Wisconsin Center for Dairy Research

DAIRY PIPELINE

A Technical Resource for Dairy Manufacturers March 2001, Volume 13 Number 1

USDA Standards—the review process

By Charlsia Fortner

At a recent UW-Madison Cheese Grading Short Course someone asked a question about downgrading Cheddar cheese due to dried curd particles that are classified as 'unnatural particles.' That led to discussion centered on the USDA Standards for Grades of Cheddar Cheese, and whether the particle issue might be addressed when the standards are reviewed. To answer the question we turned to Charlsia Fortner, Dairy Products Marketing Specialist at the USDA.

What are dairy product grade standards?

Dairy product grade standards serve as an industry guide for the marketing of quality products. The grade standards provide an official description that measures quality in dairy products based on attributes important to consumers, such as taste, texture, appearance, and color. These quality standards have helped to keep our national marketing system for dairy products operating in an orderly and efficient manner and now, more than ever, dairy quality standards are playing an important role in the international marketplace. Official USDA grades for dairy products are based on nationally uniform standards of quality developed by the USDA, Agricultural Marketing Service, Dairy Programs' Standardization Branch. These standards promote uniformity in Federal grading services and are sometimes used by dairy plants in their quality control programs.

How are these dairy product grade standards maintained?

It takes considerable time to develop or revise grade standards. A number of steps are followed to ensure that USDA procedures are observed, and that a variety of interested parties are encouraged to participate in the process. The development generally begins in one of two ways. First, a request may come from outside of the Department of Agriculture - usually a result of the marketing of a new dairy product or of a technological change. This request may be received from dairy product manufacturers, trade associations representing dairy manufacturers, buyers of dairy products, or consumers. Second, the Standardization Branch periodically reviews existing grade standards on roughly a five-year cycle to ensure that the standards are accurate in their descriptions of quality characteristics and adequately address state of the art manufacturing technology and marketing practices.

If a need is determined to exist for a new standard, or if revisions are needed to an existing standard, a workplan is developed for Departmental approval. After Departmental approval is obtained, specialists gather information about the standard. This process may include discussions with product manufacturers, buyers, or other interested parties, review of research articles to assess technology and marketing issues, and site visits to production operations. This provides interested parties with an opportunity to submit information and make recommendations for consideration.

Based on this information, a Discussion Draft of the new or revised standard is prepared. A number of parties, both inside the Department and outside, are asked to consider the information and provide comments. Outside review of the Discussion Draft is usually obtained from those individuals with specific interest in the standard being developed or revised. Examples of interested parties include trade associations representing dairy companies that manufacture the product, and buyers involved in purchasing products that are covered by grade standards. These entities provide very important input on the usefulness and accuracy of the grade standard.

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What's Inside:

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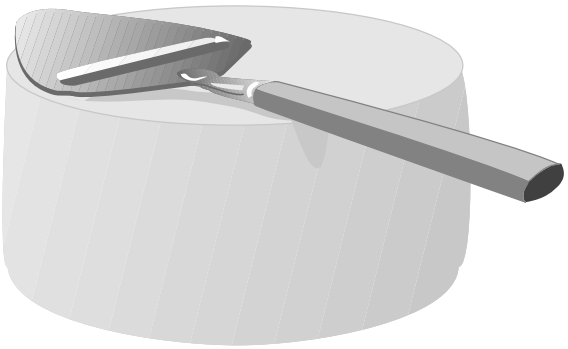
Information is compiled and incorporated into the next stage of review, the Coordination Draft. This document is provided to all government and non-government parties with specific or general interest in the standard for review. This provides a broad review of the new or revised standard prior to notification in the Federal Register. If general support for the changes is received, the process will be continued.

A notice is prepared for publication in the Federal Register, detailing the revisions that are being proposed to the standard. When this notice is published in the Federal Register, a public comment period begins. This is usually 60 days, during which any interested party is invited to provide comments on the proposals.

Once again comments are analyzed, and when appropriate, incorporated into the standard. A notice finalizing the new or revised standard is prepared, including discussion of the comments received. This notice is published in the Federal Register, and an effective date for the standard is provided. This is usually 30 days after publication. Copies of the new or revised standard are distributed and posted on the Dairy Programs' website.

The U.S. Standards for Grades of Cheddar Cheese were established in 1923, and last revised in 1956. This does not mean that they have not been routinely reviewed during the last 45 years, but simply that at the conclusion of each review, there have been no items that warranted change. A routine review of the Cheddar cheese grade standards is currently in the early stages, therefore, any parts of the standards that may be outdated or no longer accurate are being considered for revision. Additionally, new issues brought into existence by the emergence of new technology may also be considered at this time. The appearance of dried curd particles in finished Cheddar cheeses is an issue should be considered during this review. Its appearance in Cheddar cheese may be attributed to increased use of larger, more automated curd handling equipment.



"A routine review of the Cheddar cheese grade standards is currently in the early stages, therefore, any parts of the standards that may be outdated or no longer accurate are being considered for revision."

What do the current Cheddar Cheese Grade Standards say?

The U.S. Standards for Grades of Cheddar Cheese define four U.S. grades: AA, A, B and C, based on four quality factors: flavor, body and texture, finish and appearance, and color. Different levels of intensity for each defect are defined within the standard as well. Defects and their allowances within each grade are separated according to the degree of curing of the Cheddar cheese. The final U.S. grade for any given vat of cheese is established on the basis of the lowest rating of any one of the quality characteristics present. Condensed tables are included to present characteristics according to the degree of cure, providing quick reference for the specific grades, while detailed descriptions of each characteristic are also included for more concentrated reference.

Specifically, the "unnatural" characteristic is a color defect. Other color quality characteristics include seamy, wavy, acid-cut, mottled, salt spots, dull or faded, and bleached surface (on rindless Cheddar cheese). Each of these characteristics exhibits a distinct appearance on the cheese surface or trier plug, and each is generally attributable to one or more identifiable causative factors.

What is the issue with the unnatural defect?

"Unnatural" is a characteristic of the color quality factor, and is defined in the standard as a "deep orange or reddish color", or any other color not usually found in Cheddar cheese. In the broadest sense, this defect would apply to any cheese that exhibited a color throughout the cheese that was uncharacteristic of usual Cheddar cheese color. The "unnatural" characteristic has also been used to describe the appearance of dried particles within the cheese, or on its surface.

The unnatural characteristic is commonly identified when a trier plug drawn from the interior of the cheese or the exposed surface of the cheese shows a small particle that remains separate from the uniform cheese structure around it. This particle may exhibit increased resistance and a darker color than the surrounding cheese. The cause of this condition is usually simple. Small particles of cheese are left behind on equipment during the cheese making process. They may stick to the side walls of a vat, or lodge inside a tower. These particles, now having been exposed to air, will dry and change color. When these cheese particles become dislodged during subsequent processing operations, they manifest themselves as distinct firm, highly colored particles in the cheese. Despite diligent efforts to keep equipment clean, these dried particles still occur from time to time.

This characteristic is cosmetic in nature, and its appearance is fairly sporadic on any given block of cheese. For example, taking a large number of trier plugs from a block of cheese may only yield one dried particle. Unlike most other defects, these particles are not a result of problems with the raw milk supply or the make procedure. While an occasional dried particle may be unavoidable, a noted abundance of these particles indicates problems with equipment or cleaning procedures, and should not be considered as a minor or "trivial" occurrence.

USDA's current grade standards for Cheddar cheese do not specifically address the appearance of these dried particles. Instead, this defect has been covered by the unnatural defect, which is defined in the grade standard, and does broadly describe the defect created by these dried particles. However, some question exists regarding whether or not the established defect levels for the unnatural characteristic are appropriate to describe the occurrence of these dried particles.

The appearance of dried particles in Cheddar cheese falls under the unnatural characteristic in USDA's current grade standards. One dried particle on a trier plug or on the cheese surface is designated as a "slight" unnatural defect, which places the cheese in the Grade B category regardless of its other characteristics.

There may be some interest in revising the current standards to allow some level of this "dried particle" characteristic to be present at the Grade A level. This is certainly an issue that should be considered as the Cheddar cheese grade standards are reviewed. As part of the research portion of the review, the prevalence of this characteristic would be determined. Additionally, its contribution to the overall quality of Cheddar cheese would have to be evaluated. It is also appropriate to evaluate buyer and consumer input to possibly changing the "slight" unnatural characteristic to a Grade A cheese.

There are several ways to accomplish this change. Perhaps the most obvious would be to change the standard to allow a minimal unnatural characteristic for Grade A Cheddar cheese. Another option would be to redefine the "slight" unnatural characteristic to include more than one particle on a trier plug or cheese surface. A "very slight" characteristic level could be established to allow one particle on a trier plug or the cheese surface. Additionally, a separate defect to differentiate between these dried particles and a homogeneous color characteristic could be considered, as a means to assign different levels to the two characteristics, if necessary. The effect of any of these changes upon the uniformity of the remaining grade standards would have to be closely evaluated.

Conclusion

The appearance of dried particles in Cheddar cheese is not a new problem, however, it has become more prominent due to the widespread use of automated cheese making machinery. This development is an illustrative example of the need for periodic review of our grade standards to ensure that they will evolve with technology and that the standards will continue to be useful marketing tools for the dairy industry.

Resources

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USDA, AMS, Dairy Programs
Dairy Standardization Branch
(202) 202-9383
charlsia.fortner@usda.gov

2001 Wisconsin Cheese Industry Conference

Wednesday, April 18, 2001
Morning

Panel: Drug Residue Monitoring Program
Now that drug residue monitoring programs have been in place for ten years, lets evaluate our progress and talk about what we have accomplished. What's working? What could work better?
Moderator: Dr. Rusty Bishop

M-a-86, How Did We Get Here?
Robert Childers, FDA

Producer Viewpoint
Ted Hickerson, Dairy Farmers of America

Manufacturer Viewpoint
Dan Rackley, Dean Foods

Considerations of Risk Assessment
Rusty Bishop, CDR

Thursday, April 19, 2001
Morning

Panel: Cheese Milk – Pasteurized, Heat-treated, or Raw
This is an issue that can bring out strong opinions, join us for a full discussion of some thought provoking questions. Can we produce full flavored cheeses from pasteurized milk? What is the latest scientific information regarding possible pathogens?
Moderator: Dr. Bill Wendorff, Dept of Food Science, University of Wisconsin–Madison

FDA Research Studies
Chuck Sizer, National Center for Food Safety and Technology

National Cheese Institute Perspective
Deborah Van Dyk, Schreiber Cheese (Chair, NCI Technical Comm.)

American Cheese Society
Ruth Flore

US Dairy Processor
Bil Luth, Director, Quality Assurance, Tillamook Cheese

Farmstead Dairy Processor
Mary Falk, Love Tree Farmstead

What Is Best For The Dairy Industry As A Whole?
Rusty Bishop, Wisconsin Center for Dairy Research

Afternoon
Panel: Cheese Milk Standardization
Another timely topic for the cheese industry—what is the world view of standardization of cheese milk? What are the trends? What are the issues?
Moderator: Rusty Bishop, Wisconsin Center for Dairy Research

What Can We Use, What Would We Like To Use, What Wouldn't We Use Even If Available?
Bill Aimutis, Land O Lakes

Overview, Technical & Economical Considerations
Mark E. Johnson, Wisconsin Center for Dairy Research

Down Under Perspective on Standardization
John Lucey, Dept. of Food Science, UW— Madison

European Perspective on Standardization
Anders Oderholm, Norway (past Chair, IDF Cheese Standing Committee)

United States Perspective on Standardization
Mitch Davis, Davisco Foods

Where Does This Leave Us?
Rusty Bishop

News from CDR

Kerry Kaylegian, coordinator of the Milkfat Applications program, will leave CDR in June to pursue her Ph.D. Kerry is going to move to Ithaca, NY to study at Cornell University, in the Department of Food Science. She will specialize in dairy technology under the direction of Dr. David Barbano. After directing CDR's milkfat program for almost ten years, Kerry says, "It's time to get the Ph.D. so I can expand my opportunities in the dairy industry."

The CDR milkfat program will continue after Kerry leaves. Although industry interest in the program has come from a small number of companies, there remains a need for a core level of technical support. Details are in the works and more information will follow. In the meantime, for technical support contact Kerry at (608) 265-3086, or kaylegian@cdr.wisc.edu.

Master Cheesemaker, Class of 2001

Tasting success with farmstead che

This small cheese company produces some big flavor

Four-year-old Cheddar at the corner store, fresh mozzarella at the neighborhood grocery, and cheese displays filled with imported and domestic Brie, feta, and Asiago spreading from specialty stores to Sentry. What's happening? Look around and you can see that statistics are not misleading in this case, the market for specialty cheese is indeed growing. Here in Wisconsin, specialty cheese production has grown from 83.1 million pounds in 1993 to 197.4 million pounds in 1999. This growth, an increase of 138 percent, is primarily occurring in our smaller cheese plants.

Farmstead cheeses, whether they are made on the farm or from a single herd, are part of the specialty market and interest in producing them is also growing. In these days of decreasing milk checks, producers would like to add value to their product. Other wannabe cheesemakers would like to blend their creativity with a passion for cheese.

Mike Gingrich is someone who falls into both of these categories. Except that he no longer aspires to be a cheesemaker, he **is** a cheesemaker—with a high quality, successful product. As a partner in Uplands Cheese, Inc. Mike has started making and selling Pleasant Ridge Reserve, a 'Beaufort style' artisan cheese.

The beginning—rotational grazing

His story is not one of overnight success. It is one of research, hard work, focus and a vision that he shared with his partners. Mike and Carol Gingrich started farming with Dan and Jeanne Patenaude in 1994 because they wanted to farm on a larger scale, and they wanted to practice rotational grazing. Patenaude had been involved in rotational grazing since the early 80's and expanded the concept with Gingrich. Once they bought a larger place, they fenced and cross-fenced, creating 20 separate pastures. In 1995 they started milking Holsteins, cross breeding them with Jerseys, Ayrshires, Brown Swiss, French Normandy, and New Zealand Friesians. Gingrich explains that, "We wanted animals that can produce a calf year after year and stay in the herd a long time. Primarily we cross breed to get the hybrid vigor." A secondary reason was breeding for optimal grazing animals, which means smaller cows and animals that tolerate the summer heat.

Once they got the herd running reasonably well, Gingrich notes that they started thinking about value added products. "We were convinced that the milk we were producing had unique flavor characteristics, but of course it was only being sold as commodity milk. We weren't really utilizing any of the unique characteristics of the milk." They looked at a number of products, but settled on the idea of making cheese, for a couple of reasons.

June milk, best for making cheese?

"We heard a lot of anecdotal information from older cheesemakers that June milk was the best milk for making cheese, that you got great flavor when the cows first got out on the grass. With rotational grazing, they get new grass every day, all the way through the grazing season. We thought that by making cheese from this milk we would be taking advantage of the unique characteristics of our milk."

Gingrich says that there is one more factor that really counted. "Although we'd heard that cows on pasture make ideal milk for cheese, we never had any scientific proof. Even some younger cheesemakers said, well we don't notice much of a difference. But, of course, these days most cows are confined, and thus fed very little pasture when Spring comes."

Then he talked with Bob Lindsay, a Food Science professor in Madison, who explained that he had identified and measured flavor compounds in milk. These compounds, alkylphenols, are found in much higher concentrations in grass fed milk.

For Gingrich, "That was actually the last piece of information that I got that convinced me we should go forward with this project. It really verified that there is indeed a measurable difference in this milk and when we make cheese with our milk it will taste significantly different."

eese

Mark Johnson, CDR scientist and cheese fancier, confirms that Mike's Pleasant Ridge Reserve has a unique and well balanced flavor profile. "It certainly stands up to fine European cheeses."

Lindsay's research on alkyphenols may have been a big factor for Gingrich, but Mike and his partners also did plenty of research on their own. They developed a thorough business plan, they scoured the Internet, they read books about cheese and Mike signed up for the University of Wisconsin cheese technology short course, organized by Bill Wendorff. While making cheese in the pilot plant, he mentioned his idea to John Jaeggi, CDR's all around cheesemaker and researcher. John was enthusiastic and supportive right from the beginning, and suggested using the pilot plant for a few trials. Gingrich remembers that, "It looked ideal, but we still had to decide what kind of cheese we would make."

"I thought the best thing might be to make a cheese similar to other cheeses made from grass fed milk. I went to Steven Jenkins' book and identified all the cheeses made from raw cows milk and from cows that are pastured. I came up with 10, and ordered as many of them as I could find." Gingrich then invited some friends over to taste the cheeses and eventually settled on making a cheese like Beaufort, an A.O.C. or protected Place of Origin, French cheese. In the end, they made some minor changes but stayed as close to the Beaufort make schedule as they could.

Wisconsin's "human capital"

Another essential element of the Uplands cheese success story stems from Wisconsin's unique heritage as the historical home of American cheesemaking. Paul Scharfman, of Specialty Cheese, Inc., refers to this body of experience and history as valuable "human capital." Gingrich had the good fortune to tap into this human capital and find an ally in Bob Wills of Cedar Grove Cheese. Says Gingrich, "He was a key player."

"We had approached Bob Wills at Cedar Grove and said we'd like to make cheese during the summertime with our grass fed milk and would you be willing to work with us, and he was. He wasn't the first cheesemaker I talked to, but he was the first one that was really interested in this idea."

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CDR's Mark Johnson confirms that Mike's Pleasant Ridge Reserve has a unique and well balanced flavor profile. "It certainly stands up to fine European cheeses."

Pleasant Ridge Reserve on the curing shelves

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Mike Gingrich, the proud producer of Pleasant Ridge Reserve

Wills was more than interested; he was involved, too. He was in on the planning, scaling up, and problem solving. When it was time for cheesemaking trials in the University pilot plant, Wills was there, too.

After aging the cheeses produced in pilot plant trials, and some excited tasting, Gingrich says they decided to go ahead with commercial production. They started making cheese at the Cedar Grove plant in June 2000, making cheese on the weekends and then moving the cheese to Spring Green for curing. Gingrich washes the cheese and turns it every day for at least two to four weeks. After four months of curing, they were satisfied that they had produced a nice, young cheese. Then came the marketing challenge. Gingrich notes "Marketing takes a lot of time. It's not that it is so difficult, but it is time consuming."

"We decided to try a little bit of everything when it came to marketing. The challenge for the first year was to develop our market. We really didn't know which markets would be best for us, so we tried specialty food stores, restaurants, farmers markets, and the internet. The specialty food stores have been our best market, and chefs and restaurants have been great."

"We don't do a lot of business over the Internet, but that's not surprising because you can't get the taste experience. Really, it's taste, taste, taste…the three most important features of cheese."

For Gingrich and his partners this is a seasonal business, they are busy in the summer milking, making cheese and turning cheese. In the next few years Gingrich doesn't think he'll have to spend as much time on marketing as he did the first year. Perhaps after another busy season they can all look forward to a slower taste of success.

"We don't do a lot of business over the Internet, but that's not surprising because you can't get the taste experience. Really, it's taste, taste, taste…the three most important features of cheese."

Resources

Books
Cheese Primer by Steven Jenkins
Workman Publishing Company, Inc.

French Cheeses by Kazuko Masui and Tomoko Yamada
DK Publishing, Inc

Websites
For help with the decision making process, check out the Center for Dairy Profitability for Gary Frank's "On Farm Milk Processing" plan at: www.wisc.edu/dairy-profit

Wisconsin Dept. of Agriculture, Trade, and Consumer Protection
http://datcp.state.wi.us

American Cheese Society
www.cheesesociety.org

Jim Path's cheese database, the World Cheese Exchange
www.cdr.wisc.edu

Wisconsin Milk Marketing Board
www.wisLINK.org

CDR cheesemakers offer practical information, encouragement, and then cheer from the sidelines

"Mike really did everything right," says CDR's John Jaeggi.

"When we get calls from folks who want to make cheese—and we are getting more of them these days—we start by suggesting they work with an established cheese plant that might have some down time."

John thinks this approach is ideal because it is one way that new businesses can make cheese before investing in costly equipment and facilities. Sometimes people call him and want to talk about an on-farm cheese facility and then John raises issues regarding cost, regulations, zoning, and concerns about wastewater treatment. It can be downright discouraging. However, John notes that the cheesemaking weekends at Bob Will's Cedar Grove plant were an ideal solution for Gingrich. In fact, "It's worked out well for both of them," he says.

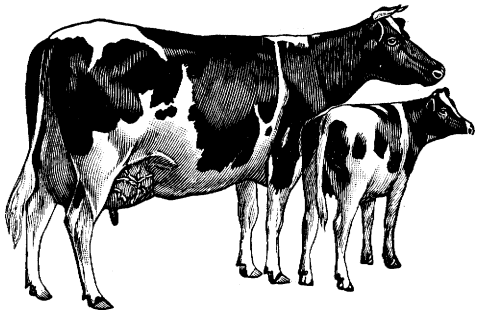
Jaeggi emphasizes focus when he gives advice to would be cheesemakers. He stresses the importance of refining the product early on, "Know what your target is, both the product and the market." John sometimes sees people wanting to do too much in the beginning. He thinks it's best to start small and do a good job on one thing at a time.

In addition, John believes that, "Practical experience is so important." Getting hands on experience is the best way to get a thorough understanding of safety, sanitation, and regulations.

Another bit of advice he always gives to potential farmstead cheesemakers is to start with the Department of Agriculture. Don't even think about buying equipment or finding a facility without checking on the regulations.

Bill Hoesly has been making cheese for most of his working life, first at Chalet Cheese in Monroe, then the University of Wisconsin dairy plant and now for CDR. Hoesly notes that practical experience is important, and you have to put in some time to get to the point that Mike Gingrich is at today.

"It seems like a lot of people, when they start thinking about making cheese, often have this romantic idea of making their own cheese. I could see, as Mike was getting into it, the amount of time it really took. Between his farm and his cheesemaking, there might have been a few nights when he didn't have any time to sleep."



Jaeggi emphasizes focus when he gives advice to would be cheesemakers. He stresses the importance of refining the product early on, "Know what your target is, both the product and the market."

Hoesly sums up three key elements for cheesemaking success:

Practical experience

Basic cheesemaking education

Homework and research

Curd Clinic

Q. I've been reading about the StarLink controversy and now I'm wondering if we have to worry about the milk supply. Could the problem protein be in milk?

A. The StarLink controversy, although a small segment of the bigger issue of genetically modified foods, is a good place to start getting familiar with some of the contentious issues. First, some background. AgrEvo, (which became part of Aventis CropScience a year ago), attempted to get it's genetically engineered corn, StarLink, approved by the EPA in 1997. StarLink, like other genetically modified seeds on the market, carried a gene from a bacterium called *Bacillus thuringienis*, or Bt. The Bt gene is useful because it produces a protein that kills the pesky and destructive European corn borer.

However, StarLink turned out slightly different than other seeds with the Bt protein spliced into a gene. The genetically modified protein in StarLink, Cry9C, was found resistant to digestion in the human stomach. Indigestability is a common characteristic of food allergens, and we've known since 1995 that some genetically modified proteins can cause allergic reactions. Because of this, the EPA was unwilling to approve StarLink for human consumption, fearing that exposure over time could cause allergies. AgrEvo agreed to further tests, but meanwhile StarLink was approved for animal feed. It was supposed to be kept out of the human food supply, although there has never been any mechanism at grain elevators to separate different types of corn. Many think that the eventual mixing of StarLink with rest of the corn harvest was a predictable problem.

Costly recalls

Sure enough, when Larry Bohlen, of Friends of the Earth, had the corn products he bought at his local grocery store tested, he was able to prove that a genetically modified product not approved for human consumption was indeed being sold. The result: costly recalls for the food industry and tons of StarLink corn held in storage.

Now, tests for the potentially problematic protein, Cry9C, have been developed. Scientists are still not even sure that Cry9C is a human allergen. Aventis argues that the amount of StarLink in processed food is too small to cause an allergy and that it is destroyed during food processing anyway. The FDA is currently conducting tests of Cry9C and investigating its allergenic properties.

As testing methods improve we may learn more about the StarLink protein, Cry9C, in the food chain and it's potential to cause, or not cause, allergic reactions. The latest Aventis petition for EPA approval was turned down in December, but it could still be approved in the future.

Effect on milk production

Meanwhile, dairy researchers have been looking at the effect of genetically modified feed on milk production. Recent studies have shown that genetically modified corn fed to dairy cattle did not significantly influence milk production or milk composition. Purdue researchers (1) fed corn silage and corn grain from Roundup Ready corn and its isogenic, or unaltered, counterpart to Holstein cows. They found no differences in milk production, milk protein, milkfat, or lactose. Researchers from Nebraska (2) also fed corn silage and corn grain from two Bt corn hybrids to dairy cows and found that there was no effect of the Bt trait on milk production or milk composition. With the use of 4 fistulated cows, they showed that there was no difference in ruminal fermentation between Bt and non-Bt corn.

Since the Bt protein from corn has been shown to breakdown during fermentation in the silo, an Iowa State dairy scientist (3) fed chopped, mature green corn plants to dairy cows to maximize the levels of the transgenic protein in the diet. The Bt protein did not adversely effect milk production, milk quality, or the health of the cows. No Bt protein was detected in standard samples of milk from cows fed the Bt corn. The laboratory did detect the Bt protein in milk samples spiked with the transgenic protein.

References

1. Donkin, S.S., J.C. Velez, E.P. Stanisiewski, and G.F. Hartnell. 2000. Effect of feeding Roundup Ready, corn silage and grain on feed intake, milk production and milk composition in lactating dairy cattle. J. Dairy Sci. 83 (Suppl. 1): 273.

2. Folmer, J.D., R.J. Grant, C.T. Milton, and J.F. Beck. 2000. Effect of Bt corn silage on short-term lactational performance and ruminal fermentation in dairy cows. J. Dairy Sci. 83(5): 1182.

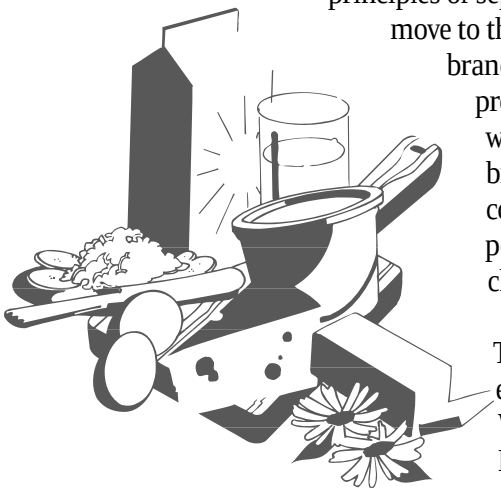
3. Faust, M. and L. Miller. 1997. Study finds no Bt in milk. IC-478. Fall Special Livestock Edition. Pp 6-7. Iowa State Univ. Extension, Ames Iowa.

Curd Clinic doctor is Bill Wendorff, professor, Dept. of Food Science, UW—Madison

New Membrane Processing Short Course

The Center for Dairy Research and UW Food Science Department are cosponsoring a new short course that will cover the use of membrane technology for processing dairy products. The first Membrane Processing of Dairy Products Short Course, scheduled for October 30-31, 2001, is a two-day course that starts with the basics of processing dairy products and continues through membrane technology.

This course is intended for all dairy and food processors interested in using membrane technology to concentrate or separate milk components. The first day will begin with the principles of separation technology and move to the applications of membrane separation of whey products. The second day will focus on using membrane technology to concentrate milk for potential use in cheesemaking operations.



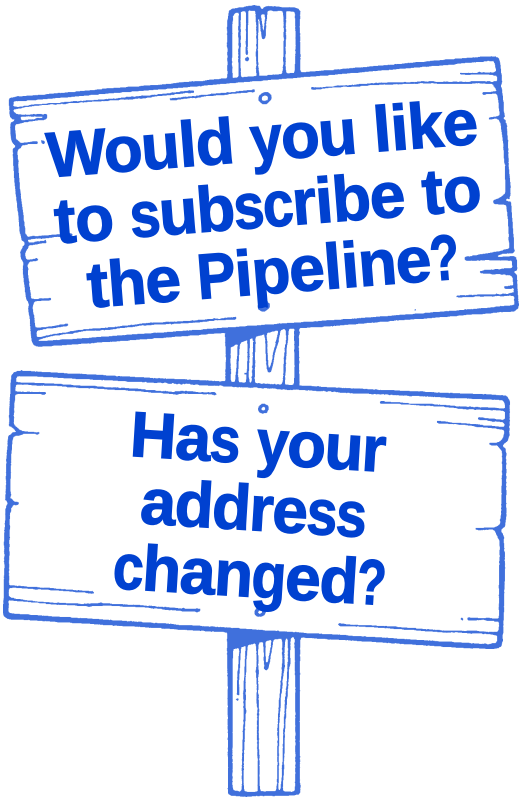
This course is an approved elective course for the Wisconsin Master Cheese Maker Program™.

Enrollment is limited to the first 50 paid students due to limited space in the pilot plant. For further information on this new short course, please contact Bill Wendorff of the Food Science De pt. at (60 8) 263-2015 or Karen Smith of CDR at (608) 265-9605.

Calendar, continued from back page

Sept. 25-26 Dairy, Food and Environmental Health Symposium. cosponsored by Wisconsin Association of Milk and Food Sanitarians, WI Association of Dairy Plant Field Reps, and WI Environmental Health Assn., Wisconsin Dells, WI. For more information, call Kathy Glass, FRI at (608) 263-6935.

Oct. 16-20 Wisconsin Cheese Technology Short Course. Madison, WI. Call Bill Wendorff at (608) 263-2015.



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Karen Paulus, Editor
e-mail: Paulus@cdr.wisc.edu
phone: 608/262-8015

You can also find the Dairy Pipeline on our website: www.cdr.wisc.edu

Calendar

May 1-2 Whey and Whey Utilization Short Course, Madison, WI. Call Bill Wendorff at (608) 263-2015 or K.J. Burrington at (608) 265-9297.

May 16-17 Applied Dairy Chemistry Short Course, Madison, WI. Call Bill Wendorff at (608) 263-2015.

May 22 Wisconsin CIP Workshop, Madison, WI. Call Bill Wendorff at (608) 263-2015.

May 23 Dairy HACCP Workshop, Madison, WI. Call Marianne Smukowski at (608) 265-6346.

June 5-6 Wisconsin Cheese Grading Short Course. Madison, WI. Call Bill Wendorff at (608) 263-2015.

June 14 A Practical Approach to the Safe Manufacturing of Food Products. Madison, WI. Sponsored by WI Assn. of Milk & Food Sanitarians. For further information, call Neil Vassau at (608) 833-6181.

June 23-27 IFT Annual Meeting, New Orleans, LA. For information call IFT, (708) 786-4120.

July 24-28 American Dairy Science Association Annual Meeting, sponsored by American Dairy Science Assn. Indianapolis, IN. For more information call ADSA, (217) 356-3182.

Aug. 2-5 American Cheese Society Annual Meeting. Louisville, KY. For info, call (262) 728-4458.

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