A bout 80 miles southwest of the Twin Cities, in rural Nicollet County, veterinary students interested in dairy medicine can find a different sort of classroom, an academic facility staffed by College of Veterinary Medicine (CVM) faculty housed in a large commercial dairy: New Sweden Dairy in Nicollet, Minnesota.

It’s the best of both worlds: Students can be in a state-of-the-art classroom one minute, walk down a flight of stairs, and be surrounded by thousands of dairy cows in a bustling dairy operation. In one part of the dairy, a cow may be calving. In another area, a sick cow may be waiting for an exam by a veterinarian. Meanwhile, cows are being milked in a 72-stall rotary parlor and housed in a sand-bedded, cross-ventilated free-stall barn. At the Dairy Education Center, it’s all there for veterinary students to see and experience firsthand, in the “real world.”

The affiliation between the University of Minnesota College of Veterinary Medicine and Davis Family Dairies began in 2007, when the company announced its intention to design, construct, and operate a new facility that they envisioned as a unique opportunity to integrate academic and educational functions into a large-scale commercial dairy operation.

In 2007, the college was providing veterinary students with hands-on training in dairy medicine at the Transition Management Facility in Baldwin, Wisconsin, another public-private partnership. But the college was outgrowing that facility, and liked the idea of working with a Minnesota-based dairy. Dr. David Tomsche, class of 1983, heard about the possibility of a new facility being built by Davis Family Dairies and passed the word along to Dr. Trevor Ames, dean, and Dr. John Fetrow, professor of dairy medicine.

The rest is history. The grand opening of New Sweden Dairy and the Dairy Education Center took place two years later, on September 16, 2009. Founding donors included Pfizer Animal Health (now Zoetis), Cambria, Davisco Foods International, Inc., Zinpro Corporation, Diamond V, and AgStar.

“Davis Family Dairies is proud to have our New Sweden Dairy be the impetus of such a wonderful opportunity to collaborate with the University of Minnesota College of Veterinary Medicine and the founding donors,” said Mitch Davis, general manager of Davis Family Dairies, at the grand opening. “We believe these efforts will enhance the knowledge of current and future veterinarians as well as industry stakeholders from the United States and around the world.”

Standing before a row of cows stretching almost as far as the eye could see, Fetrow looked forward to new horizons in dairy education and extolled the benefits of the public-private partnership.

“I was certain that the facility would change the landscape of how veterinary medicine was taught,” he says. Soon after the
center opened, he and Ames set a new goal: for the Dairy Education Center to become a national center for veterinary education and research.

Two years later, the Dairy Education Center achieved that goal, becoming the first National Center of Excellence in Dairy Production Medicine Education for Veterinarians. Like the creation of the Dairy Education Center, this goal was accomplished through teamwork, when the University of Minnesota College of Veterinary Medicine, in collaboration with veterinary schools at the University of Illinois, University of Georgia, and Kansas State University, was awarded a grant from the U.S. Department of Agriculture’s National Institute of Food and Agriculture.

“The idea was what this national center would serve veterinary students from across the U.S. and function as a template for future centers,” Fetrow says.

Located at New Sweden Dairy in Nicollet, Minnesota, the Dairy Education Center is an affiliation between Davis Family Dairies and the University of Minnesota College of Veterinary Medicine.

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**BY THE NUMBERS**

- 4,500 adult cows at New Sweden Dairy
- 10,000 calvings per year
- 6,000 heifer calves born per year
- 73 students have taken the eight-week Dairy Production Medicine course
- 240 students have taken the two-week clinical training rotation
- 200 students have taken the two-week rotation in dairy reproductive techniques, reproductive management and lameness
- 79 continuing education courses have been presented for
- 1,332 participants
- 438 public tours have been given for
- 6,941 people

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The Dairy Education Center’s upstairs classrooms overlook the dairy’s 72-stall rotary milking parlor – which looks sort of like a merry-go-round, but is the most efficient milking system in the industry. The raised circular platform rotates very slowly, allowing cows to enter and exit the platform at regular intervals. About every seven seconds, a new cow steps aboard. Workers attach the milking machine from below, and the cow is milked in five or six minutes. Each cow is milked three times a day, producing a total of about seven gallons of milk.
with four cooking stations. A commons area includes dining tables, couches, and a video projection system. Bookshelves house the center’s collection of dairy magazines, books, and videos, and wireless internet and a phone line for local calls are available. A downstairs locker room provides a place to stash boots and coveralls.

In addition to the University of Minnesota, faculty hail from Iowa State University, Kansas State University, the University of Illinois, and the University of Wisconsin, in collaboration with Zoetis, Elanco Animal Health, Zinpro, Diamond V, and other private companies. Students from colleges of veterinary medicine in 10 states have taken the course, as have two veterinarians from the University of Munich, Germany. Frederike Reichmann and Alexander Stoll say that the experience will have a great influence on their careers.

“The theoretical and practical experiences and supervisions of the herd visits were on a very high level,” Stoll says. “We appreciated the fantastic education.”

The opportunity to work and live at a dairy operation is what most impressed CVM veterinary student Haylee Endress. Endress, who grew up on a beef farm in Illinois, says the Dairy Education Center rotation would benefit any food animal veterinary student.

“It’s such a practical way to learn—being able to look at records, nutrition, and herd management—the whole picture,” she says. For Endress, the opportunity to be taught by industry professionals from around the county, have access to guest lecturers, and work with students from other U.S. and European veterinary schools made the experience a big plus.

“We bonded with fellow students and learned what other universities are doing, which was really valuable,” she says. “Living in the dorm, we all grew close and began cooking together for what we called family dinners.” Endress plans to work with both dairy and beef cattle when she graduates.

Also offered at the Dairy Education Center are two-week clinical training rotations. During this rotation, students participate in identifying, diagnosing, and providing medical, surgical, and obstetrical treatment of sick cows in the dairy. They take part in the daily screening and physical examination of fresh cows.
(cows that have recently calved), identify and treat sick cows, and perform surgeries and necropsies. They may also help with ongoing health monitoring programs, such as monitoring serum total protein levels in calves or urine pH in dry cows (cows taking a rest from milking in the two months before they give birth).

The center also offers a specialized two-week rotation in which students study topics related to herd reproductive practices and the diagnosis, treatment, and management of reproductive and foot diseases of dairy cows. Students in this rotation work with Minnesota faculty and the cows at the dairy for hands-on training in reproduction and pregnancy diagnosis and for experience with hoof trimming and lameness prevention.

Student Klehr took this rotation. “With so many calvings, we were really able to monitor the fresh cows and screen for any changes, including testing for any diseases,” she reports. “Getting this kind of hands-on experience really improved my knowledge and technique with diagnosis, treatment, reproduction, and lameness.”

And the Dairy Education Center doesn’t necessarily close on weekends. In recent years, the center has hosted dairy herd evaluation challenges in which students from several veterinary colleges came to the center for a weekend competition in dairy herd evaluation and consulting skills.

A research lab in the Dairy Education Center supports faculty investigations and provides a work space for research sample processing.

“Access to a large population of cows makes it possible to study many different naturally occurring diseases and to develop management systems to improve cow care, welfare, and productivity,” says Fetrow. Several summer projects have been completed by veterinary students, and graduate students have conducted thesis research at the dairy.

Continuing education and public tours
The Dairy Education Center also serves dairy veterinarians, producers, breeders, and others in the dairy industry, offering continuing education programs on a variety of topics, from transition cow management to hoof trimming. In 2014, the center also began hosting weeklong summer courses for high school agriculture educators learning about new curriculum delivery and development. The center’s location makes it the ideal base for field trips and on-farm training at neighboring dairies.

The center serves as a public outreach and education hub for information about the dairy industry, wholesome milk production, and the role of modern dairy production systems in food production.
The Dairy Education Center hosts at least one or two tours or events per week for audiences such as school groups, boards, civic groups, clubs, government officials, and international visitors.

Today, nearly seven years after the Dairy Education Center’s opening, more than 500 veterinary students have taken part in the center’s dairy rotations; 1,300 people have taken about 80 continuing education courses; and 7,000 people have taken one of 438 public tours.

“It’s been an excellent experience,” says Mitch Davis, general manager of Davis Family Dairies. “It’s a good example of a public-private partnership that works.”

Faculty and staff

College of Veterinary Medicine faculty and staff who work at the Dairy Education Center include:

- Dr. Rafael Bisinotto, dairy reproduction rotation advisor. Research interests: the biology of reproduction and reproductive performance
- Dr. Gerard Cramer, lameness rotation advisor. Research interests: lameness and foot health in dairy cattle
- Dr. John Fetrow, dairy on-farm clinical and dairy production medicine rotation advisor. Research interests: the economics of dairy decision-making, epidemiology of dairy disease, dairy record systems, and standardizing operating protocols, particularly relating to drug use
- Dr. Sandra Godden, dairy on-farm clinical rotation advisor. Research interests: calf health management, mastitis control, Johne’s disease control, and transition cow management
- Dr. Erin Royster, dairy production medicine rotation advisor and clinical instructor. Research interests: mastitis, milk quality, and milking equipment
- Dr. Ulrike “Riki” Sorge, dairy on-farm clinical rotation advisor. Research interests: novel infectious disease prevention and control strategies
- Jessica Yost, dairy education coordinator

Additional program faculty include experts from many fields of the dairy industry, including university faculty and extension veterinarians from the University of Minnesota, University of Illinois, Iowa State University, Kansas State University, and the University of Wisconsin; industry representatives from Dupont-Pioneer, Elanco Animal Health, and Zoetis; and private practitioners and consultants.

A newborn calf looks around her new home. Calves are cared for in the nursery at New Sweden until they are two weeks old, then moved to Granby Calf Ranch, a nearby calf-raising facility.

Veterinary students Jessie Ingvalson and Emily Thometz give water and electrolytes to a dehydrated cow by “drenching,” which involves passing a tube into the cow’s rumen. The students were participating in a two-week clinical rotation at the Dairy Education Center.