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GEORGIA DAIRYFAX

Dear Dairy Producers:

The enclosed information was prepared by the University of Georgia Animal and Dairy Science faculty in Dairy Extension, Research & Teaching. We trust this information will be helpful to dairy farmers and dairy related businesses for continued improvement of the Georgia Dairy Industry.

INSIDE THIS ISSUE: October November December, 2018

Sincerely,

Sha Tao

Sha Tao, Assistant Professor

UGA extension

Advantages of utilizing teat seals in a dry cow mastitis prevention and control plan

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Dry cow therapy is an integral part of a successful mastitis prevention and control program. The predominant component of dry cow therapy is dry cow intramammary antibiotics, such as Spectramast®DC or Tomorrow®, and has long been accepted as necessary for optimal mammary health during the dry period and into the next lactation. Antibiotics will cure existing infections at dry off, especially those unseen subclinical infections, and will also prevent new infections in the early dry period. However, animals are still at risk for mammary infection throughout the entire dry period, especially when the therapeutic effects of initial dry cow antibiotics wane.

Risk of mastitis is increased during the dry period

The dry period is necessary for dairy animals to allow the mammary gland time to regress, rest, and then prepare new tissues for the next lactation. However, the dry period also represents the time at which risk of mastitis is heightened, a risk which can be carried into early lactation without proper dry cow management (Figure 1).The most recognizable feature of a cow that has recently been dried off is a distended or swollen udder. This is, of course, because the mammary gland has filled with milk that would have otherwise been expressed. When the udder becomes distended, the teat ends become dilated, or open, as a result of accumulating milk. While, udder distension and teat end dilation are natural and unavoidable, they increase the chances of mammary infection during the dry period, both early and late. Moreover, additional events occur during the early and late dry period that also contribute to increased risk of mastitis (Table 1).

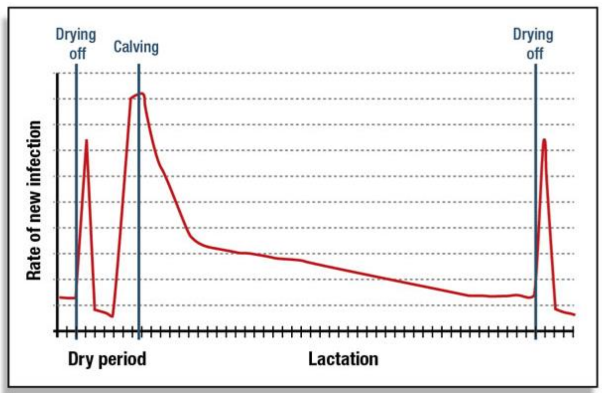

Figure 1: *Rate of new infection during lactation. Arnold, 2014. Adapted from Bradley and Green, 2004.*

Table 1. *Risk factors for mastitis during the early and late dry period*

EARLY dry period	LATE dry period
Teat end dilation increases risk of exposure to mastitis pathogens	**Teat end dilation increases risk of exposure to mastitis pathogens**
Bacteria in the udder is not flushed out since regular milking is stopped	**Bacteria use new supply of milk components**
Germicidal post-dipping is discontinued	**The lack of antibiotics allow for bacterial survival and proliferation**
White blood cells are focused on removing milk components	**White blood cell concentration is reduced due to accumulation of fluid**

For some of the risk factors listed in Table 1, dry cow intramammary antibiotics greatly reduces the risk. For example, antibiotics aid the immune system in bacterial killing in the early dry period. However, nearing the end of the dry period, antibiotic concentration has dropped below therapeutic levels and is ineffective. Moreover, teat end dilation at the beginning and end of the dry period predisposes the animal to mastitis. In one study, 50% of teats were still open 10 days after dry off (Williamson et al., 1995). Teat end dilation increases the risk of bacterial entry because teat end defenses, including formation of a keratin plug and tight teat sphincter closure, are not functioning aptly (Figure 2). The risks posed by an open teat canal cannot be overcome entirely with intramammary antibiotics, especially during the late dry period when antibiotic concentration is too low to be effective. So what can be done to increase the effectiveness of dry cow therapy in a mastitis control and prevention plan?

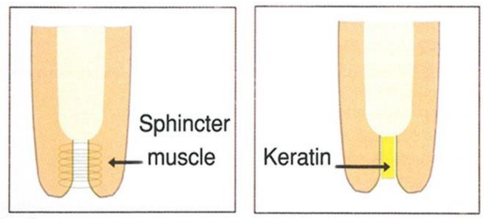

Figure 2: *Teat end defenses (Philpot and Nickerson, 2000)*

Teat seals can aid in protecting the mammary gland during the dry period

During lactation, the teat is successfully sealed with a keratin plug and tight closure of the teat sphincter (Figure 2). The keratin plug serves as a biochemical and physical defense against bacteria, and the test sphincter further bolsters physical defenses. Artificial teat sealants can supplement inefficient teat end defenses, during both the early and late dry period, effectively reducing the rate of intramammary infections (Figure 3). For example, in one study, the prevalence of intramammary infections in quarters that received a teat seal and antibiotic (T+A) was 22.8% when 1 to 3 days in milk (DIM) were examined whereas quarters only receiving antibiotics demonstrated a prevalence of almost 30% (Godden et al., 2003). Further, at 6 to 8 DIM the prevalence in the antibiotics only group was around 26%, compared to 20% in the T+A group (Godden et al., 2003). Authors also reported lower infection rates with major pathogens, especially environmental streptococci when a teat seal was used. In another study, the percent of overall infected quarters was significantly lower in quarters that received teat seal and antibiotic (2%) compared to quarters with no teat seal or antibiotics (16.1%) (Woolford et al., 1998). Administration of a teat seal and antibiotic also slightly reduced number of quarters infected (2%) when compared to antibiotics alone (2.7%) or teat seal alone (2.5%). Importantly, quarters receiving teat seal and antibiotics demonstrated less new infections compared to teat seal only, antibiotic only, and no antibiotic or teat seal. Given the success of teat seals alone, some herds administer teat seals, without antibiotics to low somatic cell count quarters or uninfected quarters in an effort to reduce antibiotic usage and costs of dry cow therapy. These plans are implemented in selective dry cow therapy programs, but the research is still limited on whether this would universally benefit the dairy industry, especially with the increased management a selective dry cow program brings about.

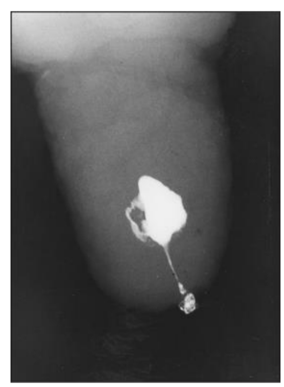

Figure 3: *X-ray of teat with artificial teat seal*

Teal seal options and words of caution for administering teat seals

There are various teat sealants available for use, including internal and external teat sealants. While external teat sealants may be useful, they have to be reapplied frequently, every 5 days in some cases. For this reason, external teat sealants are not found to be as useful. For your reference, the studies discussed in the previous section utilized internal teat seals. The internal teat seal that has been on the market the longest is Orbaseal® (Zoetis) and has been used in a variety of studies. However, the Orbaseal® patent expired in the recent years, thus new teat seals including some at lower costs or with better design features have been introduced. Most of these new products provide a similar, if not identical formulation to Orbaseal®. For example, a new product called Lockout™ (Boehringer Ingelheim), touts its more user friendly infusion design as well as the sealant itself being blue so employees can see the product before, during, and after infusion.

Much like intramammary antibiotics, administration of teat seals must be done using the partial insertion technique (Figure 4) to prevent infusion of additional pathogens, especially those that are refractory to antibiotics such as molds, yeasts, and algae. The goal is to minimize the distance that the cannula, or tip, enters the teat canal. Furthermore, teat seal tubes should be stored in a clean dry environment to prevent contamination. The worst case scenario is to seal a teat with a pathogen that is unlikely to respond to antibiotics, has ample time to take up residence in the absence of milk expression, and has an undisturbed food source. This may result in a nonfunctional quarter, decreased milk production, chronic mastitis, or even death of the animal in very rare circumstances (Milnes and Platter, 2003).

Figure 4: *Partial insertion of antibiotic or teat seal cannula*

Final comments

Teat seals are a valuable addition to a dry cow mastitis management program. Dry cow antibiotic administration is necessary to cure existing infections and prevent new infections in the early dry period, but teat seals provide greater protection against mastitis pathogens especially during the late dry period. While there are economic considerations for utilizing teat seals, especially if it is not currently part of your program, the economic benefits have been demonstrated in previous studies (Baillargeon and LeBlanc, 2010). Internal teat seals are found to be most effective, but must be infused using the partial insertion method. Uninfected and low SCC cows are candidates for teat seal alone, but confirmation of infection status is necessary to prevent chronic infections.

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Practical approaches to reducing cold stress in dairy calves

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As we approach the coldest months of the year, it is important to consider calf care and make preparations to help them handle the low temperatures. With the desire to achieve at least 2 lbs Average Daily Gain from birth until weaning, any additional stress may adversely affect the ability of the calf to achieve performance goals and make it to the milking string. Although the Southeast does not experience the extreme temperatures seen in other parts of the country, we do see large temperature variations, which is a large contributing factor to thermic stress. Cold stress results in direct economic losses to producers through increased calf sickness and death. It can contribute to reduced weight gain, calf performance, and long-term survival. Due to the impacts the cold weather can have on calf performance and welfare, along with economic losses, it is important to make preparations to help calves successfully endure the winter months.

The thermoneutral zone (TNZ) is defined as the range of ambient temperatures in which heat production of the individual is independent of the environment. In this zone of environmental temperatures, the animal is generally comfortable with the core body temperature within appropriate physiological limits. Literature reports the thermoneutral zone of dairy calves to be 55°F-68°F, similar to humans, however, due to low subcutaneous body fat, high body surface/mass-ratio, and lack of rumen fermentation to create heat, dairy calves are especially susceptible to cold stress. Additional considerations need to be given to dystocia-affected calves, as their heat generating mechanisms are often impaired and they are more susceptible to cold stress, even in warmer temperatures.

Although there are various strategies to help reduce cold stress in calves, in the southeast, focusing on housing and nutrition are two of the more practical methods. The majority of pre-weaned dairy calves in Georgia are housed in individual hutches. Hutches are not only advantageous from a biosecurity and labor standpoint, but they also provide an opportunity to create a microclimate for the calves. When a calf is born, it should be completely dried off when initially being handled to give colostrum, prior to being put in an outdoor hutch. Care should be taken to ensure the colostrum remains approximately 100°F from collection or thawing until feeding. The hutch should be deeply bedded with clean, dry, and insulating material such as straw or wood shavings. The bedding should be cleaned and changed as needed for hygiene purposes as well as to maintain a dry environment for the calf. Consideration should also be given to hutch placement. If there is a consistent wind direction, the opening of the hutch should be faced away to keep the calf out of the direct wind. Studies have concluded that although the temperature inside the hutch may only be increased by 2.5°F, wind speed can be reduced considerably. If wind direction is not a practical consideration then the opening of the hutch should be oriented to get as much direct sunlight as possible. In Georgia during the winter, a hutch opening facing south will generally receive the most direct sunlight. Additionally, calf coats can be utilized to provide additional insulation to calves during the coldest weather.

Since pre-weaning dairy calves are too young to rely on rumen fermentation for secondary heat benefits, we can supplement them with additional calories through milk and/or milk replacer. As calves get colder, they will redirect calories and energy away from growth and towards mechanisms to stay warm. The scientific literature also reports an increased resting metabolic rate, increased energy requirement of maintenance, and a decrease in digestive efficiency during cold weather. All of these changes indicate a need for increased calories. For every 10-degree drop in temperature below 50°F, the caloric needs of a calf increase approximately 10%.

The amount of nutrients provided and amount of calories needed depends on the body weight of the calf, environmental temperatures, and if milk replacer or whole milk is being fed. A typical milk replacer fed to dairy calves is 20% fat and 20% protein compared to whole milk, which is 25.5% protein and 28% fat, on a dry matter basis. The total calories in 1.20 pounds of 20:20 milk replacer powder is approximately 2,378 (Mcal) and the total calories in a gallon of whole milk (8.60 pounds) are 2,499 (Mcal). Since young calves will be consuming minimal starter grain, to increase calories during the winter they can be fed more frequently (3 times a day versus 2 times a day), a higher volume at each feeding, or fed a higher percentage protein and fat milk replacer such as a 26:20 milk replacer. A separate study concluded that calves supplemented with a higher fat diet of 20-25% opposed to 15% fat during the first 3 weeks of the pre-weaned phase during mild cold stress increased their energy intake and average daily gain. It is also important to ensure the milk or milk replacer is warm, fresh water is available, and liquids are not spilled on the calves while feeding.

As the temperature continues to drop, it is important to consider strategies to help calves handle cold stress. Whether these calves are being raised to become replacements within the herd or to be sold after weaning, taking steps to mitigate the effects of the cold weather can lead to improvements in calf health, welfare, and performance. Providing adequate nutrition and appropriate housing conditions are simple steps that can help calves withstand the winter weather. Making adjustments to calf feeding programs should be done with consideration and with the assistance of a nutritionist or veterinarian. If you would like to visit with one of our veterinarians regarding a calf health program and management strategies, we would be glad to explore the options and design a plan to best fit your operation and goals.

Hay! Where did my forage go?

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Ruminant animals are unique because their stomach is composed of four compartments: the rumen, reticulum, omasum, and abomasum. Ruminant animals spend their whole lives eating food that most mammals cannot: forage. The rumen and its huge microbial population are what make this all possible. While cattle diets generally consist of some combination of forage and grains, forages are particularly important to keep your cattle productive and healthy. But what actually happens to our feeds between being forage and milk?

How are forages degraded?

Before you feed your cows, you check the Crude Fiber (CF) content on the proximate analysis or feed tag. While you just see the word fiber, the microorganisms will encounter compounds called cellulose and hemicellulose which only microbial enzymes can break down. The process of chewing begins forage degradation; however, even after being swallowed, forage is still in large chunks that need to be digested further by the cow ruminating or "chewing the cud" and the action of rumen microorganisms. The ruminal microbial population is not just bacteria, but includes fungi and protozoa. Ruminal fungi are unusual because they break down forages, without oxygen, and are critical to the degradation of forage. These fungi put down "roots" into forages that branch out and break the forage apart much like tree roots under a sidewalk, breaking off pieces of the forage. The smaller pieces have a greater surface area, so that additional fungi, bacteria, or protozoa can come in and further break down the forage into nutrients that can be utilized by the animal.

Because they breakdown a compound called cellulose, scientists decided to name fiber degrading bacteria cellulolytic. Fungi and cellulolytic bacteria collaboratively break down fiber into smaller pieces and individual sugars which are utilized by the cellulolytic bacteria. These sugars can then be formed into the volatile fatty acids (VFA) acetate, propionate, or butyrate. Hemicellulose is another form of fiber that ruminal microbes break down. Fiber degrading bacteria are also important to the nutrition of cattle (and save you a lot of money!) because they also produce B vitamins needed by the animal. These forage-degrading microbes are why the rations we make for our cattle only contain vitamins A, D, E, and K.

While forages bring a lot to your cows' table, but two components in forages slow down the process of fiber degradation: lignin and tannins. Lignin is the reason why you're often told to feed cattle less mature forages. It is a compound that makes plants very woody and rigid, and unfortunately, lignin can be toxic to cellulolytic bacteria unless the cow has become accustomed to eating a highly lignified diet. The increase in lignin as forages become more mature is why they become thicker and more rigid. Highly lignified forages take longer to digest slowing down fiber degradation and in turn reducing productivity. Lignins contain aromatic compounds which give off scents like vanilla and cinnamon. However, when these acids are broken down, the aromatic parts are toxic to bacteria, thus as bacteria break down lignin they are poisoning themselves.

Even though they also contain aromatic compounds, tannins are a bit different than lignin. Tannins were used to "tan hides" to make leather prior to industrialization. Like many things in life, tannins can be good in moderation, and are common in red wine (they are responsible for the astringent taste of wines). Tannins are considered antinutritional because they bind to protein in the diet. However, in cattle this can be beneficial because they can be used to protect proteins from ruminal degradation, ensuring that dietary protein bypasses ruminal degradation and makes it directly to the animal. This can reduce the amount of ammonia production from wasteful degradation of feed protein. However, if dietary tannins are present at high concentrations they bind protein and make them totally undegradable by the microbes as well as indigestible by the animal, which reduces your animal productivity and efficiency.

What are the benefits of feeding forage?

Ruminants require forage in their diets to maintain a healthy rumen microbial population. Feeding forages "scratches" the wall of the rumen which stimulates the rumen to contract, which mixes the microbes with the feed. Forages also increase the amount of saliva a cow produces which in turn increases the rate of flow through the rumen keeping the microbes healthy and happy. Cow saliva contains sodium bicarbonate (think about Tums) which acts as a buffer, preventing the rumen from becoming too acidic. The best pH for the rumen is between 6.2-6.8; but if the cow consumes too much starch from grains, the pH can drop below 6.0 and the cow can have many health problems including acidosis, laminitis (founder), and liver abscesses. Thus it is critical to keep the pH relatively high, and the buffers found in saliva help maintain this pH.

Benjamin Franklin was thinking about cattle production when he proclaimed, "an ounce of prevention is worth a pound of cure."

In addition to thinking the more diversity, the better, it can also be beneficial to think the more chewing, the better. When cattle are fed mature forages such as long hay, they will spend around 700 minutes a day chewing their cud, or ruminating. This is good because it ensures their feed is broken down into increasingly smaller pieces, so it can be thoroughly utilized by the ruminal microbial population. If a cow is fed a low forage diet, the time they spend ruminating can decrease by almost half leading to their feed not being completely digested. Plus, the lower pH from the increased degradation of starch inhibits forage degradation. If the feed is not properly degraded by the microorganisms in the rumen, the animal cannot get all the nutrients from the feedstuffs you have paid for, leading to a lack of productivity and ultimately a loss in profit to the producer.

Conclusion

While forages do contain compounds that can be harmful to both the rumen microorganisms and the animal themselves in large concentrations, they are ultimately necessary for survival. Throughout history, cattle have evolved together with the bacteria, protozoa, and fungi that live in their rumen to find an efficient way to break down forages and all get the nutrients they need. Today, this evolution now requires cattle to eat forage in order to get an adequate amount of B vitamins, have a healthy rumen pH, and maintain a healthy rate of flow through the gut. However, while this process will never be 100% efficient due to compounds such as lignin and tannins, the animals and microorganisms have done an excellent job at making it as efficient as possible.

Linseed byproducts, rich in omega-3 fatty acids, might help to improve the performance of young dairy calves

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The process of rearing heifers should be carried out as a future investment in the dairy farm since the genetic potential is greatly influenced at early stages of life. Optimizing growth and decreasing morbidity and mortality rates in calves are important goals for the modern dairy operations. Colostrum management, a well-organized feed management program, appropriate housing, and disease prevention strategies are essential to an efficient transition from monogastric to ruminant stage. Lipids or Fats are highly energetic compounds provided by milk and concentrates during the first months of life of the dairy calf. Linoleic and alpha-linolenic fatty acids (FA) are 18 carbon polyunsaturated fatty acids (PUFA) considered essential for animals because they cannot be produced in the body; consequently, they must be obtained from vegetable sources. Linoleic acid, an omega-6 FA, and linolenic acid, an omega-3 FA, have critical roles on performance and immunity of ruminants and have received considerable attention in calves, as they are born with small reserves of both of these FA. In addition, essential FA should be minimally affected by the biohydrogenation process in the rumen of unweaned dairy calves, because they are essentially monogastrics during the first weeks of life; as a result, omega-6 and omega-3 FA can be incorporated into cellular membranes to participate in several cell functions. In general, omega-6 FA have roles as pro-inflammatory precursors while omega-3 FA act as anti-inflammatory precursors. Indeed, reduced inflammatory responses occurred after omega-3 FA were supplemented to ruminants. The use of seeds containing oils with high content of linolenic acid, such as linseed (Linum usitatissimum), is one interesting approach to increase the contribution of omega-3 FA in the diet of calves. Linseed contains 45-48% oil with more than 50% of its total FA being omega-3 FA. Linseed can be used as a whole seed, pure oil, meal, and expellers. Meals can be obtained either after oil extraction through the use of organic solvents or mechanically. On the other hand, canola, as either meal or expeller, is another interesting nutritional byproduct for ruminants; however, its oil composition is richer in omega-6 and omega-9 than in omega-3 FA. Canola and linseed mechanically extracted meals are common byproducts used in animal nutrition. They are similar in protein content (30-34%) and fat (7-10%), but differ in their FA profile.

In a previous study conducted in Chile, we found a positive impact of feeding linseed expeller meal on the health and performance of dairy calves since recovery of sick calves was more evident than the control group supplemented with canola expeller. However, little research has been conducted on the impact of omega-3 FA on performance of pre-weaned dairy calves. In the Chilean study, the concentration of anti-inflammatory precursors (resolvin-E1) in the group fed linseed expeller meal was particularly higher than in the group fed the canola expeller meal at 49 d of age, suggesting that calves fed the linseed-based starter had a better response to digestive inflammatory processes (diarrhea) suffered by some calves during the study. Based on our results, it is noteworthy to evaluate the effect of linseed expeller meal in young dairy calves on their natural immunity and responses to vaccination against viral respiratory diseases, which can translate into better growing and health performance of the calf.

According to the National Animal Health and Monitoring System, USDA (2014), calf mortality in the US dairy operations still is high, ranging from 5.7 to 10.5%. Major causes of death were diarrhea or other digestive problems (56.4%) and respiratory diseases 24%. Because of these unsatisfactory numbers, our research group at the University of Georgia in Tifton has proposed a research that is intended to demonstrate the supplementation of feedstuffs rich in omega-3 FA are a valid strategy to control and prevent digestive and respiratory diseases in dairy calves. Consequently, a positive immunomodulation and, indirectly, a better calf performance is expected in calves fed linseed meal as ingredient of the starter concentrate. The objective of this investigation is to compare the effect of linseed meal and canola meal as part of the starter (25% inclusion as DM basis) on average daily weight gain, concentrate intake, feed efficiency, incidence and duration of digestive and respiratory disorders, blood concentrations of several immunomodulatory compounds and immune responses to respiratory vaccines in young female Holstein calves. This is a nutritional/clinical trial that will be conducted under conventional settings of a Holstein dairy farm.

We hope to prove our hypothesis and we will be delighted to share with you our results in a future article of DairyFax. Outcomes of this study will lead to apply for funding from USDA, other agencies and the industry to determine the potential use of linseed meal, oil or grain or other omega-3 FA supplements (fish and marine byproducts, omega-3 based commercial products), in a large-scale study, considering seasonal variations (e.g. heat stress) or the use of omega-3 FA in pre-weaned beef calves (creep-feeding systems) to prevent Bovine Respiratory Diseases at weaning and at arrival to stocker markets and feed-lots.

Thank you for your reading!

Important Dates

2018-2019

Georgia Dairy Conference

- January 21-23, 2019
- Savannah Marriott Riverfront, 100 General McIntosh Boulevard, Savannah, GA 31401
- http://www.gadairyconference.com/

30th Florida Ruminant Nutrition Symposium

- February, 4-6, 2019
- Best Western Gateway Grand, 4200 Northwest 97th Boulevard, Gainesville, FL 32606
- http://dairy.ifas.ufl.edu/rns/info.shtml

Mastitis and Milk Quality Workshops

- Offered by UGA extension
- Feb 5, Brooks County
- Feb 27, Burke/Jefferson County
- Feb 28, Greene/Morgan County

Top GA DHIA By Test Day Milk Production – September, 2018										
					Test Day Average				Yearly Average	
Herd	County	Br.	Test Date	[1]Cows	% in Milk	Milk	% Fat	TD Fat	Milk	Lbs. Fat
RODGERS' HILLCREST FARMS INC.*	McDuffie	H	9/19/2018	433	88	93.3	4	3.23	31757	1146
DAVE CLARK*	Morgan	H	9/3/2018	1221	90	93	3.9	3.16	31476	1307
DANNY BELL*	Morgan	H	9/6/2018	307	90	89.5	3.8	2.94	29545	1136
A & J DAIRY*	Wilkes	H	9/4/2018	450	91	83.4			28079	
J.EVERETT WILLIAMS*	Morgan	X	9/10/2018	2005	88	82.3	4.4	3.06	27810	
DOUG CHAMBERS	Jones	H	9/25/2018	437	88	79.6	3.4	2.24	24887	862
SCOTT GLOVER	Hall	H	9/12/2018	181	89	77.9	3.7	2.44	26921	1008
SCHAAPMAN HOLSTEINS*	Wilcox	H	9/25/2018	819	90	77.7	3.6	2.33	27102	982
LARRY MOODY	Ware	H	8/29/2018	1004	88	71.2	3.4	2.01	23937	824
EBERLY FAMILY FARM	Burke	H	9/17/2018	967	89	70.2	3.6	2.2	26457	960
MARTIN DAIRY L. L. P.	Hart	H	9/7/2018	326	90	65.8	3.8	1.97	23488	925
WHITEHOUSE FARM	Macon	H	8/30/2018	237	90	65.4	3.7	2.14	22821	842
SOUTHERN ROSE FARMS	Laurens	H	8/31/2018	101	87	65.4	3.9	1.89	20725	822
SOUTHERN SANDS FARM	Jenkins	H	9/18/2018	85	91	65	3.9	1.77	24517	874
COASTAL PLAIN EXP STATION*	Tift	H	9/19/2018	286	89	64.7	3.8	2.18	25264	907
OCMULGEE DAIRY	Houston	H	9/17/2018	337	87	64.2	3.7	1.95	21449	775
VISSCHER DAIRY*	Jefferson	H	8/21/2018	954	88	60.8	3.6	1.93	23925	817
CECIL DUECK	Jefferson	H	9/5/2018	83	86	56.4	3.5	1.52	20391	757
BRENNEMAN FARMS	Macon	H	9/3/2018	46	89	56.2	3.9	1.33	20603	789
FRANKS FARM	Burke	B	9/4/2018	183	90	55.8	4	2.1	19877	785

[1]Minimum herd or permanent string size of 20 cows. Yearly average calculated after 365 days on test. Test day milk, marked with an asterisk (*), indicates herd was milked three times per day (3X). Information in this table is compiled from Dairy Records Management Systems Reports (Raleigh, NC).

Top GA DHIA By Test Day Fat Production – September 2018										
					Test Day Average				Yearly Average	
Herd	County	Br.	Test Date	[1]Cows	% in Milk	Milk	% Fat	TD Fat	Milk	Lbs. Fat
RODGERS' HILLCREST FARMS INC.*	McDuffie	H	9/19/2018	433	88	93.3	4	3.23	31757	1146
DAVE CLARK*	Morgan	H	9/3/2018	1221	90	93	3.9	3.16	31476	1307
J.EVERETT WILLIAMS*	Morgan	X	9/10/2018	2005	88	82.3	4.4	3.06	27810	
DANNY BELL*	Morgan	H	9/6/2018	307	90	89.5	3.8	2.94	29545	1136
SCOTT GLOVER	Hall	H	9/12/2018	181	89	77.9	3.7	2.44	26921	1008
SCHAAPMAN HOLSTEINS*	Wilcox	H	9/25/2018	819	90	77.7	3.6	2.33	27102	982
BERRY COLLEGE DAIRY	Floyd	J	9/24/2018	37	81	54.1	5	2.27	16566	787
DOUG CHAMBERS	Jones	H	9/25/2018	437	88	79.6	3.4	2.24	24887	862
EBERLY FAMILY FARM	Burke	H	9/17/2018	967	89	70.2	3.6	2.2	26457	960
COASTAL PLAIN EXP STATION*	Tift	H	9/19/2018	286	89	64.7	3.8	2.18	25264	907
WHITEHOUSE FARM	Macon	H	8/30/2018	237	90	65.4	3.7	2.14	22821	842
FRANKS FARM	Burke	B	9/4/2018	183	90	55.8	4	2.1	19877	785
LARRY MOODY	Ware	H	8/29/2018	1004	88	71.2	3.4	2.01	23937	824
WILLIAMS DAIRY	Taliaferro	H	9/19/2018	130	89	55.5	4	2	21965	804
HORST CREST FARMS	Jenkins	H	8/30/2018	199	84	55.3	4.1	1.98	19755	764
MARTIN DAIRY L. L. P.	Hart	H	9/7/2018	326	90	65.8	3.8	1.97	23488	925
OCMULGEE DAIRY	Houston	H	9/17/2018	337	87	64.2	3.7	1.95	21449	775
VISSCHER DAIRY*	Jefferson	H	8/21/2018	954	88	60.8	3.6	1.93	23925	817
SOUTHERN ROSE FARMS	Laurens	H	8/31/2018	101	87	65.4	3.9	1.89	20725	822
SOUTHERN SANDS FARM	Jenkins	H	9/18/2018	85	91	65	3.9	1.77	24517	874

[1]Minimum herd or permanent string size of 20 cows. Yearly average calculated after 365 days on test. Test day milk, marked with an asterisk (*), indicates herd was milked three times per day (3X). Information in this table is compiled from Dairy Records Management Systems Reports (Raleigh, NC).

Top GA DHIA By Test Day Milk Production – October 2018										
					Test Day Average				Yearly Average	
Herd	County	Br.	Test date	[1]Cows	% in Milk	Milk	% Fat	TD Fat	Milk	Lbs. Fat
DAVE CLARK*	Morgan	H	10/1/2018	1238	90	92.4	3.9	3.18	31357	1299
RODGERS' HILLCREST FARMS INC.*	McDuffie	H	10/17/2018	439	88	91.5	4.2	3.46	31737	1155
DANNY BELL*	Morgan	H	10/4/2018	313	90	87.9	3.8	2.89	29383	1134
A & J DAIRY*	Wilkes	H	10/24/2018	451	91	84.1			28199	
SCOTT GLOVER	Hall	H	10/18/2018	182	89	80.3	3.6	2.5	26583	1001
DOUG CHAMBERS	Jones	H	10/22/2018	433	87	79.8	3.4	2.29	24866	859
J.EVERETT WILLIAMS*	Morgan	X	10/8/2018	1980	88	79.7	4.3	3.09	27640	1083
TROY YODER	Macon	H	9/28/2018	297	88	76.2	3.9	2.46	24833	1014
SCHAAPMAN HOLSTEINS*	Wilcox	H	10/29/2018	815	91	75.6	3.5	2.23	26984	977
PHIL HARVEY #2*	Putnam	H	9/26/2018	1410	88	75.4	3.6	2.47	24387	901
R & D DAIRY	Lamar	H	10/19/2018	292	91	75.4	3.6	2.45	24476	982
CALVIN MOODY	Ware	H	9/30/2018	913	88	71.3	3.4	2.12	23926	819
EBERLY FAMILY FARM	Burke	H	10/16/2018	1039	90	70.6	3.6	2.17	26313	954
MARTIN DAIRY L. L. P.	Hart	H	10/15/2018	327	89	70	3.9	2.22	23538	926
IRVIN R YODER	Macon	H	10/18/2018	239	88	69.7	3.8	2.19	23418	905
VISSCHER DAIRY*	Jefferson	H	10/15/2018	1005	89	68.6	3.3	1.93	24199	828
WILLIAMS DAIRY	Taliaferro	H	10/18/2018	132	89	66.1	3.9	2.24	21899	805
WHITEHOUSE FARM	Macon	H	10/9/2018	233	90	65.9	3.7	2.12	23073	848
OCMULGEE DAIRY	Houston	H	10/19/2018	355	88	65.8	3.7	2.07	21403	772
COASTAL PLAIN EXP STATION*	Tift	H	10/17/2018	288	89	65.7	3.8	2.16	25134	905

[1]Minimum herd or permanent string size of 20 cows. Yearly average calculated after 365 days on test. Test day milk, marked with an asterisk (*), indicates herd was milked three times per day (3X). Information in this table is compiled from Dairy Records Management Systems Reports (Raleigh, NC).

Top GA DHIA By Test Day Fat Production - October 2018										
					Test Day Average				**Yearly Average**	
Herd	**County**	**Br.**	**Test Date**	**[1]Cows**	**% in Milk**	**Milk**	**% Fat**	**TD Fat**	**Milk**	**Lbs. Fat**
RODGERS' HILLCREST FARMS INC.*	McDuffie	H	10/17/2018	439	88	91.5	4.2	3.46	31737	1155
DAVE CLARK*	Morgan	H	10/1/2018	1238	90	92.4	3.9	3.18	31357	1299
J.EVERETT WILLIAMS*	Morgan	X	10/8/2018	1980	88	79.7	4.3	3.09	27640	1083
DANNY BELL*	Morgan	H	10/4/2018	313	90	87.9	3.8	2.89	29383	1134
SCOTT GLOVER	Hall	H	10/18/2018	182	89	80.3	3.6	2.5	26583	1001
PHIL HARVEY #2*	Putnam	H	9/26/2018	1410	88	75.4	3.6	2.47	24387	901
TROY YODER	Macon	H	9/28/2018	297	88	76.2	3.9	2.46	24833	1014
R & D DAIRY	Lamar	H	10/19/2018	292	91	75.4	3.6	2.45	24476	982
SOUTHERN ROSE FARMS	Laurens	H	10/25/2018	110	88	62.2	4	2.3	20991	835
DOUG CHAMBERS	Jones	H	10/22/2018	433	87	79.8	3.4	2.29	24866	859
BERRY COLLEGE DAIRY	Floyd	J	9/24/2018	37	81	54.1	5	2.27	16566	787
WILLIAMS DAIRY	Taliaferro	H	10/18/2018	132	89	66.1	3.9	2.24	21899	805
SCHAAPMAN HOLSTEINS*	Wilcox	H	10/29/2018	815	91	75.6	3.5	2.23	26984	977
MARTIN DAIRY L. L. P.	Hart	H	10/15/2018	327	89	70	3.9	2.22	23538	926
IRVIN R YODER	Macon	H	10/18/2018	239	88	69.7	3.8	2.19	23418	905
EBERLY FAMILY FARM	Burke	H	10/16/2018	1039	90	70.6	3.6	2.17	26313	954
COASTAL PLAIN EXP STATION*	Tift	H	10/17/2018	288	89	65.7	3.8	2.16	25134	905
CALVIN MOODY	Ware	H	9/30/2018	913	88	71.3	3.4	2.12	23926	819
WHITEHOUSE FARM	Macon	H	10/9/2018	233	90	65.9	3.7	2.12	23073	848
OCMULGEE DAIRY	Houston	H	10/19/2018	355	88	65.8	3.7	2.07	21403	772

[1]Minimum herd or permanent string size of 20 cows. Yearly average calculated after 365 days on test. Test day milk, marked with an asterisk (*), indicates herd was milked three times per day (3X). Information in this table is compiled from Dairy Records Management Systems Reports (Raleigh, NC).

Top GA DHIA By Test Day Milk Production – November 2018										
					Test Day Average				Yearly Average	
Herd	**County**	**Br.**	**Test Date**	**[1]Cows**	**% in Milk**	**Milk**	**% Fat**	**TD Fat**	**Milk**	**Lbs. Fat**
RODGERS' HILLCREST FARMS INC.*	McDuffie	H	11/9/2018	434	88	96.8	4.2	3.49	31794	1165
DAVE CLARK*	Morgan	H	11/5/2018	1214	90	91.6	4.1	3.28	31199	1290
DANNY BELL*	Morgan	H	11/8/2018	303	90	86.9	3.7	2.9	29177	1126
SCHAAPMAN HOLSTEINS*	Wilcox	H	11/26/2018	789	91	84.7	3.4	2.4	26958	973
A & J DAIRY*	Wilkes	H	10/24/2018	451	91	84.1			28199	
J.EVERETT WILLIAMS*	Morgan	X	11/12/2018	1939	88	82.3	4.5	3.27	27513	1180
SCOTT GLOVER	Hall	H	11/19/2018	187	89	81.9	4.3	3.04	26389	1000
DOUG CHAMBERS	Jones	H	11/27/2018	423	87	80.9	3.6	2.45	24933	862
TROY YODER	Macon	H	10/27/2018	299	88	79	4.2	2.78	24871	1011
EBERLY FAMILY FARM	Burke	H	11/19/2018	1031	90	78.2	3.7	2.54	25982	940
IRVIN R YODER	Macon	H	11/27/2018	238	88	77.9	3.8	2.54	23475	903
R & D DAIRY	Lamar	H	10/19/2018	292	91	75.4	3.6	2.45	24476	982
PHIL HARVEY #2*	Putnam	H	11/15/2018	1462	88	74.7	4	2.72	24475	910
VISSCHER DAIRY*	Jefferson	H	11/13/2018	989	89	71.3	3.5	2.14	24071	821
OCMULGEE DAIRY	Houston	H	11/16/2018	357	88	71.1	3.8	2.28	21415	772
MARTIN DAIRY L. L. P.	Hart	H	11/21/2018	324	89	70.9	4.2	2.59	23591	931
COASTAL PLAIN EXP STATION*	Tift	H	11/14/2018	287	89	70.4	3.9	2.36	25038	903
BOBBY JOHNSON	Grady	X	11/28/2018	620	91	65.6			20198	
WILLIAMS DAIRY	Taliaferro	H	11/14/2018	130	90	65.5	4	2.48	21953	811
BOB MOORE #2	Putnam	H	11/14/2018	548	90	65.1	3.8	1.98	20856	750

[1]***Minimum herd or permanent string size of 20 cows. Yearly average calculated after 365 days on test. Test day milk, marked with an asterisk (*), indicates herd was milked three times per day (3X). Information in this table is compiled from Dairy Records Management Systems Reports (Raleigh, NC).***

UGA extension

Top GA DHIA By Test Day Fat Production – November 2018										
					Test Day Average				**Yearly Average**	
Herd	**County**	**Br.**	**Test Date**	**[1]Cows**	**% in Milk**	**Milk**	**% Fat**	**TD Fat**	**Milk**	**Lbs. Fat**
RODGERS' HILLCREST FARMS INC.*	McDuffie	H	11/9/2018	434	88	96.8	4.2	3.49	31794	1165
DAVE CLARK*	Morgan	H	11/5/2018	1214	90	91.6	4.1	3.28	31199	1290
J.EVERETT WILLIAMS*	Morgan	X	11/12/2018	1939	88	82.3	4.5	3.27	27513	1180
SCOTT GLOVER	Hall	H	11/19/2018	187	89	81.9	4.3	3.04	26389	1000
DANNY BELL*	Morgan	H	11/8/2018	303	90	86.9	3.7	2.9	29177	1126
TROY YODER	Macon	H	10/27/2018	299	88	79	4.2	2.78	24871	1011
PHIL HARVEY #2*	Putnam	H	11/15/2018	1462	88	74.7	4	2.72	24475	910
MARTIN DAIRY L. L. P.	Hart	H	11/21/2018	324	89	70.9	4.2	2.59	23591	931
EBERLY FAMILY FARM	Burke	H	11/19/2018	1031	90	78.2	3.7	2.54	25982	940
IRVIN R YODER	Macon	H	11/27/2018	238	88	77.9	3.8	2.54	23475	903
WILLIAMS DAIRY	Taliaferro	H	11/14/2018	130	90	65.5	4	2.48	21953	811
R & D DAIRY	Lamar	H	10/19/2018	292	91	75.4	3.6	2.45	24476	982
DOUG CHAMBERS	Jones	H	11/27/2018	423	87	80.9	3.6	2.45	24933	862
SCHAAPMAN HOLSTEINS*	Wilcox	H	11/26/2018	789	91	84.7	3.4	2.4	26958	973
COASTAL PLAIN EXP STATION*	Tift	H	11/14/2018	287	89	70.4	3.9	2.36	25038	903
SOUTHERN ROSE FARMS	Laurens	H	10/25/2018	110	88	62.2	4	2.3	20991	835
OCMULGEE DAIRY	Houston	H	11/16/2018	357	88	71.1	3.8	2.28	21415	772
BERRY COLLEGE DAIRY	Floyd	J	11/20/2018	33	81	53.8	5.3	2.16	16771	803
VISSCHER DAIRY*	Jefferson	H	11/13/2018	989	89	71.3	3.5	2.14	24071	821
BOB MOORE	Putnam	H	11/6/2018	190	89	57.9	4.1	2.07	19966	786

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Top GA Lows Herds for SCC –TD Average Score – September 2018									
Herd	**County**	**Test Date**	**Br.**	**[1]Cows**	**Milk-Rolling**	**SCC-TD-Average Score**	**SCC-TD-Weight Average**	**SCC-Average Score**	**SCC-Wt.**
BERRY COLLEGE DAIRY	Floyd	9/24/2018	J	37	16566	1.8	56	1.4	54
ALEX MILLICAN	Walker	8/31/2018	H	92	17862	2.1	154	2.1	169
DANNY BELL*	Morgan	9/6/2018	H	307	29545	2.1	176	2.1	188
DAVID ADDIS	Whitfield	9/24/2018	H	35	18837	2.2	125	1.5	112
MARTIN DAIRY L. L. P.	Hart	9/7/2018	H	326	23488	2.2	155	2.3	173
J.EVERETT WILLIAMS*	Morgan	9/10/2018	X	2005	27810	2.2	193	2	188
EBERLY FAMILY FARM	Burke	9/17/2018	H	967	26457	2.4	173	2.3	205
DAVE CLARK*	Morgan	9/3/2018	H	1221	31476	2.4	242	2.1	212
SCOTT GLOVER	Hall	9/12/2018	H	181	26921	2.5	131	2.5	167
SOUTHERN ROSE FARMS	Laurens	8/31/2018	H	101	20725	2.6	125	2.4	229
JAMES W MOON	Morgan	9/4/2018	H	128	18278	2.6	189	2.1	166
SOUTHERN SANDS FARM	Jenkins	9/18/2018	H	85	24517	2.7	133	2.2	124
RODGERS' HILLCREST FARMS INC.*	McDuffie	9/19/2018	H	433	31757	2.7	220	2.4	218
DOUG CHAMBERS	Jones	9/25/2018	H	437	24887	2.8	260	2.9	283
BRENNEMAN FARMS	Macon	9/3/2018	H	46	20603	2.8	286	1.9	180
BRUCE HARPER	Morgan	9/12/2018	H	137	17702	2.8	298	2.7	253
WHITEHOUSE FARM	Macon	8/30/2018	H	237	22821	2.9	222	2.9	241
JERRY SWAFFORD	Putnam	9/24/2018	X	116	17628	2.9	233	3	251
UNIV OF GA DAIRY FARM	Clarke	9/5/2018	H	108	17265	2.9	233	3	225
LOUIS YODER	Macon	9/15/2018	H	99	20209	3	333	2.7	312

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Top GA Lows Herds for SCC –TD Average Score – October 2018									
Herd	**County**	**Test Date**	**Br.**	**[1]Cows**	**Milk-Rolling**	**SCC-TD-Average Score**	**SCC-TD-Weight Average**	**SCC-Average Score**	**SCC-Wt.**
BERRY COLLEGE DAIRY	Floyd	9/24/2018	J	37	16566	1.8	56	1.4	54
J.EVERETT WILLIAMS*	Morgan	10/8/2018	X	1980	27640	1.9	150	2	185
DANNY BELL*	Morgan	10/4/2018	H	313	29383	2	218	2.1	185
DAVE CLARK*	Morgan	10/1/2018	H	1238	31357	2.2	236	2.2	213
SCOTT GLOVER	Hall	10/18/2018	H	182	26583	2.3	120	2.5	163
BRENNEMAN FARMS	Macon	10/23/2018	H	46	19990	2.4	110	1.9	172
EBERLY FAMILY FARM	Burke	10/16/2018	H	1039	26313	2.4	190	2.3	204
MARTIN DAIRY L. L. P.	Hart	10/15/2018	H	327	23538	2.5	164	2.3	174
IRVIN R YODER	Macon	10/18/2018	H	239	23418	2.5	192	2.2	140
RODGERS' HILLCREST FARMS INC.*	McDuffie	10/17/2018	H	439	31737	2.7	214	2.5	222
SOUTHERN SANDS FARM	Jenkins	10/15/2018	H	91	24301	2.8	173	2.3	130
PHIL HARVEY #2*	Jasper	9/26/2018	H	1410	24387	2.8	293	2.5	229
WHITEHOUSE FARM	Macon	10/9/2018	H	233	23073	2.9	237	2.7	233
KEN STEWART	Greene	10/2/2018	H	133	19024	2.9	246	2.9	256
VISSCHER DAIRY*	Jefferson	10/15/2018	H	1005	24199	3	218	2.9	264
TROY YODER	Macon	9/28/2018	H	297	24833	3	221	2.8	207
ALEX MILLICAN	Walker	10/26/2018	H	91	17554	3	241	2.3	188
SOUTHERN ROSE FARMS	Laurens	10/25/2018	H	110	20991	3.1	161	2.5	202
JERRY SWAFFORD	Putnam	10/23/2018	X	120	17377	3.1	192	3	244
AUSTIN WALDROUP	Troup	9/20/2018	H	147		3.1	249	2.7	223

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UGA extension

Top GA Lows Herds for SCC –TD Average Score – November 2018									
Herd	**County**	**Test Date**	**Br.**	**[1]Cows**	**Milk-Rolling**	**SCC-TD-Average Score**	**SCC-TD-Weight Average**	**SCC-Average Score**	**SCC-Wt.**
DAVID ADDIS	Whitfield	11/19/2018	H	32	18296	1.6	42	1.8	148
BERRY COLLEGE DAIRY	Floyd	11/20/2018	J	33	16771	2.1	101	1.4	58
EBERLY FAMILY FARM	Burke	11/19/2018	H	1031	25982	2.2	186	2.3	197
DAVE CLARK*	Morgan	11/5/2018	H	1214	31199	2.2	191	2.2	207
J.EVERETT WILLIAMS*	Morgan	11/12/2018	X	1939	27513	2.3	181	2	184
BRENNEMAN FARMS	Macon	10/23/2018	H	46	19990	2.4	110	1.9	172
MARTIN DAIRY L. L. P.	Hart	11/21/2018	H	324	23591	2.4	192	2.3	173
IRVIN R YODER	Macon	11/27/2018	H	238	23475	2.6	140	2.2	140
JAMES W MOON	Morgan	11/13/2018	H	125	18254	2.7	154	2.2	177
SCHAAPMAN HOLSTEINS*	Wilcox	11/26/2018	H	789	26958	2.7	213	2.8	253
VISSCHER DAIRY*	Jefferson	11/13/2018	H	989	24071	2.7	230	2.9	259
EUGENE KING	Macon	11/12/2018	H	114	19367	2.7	236	2.2	173
DANNY BELL*	Morgan	11/8/2018	H	303	29177	2.7	246	2.1	183
AUSTIN WALDROUP	Troup	11/3/2018	H	151		2.8	185	2.7	217
WILLIAMS DAIRY	Taliaferro	11/14/2018	H	130	21953	2.8	216	2.8	265
JERRY SWAFFORD	Putnam	11/26/2018	X	125	17310	2.8	233	3	242
MARK E BRENNEMAN	Macon	11/24/2018	H	139	18325	3	189	2.9	249
DONALD NEWBERRY	Bibb	11/24/2018	H	137	15137	3	199	2.8	214
ALEX MILLICAN	Walker	10/26/2018	H	91	17554	3	241	2.3	188
COASTAL PLAIN EXP STATION*	Tift	11/14/2018	H	287	25038	3	243	2.4	211

[1]Minimum herd or permanent string size of 20 cows. Yearly average calculated after 365 days on test. Test day milk, marked with an asterisk (*), indicates herd was milked three times per day (3X). Information in this table is compiled from Dairy Records Management Systems Reports (Raleigh, NC).

UGA extension