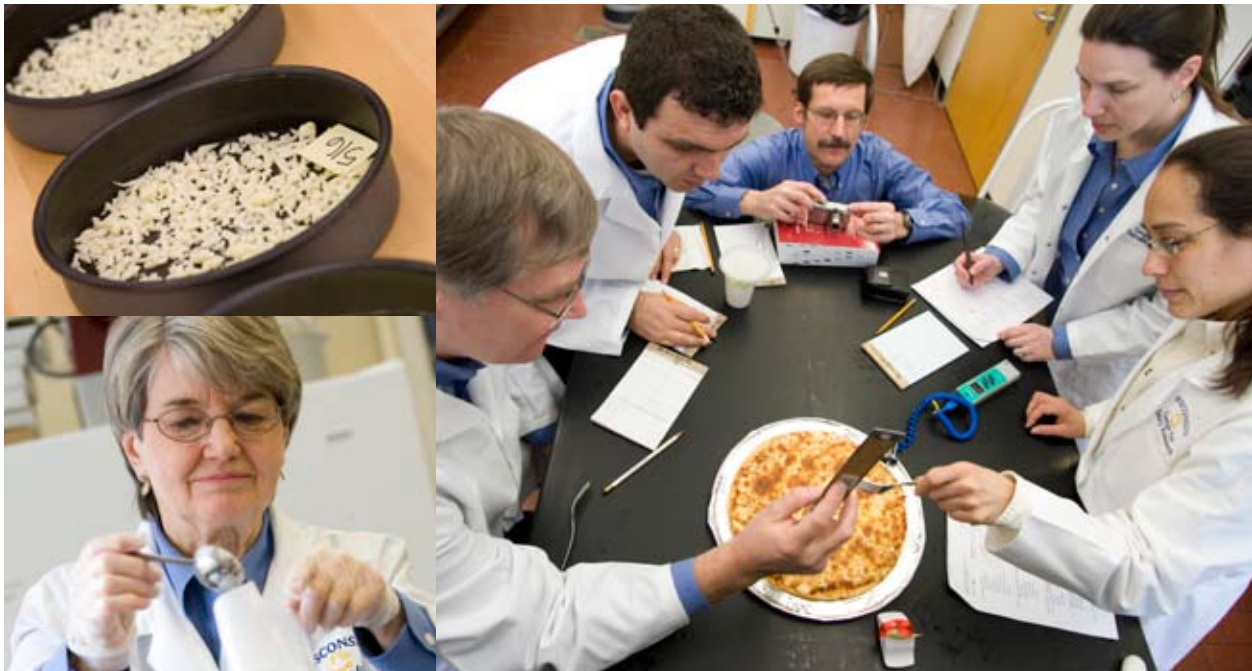
- Applied Dairy Chemistry Short Course
- Cleaning and Sanitation Workshop
- Cheese Grading and Evaluation Short Course (2 times per year)
- Cheese Technology Short Course (2 times per year)
- Cultured Dairy Products Short Course (Odd-numbered years)
- Dairy and Food Plant Wastewater Short Course
- Dairy HACCP Workshop
- Dairy Ingredients Utilization Short Course
- Ice Cream Makers Short Course
- Dairy Ingredient Manufacturing Short Course
- Master Cheesemaker Short Course (Focus on specific trends and technologies in the manufacture of various cheeses)

## COURSES, SYMPOSIA AND EVENTS

- Milk Pasteurization and Process Control School (2 times per year)
- Process Cheese Short Course
- World of Cheese—Pasture to Plate Short Course
- Custom company training programs for industry
- CDR Industry Team Research Forum
- International Cheese Technology Exposition
- Wisconsin Cheese Industry Conference
- Wisconsin Dairy Products Association Dairy Symposium

## COMMUNICATIONS AND OTHER RESOURCES

- *The Dairy Pipeline* technical newsletter (published quarterly)
- Technical reviews
  - Dried Dairy Ingredients
  - Dairy Proteins
  - Whey Processing—Bleaching
- Fact sheets
  - Cracker and Cheese Pairing Guide
  - Distribution of Milk Components Between Cheese & Whey
  - Membranes 101
  - Membrane Configurations
  - Quick Guide to Choosing the Best Type of Whey
  - Relative Milk Component Sizes in Comparison with Membrane Pore Size Ranges
  - Use of Membranes for Standardizing Milk for Cheese Production
- CDR Annual Report of Research Projects



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**RESEARCHERS AND STAFF**

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**RUSTY BISHOP, PH.D.**

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Director, Wisconsin CDR  
Professor of Food Science

[jrbishop@cdr.wisc.edu](mailto:jrbishop@cdr.wisc.edu)

Cheese and dairy product standards; dairy microbiological quality control; rapid methods for quality assessment; HACCP system; sanitizer efficacy on biofilms; animal drug residue detection in milk.

**ROBERT BRADLEY JR., PH.D.**

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Professor Emeritus of Food Science  
UW-Madison

[rbradley@wisc.edu](mailto:rbradley@wisc.edu)

Processing and utilization of dairy foods, analytical methods of analysis; food product development; ultrafiltration and reverse osmosis, frozen dessert technology, analytical methods of food analysis and dairy foods technology; stabilization and emulsification of food systems, environmental toxicants in food products; independent third-party 3A mandated equipment cleanliness evaluations.

**KIMBERLEE (K.J.) BURRINGTON**

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Coordinator, Dairy Ingredients Applications Program  
Wisconsin CDR

[burrington@cdr.wisc.edu](mailto:burrington@cdr.wisc.edu)

Coordinates dairy ingredients program targeting industry needs in the areas of whey processing/component separation and utilization of these components in a variety of food and beverage products.

**CAROL CHEN**

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Researcher, Sensory Analysis  
Wisconsin CDR

[cchen@cdr.wisc.edu](mailto:cchen@cdr.wisc.edu)

Designs, conducts and summarizes sensory analysis of cheese; evaluations include flavor, body/texture and appearance profiles, as well as cheese functionality for shredding/slicing and cooking applications; types of panels conducted range from focus group to descriptive to consumer.

**ROBIN CONNELLY, PH.D.**

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Assistant Professor, Food Science  
(joint with Biological Systems Engineering)  
UW-Madison

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Food engineering/processing; FEM numerical simulation; mixing; food rheology; dough structure and rheology.

**SRINIVASAN DAMODARAN, PH.D.**

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Winters-Bascom Professor, Food Chemistry  
UW-Madison

[sdamodar@wisc.edu](mailto:sdamodar@wisc.edu)

Enzyme chemistry and technology; food chemistry; protein chemistry and technology.

**BILAL DOSTI, PH.D.**

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Research Specialist  
Wisconsin CDR

[bdosti@cdr.wisc.edu](mailto:bdosti@cdr.wisc.edu)

Coordinates cheesemaking trials involving a wide variety of natural and process cheeses; provides information and technical support for brokers, end-users, ingredients suppliers, manufacturers and others in the industry.

**MARK ETZEL, PH.D.**

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Professor, Food Science (joint with Chemical Engineering)  
UW-Madison

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Food and bioprocess engineering; mass transfer and bioseparation processes; membrane bioseparations; protein purification; drying of foods and microorganisms.

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**RESEARCHERS AND STAFF**

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**KATHY GLASS, PH.D.**

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Assistant Scientist, Microbial Sciences  
UW-Madison

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Process cheese safety; shelf-life studies with food-borne pathogens; evaluation of product safety for new formulations.

**BRIAN W. GOULD, PH.D.**

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Marketing and Economics Coordinator  
Wisconsin CDR  
Associate Professor, Agriculture and Applied Economics  
UW-Madison

[bwgould@wisc.edu](mailto:bwgould@wisc.edu)

Develops decision-making tools for the dairy industry in the areas of process economics, plant applications, price risk management and demand for dairy products.

**RANI GOVINDASAMY-LUCEY, PH.D.**

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Senior Scientist  
Wisconsin CDR

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Evaluation of texture and rheological properties of cheese; standardization approaches for cheesemaking, including cheese yield determination; design of cheese projects/trials; determination of the coagulation properties of cheese milk; membrane processing for cheesemaking; cream cheese properties; buttermilk as an ingredient; low-fat cheese.

**SUNDARAM GUNASEKARAN, PH.D.**

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Professor, Biological Systems Engineering  
(joint with Food Science)  
UW-Madison

[guna@wisc.edu](mailto:guna@wisc.edu)

Determining physical properties and quality factors of food materials and design of sensors and instrumentation for quality evaluation of food materials nondestructively; rheological and transport properties, structure-function relationships; value-added food and nonfood processes of biomaterials.

**RICHARD HARTEL, PH.D.**

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Professor, Food Science (joint with Biological Systems Engineering)  
UW-Madison

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Food engineering/processing, separations, crystallization/particulate processes, structure-function relations.

**KRISTEN HOUCK**

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Research Specialist  
Wisconsin CDR

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Coordinator of microbiological services.

**BARBARA INGHAM, PH.D.**

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Associate Professor, Food Science  
UW-Madison

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Analytical methods for food analysis; microbial quality and safety of foods; HACCP, food quality and food safety.

**STEVEN INGHAM, PH.D.**

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Professor, Food Safety Extension Specialist  
UW-Madison

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Food microbiology; evaluating efficacy of intervention strategies against pathogenic bacteria in foods and beverages; HACCP critical limit validation.

**JOHN JAEGGI**

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Cheese Industry and Applications Coordinator  
Wisconsin CDR

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Coordinates cheesemaking trials; serves as an industry information resource, provides technical support for specialty cheesemakers.

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**RESEARCHERS AND STAFF**

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**MARK JOHNSON, PH.D.**

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Senior Scientist  
Wisconsin CDR

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Coordinates CDR's strategic and applied cheese research program; cheese technology; manufacturing procedures and effects on quality; technology and microbiology of reduced-fat cheeses; enhanced ripening of cheese using lactobacilli; and cheese defects.

**JOHN LUCEY, PH.D.**

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Associate Professor, Food Science  
UW-Madison

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Dairy chemistry/technology; physicochemical properties of dairy products; cheese technology; rheological properties of dairy products; milk proteins; yogurt science and technology.

**GINA MODE**

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Assistant Coordinator, Cheese Industry & Applications Program  
Wisconsin CDR

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Coordinates cheesemaking trials involving a wide variety of natural and process cheeses; provides information and technical support for brokers, end-users, ingredients suppliers, manufacturers and others in the industry.

**MIKE MOLITOR**

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Pilot Plant Technical Support  
Wisconsin CDR

[molitor@cdr.wisc.edu](mailto:molitor@cdr.wisc.edu)

Coordinates the center's pilot plant use for filtration, evaporation and spray drying projects; serves as department resource for equipment design and maintenance; supports processing of dairy products, including yield and mass balance.

**KATHY NELSON**

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Researcher, Applications Specialist  
Wisconsin CDR

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Coordinates applications lab activities; provides formulation expertise for dairy ingredient and cheese programs.

**JOHN NORBACK, PH.D.**

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Professor, Food Science  
UW-Madison

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Food systems management, optimization of food processes, integrating technological information on food handling and processing with managerial decision making.

**KIRK PARKIN, PH.D.**

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Professor, Food Science  
UW-Madison

[klparkin@wisc.edu](mailto:klparkin@wisc.edu)

Food chemistry and biochemistry, particularly enzymology and bioactive phytochemicals and nutraceuticals; identification, characterization and enrichment of health-promoting, bioactive compounds in foods; characterization of enzymes in foods and as processing aides.

**SCOTT RANKIN, PH.D.**

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Associate Professor, Food Science  
UW-Madison

[sarankin@wisc.edu](mailto:sarankin@wisc.edu)

Characterization primarily of dairy food flavor with sensory and instrumental techniques; programs and short courses in support of the dairy foods processing industry.

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**RESEARCHERS AND STAFF**

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**JUAN ROMERO**

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Analytical Services Coordinator  
Wisconsin CDR

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Coordinates analytical activities for the CDR, including comprehensive chemical, microbiological, sensory and rheological testing services.

**PAM RUEGG, PH.D.**

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Associate Professor, Dairy Science  
UW-Madison

[plruegg@wisc.edu](mailto:plruegg@wisc.edu)

Milk quality specialist; on-farm implementation of best management practices to improve milk quality and safety; research interests focused on the application of epidemiologic techniques to critical issues related to milk quality and safety; influence of cow and farm hygiene on milk safety and quality.

**KAREN SMITH, PH.D.**

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Dairy Processing Technologist  
Wisconsin CDR

[smith@cdr.wisc.edu](mailto:smith@cdr.wisc.edu)

Specializes in process development, scaleup and troubleshooting; conducts research in milk/whey separation, concentration and drying; develops materials for industry education.

**MARIANNE SMUKOWSKI**

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Safety and Quality Coordinator  
Wisconsin CDR

[msmuk@cdr.wisc.edu](mailto:msmuk@cdr.wisc.edu)

Serves as technical advisor to the dairy industry for safety/quality programs, HACCP implementation and dairy facility audits; facilitates industry/regulatory interactions; and is technical coordinator for the Wisconsin Master Cheesemaker® Program.

**DEAN SOMMER**

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Cheese and Food Technologist  
Wisconsin CDR

[dsommer@cdr.wisc.edu](mailto:dsommer@cdr.wisc.edu)

Serves as a resource for cheese manufacturers and end-users interested in expanding the use of cheese, particularly as an ingredient.

**VERONIKA SOMOZA, PH.D.**

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Associate Professor, Food Science  
UW-Madison

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Identification and characterization of bioactive compounds in complex food matrices by using various analytical techniques, as well as cell culture models and human intervention trials.

**JAMES STEELE, PH.D.**

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Professor, Food Science  
UW-Madison

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Dairy microbiology; genetics and physiology of lactic acid bacteria; cheese flavor; probiotics.

**TOM SZALKUCKI**

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Assistant Director  
Wisconsin CDR

[tszal@cdr.wisc.edu](mailto:tszal@cdr.wisc.edu)

Serves as assistant to the director with specific additional duties related to projects, contracts, reports, technical information and CDR physical facilities.

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**RESEARCHERS AND STAFF**

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**DEBRA WENDORF BOYKE**

Communications Coordinator  
Wisconsin CDR

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Coordinates all internal and external communication activities of the center.

**DANA WOLLE, PH.D.**

Research Specialist  
Wisconsin CDR

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Supports applied and basic research and development projects in both the dairy ingredients and cheese utilization group.

**WILLIAM WENDORFF, PH.D.**

Professor, Food Science  
Extension Dairy Manufacturing Specialist  
UW-Madison

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Quality and environmental concerns of the dairy industry; sheep milk processing.

