NC DAIRY NEWS

NC State Dairy Extension Newsletter April/May 2017

Upcoming Events:

Dairy and Forage Field Day– July 12, 2017

Piedmont Dairy Research Station, 9:30 to 3pm

Come learn about different corn silage and alfalfa/grass varieties, fly control, and mortality composting. Lunch will be served at 12:15pm and Pesticide and Waste Management credits will be offered.

RSVP to Nancy Keith at 704-873-0507 by June 30

Southeast Dairy Youth Retreat– July 9-13, 2017

Bradenton, FL

Attendees will have the opportunity to visit 3 commercial dairies as well as participating in various workshops related to dairy production, foods, and social media training. Please contact Stephanie Ward if you are interested in attending. shward@ncsu.edu

Secure Milk Supply Plan Training

All North Carolina dairies are invited to attend one of three training sessions for the Secure Milk Supply Plan.

Improve your farm's biosecurity so that you can protect your herd and be prepared in the event of a foreign animal disease outbreak such as Hoof and Mouth disease.

Secure Milk Supply Training Sessions (10 a.m. - 1 p.m.):
June 14: Statesville, N.C.
June 15: Canton, N.C.
June 28: Raleigh, N.C.

Dairy farms and processors that complete this plan will be certified by NCDA to ship milk in the event of an outbreak. Contact Terry Sudduth (tsudduth48@charter.net) to register or find more information at the N.C. Dairy Extension's Facebook (@NCDairyExt) and http://www.ncdairyadvantage.com

In This Issue

What's Holding Production Back?

Bottle necks in our dairy production systems are not always obvious. Sometimes we become so accustomed to seeing the sights in front of us, that we do not recognize them as problems. The current rallying cry heard from dairy experts across the country is, "Never give up milk!". Of course, there are limits to what we can and should do to continue to press the envelope for improving milk per cow on our farms. In the next few paragraphs, we will cover a few points on some basics of dry matter intake. Knowing that forages are the cheapest feeds on our farms, we want our cows to eat the most forage they possibly can eat. Of course, this is assuming that those forages are of sufficient quality to be consumed in large quantity without holding back production. So, perhaps the question of the day is: Why aren't my cows eating enough Dry Matter? Three categories of potential issues might come to mind:

Non-nutrient factors: include empty bunk syndrome, heat stress, too much time away from the feed bunk, sore feet…you get the idea. Attention to these factors sometimes requires an intentional assessment. Extension staff, nutritionists, veterinarians are examples of people who can help you troubleshoot these on your farms where a fresh set of eyes might really help.

Metabolic feedback: the feed itself works to switch off the animal's intake. These can include high fat rations, improper chop length for maximal rumen health, etc. Reviewing rations, matching rations to fit the current situation for the cows being fed (rebalancing if necessary) and checking chop lengths of both forages and the TMR using a Penn State Particle Separator (for example) can help get a handle on where you are. Again, Extension staff, nutritionists, and veterinarians should be able to help with this (in fact our NC Dairy Extension Team has three sets of Penn State separator boxes available across the state for loaning out and/or assisted use on your farm).

Physical fill: Cows become full before they are able to meet their nutrient requirements. This occurs for every high producing cow early in lactation since cows have been bred to produce more milk than their initial intake can support. This is known as the negative energy balance portion of the lactation. Although this imbalance is expected, the cow's intake must return to a positive energy balance fairly soon during the lactation if the cow is to become pregnant and continue to be a productive member of the milking herd.

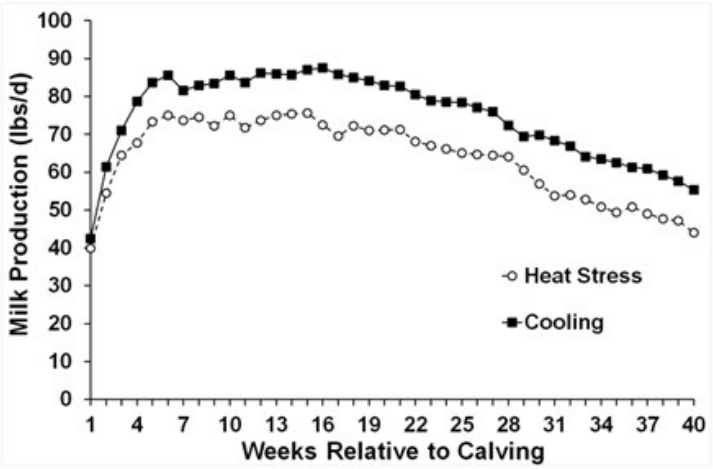
The newest dairy nutrition models have begun to utilize the term undigestible NDF (uNDF). This represents the fill-factor from forage feeds since this is the portion that goes along the GI tract for the ride, but never gets converted into anything useful for the cow. This is akin to the foam peanuts we see in packages shipped around the world today. They take up space and add nothing to the item being delivered and typically are thrown out after the transport is complete. The more room the foam peanuts take up, the less room we have for the stuff we want to be delivered. At least in the shipping world, foam peanuts have a purpose of protecting the items and assuring their safe arrival in useable form. In feedstuffs, they just take up space in the rumen, space in the rest of the GI tract, space in the bunker silo or hay bale, and finally space in the manure pit where they wind up going back to our fields (and contribute really nothing of value all along the way).

So, we are wise to limit how much uNDF we have in our rations. For a Holstein cow, the maximum amount of uNDF she can handle without compromising her overall Dry Matter Intake is about 6 to 6.2 lbs per cow per day. Looked at another way, that amount would be seen in a ration with 30% NDF times 50 lbs of Dry Matter Intake for a Holstein (or 15 lbs of NDF in her daily feed). If the undigestible portion of that NDF is 40%, that would result in about 6 lbs of uNDF max per day. That should be a goal, uNDF no more than about 6 lbs per head per day. How do we achieve this with high forage diets? Grass and legume silages can complement corn silages if they are grown, harvested and stored correctly. If handled incorrectly, they are just more gut filler, more foam peanuts if you will, and leave less room for the nutrients you want for high milk production. A good practice might be to pick your varieties based on digestible NDF and tonnage. Plant, fertilize, control weeds and harvest in timely manners. Store and preserve properly (timing, excluding air, packing and covering well) in order to minimize uNDF. (cont'd on pg 5)

Baby, it's HOT outside…Don't forget about your dry cows!

While we've had some cooler days, the summer heat is setting in and this could be one for the record books! Cows are heat stressed at temperatures as low as 70 degrees, especially in a humid climate like ours in NC. So, if you haven't turned your fans on yet, now is the time to do so!

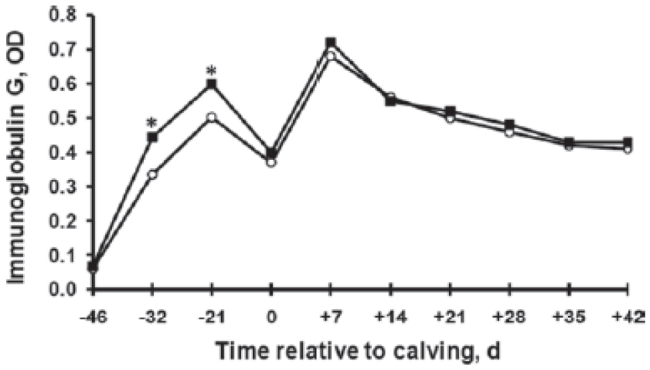
We tend to spend plenty of time and money on cooling lactating cows, but we often forget about the other residents on the farm...dry cows and heifers. Heat stress during pregnancy can have lasting, negative impacts on the subsequent lactation AND cause lightweight calves at birth.



Data from Tao et al, 2011 showing milk yield differences in cows that were cooled during the dry period (closed squares) compared to those not cooled (open circles). Original data from Dr. Geoffrey Dahl (UFL) and Dr. Sha Tao (UGA)

Milk Loss

Data from University of Florida and University of Georgia (Figure 1) shows that cows cooled during their dry period, with no other changes in management, produced more milk during their lactation compared to those who were not cooled. Additionally, they were also able to show significantly greater IgG concentrations in colostrum just prior to calving in cows that were cooled compared to those who were not.



Calf Performance

Some data shows as much as a 20% decrease in birth weight compared to calves from non-heat stressed dams. When combined with lowered quality colostrum, lightweight calves are not likely to reach the 2 lb/d gain recommended during the preweaning phase to optimize milk production later on. For every 1 lb decrease in gain, pre weaning, you could be giving up as much as 1300 lbs of milk in her first lactation.

So, consider shade cloth for dry cows on pasture or bring them in under the fans and misters 30d prior to calving. This would also give you the opportunity to help reduce stress at transition– a topic for next quarter's newsletter!

Stress and Nutrition Affect Milk Quality

This time of year, at the University, students are experiencing tremendous amounts of stress associated with finals, graduation, pursuit of a job…it can be overwhelming. As a result, poor eating habits arise and coupled with lack of sleep, visits to student health centers increase. Stress can negatively affect your immunity and the same is true for cows!

We do not often think about cows being stressed, after all, their lives seem fairly simple and uncomplicated. But, lack of proper feeding programs and heat are both very stressful problems for cows. In the SE region, especially, cows can experience more than 120 days of heat stress per year. It is not just that it's hot, but also that it is humid and because the air is already moist, it is difficult for cows to dissipate heat. So, even when it feels like a nice spring day to us, cows can be experiencing heat stress. When cows experience heat stress, which is typically at a temperature greater than 72 degrees and a humidity of 50% or greater, they tend to decrease in dry matter intake. When cows go off feed, they do not consume a good balance of vitamins and minerals. In particular, Vitamin E and Selenium, which are immune boosters, decrease. As a result, milk yields decrease and somatic cell counts increase (Figure 1).

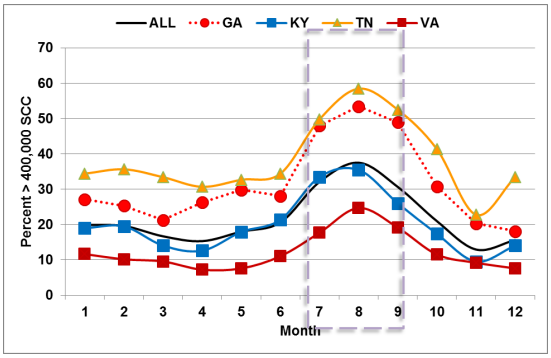


Figure 1 Percent of farms with SCC greater than 400,000 in the SE by month.

In addition to decreased feed intake, other functions of the immune system can decline when cows experience stress including concentrations of immunoglobulins which are critical for fighting pathogens.

As summer approaches, here are a couple of tips for keeping your cows comfortable and healthy.

1. **Monitor feed intake closely.** As cows begin to decline in feed consumption, consult your nutritionist about balancing your ration and feed additives that can help improve intake and immune response.
   - Consider offering an electrolyte supplement. This can be done in the water trough or added to the ration. Your nutritionist will help you balance minerals and vitamins so that the effects of heat stress are lessened.
   - Use your best quality forages for milk production in the summer. When cows are heat stressed and intake goes down, digestibility of the ration also decreases. Using good quality forages will improve ration palatability and digestibility.
2. **Cool cows….ALL cows.**
   - Using fans and misters in the barn can help tremendously in cooling cows. Focus on wetting and drying along the topline of the cow- not the udder! Research shows that heat ***does not*** dissipate any faster if the udder is wet.
   - Too often we forget about dry cows and pregnant heifers. Both of these classes of animals can be negatively impacted by heat just as lactating cows. If you can, bring them in to the barn ~21 d prior to calving so that they can be cooled with the other cows. Cooling during the entire dry period is recommended, but especially in the last month. Calving ease, colostrum quality, and cow and calf health will improve.
   - Grazing cows (dry or lactating) also need cooling. Shade structures or natural shade are recommended. Cooling ponds are not! Cooling ponds can increase the incidence of environmental mastitis. If grazing under a center pivot, consult your technician about the addition of misters to the pivot for cow cooling. It will im-

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What's Holding Production Back?
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Keeping records of uNDF in your forage can help you fine-tune your forage production practices and will also help you allocate the best forages to the animals in your herd with the highest need for low uNDF, high quality forages for maximal milk production potential.

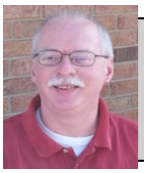
Other practices can also help to maximize dry matter intake on the feeding side. Cows prefer to take in 10-12 meals per day with the largest meals typically after they are milked. Be sure to provide all the feed they want, all the time, being especially mindful of the amount and quality after milkings. Plan to feed enough extra so there are weigh-backs or orts, of uneaten feed. This does cost some money and time. But moving these uneaten feeds to another animal class so that your high producing cows receive 2 to 4% more feed than they can eat every day can help maximize their feed intake and maximize milk production in turn. Oftentimes, farms find that they can actually keep fewer cows while still maintaining the same amount of saleable milk. This situation can occur if you can put more high quality feed through your best cows by maximizing their dry matter intake with quality forages. This could allow you to stop carrying as many lower producers who use of a lot of space, labor, and maintenance feed resources.

Sometimes this is a good strategy for times of low milk prices such as we are experiencing currently.

Finally, be aware of the condition of the feed table surfaces. If you scrape your nail across the feed bunk surface and get a significant amount of crud stuck to your finger, better bunk maintenance is in order. Sometimes resurfacing the feed bunk (plastic liners, epoxy coatings, ceramic tile, etc.) are well worth the money by reducing spoiled feeds, increasing dry matter intake, and reducing cleaning labor. Deteriorated feedstuffs not only waste your efforts in picking quality varieties, planting, spraying, fertilizing, harvesting, transporting, packing, storing, weighing, mixing and delivering feeds; but in the end, you are not feeding the balanced ration you were planning on feeding.

Sometimes, small (and even inexpensive) changes can result in significant improvements in DM intake. Improvements in DM intake are one of the factors on a dairy that are most apt to improve your financial bottom-line.

If you have any questions, or wish to discuss any of these topics further, please contact a member of your NC Dairy Extension Team. We are here to help!



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Farmer2Farmer

Do you have land, equipment, labor, livestock, or have something someone else might need? Please let us know and we can share it in this space! Our goal is to keep as much of our dairy resources in North Carolina right here in North Carolina!

Please send by email to: shward@ncsu.edu (put Farmer2Farmer in the subject line)

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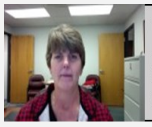

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