

Milk quality is an everyday endeavor

Persistent attention to detail, stringent adherence to milking protocols, and constant pursuit of clean and comfortable cows is a focus on these farms

THE 2020 National Dairy Quality Award Platinum winners represent an exemplary group of dairy farmers. Not only do these herds produce some of the nation's highest quality milk, these farms incorporate the many recommended, science-based practices that lead to positive outcomes or help to quickly thwart a pathogen or mastitis outbreak should one arise on their farm.

Nominators submitted applications from 115 farms this year. From that group, the judges made the first screening on milk quality benchmarks. Of those, 57 herds merited further analysis by a team of judges through a comprehensive of measures to ensure milk quality. After the judging, final applications were designated as Silver, Gold, or Platinum winners. The previous page lists all of this year's winners along with their nominators. *Hoard's Dairyman* is honored to co-sponsor the National Dairy Quality Awards with the National Mastitis Council. The program is possible thanks to sponsorship from Boehringer Ingelheim, Conewango, Ecolab, GEA, IBA, and the MILC Group.

Here's how this year's winners get the job done.

What is your milking procedure?

Blue Star Dairy Middleton: Milkers must wear gloves at all times when milking cows. First we predip, strip out foremilk, dry teats with a cloth towel, attach the milking units, and then postdip.

Christop Dairy: We first brush any sand off the teats by hand, strip out foremilk, predip, dry teats using microfiber towels . . . one towel per cow, attach the milking units, and postdip. All milkers wear gloves at all times.

Country Aire Farms-Fox Ridge: Our first step is to forestrip and then predip. We dry teats with microfiber 12-inch by 12-inch cloth towels, one per cow. (Towels are washed and dried between each use.) The milking units are attached and teats are postdipped after milking. Milkers always wear gloves.

Riverside Dairy: We predip, strip out foremilk, dry teats with microfiber towels, attach the

milking units, the udder is checked for proper milk out, and postdip.

UW Marshfield Ag Research Station: Strip out foremilk, predip, dry teats with cloth towels, attach milking units, and postdip. Milkers always wear gloves.

Wilson Centennial Farm: Our protocol includes: predip, forestrip, dry teats with microfiber towels, attach the milking units, and postdip. Milkers wear gloves during milking. They change gloves after each group or if they leave to do another task and then return to the parlor.

How do you keep cows comfortable?

Blue Star: Freestall mattresses are groomed and bedded with very fine wood sanding dust three times a day. One barn has an ally scraper that scrapes every 2-1/2 hours. The other barn is scraped three times a day.

Christop Dairy: For the milking cows, deep-bedded sand freestalls are groomed three times per day, sand is added weekly to keep stalls full and encourage cows to digitize in stalls appropriately. Stalls are sized appropriately for the size of our cows, both length and width, to keep cows comfortable and both cows and stalls clean. Alleys are scraped three times per day. Sidewall curtains allow for good airflow. Fifty-two-inch fans over stalls are set on thermostat.

Country Aire: Milk cows are kept in a tunnel-ventilated freestall barn with 38 4-foot pusher fans and 10 6-foot exhaust fans. All stalls have DCC Dual Chamber ISO waterbeds. The waterbeds are bedded lightly two times a week with kiln-dried sawdust. Each bed is thoroughly cleaned during each milking, removing manure and moisture, then each bed has Western-hydrated barn lime laid down on top and sawdust is moved around the stall to keep the stalls dry. Every hour, alley scrapers scrape manure into the drop site in the middle of the barn and then gravity flows into the manure pit.

Riverside: In order to keep milking cows clean and comfortable, we house them in two and three-

row naturally ventilated, curtain sidewall freestall barns with high-volume, low-speed fans over the feed aisles and circulating fans over the stalls. All pens have temperature-controlled misters, and the holding area has exhaust and circulating fans.

All stalls have pasture mats with screened sand bedding applied to the top surface. Mattresses are hand-raked three times daily at each milking shift, and any soiled sand is removed while fresh sand is raked back to provide a clean, dry, and even place for the cows to lie. Sand is added with a sandshooter twice weekly. We find that less sand added more often keeps sand fresher and cleaner, keeping bacteria levels low. Sand also helps to add traction in the alleys and around corners, which helps reduce the risk of injury. Freestall alleys, crosswalks, and lanes are cleaned three times daily during milking shifts as well, and the three-row pen has alley scrapers while the two-row pens are cleaned with a rubber tire on a skid loader.

In the summer, curtains are partially closed to create a dark environment free from direct sunlight and radiant heat on outside rows of the stalls in the freestall barn. Lights are timed to turn off during the day as well. We stress clean drinking water in all pens, and scrub brushes are conveniently located near each waterer to promote routine cleaning.

UW Marshfield: Milk cow stalls are bedded with dried manure solids bedding three times a week. Stalls are hand cleaned three times daily. Twice a week, hydrated lime is manually distributed on the back quarter of the stall bed. Scrape alleys are cleaned with a skid loader three times per day. Each quadrant contains four 52-inch ventilation fans on a thermostat. Cow brushes are available in each cow pen. Cow udders are singed a couple times during the lactation.

Wilson Centennial: Milk cows are kept in two-row freestalls with sand bedding. Fresh-washed sand bedding is changed once a week, and we do bed the front end of the freestall deeper

(Continued on page 60)



The always innovative Blue Star Dairy implemented selective dry cow treatment on their 700-plus cow dairy. Those cows with somatic cell counts (SCC) under 100,000 cells per milliliter only receive a teat sealant at dry-off. Cows with an SCC over the 100,000 threshold receive both an antibiotic-based dry cow treatment and a teat sealant. "Blue Star Dairy does an outstanding job with their cows," said nominator Bill Mueller with Grande Cheese. "Everyday they are consistent with their milk quality and procedures. The farm's SCC average has been under 100,000 since October 2017." The Middleton, Wis., Blue Star Farm team includes (L to R): Joel Palacios, Carolina Pinzon, Isaiah Sanga, Cristian Corrales, Geena Klubertanz, Julio Guevara, Art and Lori Meinholz, Ramon Hernandez, Jeremy Meinholz, Ben Meinholz, Lee Meinholz, and Jose Guevara.



A small but dedicated team makes milk quality a priority at Christop Farms located near Shiocton, Wis. "Neil Christianson is an outstanding example of what cow care and thorough training with employees can have for results on a dairy farm," said nominator Jolynne Schroepfer with Sartori Cheese. "Neil also seeks out help from a trusted team, which includes his veterinarian and nutritionist, to continue to educate himself. He has made a farm that focuses on cow comfort and care, and the result is quality milk and cows that thrive," she went on to say about the Christop Farms team that includes Isaac Aeros, Elias Vargas, Neil Christianson, and Jeff McFarlance, D.V.M., with Advanced Vet Science, shown left to right. "Since cows thrive at Christop Farms, the farm is able to sell over a quarter of their 'culls' as dairy replacements," continued Schroepfer.



The Gerrits family are big believers in culturing clinical mastitis cases. “We use Minnesota bi-plate cultures to see if the bacteria present is a gram positive or negative to determine which route is best to take with each individual animal,” said Craig Gerrits (shown right), who help manages the family’s Fox Ridge, Kaukauna, Wis., farm. “Testing can be done on-farm, but for labor purposes, culturing also can be sent to a local lab for PCR testing to identify contagious pathogens, specifically *Staph aureus*,” added Jon Gerrits (shown left). “*Staph aureus* positive animals are culled immediately. With gram-negative bacteria, we do not treat unless it is a Grade 3 case and then we focus on supportive cow therapy,” said Jon. “PCR testing is done monthly on the highest SCC cows to screen for contagious pathogens,” added Craig. Additional family members include Tom, Mike, Nick, and Matt Gerrits.



Riverside Dairy may be the first dairy to have won both National Dairy Quality and Dairy Cattle Reproduction Council Platinum awards in the same year. “Riverside’s approach to milk quality is entirely proactive rather than reactive,” said nominator Emma Hembel with Land O’Lakes. “Even when dealing with a potential clinical mastitis case, the protocol is not to immediately treat but to culture and identify what the best course of action. That sometimes means letting the cow’s immune system handle the infection herself.” Members of the Reedsville, Wis., farm team includes (L to R): Tom Tienor, owner; Scott Woepse, CentralStar A.I. technician; Cole Fisher; Joe Herring, D.V.M., of Veterinary Associates; Andy Fisher, owner; Doug Rusch; Stanley Schmitz; Austin Fisher; Emma Hembel; and Lalo Corona, milker. Missing was nutritionist Todd LeNoble, Badgerland Nutrition.

for better cow comfort. We scrap the alleys three times a day and put down hydrated lime on stall surfaces once a day on areas of high moisture.

Barns are naturally ventilated, with fans every 40 feet and misters over headlocks that are temperature controlled, turning on at over 64°F. We have made our freestalls wider to accommodate larger-bodied cows. The stalls are 55 inches with 8 feet of lunge space. We also have 3/4-inch rubber mats at the feedbunk to provide comfort while cows are standing and eating. All stalls are maintained and fixed as needed.

What steps do you take at dry-off?

Blue Star: We do select dry treatment over a 100 somatic cell count for the locations based on DHIA records. All cows get teat sealant.

Christop: Cows are dried off at 228 days carried calf (DCC). Following milking, Quartermaster (penicillin dihydrostreptomycin) is used in each quarter as well as Orbeasal (intramammary for both,) followed by postdip. Cows are vaccinated intramuscularly with both Enviracor J5 and Klebvax.

Country Aire: Cows at dry-off get teat ends dipped with iodine for sanitation, and then wiped with cloth towels. Alcohol wipes are then used to clean off teat ends, starting with the teat furthest away. Spectramast DC (ceftiofur hydrochloride) is then infused intramammarily followed by Orbeasal (again intramammarily) to seal teat ends and block pathogens or bacteria from entering during the dry period.

Riverside: To ensure milk quality, we dry cows off at 220 DCC and treat them intramammarily with the Spectramast DC (ceftiofur hydrochloride) and the bismuth subnitrate sealant Orbeasal. We also administer the Enviracor J-5 *E. coli* mastitis vaccine intramuscularly to cows at this time. This is done in the parlor immediately after milking and is followed by postdipping after the treatment is administered.

UW Marshfield: Cows are dried off approximately 227 DCC. Cows are dried during the morning milking (the same crew conducts the dry cow protocol). Spectramast DC (ceftiofur hydrochloride) is used for dry cow treatment on low SCC cows (90% of cows fall into the category of low SCC at dry-off) and Quartermaster (penicillin dihydrostreptomycin) is used on higher SCC cows. Orbeasal is used for internal teat sealant; all intramammary infusions are done using the partial insertion method. Teat disinfection and subse-

quent infusions are done in a far-to-near manner.

Wilson Centennial: We utilize a blanket treatment for dry-off and it is done every Saturday morning. We use one large alcohol wipe per teat and administer Spectramast DC (ceftiofur hydrochloride) intramammary, then wipe all four teats again. We pinch the top of the teat, administer Orbeasal, and then wipe all four teats again. That is followed up with postdip of Uddergold teat sealant.

Three days later, we give 2 cc Endovac-Dairy intramuscularly, plus 2 cc Scourguard 4K intramuscularly. Thirty days prior to calving, cows receive 5 cc Ultrabac Clostridium subcutaneously (under the skin), 8 cc Multimin 90 subcutaneously, and 2 cc Endovac-Dairy intramuscularly. All needles are single-use to prevent the spread of bovine leukosis.

Describe your fresh cow monitoring

Blue Star: When a cow calves, it is kept under observation to ensure quality of milk.

Christop: We prestrip all quarters to watch for abnormal milk at each milking. California Mastitis Test (CMT) paddle is used to screen abnormal milk as well as cows with high SCC results on DHIA test. DHIA sheets are reviewed monthly, and cows out of milk quality specifications are checked with the CMT paddle. Some cows have been cultured to see what bacteria type is present and what the best treatment option, if any, is recommended. All treatments are documented according to Farmers Assuring Responsible Management (FARM) guidelines.

Country Aire: Before calving, all cows are treated with Bovicalc orally to keep calcium levels constant. After calving and being milked for colostrum, cows are moved to the fresh pen where only virgin sand is used and cows are milked on a consistent 8-hour cycle. The fresh pen is walked daily by the herd manager to check for any change in a cow’s condition such as fever, potential displaced abomasum, or other physical distress indicating that it is not well.

Riverside: To ensure milk quality after calving, depending on the age and lactation, cows are given supplemental calcium at calving and followed up 12 to 24 hours postcalving. Twin cows are milked once for colostrum and returned to the maternity for 24 hours until her next milking.

All cows are treated immediately for metritis or pneumonia as a delay in treatment leads to reduced dry matter intake, which can trigger milk

fever and ketosis. Those cows showing signs of ketosis are drenched daily with propylene glycol. If any of these conditions go untreated, they will compromise a cow’s immune system and its ability to fight infection, leaving it incredibly vulnerable to contract mastitis. We strive to give our cows every opportunity to avoid these situations.

UW Marshfield: All fresh cows are CMT tested at seven to 10 days postcalving. Cows that CMT with a distinct or strong positive are cultured. A strong positive result may be treated right away. Most often, we wait for the results of the culture and continue to monitor the cow.

Wilson Centennial: Milk samples are taken after the antibiotic withholding time has passed and sent to the lab in Ovid, Mich., to confirm antibiotic clearance. If cows are negative, we move on to CMT steps. If positive, we wait an additional three days and retest. We run CMT on all cows, including the first-calf heifers. If they score a 3 or higher on CMT, we take the milk sample to Sterner Vet Clinic for culturing. We will discuss treatment options if the culture comes back with an uncommon pathogen or make culling decisions.

We repeat these steps until CMT scores are 2 or less and milk is able to go into bulk tanks. We utilize the following vaccinations/treatments as described in dry-off above as well as to ensure quality of milk: Endovac-Dairy, Bovi-Shield Gold, and Multimin 90.

How do you detect mastitis?

Subclinical:

Blue Star: We use Dairy Herd Information Association (DHIA) somatic cell counts.

Christop: We use a CMT paddle and monitor DHIA records.

Country Aire: Our milking technicians are trained to observe for abnormal milk or quarters, especially in the forestrip process. If abnormal milk or quarter consistency are of concern, cows are segregated and the herd manager is notified to move the cow to the hospital pen for further evaluation. Also, we monitor the somatic cell count data from DHIA and the California Mastitis Test (CMT.)

Riverside: We utilize our individual cow DHIA SCC tests.

UW Marshfield: We use SCC testing and CMT testing.

Wilson Centennial: We use a CMT paddle in

(Continued on page 62)



Proof that protocols matter can be seen in action at the University of Wisconsin Marshfield Agricultural Research Station. While many of the staffers milking cows in the parlor may have never worked in a parlor prior to working at the Stratford, Wis., dairy, the outcome is always excellent quality milk. This is a reflection of both the farm's management and culture. The staff also takes a great deal of pride in identifying mastitis early, and that helps with the treatment outcomes. Given the COVID-19 pandemic, all staff must wear masks or maintain 6 feet between co-workers . . . hence, *Hoard's Dairyman* captured this photo in a lift. Shown from the upper left portion of the "W" and moving right are: Brian Kruger, Pete Sutton, Emmy Sutton, Makayla Weigel, Doug Bolen, Sammy Shaw, Grace Tester, Kari Weichele, Nancy Esser, Steve Marcis, and Will Cordes.



Prevention is the name of the game at Wilson Centennial Farm, Carson City, Mich. "The measures put in place to maintain cow health on the farm include construction details, vaccination and treatment protocols, and continuous education for employees," said nominator Sarah Michalek, Michigan Milk Producers Association. They cultured nearly 50 clinical mastitis cases this past year. "*Escherichia coli* is the most common pathogen on our cultures," said Brent Wilson. "We work with our veterinarian on the most effective treatment options based on sensitivity." The team includes (L to R): Kaitlynn Card, Chris Benjamin, Courtney Matthias, D.V.M., Toni and Ben Wilson, Brent and Nancy Wilson, Billamar Alonso-Gomez, Tyler Wilson, Lucerito Alonso-Gomez, Angel Escobar-Ortiz, Avimael Morales-Jose, Tomas Pacheco-Alonso, Alberto Torres-Ramirez, and Reynel Guzman-Ramirez.

the parlor and DHIA SCC results with a high cow list, which is done once a month.

Clinical:

Blue Star: We look for swelling as we forestrip.

Christop: We watch for signs of abnormal milk during prestripping as well as swollen quarters, general health of cow, and abnormal behavior from cow.

Country Aire: Visible signs such as flakes, chunky milk, swollen quarters, or high SCC.

Riverside: We detect clinical mastitis by forestripping and visually evaluating the milk, looking at the cows demeanor and behavior, and looking at her rumen-fill along with individual DHIA SCC tests.

UW Marshfield: Through forestripping and observing the streams of milk for abnormalities. Watching the milk filter for milk clots following milking. Clinical mastitis may be suspected if a cow goes off feed, has a hard quarter, or is sick.

Wilson Centennial: We detect clinical mastitis by observing during prestripping. We look for chunks, blood, a "hot-to-the-touch" quarter, and watery milk. We also watch to see if the cows are off feed, not chewing their cud, or have high body temperatures.

How do you track treated cows?

Blue Star: Treated cows have colored leg bands and are housed in a separate treated pen. We keep a hard copy at cowside and then put into Dairy Comp 305.

Christop: Treated cows are identified with red duct tape wrapped around each back leg (sepa-

ately). Desk calendar for cowside information and records available to all employees and Dairy Comp 305 for permanent record of treatment. All data is entered into Dairy Comp 305.

Country Aire: Treated cows are identified by different colored leg bands and isolated in a separate pen.

A clipboard with the treatment log is kept cowside to document all treatments. Paper copies are then entered into Dairy Comp 305. A permanent copy of the treatment records are kept in a file drawer in the herd manager's office.

Dairy Comp 305 has all data entered and it has been set up with all SOPs and treatment withdrawals.

Riverside: Treated cows are identified with a red treated band and red duck tape on their legs. Treated cows are written down in a treatment book in the office for the entire milking staff to view. This is essential for communication when employees take time off and the swing shift worker fills in. Each day the cow is treated it is recorded.

All of this information is also recorded in Dairy Comp 305 and written on a large dry-erase board located just outside of the parlor. We are able to access archive files from previous lactations using Dairy Comp 305, and we also save and store all paper sheets from our treatment logbook.

UW Marshfield: Through visual and electronic methods. Cow identification (ID), date, treatment, severity, and milk withhold is entered in the treatment log and on Dairy Comp 305. The cow's ID is written on a parlor whiteboard for all the milking crew to see. A red band is placed around both rear legs. Treated cow IDs and treatments,

once entered in Dairy Comp 305, will display a milk withhold and slaughter withhold date.

We have mastitis treatment protocols set up in Dairy Comp 305 that calculates the milk and slaughter withhold based on the drug treatments. In the Delpro parlor database system, we enter the days of milk withhold based on the treatment. This flags the cow ID as a do-not-milk in the parlor. The system must be overridden to engage the vacuum on the milking unit.

We have a mastitis form the staff uses to record animal ID, treatment, and mastitis details such as pen quarter, and severity. Dairy Comp 305 is the software system used to enter mastitis date, treatment, quarter, pathogen, and treatment details.

We keep paper records on all cattle treatments. We also use Dairy Comp 305 for storing permanent health records of all animals.

Wilson Centennial: To identify treated cows, we use bright-red bands, two bands per back leg, along with a red band on the tail if the cow has a fever.

All treatments are uploaded to PC Dart. Employees use a pad of paper to write down the cow ID, what they treated with, how much medicine was given, and the date. At the end of the day, those are taken to the house to be put into PC Dart. We can access PC Dart from the computer in the office or on tablets by all employees.

All vaccinations, diseases, and surgeries are recorded on PC Dart, and those records are available on the office computer or on the tablet. The employee will write down the treatment on paper, bring it to the home computer for input to PC Dart, record the specific quarter treated, what drug was used, and route of administration. 🐄

	Blue Star Dairy	Christop Dairy	Country Aire Farms	Riverside Dairy	UW Marshfield	Wilson Centennial Farm
Cows (milking/dry)	641/91	169/18	597/0	353/75	217/28	872/86
Breed	Holstein	Brown Swiss/Holstein	Holstein	Holstein	Holstein	Holstein
Milk (lbs.)	30,340	29,026	31,500	29,097	27,586	31,526
Fat (%)	3.9	3.9	4.2	3.9	4.2	4.2
Protein (%)	3.1	3.0	3.0	3.1	3.3	3.4
SCC avg.	82,000	76,000	66,000	77,000	67,000	67,500
SPC avg.	3,100	2,000	2,000	1,000	1,300	2,100
Cows leaving the herd (slaughter) (%)	47.3	42.0	7.9	47.0	10.6	34.4
Udder health-related culls (% of culls)	6.3	4.2	10.6	10.2	39.1	1.7
Do milkers wear gloves?	Yes	Yes	Yes	Yes	Yes	Yes
Do you use mastitis vaccines?	Yes	Yes	Yes	Yes	Yes	Yes