



THE BEST OF THE BEST

From 86 applicants, these operations stood out for having produced high-quality milk consistently. Applications were evaluated for measures of quality, systems of monitoring udder health, milking routine, protocols for detection and treatment of clinical and subclinical cases of mastitis, and strategies for overall herd health and welfare.

PLATINUM WINNERS

Recipient	Nominator	Recipient	Nominator
Brad, Mark, and Larry Crandall, Battle Creek, Mich.....	Rachel Brown, ***MMPA	The Gerritts Family, Greenleaf, Wis.....	Jolynne Schroepfer, Sartori Co.
Jim and Karen Davenport, Ancramdale, N.Y.....	Ruth McCuin, Agri-Mark, Inc.	Blue Star Dairy, Middleton, Wis.....	Bill Mueller, Grande Cheese Co.
Don and Pat, Chet and Patty Dolph, Lake Mills, Wis.	Bill Mueller, Grande Cheese Co.	University of Wisconsin Marshfield Agricultural Research Station, Stratford, Wis.....	Michael Maroney, D.V.M., UW Research Animal Resources and Compliance

GOLD WINNERS

Recipient	Nominator	Recipient	Nominator
Charlie, Rod, Trevor, and Steve Baier, Elmwood, Wis.....	Kevin Lagerstrom, Cargill	Mark and Sara Miller, Millersburg, Ohio.....	Mary Barnum, SmithFoods Orrville, Inc.
Don Beattie, Holton, Mich.....	Lyndsay Earl, ***MMPA	Tjerk and Ramona Okkema, Blanchard, Mich.....	Courtney Gordon, ***MMPA
Neil Christianson, Shiocton, Wis.....	Jolynne Schroepfer, Sartori Co.	Mark and Jolinda Ramer, Hale, Mich.....	Ashley Herriman, ***MMPA
Cory and Maria Dörner, Luxemburg, Wis.	Ryan VandenPlas, Total Dairy Service LLC	David Schultz, Sandusky, Mich.....	Christy Dinsmoore, ***MMPA
Jeff, Earl, and Mason Horning; Katelyn Packard, Manchester, Mich.	Dave Brady, ***MMPA	Al Seidl, Luxemburg, Wis.....	Ryan VandenPlas, Total Dairy Service LLC
Dave and Stacy Jauquet, Luxemburg, Wis.....	Ryan VandenPlas, Total Dairy Service LLC	Dan Stuart, Lowell, Mich.	Rosemarie Stieg, **DFA
Michael Kleinhans, Kiel, Wis.	James Downey, CP Feeds	Jonathan Theisen, Campbellsport, Wis.	JR Neu, Sartori Co.
Merle Langeland, Coopersville, Mich.	Rosemarie Stieg, **DFA	Carey and Emily Tweten; Gene and Phyllis Speltz, Lewiston, Minn.	Dale Heintz, Ag Partners Cooperative and Pettit's IBA
Burke and Lisa Larsen, Scottville, Mich.....	Lyndsay Earl, ***MMPA	Kris and Carla Wardin, St. Johns, Mich.	Brittini Tucker, ***MMPA
Butch and Ron Maly; Alicia Sippi, Bryant, Wis.	Jolynne Schroepfer, Sartori Co.	Judy, Kevin, and Jessica Wenzel, Hilbert, Wis.	Emma Hembel, Land O'Lakes, Inc.
Michigan State University, Lansing, Mich.....	Joe Packard, ***MMPA		

SILVER WINNERS

Recipient	Nominator	Recipient	Nominator
Charles Bode, Marion, Mich.	Lyndsay Earl, ***MMPA	Andy and Laura Hecht, Cumberland, Wis.	Jim Kauffman, *AMPI
Michael Bosscher, McBain, Mich.....	Deb Gingrich, ***MMPA	Maren and Jeremy Holst, Lake City, Minn.	Blaize Dankers, Land O'Lakes, Inc.
Ron Brinks, McBain, Mich.....	Deb Gingrich, ***MMPA	James, Louanne, Evan, and Harrison Kiko, Paris, Ohio	Mary Barnum, SmithFoods Orrville, Inc.
Dale, Bonnie, and Kurt Brinks, McBain, Mich.	Deb Gingrich, ***MMPA	Alan and Deborah Koppenol; Ken Raterink, Coopersville, Mich.	Lyndsay Earl, ***MMPA
Sam, Doug, and Cheri Chapin, Remus, Mich.	Courtney Gordon, ***MMPA	Mark Roggenbuck, Harbor Beach, Mich.	Steve Steely, **DFA
John Christian Chupp, Sugarcreek, Ohio	Mary Barnum, SmithFoods Orrville, Inc.	Daniel and Mike Schroeder, Calendonía, Minn.	Dave Schansberg, Root River IBA, LLC
Paul and Betty DeMann, Martin, Mich.....	Rachel Brown, ***MMPA	Allen and Aaron Slater, Holton, Mich.	Lyndsay Earl, ***MMPA
Michael and Heidi Dolloff, Springfield, Vt.....	Linda Hansen, **DFA	Dave and Rick Tacoma, Falmouth, Mich.	Deb Gingrich, ***MMPA
Steve, Phil, Kevin, and Joel Gross, Weidman, Mich.	Courtney Gordon, ***MMPA	Eli N. Weaver, Millersburg, Ohio.....	Mary Barnum, SmithFoods Orrville, Inc.
Norm, Kim, and Derrick Hammond, Dowling, Mich.	Rachel Brown, ***MMPA		
Bill and Jason Hardy, Stanton, Mich.	Courtney Gordon, ***MMPA		

*Associated Milk Producers Inc.
**Dairy Farmers of America
***Michigan Milk Producers Association

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Milk quality is part of their daily culture

Among the nation's best dairy farms, these teams perform daily, weekly, and monthly practices that ensure top quality milk.

THE 2021 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 on a daily basis, but they also incorporate many science-based practices that lead to positive outcomes or help to quickly thwart a pathogen or mastitis outbreak should one arise on the farm.

Nominators submitted applications from 86 farms. From that group, the judges made initial screenings on milk quality benchmarks. From there, 54 herds merited further analysis by a team of judges and a comprehensive list of measures to ensure milk quality. After the judging, final applications were designated as Silver, Gold, or Platinum winners. The previous page lists all 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, Cargill, Conewango, Ecolab, GEA, and IBA.

Here's how the Platinum winners get the job done:

What is your milking procedure?

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

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

Crandall Dairy Farms: Milkers always wear gloves. We strip out foremilk, predip, dry teats with microfiber towels, attach the milking units, postdip, and hand strip after milking.

Dolph Dairy: Milkers wear gloves at all times. We begin by dry wiping each cow with individual microfiber towels, predip, strip out foremilk, dry teats with microfiber towels, attach the milking unit, and postdip.

Tollgate Holsteins: We strip out foremilk using a strip cup, dip the cows, dry teats using single-service paper towels, attach milking units, and postdip the cows. In regard to forestripping, if a teat is wet with milk and/or is dirty from mud or manure, we dry wipe first. If the teat isn't clean after drying teats with a single-service towel, we repeat the predip and drying sequence and use a new towel.

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

How do you maintain healthy teats?

Blue Star: We hold monthly meetings to review proper teat dipping. Also, we regularly check and maintain our equipment.

Country Aire: Teats are foamed with predip after stripping and then dried off with a cloth towel. After milking, teat ends are dipped in iodine. Any milk cows with a teat injury are immediately moved to the hospital barn for extra attention.

Crandall: We ensure that everyone is trained on proper milking procedure, which includes thoroughly cleaning and drying teat ends before attaching the unit. It is also important to use high-quality teat dips that contain emollients to protect and heal the skin. We also maintain clean, dry bedding in the freestalls to prevent irritation or damage to the udder and teats.

Dolph: We rotate two postdips every other week, which are Derma Sept (1% iodine) and Valiant (chlorine dioxide). When weather is 10°F or colder, we use Chemstar-Recover for postdip.

When prepping cows, we are flipping microfiber towels for better cleaning of teat ends. Regular milking equipment maintenance and teat end scoring also help us maintain healthy teat ends.

Tollgate: We use a 60:40 pulsation ratio along with IBA Pro Square inflations to help maintain healthy teats. During milking, we ensure proper machine positioning for even milkout and prompt removal of the machine when the cow is finished to avoid overmilking.

UW Marshfield: Milking units have a setting threshold for automatic take-off (ATO) flow rate to prevent overmilking, teat end damage, and hyperkeratosis. Liners are changed routinely. Cold weather dip containing emollient and 1% disinfectant help condition teats during the extreme cold. We also strategically cull cows with poor udder and/or teat conformation. We also cull unusually slow milkers.

How do you keep cows comfortable?

Blue Star: Freestall mattresses are groomed and bedded with very fine wood sanding dust three times a day. We also apply lime to the back-end of beds three times a day. One freestall barn has an alley scraper that scrapes every 2-1/2 hours. The other barn is scraped three times a day to coincide with milking times.

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 water beds. The water beds are bedded lightly two times a week with kiln-dried sawdust. Every 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 to keep the stalls dry. We use a push tractor to clean each pen three times a day and move manure into



Blue Star Dairy, Middleton, Wis.

Mastitis vaccinations, milk cultures, and selective dry cow treatment are just a few of the practices that this south central Wisconsin dairy employed during the past year as they went on to win back-to-back milk quality awards. Of the 46 clinical mastitis cases cultured on the dairy, *E. coli* was often identified as the pathogen. In those instances, the Meinholz family and their farm staff worked with their veterinarian on treatment plans. The dairy herd averages a 79,000 somatic cell count (SCC) on shipped milk, and only cows with over a 100,000 SCC receive antibiotic dry cow therapy. The Blue Star team includes (L to R): Jelder Castillo; Ramon Hernandez; Javier Centeno-Pozo; Ben Meinholz; Omar Lopez-Martinez; Isaiah Sanga; Joel Longoria-Palacios; Lee and Mila Meinholz; Jose Guevara; Geena Klubertanz; Katelyn Pongratz; and Art, Lori, and Liam Meinholz.



Country Aire Farms, Greenleaf, Wis.

Making their fourth trip to the milk quality winner's circle is northeast Wisconsin's Country Aire Dairy. The Gerritts are strong believers in mastitis vaccines, with prefresh heifers and cows each receiving two doses prior to calving. All lactating cows receive a third postcalving dose at 30 to 36 days in milk (DIM) and again at 150 to 163 DIM. They have considered selective dry cow therapy but so far have taken a pass due to the herd's high milk production and the fact dry cows are housed on recycled bedding. DHIA records are routinely reviewed and individuals with elevated somatic cell counts are submitted for a milk culture on a four-panel contagious pathogen test. Country Aire Farms has dairy herds in both Greenleaf and Kaukauna, and the Gerritts family team includes (L to R): Jon, Mike, Nick, Tom, and Matt. Missing from the photo is Craig.



Crandall Dairy Farms, Battle Creek, Mich.

Shipping exceptional quality milk is not just a standard for everyone at Crandall Dairy Farm — it's an expectation. Brad Crandall attributes their success in producing high-quality milk to effective hiring practices, attention to cow comfort, and overall dedication to farm cleanliness. He says it's a total team effort. The 350-cow dairy experienced just 49 cases of mastitis last year. In every instance, they follow the product label before returning that milk to the bulk tank. In addition, milk from each cow is tested with a CMT test before putting those individuals back in the tank to ensure milk quality. As part of their commitment to food safety, they also run a SNAP test every day to ensure there are no antibiotic residues in their milk. The south central Michigan farm team includes (L to R): Mark Crandall, Kelley Wagner, Thomas Wagner, Stacey Koyl, and Brad Crandall.



Dolph Dairy, Lake Mills, Wis.

Extreme attention to detail would be one of the many reasons that this southeastern Wisconsin dairy earned platinum honors for the first time. Since harvesting milk is the No. 1 crop on their dairy, a great deal of attention is given to the milking system. The pulsators are rebuilt and cleaned once a year on a scheduled timeline, and the diaphragm valves on the shutoff valves are rebuilt and cleaned every six months. In order to maintain healthy teat ends, the Dolph family rotates between two postdips every other week — one with an iodine base and the other containing chlorine dioxide. When weather is 10°F or colder, a third teat dip is utilized. The Lake Mills, Wis., dairy team includes (L to R): Chet and Patty Dolph, and Chet's father, Don Dolph. Not pictured is Don's wife, Pat, who does the book work for the farm.

the drop site in the middle of the barn, and then it gravity flows into the manure pit.

Crandall: Stalls are scraped every milking (three times a day), and sand is replenished weekly. All of our barns have curtains and fans to maintain cow comfort.

Dolph: The milking herd is housed in two freestall barns with headlocks. One barn is naturally ventilated with fans and sprinklers. The other barn is tunnel-ventilated with sprinklers over the headlocks.

Both freestall barns are bedded with virgin sand. We rake out our freestalls at each milking, covering wet spots with dry sand. We groom stalls at morning milking. New sand is added twice a week. While in storage, the sand pile is kept dry by tarping it. Manure is scraped three times a day.

Tollgate: We use properly sized stalls and adjust the trainers accordingly to each cow's height. We scrape wet or dirty bedding back and then pull clean bedding to cover the foam mat bed. We apply this bed cleaning practice at each milking (two times a day) and every time feed is pushed up (at least four times a day). Each stall gets 0.7 cubic feet of kiln-dried pine sawdust and 5 ounces of hydrated lime.

We use fans over the cows that are able to swivel to enhance the natural air current. We also have thermostatically controlled fans with adjustable louvered intake vents set at 45°F for winter.

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

What about dry cow comfort?

Blue Star: We generally follow the same procedures as the milking herd and take the same approach to adding bedding and grooming stalls.

Country Aire: Dry cows are kept in a tunnel-ventilated barn that is bedded with recycled sand two to

three times a week. The sand comes from our sand settling lanes, and the sand is leveled out with a rake on a skid steer as necessary. Western-hydrated barn lime is applied to the backs of the stalls on the rare occasion we see a spike in clinical mastitis from the dry cow pen. Three times a day, we use a push tractor with a tire scraper to move manure into the flume system. The flume carries the slurry to the sand settling lanes and allows us to reuse our sand.

Crandall: Dry cows are cared for the same as our heifers and lactating cows. They are bedded with sand that is replenished once a week. The freestall barn has curtains and fans for cow comfort and it is scraped twice a day. Stalls are never overcrowded.

Dolph: Dry cows are housed in a sand-bedded freestall barn that has fans and sprinklers.

Tollgate: Dry cows are housed in a freestall barn that has mattresses bedded with kiln-dried sawdust. The barn is scraped daily and dry cows have access to a 5-acre exercise lot.

UW Marshfield: Dry cows reside in a bedded compost-pack barn. The pen area is sloped with the lying area being higher than both the feedbunk and scrape alley. The bedded pack contains sawdust that is turned daily with a new layer of kiln-dried sawdust also applied daily.

Close-up heifers and cows are moved about 14 days before their due date to a bedded-pack calving barn. These cattle are bedded daily with clean straw. Manure is manually removed from calving pens, and scrape alleys are cleaned daily. The entire pack is thoroughly cleaned out every four weeks.

What steps do you take at dry-off?

Blue Star: We use selective dry treatment. Cows with over a 100,000 somatic cell count (SCC) based on DHIA records receive antibiotic dry treatment. All cows, regardless of SCC status, get teat sealant.

Country Aire: At dry-off, teat ends get 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 intramammary followed by Orbeseal (again intramammary) to seal teat ends and block pathogens or bacteria from entering during the dry period.

Crandall: At dry-off, all cows receive Spectramast DC (ceftiofur hydrochloride) for treatment and Lockout as a teat sealant. Our dry-off procedure takes place after the last milking. We wear gloves and thoroughly sanitize the teat ends with an alcohol wipe, using a new wipe for each teat, then administer the intramammary Spectramast DC, followed by the Lockout. The teat sealant is only injected into the teat canal and not up into the mammary tissue.

Dolph: After cows are milked, we start the dry off process. After putting on new gloves, we clean the teat end on the farthest teat with an alcohol pad. Then we insert Spectramast DC (ceftiofur hydrochloride) into that teat and repeat the same procedure on the remaining teats. After that, we massage the udder to disperse the treatment in the udder. Then we clean or change gloves.

Starting with nearest teat, we once again clean the teat end with an alcohol pad. Next we insert the Orbeseal teat sealant in the clean teat and pinch the base of teat near the udder and slowly infuse the contents of the tube into the teat. This procedure is repeated on the remaining quarters. Once done, we postdip the teats with BouMatic Gladiator Super Dry teat sealant. All cows are identified with red bands on both rear legs.

Tollgate: Our dry-off process includes a subcutaneous injection of the Triangle 10 vaccine. We also remove the TMR ration and feed 58 to 60 NDF (neutral detergent fiber) grass hay ad libitum. Once the manure stiffens, they are milked daily until production drops below 20 pounds of milk per day.

We only use antibiotic dry treatment for cows over 200,000 SCC. This past year, we dry treated one cow. When the cluster is removed after the last milking, each teat end is swabbed with a single-service alcohol pad. The alcohol is allowed to dry. Then each quarter is infused with teat sealant, but first we tap on the plunger and express the plunger to remove air from the tube. This prevents compressed air from blowing the sealant out of the streak canal and into the gland cistern and beyond. If during this purging process material gets on the canula, we use more alcohol pads to wipe the canula clean.

(Continued on the next page)



Tollgate Holsteins, Ancramdale, N.Y.

This eastern New York dairy may be the most decorated milk quality herd in the nation, having won an unprecedented seventh Platinum National Dairy Quality Award. In earning the most recent honor, Jim and Karen Davenport, along with their herdsman Dave Schillawski (shown left), maintained an impeccable 41,900 somatic cell count on shipped milk during the past year and a 1,000 standard plate count. While this is the first time the herd has returned to NDQA's Platinum winner circle since 2017, the Davenports have been winning top milk honors with the Agri-Mark Cooperative since 1988. When walking into the tie stall barn at Tollgate Holsteins, one will find clean, healthy, and comfortable cows. The farm cultures every case of mastitis. From those culture results, the best therapy is pursued, and in some instances, no treatment is administered.



UW Marshfield Agricultural Research Station, Stratford, Wis.

Since the farm began in 2011, this University of Wisconsin dairy herd has earned an impressive four Platinum National Dairy Quality Awards. The team has well-thought-out written procedures and consistently does a great job implementing those protocols. That is evidenced by the consistent bulk tank somatic cell count that hovers near 50,000 throughout the year. Maintenance also is a high priority, as liners are replaced every 2,100 milkings and the milk service and supply company performs a complete evaluation of the entire milking system each year. This includes evaluating the teat end and line vacuum, pulsation ratios, and the entire wash cycle. Those present for the photo included (L to R): Pete Sutton, Steve Marcis, Will Cordes, Makayla Weigel, Tim Marceille, Nancy Esser, Brian Kruger, Greg Swart, and Tevin Schill.

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UW Marshfield: Cows are dried off about 227 days carried calf (DCC). Cows are dried off 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) and Quatermaster (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 subsequent infusions are done in a far-to-near manner.

Describe your fresh cow monitoring.

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

Country Aire: Before calving, all cows are treated with Bovikal orally to keep calcium levels constant. After calving and being milked for colostrum, cows are moved to the fresh pen bedded with virgin sand and cows are milked on a consistent eight-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.

Crandall: Fresh cows are tested with the California Mastitis Test (CMT) when they come into the parlor. That milk is withheld a minimum of three days, and we make sure that all of the teat

sealant is removed before the milk goes into the bulk tank. If abnormal milk is detected on the CMT, that milk will continue to be withheld and the cow will be treated.

Dolph: In addition to employing recommended fresh cow protocols, we run the CMT test on all quarters and closely monitor Dairy Herd Information Association (DHIA) SCC data.

Tollgate: We watch for abnormal udder involution, such as excessive leaking. At calving, we forestrip to look for abnormal milk and check for unusual edema. Also, we use the CMT on all fresh cows, note the trends, and if a quarter doesn't correct itself, we will use a quarter milker. If there is no improvement, we will culture, treat appropriately, and watch and wait for normal milk.

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.

How do you detect mastitis?

Subclinical:

Blue Star: We use DHIA somatic cell counts.

Country Aire: We monitor DHIA somatic cell counts and run CMT tests.

Crandall: We monitor individual DHIA cow SCC and use the CMT paddle to detect subclinical cases.

Dolph: Our milking technicians observe the

milk for mastitis and abnormalities. We also use DHIA SCC data and CMT paddle testing.

Tollgate Holsteins: We evaluate DHIA reports for high SCC cows. We also look for abnormal tactility . . . feel or texture . . . of a quarter but showing no signs in the strip cup, then run a CMT.

UW Marshfield: We use SCC and CMT testing.

Clinical:

Blue Star: We look for swelling in the udder.

Country Aire: Our milking technicians are trained to observe for abnormal milk or quarters, especially during the forestripping process. If abnormal milk or quarter consistency are of concern (flakes, chunky milk, swollen quarters, or high SCC), cows are segregated and the herd manager is notified to move the cow to the hospital pen for further evaluation.

Crandall: We visually examine the milk when we strip cows pre- and postmilking. All milkers are trained on how to identify clinical mastitis.

Dolph: Milkers look for abnormal milk and swelling during forestripping.

Tollgate: We detect clinical mastitis through visual observation and use of the strip cup.

UW Marshfield: We are vigilant for clinical mastitis through forestripping and observing the streams of milk for abnormalities. Also, watching the milk filter for milk clots alerts us to a potential problem. In addition, clinical mastitis may be suspected if a cow goes off feed, has a hard quarter, or is sick. 🐮

	Blue Star Dairy	Country Aire Farms	Crandall Dairy Farms	Dolph Dairy	Tollgate Holsteins	UW Marshfield
Cows (milking/dry)	629/96	600/100	293/41	460/60	73/8	245/35
Breed	Holstein	Holstein	Holstein	Holstein	Holstein/Ayrshire	Holstein
Milk (lbs.)	31,243	30,628	33,405	31,962	23,835	28,713
Fat (%)	3.9	4.2	3.9	4.1	4.0	4.4
Protein (%)	3.2	3.1	3.2	3.1	3.1	3.3
SCC avg.	79,000	53,000	68,000	87,000	41,900	50,000
SPC avg.	2,000	2,000	1,000	1,000	1,000	1,000
Udder health-related culls (% of culls)	12.0	0	12.0	13.4	2.7	53.4
Do milkers wear gloves?	Yes	Yes	Yes	Yes	Yes	Yes
Are mastitis vaccines used?	Yes	Yes	Yes	Yes	Yes	Yes