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 set 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, Conenwango, 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 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 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 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 alle 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 grommed three times per day, sand is added weekly to keep stalls full and encourage cows to digate 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 ventilation fans on a 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 cleaned with a rubber tire on a skid loader. Freestall alleys, and bedded with very fine wood sanding dust every two days. Cow udders are singed on a fume hood. Cow brushes are conveniently located near each waterer to promote routine cleaning.

UW Marshfield: Milk cows 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 two to three times a week. Freestall alleys are cleaned three times a week. Each quadrant contains four 52-inch ventilation fans on a thermostat. Cow brushes are available in each cow pen. Cow udders are singed at least three times a week.

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 two to three times a week. One barn has an ally scraper.

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 a bio-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...
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 were installed at the same time ventilation was upgraded. The fans help to keep the 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 lung space. We also have 3/4-inch rubber mats at the bovine level 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 Orbeseal (intramammary for both,) followed by postdip. Cows are vaccinated intramammarily with both Envircov J5 and Klebvac.

Country Aire: Cows at dry-off get teat ends scraped off and then teat ends are treated with tincture of iodine, and then dipped with iodiplay, 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 Orbeseal (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 use both Envircov J5 and Spectramast (DC) (ceftiofur hydrochloride) and the bismuth succinate sealant Orbeseal. We also administer the Envircov J5 and E. coli mastitis vaccine intramammarily 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 at approximatively 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. Orbeseal 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-nearer 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 Orbeseal, and then wipe all four teats again. That is followed up with postdip of Uddergold teat sealant.

The next day we give Orbeseal intramamurally, plus 2 cc Scourguard 4K intramurally. Thirty days prior to calving, cows receive 5 cc Ultrabac Clorstridium subcutaneoush (under the skin), 8 cc Multimin 90 subcutaneously, and 2 cc Endovac-Dairy intramamurally. All needles are single-use to prevent the spread of bovine leukemia.

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 abnor-

mal 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 at calving. 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, includ-

ing 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 Asso-

ication (DHIA) somatic cell counts.

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

Country Aire: Before calving, all cows are treated with Bovikale orally to keep calcium lev-

els 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 dis-

stress indicating that it is not well.

Riverside: To ensure milk quality after cal-

ving, 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 area for 24 hours until milk is being let down.

All cows are treated immediately for metritis or pneumonia as a delay in treatment leads to re-

duced 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: We use SCC testing and CMT testing.

Wilson Centennial: We use a CMT paddle in

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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 Strafford, 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, Corey Geiger, Brian Kruger, Pete Sutton, Emmy Sutton, Makayla Weigel, Doug Bolen, Sammy Shaw, Grace Tester, Kari Weichele, Nancy Esser, Steve Marcis, and Will Cordes.

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 prestripping 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 (separately). 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.

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 withheld 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 withheld 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.

<table>
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<tr>
<th>Cows (milking/dry)</th>
<th>641/91</th>
<th>169/18</th>
<th>597/0</th>
<th>353/75</th>
<th>217/28</th>
<th>872/86</th>
</tr>
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<tbody>
<tr>
<td>Breed</td>
<td>Holstein</td>
<td>Brown Swiss/Holstein</td>
<td>Holstein</td>
<td>Holstein</td>
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<td>Milk (lbs.)</td>
<td>30,340</td>
<td>29,026</td>
<td>31,500</td>
<td>29,097</td>
<td>27,586</td>
<td>31,526</td>
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<tr>
<td>Fat (%)</td>
<td>3.9</td>
<td>3.9</td>
<td>4.2</td>
<td>3.9</td>
<td>4.2</td>
<td>4.2</td>
</tr>
<tr>
<td>Protein (%)</td>
<td>3.1</td>
<td>3.0</td>
<td>3.0</td>
<td>3.1</td>
<td>3.3</td>
<td>3.4</td>
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<tr>
<td>SCC avg.</td>
<td>82,000</td>
<td>76,000</td>
<td>66,000</td>
<td>77,000</td>
<td>67,000</td>
<td>67,500</td>
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<tr>
<td>SPC avg.</td>
<td>3,100</td>
<td>2,000</td>
<td>2,000</td>
<td>1,000</td>
<td>1,300</td>
<td>2,100</td>
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<tr>
<td>Cows leaving the herd (slaughter) (%)</td>
<td>47.3</td>
<td>42.0</td>
<td>7.9</td>
<td>47.0</td>
<td>10.6</td>
<td>34.4</td>
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<tr>
<td>Udder health-related culs (% of culs)</td>
<td>6.3</td>
<td>4.2</td>
<td>10.6</td>
<td>10.2</td>
<td>39.1</td>
<td>1.7</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Do you use mastitis vaccines?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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