

Dairy Dispatch – Summer 2000

Marschall Cheese Seminar Sept. 13-14; Golf and cheese workshop events Sept. 12

For the second year in a row, the dairy-rich state of California will host the Marschall Cheese Seminar September 13 and 14 in the Central Valley city of Visalia. Traditionally held in Wisconsin, the 37-year-old institution provides presentations, workshops and trade show exhibitions targeting the domestic cheese market.

This year's Marschall Cheese Seminar, to be held at the convention center in Visalia, located approximately a one-hour drive south of Fresno and three and-a-half hours north of Los Angeles, is shaping up to be a showdown of sorts. Pitting taste bud against taste bud, seminar sponsors Rhodia Inc. and the California Dairy Research Foundation (CDRF) are looking for the best cheese grader to become this year's "Champion Cheese Judge."

The competition, to be held during the first day of the two-day event, is free to all attendees and exhibitors. Competitors will match their cheese grading skills with a trained panel of experts.

"This is a terrific opportunity for cheese industry personnel to see how their grading skills compare to a panel of experts," said Mike Comotto, senior account executive for Rhodia Food Inc. "We expect a lot of talented graders to participate. This competition will be a forum for identifying the best."

Each contestant will have the opportunity to score several samples of Cheddar cheese for flavor, body and texture. Scores then will be compared to the opinions of the experts and a "Champion Cheese Judge" will be crowned. Awards will be given to the top three cheese graders in the competition during a luncheon on Thursday, September 14.

Pre-show events, including the first-ever Marschall Cheese Seminar Open Scramble Golf Outing and a cheesemaking short course, will be held Tuesday, September 12.

Seminar attendees will hit the links at Brighton Crest Golf Course, located an hour northeast of Visalia, Calif., the location of this year's Marschall Cheese Seminar event. Participants will receive transportation to and from the Visalia Radisson Hotel, green fee, golf cart, box lunch and Tri-tip dinner. Trade show exhibitors will receive one free golf pass for each 10' x 10' booth space reserved.

Brighton Crest, a Johnny Miller signature course, is built around Millerton Lake in California's Sierra foothills and is rated as one of the top courses in the state. A virtual tour of the course is available online at www.brightoncrest.com.

A one-day workshop on cheese yield and composition control organized by Phillip S. Tong, professor at the Dairy Products Technology Center, California State Polytechnic University, San Luis Obispo, will also be held Tuesday, September 12 at the Visalia convention center. Joining Dr. Tong in presenting the workshop will be Dr. Arthur Hill of the Department of Food Science at the University of Guelph in Ontario, Canada, and

Dr. David McKenna, technical manager for Foss North America.

The workshop will provide fundamental and technological skills needed to understand factors influencing cheese composition and yield as well as the use of recovery factors and yield expressions to make objective plant production decisions.

Conference co-sponsor Rhodia Inc. Dairy Business, headquartered in Madison, Wisc., is a leading supplier of cultures, media, coagulants, bio-protectants, annatto colors and cheese flavor acceleration systems.

For more information, contact events coordinator JoAnn Sterenberg at (574) 264-2557 or log on to www.rhodiadairy.com.

Researchers promote the benefits of dairy at IFT

More than 20,000 food professionals gathered at the 60th Annual Meeting of the Institute of Food Technologists (IFT) and accompanying Food Exposition in Dallas June 10-14. The wide spectrum of topics covered ensured attendance from all aspects of food science. Food product categories covered at the scientific meetings included dairy, fruits and vegetables, muscle foods, refrigerated and frozen foods, and seafood. Presenters discussed a wide range of food issues including chemistry, engineering, regulations, international trade, microbiology, nutrition, product development, quality assurance, sensory evaluation and toxicology, and food safety.

The Food Exposition provided an opportunity to see the latest in ingredients, laboratory equipment, services, packaging and processing. Representatives of the California Dairy Research Foundation (CDRF) maintained a presence at the Dairy Management Inc. booth, discussing with food industry personnel the benefits of dairy ingredients and sharing with this target audience results of the latest dairy research and how these results may benefit the industry. Carolyn Podgurski, a dairy ingredient specialist with the Dairy Ingredients Applications Program at Cal Poly, San Luis Obispo, and Sharon Gerdes, director of technical support services for the "Do It with Dairy" program answered questions pertaining to dry milk and whey ingredients, and promoted services available to the food industry.

John Krochta, professor of food science and technology at UC Davis described the importance of attending this annual meeting. "IFT is by far the largest meeting presenting research results from academia, government and industry on food," said Krochta. "Much of the scientific meeting and most of the food expo deals with properties of food ingredients. That is why it is a good meeting for presenting our results on the properties of whey protein related to its ability to form edible films and coatings with properties of value to the food industry. The future of the dairy industry is tied to the properties and utilization of milk components as ingredients in non-dairy foods. Since every segment of the food industry and every type of food is represented at IFT, the meeting is the best showcase for our research on milk-derived food ingredients, such as whey protein films and coatings."

Cal Poly San Luis Obispo's Professor Phillip Tong concurs. "IFT allows the establishment or re-establishment of valuable industry contacts. It allows us to answer questions about specific aspects of programs or research of interest to the food industry. We can assess the competition's activities," he said. "IFT provides awareness of other research groups' activities so as to avoid unnecessary duplication. We also gain new ideas on how to assist the California dairy industry by allowing us to communicate the services we provide to the industry (e.g., outreach, facilities, students) as well as feature products developed in the dairy ingredients applications program."

Dairy researcher Mary Ellen Sanders of Cal Poly San Luis Obispo said, "Attending the IFT meeting provides an unequalled opportunity to feel the heartbeat of the food industry. To be successful in applied food research, it is essential to have a sense of where the market is going and what problems have accompanied the newest industry opportunities. This understanding

often is the foundation for the next phase of research. The meeting offers unparalleled opportunity to interact with scientific colleagues in a variety of disciplines related to the food industry. The synergy of these discussions often sparks the development of fresh approaches and outlooks to problem solving."

Benefits of whey go beyond delivering fundamental nutrition

Whey is a water-based fluid that is produced as a by-product of cheese manufacturing. Whey contains milk components that are soluble in water, including many proteins, the sugar, lactose and minerals. By refining whey (i.e., processing the whey in order to isolate individual components) it can be divided into several high-value products. Since whey contains more concentrated quantities of the health-delivering components contained in milk, it is a relatively inexpensive source of the milk components with the greatest potential value as food ingredients.

The fractionation of proteins from whey provides the dairy industry with a challenge and opportunity to develop markets for increased use of whey products. In remarks delivered at the American Dairy Products Institute annual meeting in Chicago last May, Joseph A. O'Donnell, executive director of the California Dairy Research Foundation (CDRF), described how whey's potential as a food ingredient can go beyond delivering fundamental nutrition and can move into providing benefits addressing a wide variety of health needs.

He provided as examples the following bio-active proteins derived from components of whey and their possible applications:

- * glycomacropeptide (GMP) helps to control appetite, reduces bacterial adherence to teeth, enhances mineralization of teeth.
- * Lysozyme penetrates bacterial walls,
- * ACE Inhibitory Peptides from alpha-lactalbumin and beta-lactoglobulin potentially lower blood pressure, and
- * Lactoferrin penetrates bacterial cell membranes and has great potential as a value-added component for foods. The ability of lactoferrin to bind iron improves the oxidative stability of infant formula, a food product fortified with iron. Therefore, lactoferrin is expected to have applications in other iron-supplemented foods such as flour and cereals. Lactoferrin also reduces inflammation transforming growth factor beta (TGF β), and stimulates growth and maturation of intestinal cells.

"We know whey as a food ingredient can and does deliver calcium, Vitamin D and protein," says O'Donnell. "What the industry should do now is to take a closer look at how whey as a food ingredient can contribute to nutrient activity and help the body take care of itself." O'Donnell urged his dairy industry audience to become more aggressive in conducting research on how whey might be used in creating new, health-enhancing proteins and then promoting the research results to food manufacturers and consumers.

Most pharmaceutical companies are looking for a toxin that can "kill" cancer or "oppose" disease, and they find these "anti-nutritives" in plants. Milk is designed to help the body take care of itself by enhancing nutrient activity. In order to promote the health enhancement properties of whey we need more basic and clinical data, economic evaluation and consumer education.

"Whey's potential has hardly been tapped," he says. "The dairy industry needs to take the lead in designing practical research that produces scientifically sound and promotable results. As a

natural byproduct of cheesemaking, whey as an ingredient should have appeal to both the healthcare community and consumers."

California Dairy Technology Center to break ground next year

An innovative teaching and research dairy facility purposefully designed to service the academic programs of the Tulare Joint Union High School District, College of the Sequoias, and the UC Davis School of Veterinary Medicine teaching and applied research programs, has raised more than \$1.7 million in a campaign to build the state-of-the-art facility in Tulare, Calif. This working dairy, which will break ground in 2001, will milk just over 1,000 cows in a double-20 Herringbone basement parlor with modern free-stall designs for animal health and comfort.

The California Dairy Technology Center (CDTC) provides students with an ideal classroom to learn from hands-on experiences and view scientific problem solving in a real-world production environment.

The CDTC has four cornerstone missions:

1. **Teaching:** To provide a seamless educational system for students in pursuit of education or careers in the dairy industry. The facility and its programs will provide hands-on practical application of dairy management and applied research.
2. **Consumer education:** The facility will provide educational and teaching programs encompassing quality issues (food safety), sanitation practices and procedures, technology transfer of research findings concerning the health, food and nutritional values of dairy products from the farm to the table.
3. **Research:** The facility and its programs will provide rapid response, applied research on dairy herd health and on-farm food safety issues. The CDTC will serve to focus upon new ideas and approaches in the daily management of the dairy for animal health, public health, environmental health and its financial well-being.
4. **Service:** The CDTC will provide a fertile atmosphere for education, technology transfer, and prompt response to community and industry needs.

The UC Davis School of Veterinary Medicine will administer the center, with industry and academic councils providing guidance and oversight. The center will maintain operations through the sale of milk and dairy products.

"This facility will have a tremendous impact on the California dairy industry," said Ron Foster, CDTC campaign chair and president of Foster Dairy Farms in Modesto. "The ability to perform cutting-edge research and educate future industry leaders in a truly commercial-size dairy is a capability unsurpassed by any other facility."

The new facility will replace existing dairies at the College of the Sequoias and Tulare High School, which have been crowded out by urban development. As a field facility, the research and teaching missions of the dairy technology center are different from ongoing research and teaching activities at the UC Davis dairy on the main campus, and the two dairies are expected to complement one another.

"The California Dairy Technology Center (CDTC) is one of the projects that is both intriguing and inspiring. It involves the concept of teaching and research taking place concurrently in the same facility, offering academic course work and technical training to men and women ranging all the way from the secondary school level, to the community college level, to the university upper division level and on to post-graduate levels," said John Marshall Hobbs, chief executive officer of the Greater Tulare Chamber of Commerce. "On the research side, CDTC would be

doing what is referred to as 'breakthrough management' in food safety, environmental health and veterinary medicine. This is the kind of research that results in discoveries that literally make it possible to turn animal waste into potting soil and potable water and/or increase herd management efficiencies in such a way as to reduce costs as well as increase each animal's value."

Dairy related-businesses already have made sizable gifts to the center, including a \$200,000 waste-management system from Bion Technologies in West Amherst, N.Y.; milking machinery valued at more than \$600,000 from Alfa Laval Agri of Kansas City, Mo.; and architectural design services from Harlan Westbrook, owner of Progressive Dairy Design in Tulare. Private funds and industry involvement are still being sought for construction of state-of-the-art barns and classroom facilities.

The center will be built in Tulare on 80 acres of the UC Veterinary Medical Teaching and Research Center, a satellite facility of the School of Veterinary Medicine. The College of the Sequoias is contributing cattle, the value of its milk quota and \$500,000. Tulare Joint Union High School District will supply its herd and milk quota. The academic collaborators also will contribute faculty expertise from their respective dairy education programs.

Dairy industry members will be active participants in the CDTC, maintaining critical access to applied research findings related to on-farm food safety; food animal health, productivity and welfare; public health; consumer education; and environmental health. The CDTC will implement the research findings generated by California Dairy Research Foundation investments in the Dairy Food Safety Laboratory, located adjacent to the CDTC.

For more information on the California Dairy Technology Center, please contact Dr. James Cullor at the University of California Teaching and Research Center in Tulare, (559) 688-1731, or e-mail jscullor@ucdavis.edu.

Names in the News

UC Davis students presented top awards at IFT

Soo-Yeun Lee, a Ph.D. student in the UC Davis Department of Food Science & Technology, won first place in the sensory evaluation division of the student paper competition at the Institute of Food Technology (IFT) meeting in Dallas, Texas. The title of her oral presentation was "Whey-protein-coated peanuts assessed by sensory evaluation and head space gas-chromatography." In addition, **Michael Chan**, a master's degree candidate, and **Rungsinee "Pearl" Sothornvit**, a Ph.D. candidate (both in the UC Davis Department of Biological and Agricultural Engineering), won first and second place, respectively, in the packaging poster session of the graduate student paper competition at the IFT meeting. Chan's poster was titled "Whey-protein-coated paperboard as a grease and oxygen barrier." Pearl's poster was titled "Whey protein molecular weight effect on film oxygen permeability and mechanical properties." John M. Krochta, Peter J. Shields Chair in Dairy Food Science, said, "We are fortunate to have such excellent students in our dairy-supported program. Their success brings additional attention to the subjects and results of our research."

Cal Poly professor advisor to dairy in China

Phillip S. Tong, professor of dairy science with the Dairy Products Technology Center at Cal Poly San Luis Obispo, was appointed to the advisory committee of Shanghai's Bright Dairy Technology Center, one of the largest dairy processors in China. This working relationship could

facilitate a better understanding by the Chinese of U.S. dairy ingredients, and provide the U.S. dairy industry better access to the largest consumer market in the world.

Bruhn selected Fellow

In August, the International Association for Food Protection (IAFP) presented John C. Bruhn, a dairy foods extension specialist at UC Davis, with a Fellow Award for 2000 in recognition of his excellence in food safety.

Cal Poly team places first in dairy cattle judging

The dairy cattle judging team from Cal Poly San Luis Obispo placed first out of eight teams competing in the Western Spring National Judging Contest in Richmond, Utah. Cal Poly Students also placed first through fourth in individual reasons. Team members were Becky and Lucas Deniz, and Jana McClelland, all from Petaluma, Calif., and Nancy Deutsch from Louisville, Ky. The team was coached by Cal Poly dairy science professor Stan Henderson.

China's dairy industry leaders visit California dairy facilities

A 10-member group of key leaders of major Chinese dairy foods companies visited the United States in June to establish relationships with individuals in the U.S. dairy industry. The delegation was lead by Mr. Song Kun Gang, chairman of the China Dairy Industry Association, with assistance of Ms. Katherine Chen, director of technical assistance and training for the U.S. Dairy Export Council, Shanghai Office.

The group began its journey by attending the Institute of Food Technologists Annual Meeting in Dallas, Texas. They visited New York City and the U.S. Dairy Export Council Office in Arlington, Virginia. After a brief stop in Las Vegas, the group traveled to San Luis Obispo, California, for a visit and tour of the Dairy Products Technology Center at Cal Poly San Luis Obispo.

"This group was very interested in learning about technology, marketing, organization and structure of the United States Dairy Industry, as well as exploring potential opportunities for partnerships," said Phillip S. Tong, professor at Cal Poly San Luis Obispo's Dairy Products Technology Center. Tong met with the group at Cal Poly and accompanied them on visits to key California dairy plants. The group met with Rick Plaisted, director of quality control at Dairyman's Division of Land O'Lakes, and Ron Thompson, vice president of regulatory and quality assurance for California Dairies.

Following these visits the group traveled with Tong to Hilmar, California, where they were introduced to the Hilmar Cheese Company by Brian Burnish, quality assurance manager, and the whey protein concentrate and lactose marketing activities of American Protein Corporation Inc. (formerly Proliant), where they met Jim Bray, director of sales for the Far East Region, and Scott Dorr, international sales manager for the Far East Region. Following this visit, they also made a brief stop at the dairy farm of Jim Ahlem.

"As the world's population continues to rise, many dairy processors of the world will continue to look to California for leadership and mutually beneficial joint ventures," said Tong.

The meetings and plant tours reinforced the delegation's perception of the quality and productivity of the U.S. dairy industry. This visit also provided the U.S. dairy industry an opportunity to further develop potential export markets for U.S. dairy ingredients. In addition, promotional and educational materials about dairy producer funded activities were provided to each member of the delegation, courtesy of California Milk Advisory Board.

New equipment to support butter & spreads applications projects

Researchers at the Dairy Products Technology Center (DPTC) at Cal Poly, San Luis Obispo, churned out their first batch of butter in May as part of the new butter and spreads applications capabilities offered by the Center.

With the installation of a \$200,000 Egli Continuous Butter Churn in early May, Cal Poly is the only university in North America to have pilot-scale continuous butter churn capabilities and recently completed a project with one of the nation's largest butter manufacturers to improve butter spreadability.

"Concentrated milkfat products like butter are an important part of the nation's dairy industry," said Phillip S. Tong, professor at Cal Poly's Dairy Products Technology Center. "The capabilities offered by this equipment complement the many services Cal Poly offers food manufacturers and the dairy industry to support new product development, diversification, reformulation and process development. The equipment also offers unique training opportunities for our students and the industry as a whole."

According to the International Dairy-Deli-Bakery Association, butter products lead the way in dairy department growth with a 32.3 percent rise in sales in 1998 (the last year for which data is available) followed by 14.4 percent for dairy toppings category.

Funding for the equipment was provided by America's dairy farmers through the management of the California Dairy Research Foundation (CDRF). In March, Cal Poly unveiled another cooperative dairy industry supported effort, the Dairy Ingredient Applications Program, focusing on providing technical support for uses of dairy ingredients such as nonfat dry milk.