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Our New Website: <http://yadkin.ces.ncsu.edu>

New Position—New Responsibilities

Effective October 8th I became the County Extension Director in Yadkin County. Along with the new position I now have new responsibilities. My responsibilities include administration, field crops, horticulture, viticulture, pesticide education and will continue to cover waste management for a while. They are planning to hire someone to replace me in the area dairy position as soon as possible. In the meantime, if you have questions or problems relating to dairy, feel free to call me and I will be glad to assist. I have thoroughly enjoyed working with all of you over the past 18 years in the dairy industry. I look forward to working with many of you in my new position.

Raw Milk Bacteria Tests – What Do They Indicate?

Dr. Donald E. Pritchard
NCSU Extension Dairy Specialist

Dairy producers know that the quality of milk and dairy products that consumers purchase depends in large part on the quality of milk they produce. While there can be handling problems by processors, distributors, and retailers, the quality of the milk will never be better than it was when produced at the farm. To monitor the milk quality at the farm, regulatory agencies check periodically for somatic cell and bacteria counts, among other things. In addition, milk marketing cooperatives/handlers also check the milk for various things.

Most producers regularly receive information on the somatic cell count, standard plate bacteria count, and the preliminary incubation bacteria count of the milk they produce. However, many producers do not understand what these tests indicate, especially the bacteria tests. Dr. Steven Murphy from Cornell University described in a paper he wrote a few years ago what these two bacteria tests indicate. His comments are summarized below.

The Standard Plate Count (SPC) of raw milk gives an indication of the total number of aerobic bacteria present in the milk at the time of pickup at the farm. Milk samples are plated onto a nutrient media, incubated for 48 hours at 90°F, and then the number of bacteria colonies are counted. The value is reported as number of colony forming units per milliliter of milk. The legal limit of the number that can be in milk is 100,000, but most producers usually have values below 10,000. The most frequent cause of a high SPC is poor cleaning of the milk system (milking units, lines, bulk tank). Another cause frequently found is failing to rapidly cool milk to less than 40°F. Sometimes milking cows with dirty teats, and maintaining unclean milking and housing facilities can be the cause.

The Preliminary Incubation Count (PIC) reflects milk production practices. PICs are generally higher than SPCs, with values more than 3-4 times the SPCs being considered worthy of seeking corrective measures. Values more than 50,000 should be of concern regardless of the SPC values. To obtain PICs, milk samples are held at 55°F for 18 hours prior to plating and counting the bacteria colonies. This process encourages the growth of bacteria that grow well at cool temperatures. High PICs are usually associated with milking cows that have not been properly cleaned prior to milking, or using milking equipment that is not properly cleaned and sanitized. Bacteria that are considered to be natural flora of the cow, including those that cause mastitis, are not thought to grow significantly at the PI temperature. Marginal cooling or prolonged storage times may also result in unacceptable PIC levels. PICs equal to or slightly higher than SPCs greater than 50,000 may suggest that the high SPC is possibly due to mastitis. The PIC of a raw milk supply does not usually indicate the potential quality of a pasteurized product made from that milk.

In summary, these two bacteria tests, as well as the other milk quality tests done on raw milk, serve as monitors for both regulators and producers to use as they attempt to produce the highest quality milk possible for consumers. For more information on production practices to follow to keep SPCs and PICs low, producers should contact their milk handler field representative or other qualified advisor.

Fall Mastitis Management Suggestions

Dr. Donald E. Pritchard
NCSU Extension Dairy Specialist

Fall is upon us and with it comes the challenge to dairy producers of keeping udder somatic cell counts (SCCs) and mastitis infection rates as low as possible. The hot and often humid weather that most herds have experienced for the past several months has perhaps weakened the cows' immune systems to the point that the cows may now be more susceptible to bacteria and other pathogens invading the udder. Listed below are some suggestions of management practices that may help minimize the impact of fall weather on udder health. The list is by no means complete.

1. Continue to cool cows during the fall months when the daytime temperatures and humidity levels often continue to stress the cows. Remember, when the temperature humidity index (THI) is above about 72, cows will exhibit heat stress signs. And as the cows continue to be stressed, their immune systems are often weakened which can result in an increased incidence of udder infections and elevated SCCs.
2. Be sure the water mister and fan systems are operating correctly to maintain adequate cooling and ventilation of the cows. Installing cooling systems over resting and feeding areas in the housing barns, in the parlor holding pen and return alleys, and over the feeding area of dry cows can help keep cows cooler and improve their udder health and milk producing ability.
3. Continue to keep the bedding material clean, fresh and in an adequate amount to encourage the cows to use the stalls or pack area to lie on rather than stand in dirty, wet areas of the barn or lot. In extremely humid locations the bedding material may need to be changed more frequently.
4. If the humidity remains high and the dryness of the bedding material is a problem, consider adding a product that helps to regulate the pH of the bedding material to retard bacteria growth. Reducing the bacteria load that udders are exposed to can help reduce the udder infection rate. While some of the pH regulating products are expensive, they can be cost effective in herds with a serious udder infection problem that is associated with the bedding material.
5. Be sure that the post milking teat dip is applied evenly and correctly on all teats of every cow. Some producers have found a reduction in udder infection rate and SCC levels of lactating cows by using a barrier dip that is usually applied to dry cows. The longer lasting protection between milkings provided by a barrier dip may be helpful in herds exposed to high humidity and warm/hot daytime temperatures in the fall.
6. If a significant number of heifers are freshening with udder infections, try applying a barrier teat dip weekly for the last two weeks of pregnancy. Some trials have shown a beneficial effect of reducing the udder infection rate at parturition. While we can't control the weather, producers can use management practices that will minimize its effect on the udder health of their dairy cows. Seek the advice/suggestions of a competent consultant to help reduce the elevated udder infection rate and SCC levels that occur in many herds during the fall weather transition months.

NC CATTLE INDUSTRY ASSESSMENT REFERENDUM

The NC Cattlemen's Assoc. has announced that the NC Cattle Industry Assessment Referendum vote will take place on November 14, 2007. Cooperative Extension Centers in each county will serve as the polling place. If passed, the referendum will assess ALL CATTLE one dollar (\$1.00) per head for the purposes of promoting the cattle industry in North Carolina. The funds will be used for producer education regarding beef production topics, beef production research, youth education and leadership development, promotion and marketing of NC Cattle and other areas that the current beef check off funds can not be used. The NC Dairy Industry will benefit from this program, as dairy cattle will also be assessed at the same level. This is a state level assessment only, and is in addition to the Beef Check Off. A refund provision will be available, for the state wide assessment, for producers who wish to pursue a refund.

All North Carolina cattle owners over the age of 18, as of November 14, 2007, are eligible to vote during regular business hours at the local County Extension Center. For more details, contact the NC Cattlemen's Assoc. or the Cooperative Extension Center.

ANIMAL WASTE TRAININGS

- Initial Animal Waste Operator Certification Training will be held at the Iredell County Agricultural Center in Statesville on November 8th and 9th. (9:00 am to 3:00 pm both days). This is the initial ten hour class for new operators. If you know of someone who needs this training please call me at (336) 679-2061 to get them registered.
- Continuing Education Credit Workshop for Animal Waste Operators—will be held at the Iredell County Agricultural Center in Statesville on Friday, November 16th. There will be a 2 hour credit session beginning at 10:00 and another 2 hour credit session beginning at 1:00. You can get a total of 4 hours CEC's. Please call (336) 679-2061 to register or if you have questions.

Dairy Strategies With Expensive Corn

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Shelled corn prices continue to climb as ethanol production uses corn grain as a fuel source. The challenge (the “3F functions”) for future corn uses will be:

- food for human consumption and use
- fuel for transportation
- feed for livestock

Livestock managers may need to adjust rations as role of corn grain slips to the third function. Questions raised by dairy farmers are being asked below.

How much corn grain is needed in the dairy ration?

The key guideline is the needed level of starch in the total ration dry matter to optimize rumen microbial growth and provide a glucose source in the small intestine. Current recommendations are 24 to 26 percent total starch (including cereal grains and corn silage). High quality forage and use of by-product feeds can reduce the level of starch needed, but monitor cow performance carefully.

How can I increase starch availability?

Starch availability from corn silage will increase the longer it is stored. In March, corn silage starch will be more available than in December due to “cooking” rendering it more soluble in the silage juices. Kernel processing of corn silage will make the grain more digestible, especially if the corn silage was harvested over 35 percent dry matter.

Corn grain can be made more available if dry corn is ground to 1100 micron size, corn is roasted or steam-flaked, or stored as high moisture corn (28 to 32 percent dry matter). These processes will gelatinize the starch, increase surfaced area, and/or solubilize starch leading to more available in the rumen. To determine if your dry corn averages 1100 micron, take a cup of your ground corn and sift through a baker or kitchen flour sifter. If 2/3 of the grain passes through screen, it is about 1100 microns.

By optimizing starch particle size, fecal starch levels can drop (typically 5 to 10 percent) and increase starch availability (“stealing” starch from manure). The risk with smaller corn particle size is that ration adjustments must be made to allow for more starch in the rumen that could lead to rumen acidosis.

What feeds can be substituted for shelled corn?

Cereal grains (such as barley and wheat) could replace for corn, but normally these grains are more expensive than corn on a starch equivalent base. Bakery waste will vary in starch content depending on its source (cookies or bread). Increasing corn silage levels and replacing legume and grass forage sources will increase starch intake. Wheat midds and corn gluten feed contain small levels of starch. Increasing fermentable or soluble fiber (beet pulp, citrus pulp, soy hulls, or corn bran) can compliment lower starch levels as a source of rumen fermentable carbohydrate.

Will shifting to distillers grain for shelled corn work?

Corn distillers grains are higher in protein, oil, and fiber but low in starch. Substituting corn distillers for corn will not achieve comparable results if starch levels are currently balanced. Consult with your nutritionist before making shifting distillers for corn grain.

What should I monitor if I “cheat” the level of starch down?

Lowering starch levels could work on dairy farms if the level of starch was high initially. Dairy managers can experiment by shifting levels and feed ingredients. “The cow is always right” is a theory, so watch for these signals that you have cheated starch levels too low.

- Milk production could decline due to less rumen volatile fatty production by rumen microbes.
- Milk protein test could drop due to lower microbial protein yield.
- MUN (milk urea nitrogen) may increase as less ammonia is captured by microbes in the rumen.
- Manure may become stiffer as more undigested fiber can appear in feces.