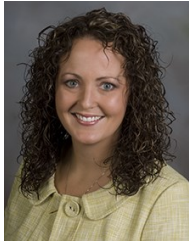


DAIRY PIPELINE

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Winter is just around the corner

—Christina Petersson-Wolfe, Extension Dairy Scientist, Milk Quality & Milking Management, milk@vt.edu

“...it is especially important to keep in mind a few key management factors related to milk quality.”

Before long the leaves will begin to change and as much as I would love to press the pause button on our beautiful fall surroundings, winter will be here before we know it. Although we are not the northern-most state on the map, Virginia dairy producers are still faced with cold and windy conditions for several months of the year, usually starting in December. During these months, it is especially important to keep in mind a few key management factors related to milk quality.

First of all, it is imperative to monitor water heaters and ensure they are maintaining water temperatures. A quick way of determining whether the water in the parlor is hot enough and whether there is enough hot water is to test the temperature of the dump water. The dump water during the wash cycle should read a minimum of 120°F. Water that is not hot enough and/or insufficient water volume will result in improperly cleaned milking equipment, which may result in abnormally high bacterial counts in milk, including PI counts.

With winter also comes the age-old question “should I continue post-dipping teats during the cold months”. Assuming that the udder is dry, teats of healthy animals lacking edema are not typically affected by the cold in the wind-protected conditions found in Virginia free-stalls. However, when the temperature, accounting for the wind chill, is below -25°F, precautions should be taken to avoid frostbite on teats. It is imperative to provide ample dry bedding for the cows to lie on during these harsh conditions. Furthermore, a windbreak would significantly reduce the risk for frostbite. In

terms of teat dipping, a few considerations may be made. The cessation of post-dipping all together will still not provide a dry teat because of the thin layer of milk present on the skin. Therefore, the risk for frostbite is still present. One possible solution would be to apply the post-dip in the parlor, allow the dip to remain on the teats for 30 seconds, and then blot the teats dry. This would allow an appropriate kill time to reduce the load of contagious pathogens on the teats, but also when releasing the cows back to the free stall, would provide them with dry teats, thus reducing the risk for frostbite. There are also a variety of winter teat disinfectants on the market - everything from a dry, powdered dip to those with high emollients. These are also viable options to the traditional dips, but the same precautions should take place if the environmental conditions are harsh enough for frostbite. Furthermore, any liquid teat disinfectant could freeze, which may cause the active ingredient to precipitate out. Once a dip has frozen, check with the manufacturer as to the appropriate steps to take.

In summary, although the winter months are often thought of as the best time for milk quality, producers in VA still experience elevated bulk tank SCC. In fact, based on the recent SQMI project, the lowest bulk tank SCC values are seen in March and April. Therefore, considerations and precautions are warranted in the winter. It is important to provide animals shelter from the wind, consider blotting teats on the very cold and windy days, and monitor the function of the water heaters to ensure the equipment is appropriately cleaned after each milking.



Crossbreeding: The Future of Dairy?

—Haylee Hanling, PhD Student with Dr. Ben Corl; bcorl@vt.edu

If you go to the state fair, you’ll see glamorous Holsteins and Jerseys strutting around the show ring with their proud handlers. They tend to dominate the show largely outnumbering all other breeds since they are the most profitable. We know that Holsteins make the most milk

and Jerseys have the highest buterfat content, two components that drive milk prices. But, creating these pretty cows has come at a cost. Did you know that, on average, every Holstein and Jersey is 7.97% and



Upcoming Events

See [VTDairy](#) for details.

October 1-5, 2019

World Dairy Expo

October 22, 2019

Farm Transition Series—
Value-Added Program

October 26, 2019

Hokie Dairy Day
(Youth Event)

November 1-2, 2019

Virginia Tech Dairy Science
Open House

November 5-6, 2019

Penn State Nutrition Conference

December 10, 2019

FARM 4.0 and New ID
Requirements

February 12-13, 2020

Virginia Sate Feed
Association and Nutritional Cow
College

If you are a person with a disability and require any auxiliary aids, services or other accommodations for any Extension event, please discuss your accommodation needs with the Extension staff at your local Extension office at least 1 week prior to the event.

“Over time, small amounts of inbreeding make breeds more streamlined in physical characteristics but also negatively impact reproduction, longevity, and productivity.”

8.39% inbred, respectively? For every 1% increase in inbreeding, a cow's lifetime milk production decreases by 790 lbs. Without the impact of inbreeding, a 500 head Holstein herd could have a potential increase in lifetime milk production of over 1,000,000 lbs. Over time, small amounts of inbreeding make breeds more streamlined in physical characteristics but also negatively impact reproduction, longevity, and productivity. Diversifying the genetic pool helps combat these problems, and an easy way to do that is with crossbreeding. Crossbreeding starts by mating two purebred animals causing heterosis, or the creation of offspring with genetically superior traits to their parents. In the dairy industry, studies have shown that crossbreeding improves fertility traits, calving traits, and longevity.

Research from the University of Minnesota observed the effect of crossbreeding on fertility using cows from seven commercial dairies in California. They originally bred Holstein cows to Normande, Montbeliarde, and Scandinavian Red bulls. When the crossbred heifers reached maturity, they compared their fertility traits to purebred Holstein. The study showed that all crossbred heifers had significantly fewer days to first breeding and days open. They also had significantly higher first service conception and pregnancy rates. The Montbeliarde-Holstein had the most marked improvement in fertility traits compared to purebred Holstein with 7 fewer days to first breeding, 26 fewer days open, a 10.1% higher first service conception rate, and a 5.3% higher pregnancy rate on average. The researchers then looked further into Montbeliarde crosses; they compared Holstein to Montbeliarde-Holstein and a 3-breed cross of Montbeliarde-Jersey-Holstein. Both crossbreeds had significantly higher pregnancy and conception rates, and they had 41 fewer days open on average. However, the Montbeliarde crosses did not significantly differ from one another in these areas.

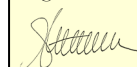
Crossbred cows seemed to be more fertile, but what about after gestation? The next step was to observe calving traits. They began by mating Holstein cows and heifers to either Normande, Brown Swiss, Montbeliarde, or Scandinavian Red bulls to determine the crossbreeding effect of sire compared to Holstein. Scandinavian Red sires reduced calving difficulty and still birth rates in both primiparous and multiparous Holstein dams compared to Holstein

sires. Brown Swiss sires only reduced calving difficulty in primiparous Holstein dams, but all crossbreeding resulted in lowered stillbirth rates in multiparous Holstein dams. The researchers then investigated the effect of dam on calving traits; they mated Normande-Holstein, Montbeliarde-Holstein, and Scandinavian Red-Holstein dams to the bulls that showed the most success in the previous trial: Brown Swiss, Montbeliarde, and Scandinavian Red. The Montbeliarde-Holstein and Scandinavian Red-Holstein crosses had significantly lower rates of calving difficulty and stillbirths at first calving compared to Holsteins. However, there was no significant difference regarding these traits between the crossbreds and Holsteins at second calving.

The major drawback to crossbreeding is productivity. No crossbreeding strategy in the dairy industry has resulted in a cow that can out-produce the Holstein in milk volume to date. However, there is evidence that Holstein crosses have greater longevity than purebred Holstein. The previously stated study comparing Holsteins to Montbeliarde-Holstein and Montbeliarde-Jersey-Holstein reported that the crossbred animals had lower mortality rates and greater survivability to 5th lactation. If the crossbred cows live longer than the average Holstein, then their lifetime milk production may be more comparable. Lowered cull rates in crossbreds could contribute to their greater longevity. Research shows that Montbeliarde-Holstein crosses also have lower somatic cell scores than Holstein over 5 lactations. From this, it can be inferred that they would have reduced rates of mastitis, the primary cause of culling.

Dairy selection generally aims to maximize production to enhance profitability, consequently creating inbred animals. Would a better choice be to select for health, fertility, and longevity to produce more durable cows? Crossbreeding strategies could create such cows and perhaps, over time, help to sustain the dairy industry.

For more information on Dairy Extension or to learn about current programs, visit us at VT Dairy—Home of the Dairy Extension Program on the web at: www.vtdairy.dasc.vt.edu.



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