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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: January February March, 2018

Sincerely,

Sha Tao

Sha Tao, Assistant Professor

Commercial dairy heifer project

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The commercial dairy heifer project has another successful year in the books. The quality of the project continues to resonate in the quality of both animals and young people. The first year of this project at state show was in 1997 when 82 heifers were entered to show. This project has grown in numbers since then with a total of 303 heifers entered and eligible for competition in this year's project with 239 young people standing at the halter.

UGA Commercial Dairy Heifer Show

February 9th -10th in Athens, GA

This year's UGA Commercial Dairy Heifer show weighed in on Friday afternoon with 178 heifers exhibited by 167 young people. Following weigh in, the UGA Dairy Science Club offered a judging contest where over 40 youth judged 5 classes of commercial heifers. Those five classes included 2 Holstein, 1 Jersey, 1 Brown Swiss, and 1 Crossbred, which truly defines the diversity behind the project. The top three individuals in the judging contest were Madi Hillebrand (Coweta Co. 4-H), Laurel Christopher (White Co. FFA), and Addie Bridges (Chattoooga FFA). Following the judging contest was a dinner sponsored by UGA Dairy Science Club and the Georgia Dairy Youth Foundation (GDYF) with a program that highlighted opportunities in agriculture from GDYF and the College of Agricultural and Environmental Sciences at UGA.

Bright and early Saturday morning was show day. This year's judges were Mr. Steve Waggoner, Clemson Dairy Farm Manager, and Dr. Emily Waggoner, owner and operator of Emily Waggoner Large Animal Veterinary Services. The morning began with showmanship including a promotional Little Dawgs showmanship, which was immediately followed by weight classes.

Winning the bronze heifer, Bailey Jackson of Houston County FFA was the Junior Showmanship Champion (grades 4-8). While in the other ring, Senior Showmanship Champion (grades 9-12) was Lawton Harris of Piedmont Academy FFA who also proudly took home a bronze heifer.

Image: *Pictured above is Bailey Jackson, Junior Showmanship Champion*

Image: *Pictured above is Lawton Harris, Senior Showmanship Champion*

In weight classes, heifers in the lightweight ring weighed between 250 and 478 pounds, while heifers in the heavyweight ring weighed in between 480 and 794 pounds. In the lighweights, Alyssa Ashurst of Gilmer FFA had the Grand Champion heifer and Mary Keener also of Gilmer FFA had the Reserve Grand Champion heifer.

Image: *Pictured above is Alyssa Ashurst with the lightweight Grand Champion heifer.*

The heavyweight Grand Champion heifer was exhibited by Trent Maddox of Jasper County 4-H and the Reserve Grand Champion heifer in the heavyweight ring was exhibited by Elizabeth Mansour of Coweta Co. 4-H.

Image: *Pictured above is Trent Maddox with the heavyweight Grand Champion heifer.*

The University of Georgia would like to commend all dairy exhibitors on a tremendous show. They also wish to thank all sponsors that help to make this show possible year after year. This year, there were a number of sponsors that gave $300+, which include All Animals Veterinary Hospital, Athens Seed Co., Georgia Dairy Youth Foundation, Godfrey's feed, Hennessy Lexus of Gwinnett, Mary's Tack, Feed, and Pet Store, Oglethorpe Feed and Hardware Supply, Select Sires Southeast, Southern Swiss Dairy LLC, Speed, Seta, Martin, Trivett, and Stubley, Stripling's General Store, and White County Farmers Exchange. The club wishes to thank these and all sponsors as well as welcome all exhibitors back to Athens in 2019! Save the date – February 9th, 2019.

State Commercial Dairy Heifer Show

February 21st – 23rd in Perry, GA

This year's state show boasted 223 heifers exhibited by 192 youth. Thursday showmanship was an exciting day as wonderful showmen entered the ring in class after class. On Friday, the competition continued as weight classes and county groups of five held were in the ring. Below is an abbreviated list of results for this year's state show.

Showmanship Winners by Grade

4th – Luke Huff – Oglethorpe 4-H

5th – Lane Bridges – Chattooga 4-H

6th – Jackson Lukers – North Habersham Middle FFA

7th – Emma Rae Ward – Chattooga Co FFA

8th – Torrie Reed – Clear Creek Middle FFA

9th – Jennifer Brinton – Coweta 4-H

10th – Emma Newberry – Oconee Co FFA

11th – Lawton Harris – Piedmont Academy FFA

12th – Elizabeth Mansour – Coweta Co 4-H

Master 4-H Showman

Elizabeth Mansour – Coweta Co. 4-H

Supreme FFA Showman

Lawton Harris – Piedmont Academy FFA

Weight Division Champion and Reserve Champions

Division 1 (250 – 374 pounds)

Champion – Eliza Exner – Coweta Co 4-H

Reserve – Sydney Coble – Burke Co 4-H

Division 2 (378 – 475 pounds)
Champion – Alyssa Ashurst – Gilmer FFA
Reserve – Mary Keener – Gilmer FFA

Division 3 (478 – 560 pounds)
Champion – Elizabeth Mansour – Coweta Co 4-H
Reserve – Trent Maddox – Jasper Co 4-H

Division 4 (568 – 788 pounds)
Champion – Trent Maddox – Jasper Co 4-H
Reserve – Jennifer Brinton – Coweta Co 4-H

Top 5
Trent Maddox
Elizabeth Mansour
Jennifer Brinton
Alyssa Ashurst
Trent Maddox

Top 5 County Groups of 5
Coweta Co 4-H
Jasper Co 4-H
White Co FFA
Putnam Co FFA
Burke Co 4-H

UGA spring dairy show

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The 55th Annual Spring Dairy Show will be held Saturday, April 7th, 2018 beginning at 9:00 AM. This show is an OPEN show with JUNIOR Showmanship. Show management continues to strive to make this show packed with high quality animals both for the exhibitors and to facilitate a high quality State 4-H Dairy Judging Contest. Without great exhibitors, neither of these goals can be met.

A few facts about the Spring Dairy Show:

- The show is in its 55th year, which means it's practically a historical landmark.
- This show is partially supported financially by funds offered through the Georgia Dairy Youth Foundation and Milk Check-off.
- This is a show for Holstein, Jersey, and Brown Swiss breeders.
- This show allows us to put on a HIGH QUALITY State 4-H Dairy Judging Contest, which means our young people are more adequately prepared for national opportunities.
- The 2017 Supreme Champion was a Jersey named BRJ Excitation Bowtie Mint R-7 exhibited by Hobbs Lutz of Chester, SC.
- When you exhibit at this show, you have the opportunity to visit the greatest college campus on earth – UGA.
- This show is run by UGA faculty, staff, and students.

The show welcomes faces new and familiar to exhibit at this year's 2018 show. More information regarding this year's show is located at https://blog.extension.uga.edu/dairy/

Show entries must be postmarked by Monday, March 26th, 2018.

Decisions

Lane O. Ely

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The predictions for 2018 for milk prices are for the year to have low prices. This has been a continuation of a downward spiral for dairy farmers. The number of producers has continued to decline over the last few years but milk supply has increased. The result is that in the United States supply has outstripped demand with low prices.

This was dramatically demonstrated to me this weekend when I bought milk at Kroger. A gallon of milk was $0.95. This was not an advertised special or was it a move to move milk before its sell date as the sell date was 11 days away. This just seemed to be an effort to move more milk off the shelves.

In the last few weeks, there have been reports of producers losing their contracts to sell milk and the continued loss of dairy farms. Many of these farms are the smaller farms. In many areas, producers have lost their over-order premiums with the surplus of milk. Areas such as the Southeast are milk deficit for overall milk products but have only processing for fluid products so other products are shipped in and surplus milk has to be shipped out to be processed.

Nation-wide there needs to be an increase in demand or a decrease in supply. The dairy producer has control over the supply. The problem is that the national solution may be to lower the supply of milk but for the individual producer that may be impossible to do.

An individual dairy producer may be in a situation where it is impossible for him to decrease his output of milk as the prices declines. In fact, the only option to the individual producer may be to increase his production for his survival.

For example, a producer may have a set minimum monthly income that is needed to meet his obligations. Some expenses may be cut or delayed until later but still there is a finite dollar value that is needed. If milk price drops, then the farm has to ship more milk to meet this requirement. The dairyman needs to add cows or increase milk production per cow to meet this new income requirement. The difficulty is that this also increases expenses which means more milk is needed.

Another case is where a dairy producer has a loan with his cattle as collateral. He has to maintain a certain number of cows. This often leads to keeping low producing cows to maintain the number but results in increased expenses and lower milk income for a negative situation.

The sad conclusion for many producers is that they cannot survive and the milk supply is decreased with their removal from production.

Don’t forget to assess teat ends as part of your mastitis prevention control program!

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Hyperkeratosis (HK), a thickening of the skin that lines the teat canal and orifice, is the most common concern when discussing teat end health. Appearance of HK generally indicates ill-functioning milking equipment and poor milking procedures, though some cow factors predispose animals to its development. A rough, raised teat end as a result of HK provides a niche for bacteria to colonize and grow, possibly resulting in increased incidence of mastitis. This article will discuss causal factors for HK and associations identified between teat end condition and milk quality.

Teat end condition scoring

The teat end is the first line of defense against mastitis-causing pathogens. Moderate to severe alterations in teat end anatomy, such as “flowering” as a result of HK, can contribute to an increased risk for mastitis. The teat sphincter is one of the physical barriers against potential pathogens (Figure 1). The muscle maintains tight closure of the teat end between milkings. However, severe HK prevents tight teat end closure and increases potential exposure to bacteria.

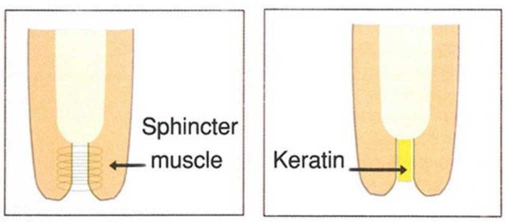


Figure 1: *Teat end defenses (Philpot and Nickerson, 2000)*

Minimal HK is a normal condition that will develop in most machine-milked animals. Much like the development of callouses on our hands or feet, this small degree of HK typically occurs due to friction and pressure applied during milking preparation and by milking equipment. Teats with minimal HK may be identified by scores of 1 or 2 in the teat end scoring system approved by Teat Club International (Figure 2). A score of 1 is ideal, having no raised ring and a small opening. A score of 2 displays a slightly raised, and sometimes minimally rough, ring. Scores of 1 or 2 should be predominant, with no less than 80% of animals falling into these categories.

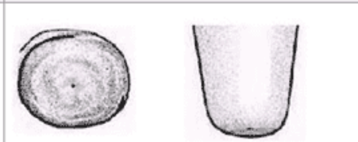
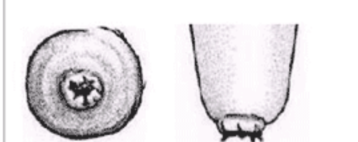
Score	Description	Illustration
Score 1 (N)	**No Ring.** The teat-end is smooth with a small, even orifice. This is a typical status for many teats soon after the start of lactation.	
Score 2 (S)	**Smooth or Slightly Rough Ring.** A raised ring encircles the teat orifice. The surface of the ring is smooth or it may feel slightly rough but no fragments of old keratin are evident.	
Score 3 (R)	**Rough Ring.** A raised, roughened ring with isolated fragments of old keratin extending a short distance from the teat orifice.	
Score 4 (VR)	**Very Rough Ring.** A raised ring with rough fragments of old keratin extending out from the teat orifice. The rim of the ring is rough and may be cracked, often giving the test-end a “flowered” appearance.	
Score 5	**Open Lesions or Scabs.**	*Not pictured.*

Figure 2. *Teat end scoring system*

Severe HK should not be prevalent in a herd. Severe HK is identified by scores of 3 or 4 (Figure 2). Scores of 3 and 4 demonstrate a raised, rough ring with flared or “flowered” edges. In many cases, scores of 3 and 4 may have dirt and debris caked within the cracks of the raised ring. The changes in teat anatomy at scores of 3 and 4 may result in incomplete closure of the teat orifice, increasing susceptibility to pathogens. Additionally, increased organic matter remaining with the rough edges of the teat end may also increase risk for mastitis. If more than 20% of animal have teats with scores of 3 or 4, an action plan needs to be developed to address causative factors.

Association between teat end condition, mastitis, and milk quality

It is well known that the presence of scabs and lesions results in increased risk of intramammary infection (Sieber and Farnsworth, 1981). This is generally due to exposure of tissues ideal for bacterial growth. Evidence also supports a direct association between poor teat end condition (raised, rough, and cracked teat ends) and mastitis, increased somatic cell count (SCC), and milk yield.

Several studies have found a direct relationship between poor teat end condition (teat end roughness and callousness) and clinical and subclinical mastitis (Lewis et al., 2000; Neijenhuis et al., 2000). Dingwell and others (2004) determined that the odds of a cow getting mastitis was 2.5 times greater if the teat end was cracked (equivalent to a score of 4) (Dingwell et al., 2004). Increased risk of mastitis may be explained by increased exposure to pathogens at the teat end. The cracks and spaces created by "flowering" of the teat end during HK provides greater surface area for bacteria to colonize (Figure 3). For example, Paduch and colleagues (2012) reported that teat ends with a greater HK score had an increased bacterial load compared to teats with a lower score. Importantly, infections with both environmental (*Escherichia coli*, *Streptococcus uberis*) and contagious (*Strep. agalactiae*, *Staphylococcus aureus*) pathogens have been associated with increased HK (Bhutto et al., 2010).

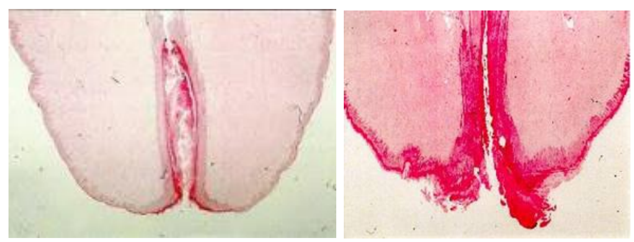


Figure 3. *Example healthy teat end (left) vs. teat end with severe hyperkeratosis (right).*

Aside from direct effects of increased mastitis in animals with poor teat end condition, SCC is also negatively affected by severe HK. A recent study identified a positive, linear relationship between increasing severity of teat end HK and SCC (Emre and Alacam, 2015). In quarters with teat ends displaying severe HK (equivalent to a score of 3 or 4), 40% of cows had SCC greater than 200,000 cells/mL compared to only 20% of cows with normal teat ends. This study also found that as milk yield increased, the percentage of animals with severe HK increased. These data must be interpreted with caution as increased HK in high yield cows may be due to increased machine on time as a result of higher milk production. There are currently no studies that have investigated whether increased risk of mastitis in high producing cows is due to worsening teat end condition.

Factors associated with increased teat end HK

There are some factors which are associated with increased teat scores that cannot be altered with immediate changes in milking protocols or milking equipment, etc. Some of these include teat placement, teat shape, stage of lactation, age of cow, and milk yield. However, there are factors that contribute to poor teat end condition and can be remedied with routine maintenance and reevaluation of milking procedures. These factors include:

- Incorrect pulsation or high vacuum level
- Teat cup liner type or liner compression
- Improper teat stimulation → Dry milking at beginning of milking
- No automatic take-off or incorrect take-off → Overmilking
- Germicidal dips without sufficient or proper emollient properties

To prevent poor teat end condition, milking equipment should undergo routine maintenance. Maintenance schedules typically depend on manufacturer specifications, but should be reevaluated if worsening teat end conditions are noted. If milking equipment is functioning properly and teat ends are still poor, reevaluation of teat dip protocols is prudent. Anecdotal evidence suggests chlorine dioxide post-dips (activated by lactic acid) are beneficial in conditioning teat ends and reducing HK, but smaller studies have failed to substantiate this claim (Britten et al., 2004). As a final note, infectious organisms, including mastitis pathogens like *Staph. aureus*, can also contribute to poor teat end condition. Consult with your extension agents, extension dairy specialists, and veterinarians to explore milk culturing options for assessment of potential causative pathogens.

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Cow behavior in grazing dairy farms during summer

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The subtropical climate in the Southeast is characterized by extended periods of heat stress. Heat stress is recognized to compromise both directly and indirectly the costs of livestock production. In the dairy industry, heat stress negatively impacts nutrition, production, physiology, reproduction, health, and behavior of dairy cattle. Research has reported a positive relationship between heat stress and economic losses in the U.S. dairy sector due to the lower productivity. Thermal environment is an important factor to the development of livestock industry and climate projections indicate an upward trend in global temperatures, which may exaggerate the negative consequences of heat stress for dairy producers. Thus it's necessary to understand the interactions between animals and their environment which is not only the key objective of animal welfare but also fundamental to maximizing animal productivity.

There are two ways to estimate the extent of heat stress. Environment can be evaluated by meteorological variables (e.g., air temperature, relative humidity, black globe temperature) and calculated indexes (e.g., THI - temperature humidity index). Lactating dairy cows have reduced milk yield when daily average THI exceeds 68. Physiological (e.g., respiration rate, body temperature, rumen contractions) and behavioral responses (e.g., feed intake, time spent standing and lying, time around water trough, shade seeking) have been used to evaluate the heat load that an animal is experiencing. Heat abatement is the most cost-effective approach to manage heat-stressed cows. Producers can mitigate the impact of heat stress by modifying the environment with shade structures to block solar radiation, systems to wet the cow (e.g., sprinklers) or the environment (e.g., foggers, misters), and increasing air speed over cows (e.g., fans) to increase convective heat loss. Cows experiencing heat stress change their metabolism and physiology, so understanding animal behavior is an important and useful tool for studying the animal-environment interaction and designing a better cooling system to maintain animal well-being and performance during the summer months.

Time budgets of a lactating dairy cow are responsive to surrounding environment and can be affected by health, nutrition and other management factors. Activity and time spent standing and lying can be used to evaluate the cows' physiological and health state, and serve as indicators of a cow's welfare. It is important to understand how cows spend their time and how behavior is associated with physiological and environmental parameters under heat stress condition. In freestall housing, heat-stressed cows spend less time lying, but more standing under soakers and fans to maximize evaporative cooling. However, the increased standing time also increases the risk of lameness, which decreases animal productivity. Even though the majority U.S. dairies are confinement, the knowledge about cow behavior in grazing dairy farms, especially during heat stress, is poorly explored. It is necessary to understand the relationship between environment, physiological parameters and behavior of lactating dairy cows on pasture.

We completed a study was during the summer 2017 to identify relationships between environmental variables, body temperature and behaviors in grazing dairies. A total of 119 lactating cows from 4 grazing dairies were enrolled in this study. Cows were milked twice a day and pivots were used for evaporative cooling during day on pasture on all dairies. Cows were monitored for 6 consecutive days. Time spent standing and lying were recorded using Smarttag Leg attached in front leg, vaginal temperatures were measured using an IButton thermometer logger attached to a CIDR to identify core body temperature, and environmental variables were measured on pasture. All data were averaged or summed every 30 min. Because each farm had different milking schedules and cooling facilities in holding pens and feedlots, only data collected on pastures (between milkings) were used for analyses. The average or sum of environmental and behavioral variables every 30 min on pasture are summarized in Table 1. An example of vaginal temperature and behavior data from one farm was shown in Figure 1. To understand the relationships between parameters, correlation analyses were performed.

Table 1. *Mean or sum of environmental and behavioral variables every 30 min on pasture*

Variables	Day	Night
Dry bulb temperature, °C	29.4	24.1
Relative humidity, %	74.0	93.9
Black globe temperature, °C	37.4	23.7
Temperature-humidity index	80.7	74.7
Vaginal Temperature, °C	39.3	39.5
Lying time, min	6.4	17.0
Standing time, min	20.7	9.5

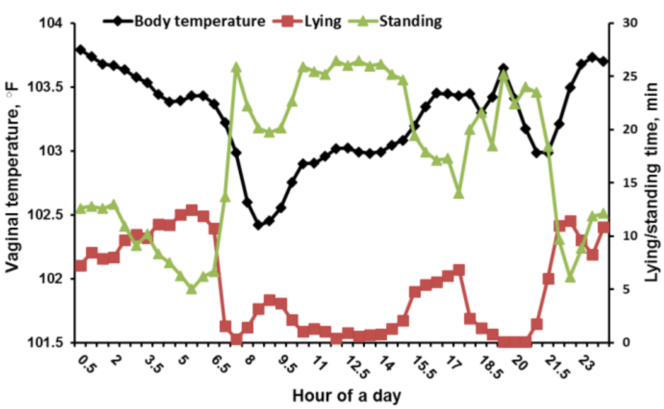

Figure 1. *Typical patterns of vaginal temperature and behaviors (mean or sum every 30 min) of grazing dairy cows*

During the day under pivots, vaginal temperature has the strongest correlation (Figure 2; r^2=0.25) with air temperature. The r^2=0.25 means that about 25% of variation of body temperature can be explained by air temperature; in other words, air temperature had the strongest influence on body temperature of the cows during day. However, during the night, VT had strongest correlation (Figure 2, r^2=0.04) with THI, but only 4% of the variation of body temperature can be explained by THI. This data suggest that the body temperature of the cows will increase as the air temperature increases during the day, and continue to rise during night with little influence by the environment, perhaps due to the inefficient heat loss at night by the high relative humidity.

During the day, lying (r^2=0.17) and standing (r^2=0.18) time has the highest correlations with black globe temperature (Figure 3), an estimate of solar radiation. These data suggest that the behavior of dairy cows on pasture under pivots is affected by solar radiation, as they standing longer when solar radiation is stronger. During night, lying (r^2=0.17) and standing (r^2=0.12) times of cows are correlated best with air temperature, suggesting that cows will stand longer as the air temperature increases at night on pasture.

Environment influences cow behavior in grazing dairies which in turn affects the productivity of the animal. The most interesting observation in this study was that the body temperature of a cow continues to increase at night, and air temperature had little effect on cow body temperature. However, the higher night air temperature increases standing time of the cow. Thus, strategies that

UGA extension

facilitate cow cooling during night to reduce cow body temperature and increase the lying time of a cow should be used. Considering the high relatively humidity but lower air temperature, providing fans may be an effective option to cool cows during night. But how and where to place the fans for effective cooling is an area for future research.

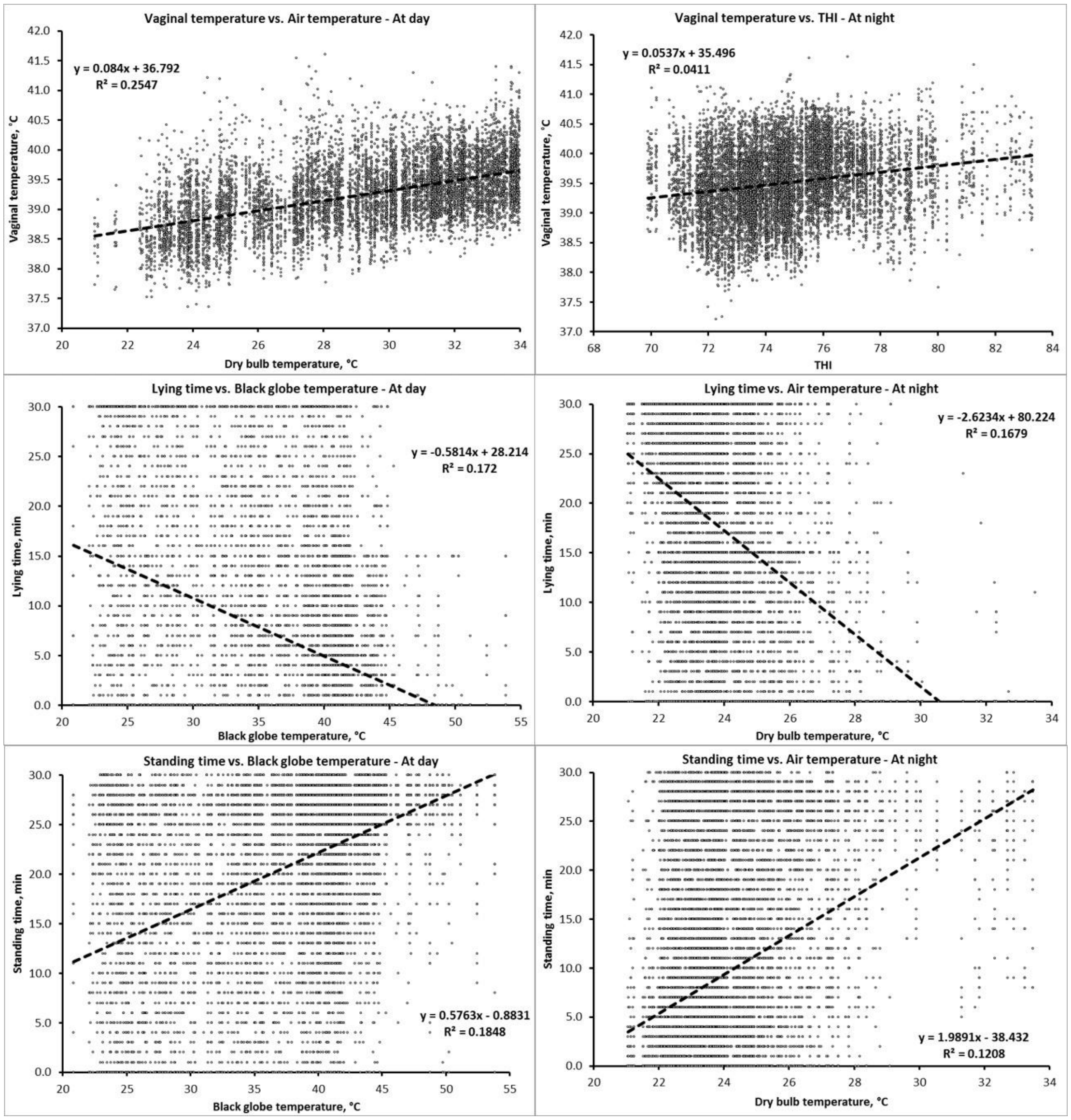

Figure 2. *Correlations between environment, vaginal temperature and behaviors of grazing dairy cows during day and night.*

A review of the current methods for pregnancy diagnosis in cattle

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Introduction

Early pregnancy diagnosis is a key factor of the reproductive program since it allows for identification of non-pregnant animals and their timely treatment, rebreeding or culling in order to maintain an adequate reproductive performance. An effective early method permits to measure opportunely the success of a reproductive management and early detection of reproductive problems. In addition, early identification of non-pregnant cows aids on the diagnosis and allows for further and quick action giving more opportunities to reduce the days open with direct impact on the cattle operation profitability.

Several methods of pregnancy diagnosis are applied in cattle. However, none qualifies as the ideal method due to the inherent limitations of sensitivity, accuracy, specificity, speed, costs, and ease of performing the test. The ideal test should be able to detect pregnant cows as early as possible. It should be non-invasive, inexpensive, simple to conduct under field conditions, rapid to provide a result at the time the test is performed, highly sensitive (ie, correctly identifying pregnant animals) and specific (ie, correctly identifying non-pregnant animals). Most methods can detect pregnancy 25-40 days post conception. However, many cows diagnosed as pregnant early after bull breeding or AI, suffer embryonic death, which decreases the specificity and positive predictive value (the percentage of truly pregnant animals compared to the gold standard test available) of any test. The present article will briefly review the methods currently applied for pregnancy diagnosis in cattle and discuss the advantages and drawbacks of each method in order to provide practical advice that integrate their use within the herd reproductive programs.

Direct Methods for Pregnancy Diagnosis

Direct methods for early pregnancy diagnosis are based on physical detection of the conceptus (tissues and/or associated fluids). These include trans-rectal palpation and trans-rectal ultrasonography. The accuracy of these two methods depends on technical expertise, operator proficiency, and the time after bull breeding or artificial insemination when the technique can be applied. Skilled bovine veterinarians can achieve high sensitivity and specificity with either method.

Trans-rectal palpation of the reproductive tract is a widespread, popular, economic and accurate method for pregnancy diagnosis in cows. It is sensitive, specific, and economic, provides immediate results and allows determining the stage of pregnancy. It is useful as early as 32 days post conception depending on practitioner's experience. There are four cardinal signs of pregnancy that can be detected by this approach: the amniotic vesicle, chorio-allantoid membrane slip, placentomes and the fetus. But only the former two signs can be used as early pregnancy detection. Practitioners should identify at least one of the two signs to diagnose a pregnancy. On the other hand, the inability to detect an early pregnancy (i.e. by an inexpert practitioner) results in a false negative result increasing the rate of pregnancy loss when PGF2α or one of its analogues is administered to synchronize estrus-ovulation and reduce the interval to the next AI. There is still controversy regarding the extent of pregnancy loss induced by trans-rectal palpation; however, it is well documented that several other factors have a greater effect on conception and calving rates than pregnancy examination.

Transrectal ultrasonography is a minimally invasive, accurate, effective and quick method for early pregnancy diagnosis. The result of the procedure is known immediately at the time the test is conducted. This approach has begun to replace trans-rectal palpation as the direct method of choice by veterinarians for pregnancy diagnosis [1]. The commercial availability of affordable ultrasound machines is making this method more popular nowadays. In addition, transrectal ultrasonography allows for an earlier diagnosis than trans-rectal palpation, gives immediate information on embryo/fetal viability, more accuracy in detecting twins, and reduces the number of misdiagnoses [2]. Moreover, this approach has not been implicated as a direct cause of pregnancy loss in cows [3, 4]. However, because many experienced bovine practitioners can accurately diagnose pregnancy as early as 35 days post AI using trans-rectal palpation, pregnancy examination using ultrasonography 28 to 34 days after insemination only reduces the interval from AI to pregnancy diagnosis by a few days [5].

The use of ultrasound offer additional benefits providing important information for the reproductive program, such as more accurate identification of twin pregnancies, determination of fetal age and sex, pregnancy loss, embryo death, or signs of conceptus degeneration (of substantial importance during heat stress) and evaluation of ovarian structures in non-pregnant animals. The ovarian status of non-pregnant animals facilitates the assignment of cows to different hormonal therapies. For example, open cows that have a CL would be good candidates for ovulation synchronization using Ovsynch or Co-Synch protocol or for inducing her estrus and ovulation with PGF2α (5). In contrast, for a noncycling cow (without CL) the use of a CIDR (or even double CIDR in dairy cows [6]) at the first GnRH treatment of an Ovsynch protocol would be the choice for induction of estrus and ovulation. Another hallmark of ultrasonography is the possibility to record images and videos of the pregnancy diagnosis exam. Nowadays, with the availability of ultrasound machines with screen, which allows for the shared view of the pregnancy diagnosis exam, offering an unique opportunity for the farmer and farm personnel to participate on the pregnancy diagnosis, what could encourage and value even more the human resources of the reproductive management program.

Pregnancy diagnosis using transrectal ultrasonography can be rapidly and accurately done as early as 24 days after AI, but it is more commonly used >28 d post AI [7]. However, evaluation using this approach before 30 d post AI can negatively affect the accuracy of pregnancy diagnosis outcomes, specifically decreasing the specificity and positive predictive value due to high percentage of false positive cows (highly attributed to pregnancy loss). An accurate early pregnancy diagnosis using transrectal ultrasonography must include the observation of the heartbeat in viable embryos. Observation of solely fluid in the uterine lumen or the presence of a CL on the ovary are not evidence of pregnancy and may lead to erroneous outcomes decreasing the accuracy of the test. In the practical setting, a great percentage of the cows having a CL and fluid in the uterus, in absence of an embryo with a heartbeat have undergone pregnancy loss. In addition, early pregnancy diagnosis by transrectal ultrasonography should not be conducted based on the presence of fluid and CL without confirming the presence of the embryo and its heartbeat. Moreover, a transrectal ultrasonography exam performed earlier than when an embryo with a heartbeat can be rapidly and reliably identified (i.e. 30 days after AI) increases the negative impact of false-positive results [5].

Indirect Methods for Pregnancy Diagnosis

Indirect methods for early pregnancy diagnosis are based on determination of hormones or conceptus-specific substances in milk and blood. These methods include tests for milk progesterone and pregnancy-associated glycoproteins (PAGs) in blood or milk.

Progesterone is the major hormone to maintain pregnancy. It is produced majorly from the CL early in the gestation and its concentrations reach a maximum value 13-14 days after estrus, which is maintained during the whole gestation if the animal is pregnant. These high levels of progesterone in blood or milk between days 18 and 24 after insemination form the basis of establishment of pregnancy in cattle [10]. Quantification of progesterone in blood or milk can be performed using different techniques and is noninvasive (can be done using milk samples) and highly accurate for detecting non-pregnant cows. However, the drawback of this method is its low positive predictive value for pregnancy diagnosis when only one sample is collected 18-24 days after AI. Sequential milk or blood sampling for P4 determination is not practical or cost effective for use on commercial farms. With automated laboratory analyzers connected to the milk machine, there might be an opportunity of increasing this methodology practicality and reliability.

Pregnancy-Associated Glycoproteins (PAGs) are produced by the fetus and to a lesser extent by the placenta, and secreted into the maternal circulation. Mean PAG concentrations in cattle increase from 15 to 35 days in gestation [9]; however, variation in plasma PAG levels among cows precludes PAG testing as a reliable indicator of pregnancy until about 26 to 30 days after AI [12, 13]. PAG levels in dairy cows depend on stage of gestation, parity, and milk production [5].

Pregnancy specific protein B (PSPB) is detectable in the serum of pregnant cows over a long period of gestation, starting between days 15 and 22 after breeding/AI [11, 14] until several weeks after parturition [15]. Concentrations vary and consistent results have been observed only when using this test after day 30 post-conception [14, 16–18]. Testing for PSPB should be used only after 70–100 d post-calving, due to the persistence of high blood concentrations in postpartum cattle [12, 15, 16]. However, in most cows, concentrations are very low by 73 days post-partum [19]. Therefore, with a 60-day voluntary waiting period, cows would be >73 d post-partum at blood sample collection, and hence, there should be no false-positive diagnoses due to residual PSPB from the previous pregnancy [8]. Commercial kits recommend that lactating cows must also be >73 days after calving to insure high reliability of the test.

In addition, concentrations of PSPB similar to those in pregnant cattle have been detected in animals with pregnancy loss [20-21]. The significantly higher pregnancy loss reported in cows diagnosed pregnant using PSPB versus transrectal ultrasonography indicate that PSPB levels can be persistent in animals that had been pregnant, but suffer pregnancy loss. As mentioned before, this is due to the PSPB’s long half-life in maternal circulation. Therefore, repeated diagnosis is highly recommended. There are several commercial PSPB tests including *BioPRYN* (BioTracking), *DG29* (Genex Cooperative Inc., USA), and *IDEXX* (IDEXX Laboratories, Inc., USA). Currently, there is a rapid and easy chemical spot test for in-farm pregnancy diagnosis using blood or milk which does not require that the samples be sent to the laboratory and provides an immediate result.

In addition to the tests mentioned above, other indirect tests including early conception factor and interferon-τ (tau) are under investigation and the reliability is still questionable, therefore not discussed in this review.

Summary and Conclusion

Trans-rectal palpation remains to be most widespread popular, economic and accurate method for pregnancy diagnosis in cattle. It is unlikely that indirect tests will completely replace trans-rectal palpation or transrectal ultrasonography as the primary method used for pregnancy diagnosis in cattle. However, a practical and beneficial approach is to combine the use of these methods strategically within the reproductive management program. Pregnancy loss limits the specificity and positive predictive value of many direct and indirect methods for early pregnancy diagnosis. These restrictions require that all cows diagnosed pregnant early after insemination (i.e. 28 days post AI) to be programmed for pregnancy reconfirmation at later times during gestation (60 days post-AI) to detect cows undergoing pregnancy loss and apply prompt therapy or management corrections. These animals should be treated, re-inseminated or culled in order to avoid maintenance of unproductive non-pregnant females in the farm, which cause substantial economic losses. Both transrectal ultrasonography and measurement of serum PSPB test are accurate methods for early pregnancy diagnosis. Additionally, transrectal ultrasonography provides an immediate answer and information regarding embryo viability, status of uterus and ovaries. Currently, available state-of-the-art molecular techniques are being used to identify molecules specifically and exclusively related to pregnancy and embryo viability in order to provide an accurate, practical and more solid pregnancy diagnosis test for cattle. In addition, and most important, whatever pregnancy diagnosis method is being used, it is highly recommended to perform multiple checks (known as re-checks) to increase the reliability of the test used specially the identification of non-pregnant animals, given strong basis to the upcoming management action directly linked to the reproductive program success.

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Important Dates

2018-2019

2018 UGA Spring Dairy Show

- April 7th, 2018
- https://blog.extension.uga.edu/dairy/

UGA Heat Stress Workshop

- 11 AM – 3 PM, April 10, 2018
- Macon County Extension office, 105 South Sumter Street, Oglethorpe, GA 31068
- To register, please contact Extension office (phone: 478-472-7588), or email Erin Morgan Forte (Erin.Forte@uga.edu).

Top GA DHIA By Test Day Milk Production – December, 2017										
					Test Day Average				Yearly Average	
Herd	County	Br.	Test Date	[1]Cows	% Days in Milk	Milk	% Fat	TD Fat	Milk	Lbs. Fat
DAVE CLARK*	Morgan	H	11/27/2017	1243	90	97.6	4.2	3.7	31146	1231
DANNY BELL*	Morgan	H	11/30/2017	302	90	93.1	3.7	3.26	29010	1119
RODGERS' HILLCREST FARMS INC.*	McDuffie	H	11/27/2017	444	87	93	4	3.2	31158	1141
SCHAPPMAN DAIRY*	Wilcox	H	11/29/2017	799	89	85.6	3.5	2.64	26003	946
VISSCHER DAIRY*	Jefferson	H	11/17/2017	948	91	85.3	3.5	2.42	20711	695
J.EVERETT WILLIAMS*	Morgan	X	12/12/2017	2013	87	85.2	4.1	3.08	28293	
EBERLY FAMILY FARM*	Burke	H	11/28/2017	879	89	83.8	3.6	2.72	26791	970
SCOTT GLOVER	Hall	H	12/12/2017	211	87	82.8	4.1	2.91	26545	988
A & J DAIRY*	Wilkes	H	12/8/2017	420	92	82.5			27973	
COASTAL PLAIN EXP STATION*	Tift	H	12/19/2017	293	90	80.7	3.7	2.58	25042	911
DOUG CHAMBERS	Jones	H	12/19/2017	443	89	80.4	3.4	2.28	25562	896
IRVIN R YODER	Macon	H	12/14/2017	217	91	77.9	4	2.66	24890	928
AMERICAN DAIRYCO-GEORGIA,LLC.*	Mitchell	H	12/6/2017	3893	90	77.7	3.5	2.37	24734	900
MARTIN DAIRY L. L. P.	Hart	H	12/13/2017	340	91	76.9	3.9	2.63	23876	922
TROY YODER	Macon	H	11/13/2017	284	88	76.3	4.4	2.62	25279	1030
R & D DAIRY*	Lamar	H	12/19/2017	343	90	76.3	3.9	2.63	24072	950
SOUTHERN SANDS FARM	Jenkins	H	12/15/2017	85	89	74.6	3.1	2.17	25046	884
CHARLES STEWART	Greene	X	12/5/2017	85	85	73.2	3.9	2.29	20200	788
LARRY MOODY	Ware	H	11/29/2017	1082	89	71.9	3.3	2.05	24149	795
KENT HERMAN	Putnam	H	11/16/2017	114	89	71.3	3.5	1.66	23188	886

[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 – December 2017										
					Test Day Average				**Yearly Average**	
Herd	**County**	**Br.**	**Test Date**	**[1]Cows**	**% Days in Milk**	**Milk**	**% Fat**	**TD Fat**	**Milk**	**Lbs. Fat**
DAVE CLARK*	Morgan	H	11/27/2017	1243	90	97.6	4.2	3.7	31146	1231
DANNY BELL*	Morgan	H	11/30/2017	302	90	93.1	3.7	3.26	29010	1119
RODGERS' HILLCREST FARMS INC.*	McDuffie	H	11/27/2017	444	87	93	4	3.2	31158	1141
J.EVERETT WILLIAMS*	Morgan	X	12/12/2017	2013	87	85.2	4.1	3.08	28293	
SCOTT GLOVER	Hall	H	12/12/2017	211	87	82.8	4.1	2.91	26545	988
EBERLY FAMILY FARM*	Burke	H	11/28/2017	879	89	83.8	3.6	2.72	26791	970
IRVIN R YODER	Macon	H	12/14/2017	217	91	77.9	4	2.66	24890	928
SCHAPPMAN DAIRY*	Wilcox	H	11/29/2017	799	89	85.6	3.5	2.64	26003	946
MARTIN DAIRY L. L. P.	Hart	H	12/13/2017	340	91	76.9	3.9	2.63	23876	922
R & D DAIRY*	Lamar	H	12/19/2017	343	90	76.3	3.9	2.63	24072	950
TROY YODER	Macon	H	11/13/2017	284	88	76.3	4.4	2.62	25279	1030
COASTAL PLAIN EXP STATION*	Tift	H	12/19/2017	293	90	80.7	3.7	2.58	25042	911
VISSCHER DAIRY*	Jefferson	H	11/17/2017	948	91	85.3	3.5	2.42	20711	695
BUD BUTCHER	Coweta	H	12/15/2017	363	92	65	3.8	2.4	21819	792
AMERICAN DAIRYCO-GEORGIA,LLC.*	Mitchell	H	12/6/2017	3893	90	77.7	3.5	2.37	24734	900
OCMULGEE DAIRY	Houston	H	12/28/2017	330	88	69.8	3.6	2.31	22960	818
JOHN WESTSTEYN*	Bacon	X	11/30/2017	1228	90	67.4	3.9	2.31	20770	800
CHARLES STEWART	Greene	X	12/5/2017	85	85	73.2	3.9	2.29	20200	788
DOUG CHAMBERS	Jones	H	12/19/2017	443	89	80.4	3.4	2.28	25562	896
WILLIAMS DAIRY	Taliaferro	H	12/11/2017	144	89	67.7	3.9	2.24	21948	826

[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 Milk Production – January 2018										
					Test Day Average				Yearly Average	
Herd	**County**	**Br.**	**Test date**	**[1]Cows**	**% Days in Milk**	**Milk**	**% Fat**	**TD Fat**	**Milk**	**Lbs. Fat**
DAVE CLARK*	Morgan	H	1/2/2018	1231	90	98.5	4.4	3.92	31192	1254
DANNY BELL*	Morgan	H	1/4/2018	291	90	97	3.8	3.4	29455	1130
RODGERS' HILLCREST FARMS INC.*	McDuffie	H	1/8/2018	441	87	95.5	3.9	3.2	30947	1149
SCHAPPMAN DAIRY*	Wilcox	H	1/9/2018	775	89	91	3.5	2.89	26346	952
A & J DAIRY*	Wilkes	H	1/12/2018	453	92	85.9			27996	
J.EVERETT WILLIAMS*	Morgan	X	1/8/2018	2012	87	85.6	4.3	3.2	28141	
EBERLY FAMILY FARM*	Burke	H	1/2/2018	883	89	85	4	3.04	26823	978
SCOTT GLOVER	Hall	H	1/9/2018	220	87	84.6	3.9	2.95	26646	994
COASTAL PLAIN EXP STATION*	Tift	H	1/18/2018	270	90	82.8	3.8	2.77	25123	917
AMERICAN DAIRYCO-GEORGIA,LLC.*	Mitchell	H	1/3/2018	3615	90	82.8	4.1	3.02	24857	910
VISSCHER DAIRY*	Jefferson	H	1/9/2018	957	90	82.5	3.4	2.52	21802	746
TROY YODER	Macon	H	12/27/2017	304	88	80.6	4.3	2.96	25111	1032
LARRY MOODY	Ware	H	12/30/2017	1047	89	78.2	3.3	2.26	24266	797
DOUG CHAMBERS	Jones	H	1/23/2018	442	89	76.5	3.7	2.33	25427	889
IRVIN R YODER	Macon	H	1/24/2018	218	91	76.4	3.9	2.53	24843	930
RUFUS YODER JR	Macon	H	12/30/2017	158	90	75.8	3.5	2.4	22980	791
R & D DAIRY*	Lamar	H	1/23/2018	347	90	75.6	4.3	2.85	24331	958
SOUTHERN SANDS FARM	Jenkins	H	1/19/2018	86	90	74.7	3.5	2.43	25045	882
MARTIN DAIRY L. L. P.	Hart	H	1/16/2018	347	91	74.5	4.2	2.88	23950	926
WILLIAMS DAIRY	Taliaferro	H	1/24/2018	142	89	72.8	3.4	2.19	21899	821

[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 - January 2018										
					Test Day Average				**Yearly Average**	
Herd	**County**	**Br.**	**Test Date**	**[1]Cows**	**% Days in Milk**	**Milk**	**% Fat**	**TD Fat**	**Milk**	**Lbs. Fat**
DAVE CLARK*	Morgan	H	1/2/2018	1231	90	98.5	4.4	3.92	31192	1254
DANNY BELL*	Morgan	H	1/4/2018	291	90	97	3.8	3.4	29455	1130
RODGERS' HILLCREST FARMS INC.*	McDuffie	H	1/8/2018	441	87	95.5	3.9	3.2	30947	1149
J.EVERETT WILLIAMS*	Morgan	X	1/8/2018	2012	87	85.6	4.3	3.2	28141	
EBERLY FAMILY FARM*	Burke	H	1/2/2018	883	89	85	4	3.04	26823	978
AMERICAN DAIRYCO-GEORGIA,LLC.*	Mitchell	H	1/3/2018	3615	90	82.8	4.1	3.02	24857	910
TROY YODER	Macon	H	12/27/2017	304	88	80.6	4.3	2.96	25111	1032
SCOTT GLOVER	Hall	H	1/9/2018	220	87	84.6	3.9	2.95	26646	994
SCHAPPMAN DAIRY*	Wilcox	H	1/9/2018	775	89	91	3.5	2.89	26346	952
MARTIN DAIRY L. L. P.	Hart	H	1/16/2018	347	91	74.5	4.2	2.88	23950	926
R & D DAIRY*	Lamar	H	1/23/2018	347	90	75.6	4.3	2.85	24331	958
TWIN OAKS FARM	Jefferson	H	1/16/2018	94	90	72.7	4.1	2.8	21586	824
COASTAL PLAIN EXP STATION*	Tift	H	1/18/2018	270	90	82.8	3.8	2.77	25123	917
IRVIN R YODER	Macon	H	1/24/2018	218	91	76.4	3.9	2.53	24843	930
VISSCHER DAIRY*	Jefferson	H	1/9/2018	957	90	82.5	3.4	2.52	21802	746
CHARLES STEWART	Greene	X	1/9/2018	89	87	68.7	4	2.48	20924	813
SOUTHERN SANDS FARM	Jenkins	H	1/19/2018	86	90	74.7	3.5	2.43	25045	882
HALE DAIRY	Oconee	H	1/25/2018	127	85	56.2	4.4	2.42	14778	607
RUFUS YODER JR	Macon	H	12/30/2017	158	90	75.8	3.5	2.4	22980	791
BOB MOORE	Putnam	H	1/5/2018	222	90	65.2	4	2.4	20293	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 Milk Production – February 2018										
					Test Day Average				Yearly Average	
Herd	County	Br.	Test Date	[1]Cows	% Days in Milk	Milk	% Fat	TD Fat	Milk	Lbs. Fat
RODGERS' HILLCREST FARMS INC.*	McDuffie	H	2/14/2018	445	87	103	3.6	3.23	30769	1148
DAVE CLARK*	Morgan	H	2/5/2018	1172	90	99.9	4.2	3.83	31364	1278
DANNY BELL*	Morgan	H	2/8/2018	274	91	92.8	3.8	3.14	29807	1139
SCHAAPMAN HOLSTEINS*	Wilcox	H	2/7/2018	751	89	91.6	3.5	2.97	26667	957
J.EVERETT WILLIAMS*	Morgan	X	2/12/2018	2001	87	89.8	4.2	3.33	27917	
A & J DAIRY*	Wilkes	H	2/16/2018	458	92	88.3			28139	
SCOTT GLOVER	Hall	H	2/14/2018	223	87	83.6	3.8	2.97	26869	1002
EBERLY FAMILY FARM*	Burke	H	1/29/2018	899	89	83.5	3.6	2.66	26798	983
AMERICAN DAIRYCO-GEORGIA,LLC.*	Mitchell	H	2/23/2018	3669	90	83.4	3.8	2.98	25146	932
VISSCHER DAIRY*	Jefferson	H	2/19/2018	938	90	82.6	3.4	2.58	22472	780
COASTAL PLAIN EXP STATION*	Tift	H	2/15/2018	275	90	82	3.5	2.66	25178	921
LARRY MOODY	Ware	H	2/27/2018	1008	89	78.9	3.6	2.57	24387	812
RUFUS YODER JR	Macon	H	2/9/2018	163	91	78.8	3.5	2.65	23335	802
TROY YODER	Macon	H	1/31/2018	312	88	78.7	4.1	2.63	25002	1031
MARTIN DAIRY L. L. P.	Hart	H	2/19/2018	348	91	77.9	3.9	2.87	23841	930
BRENNEMAN FARMS	Macon	H	1/31/2018	48	92	76.8	3.8	2.78	21228	793
DOUG CHAMBERS	Jones	H	1/23/2018	442	89	76.5	3.7	2.33	25427	889
IRVIN R YODER	Macon	H	1/24/2018	218	91	76.4	3.9	2.53	24843	930
R & D DAIRY*	Lamar	H	1/23/2018	347	90	75.6	4.3	2.85	24331	958
TWIN OAKS FARM	Jefferson	H	2/23/2018	100	90	75.2	3.5	2.56	21697	837

[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 – February 2018										
					Test Day Average				Yearly Average	
Herd	County	Br.	Test Date	[1]Cows	% Days in Milk	Milk	% Fat	TD Fat	Milk	Lbs. Fat
DAVE CLARK*	Morgan	H	2/5/2018	1172	90	99.9	4.2	3.83	31364	1278
J.EVERETT WILLIAMS*	Morgan	X	2/12/2018	2001	87	89.8	4.2	3.33	27917	
RODGERS' HILLCREST FARMS INC.*	McDuffie	H	2/14/2018	445	87	103	3.6	3.23	30769	1148
DANNY BELL*	Morgan	H	2/8/2018	274	91	92.8	3.8	3.14	29807	1139
AMERICAN DAIRYCO-GEORGIA,LLC.*	Mitchell	H	2/23/2018	3669	90	83.4	3.8	2.98	25146	932
SCOTT GLOVER	Hall	H	2/14/2018	223	87	83.6	3.8	2.97	26869	1002
SCHAAPMAN HOLSTEINS*	Wilcox	H	2/7/2018	751	89	91.6	3.5	2.97	26667	957
MARTIN DAIRY L. L. P.	Hart	H	2/19/2018	348	91	77.9	3.9	2.87	23841	930
R & D DAIRY*	Lamar	H	1/23/2018	347	90	75.6	4.3	2.85	24331	958
BRENNEMAN FARMS	Macon	H	1/31/2018	48	92	76.8	3.8	2.78	21228	793
CHARLES STEWART	Greene	X	2/13/2018	95	88	70.5	4.2	2.68	21250	827
COASTAL PLAIN EXP STATION*	Tift	H	2/15/2018	275	90	82	3.5	2.66	25178	921
EBERLY FAMILY FARM*	Burke	H	1/29/2018	899	89	83.5	3.6	2.66	26798	983
RUFUS YODER JR	Macon	H	2/9/2018	163	91	78.8	3.5	2.65	23335	802
TROY YODER	Macon	H	1/31/2018	312	88	78.7	4.1	2.63	25002	1031
SOUTHERN ROSE FARMS	Laurens	H	2/15/2018	101	87	70.4	4	2.62	20648	808
VISSCHER DAIRY*	Jefferson	H	2/19/2018	938	90	82.6	3.4	2.58	22472	780
BOBBY JOHNSON	Grady	X	2/25/2018	582	90	66.9	3.9	2.57	20277	761
LARRY MOODY	Ware	H	2/27/2018	1008	89	78.9	3.6	2.57	24387	812
TWIN OAKS FARM	Jefferson	H	2/23/2018	100	90	75.2	3.5	2.56	21697	837

[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 Lows Herds for SCC –TD Average Score – December 2017									
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	11/29/2017	H	33	17873	0.7	24	1.2	56
BERRY COLLEGE DAIRY	Floyd	12/1/2017	J	36	16947	1.8	63	1.7	83
J.EVERETT WILLIAMS*	Morgan	12/12/2017	X	2013	28293	1.8	159	1.8	144
SOUTHERN SANDS FARM	Jenkins	12/15/2017	H	85	25046	1.9	86	1.9	147
JAMES W MOON	Morgan	12/12/2017	H	133	18948	1.9	145	1.9	136
BRENNEMAN FARMS	Macon	11/27/2017	H	43	20666	1.9	164	1.7	157
DAVE CLARK*	Morgan	11/27/2017	H	1243	31146	1.9	196	2	225
MARTIN DAIRY L. L. P.	Hart	12/13/2017	H	340	23876	2	119	2.4	183
ALEX MILLICAN	Walker	12/19/2017	H	105	18605	2	140	2	186
IRVIN R YODER	Macon	12/14/2017	H	217	24890	2.2	142	2.1	137
COASTAL PLAIN EXP STATION*	Tift	12/19/2017	H	293	25042	2.2	157	2.2	201
JEFF WOOTEN*JEFF	Putnam	11/6/2017	H	284	18289	2.2	159	2.4	196
EBERLY FAMILY FARM*	Burke	11/28/2017	H	879	26791	2.4	210	2.3	209
RODGERS' HILLCREST FARMS INC.*	McDuffie	11/27/2017	H	444	31158	2.4	229	2.1	181
DANNY BELL*	Morgan	11/30/2017	H	302	29010	2.4	276	2.1	198
TWIN OAKS FARM	Jefferson	12/5/2017	H	97	21562	2.5	181	3	318
R & D DAIRY*	Lamar	12/19/2017	H	343	24072	2.6	211	2.8	284
MARK E BRENNEMAN	Macon	12/12/2017	H	136	19350	2.6	225	2.7	274
WHITEHOUSE FARM	Macon	12/13/2017	H	240	22152	2.6	295	2.8	243
FRANKS FARM	Burke	12/4/2017	B	172	17467	2.7	132	2.7	156

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Top GA Lows Herds for SCC –TD Average Score – January 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	1/22/2018	H	34	18530	1	37	1.2	68
BRENNEMAN FARMS	Macon	12/26/2017	H	45	20966	1.2	52	1.7	144
BERRY COLLEGE DAIRY	Floyd	12/28/2017	J	35	16702	1.7	58	1.6	71
J.EVERETT WILLIAMS*	Morgan	1/8/2018	X	2012	28141	1.8	127	1.8	140
DANNY BELL*	Morgan	1/4/2018	H	291	29455	1.9	179	2.1	198
JAMES W MOON	Morgan	1/23/2018	H	130	18850	1.9	192	2	147
DAVE CLARK*	Morgan	1/2/2018	H	1231	31192	2	183	2	232
ALEX MILLICAN	Walker	1/24/2018	H	104	18554	2	189	1.9	171
SOUTHERN SANDS FARM	Jenkins	1/19/2018	H	86	25045	2.1	131	1.9	145
JEFF WOOTEN*JEFF	Putnam	1/3/2018	H	279	18427	2.1	158	2.4	197
IRVIN R YODER	Macon	1/24/2018	H	218	24843	2.2	123	2.1	132
COASTAL PLAIN EXP STATION*	Tift	1/18/2018	H	270	25123	2.2	183	2.2	198
RODGERS' HILLCREST FARMS INC.*	McDuffie	1/8/2018	H	441	30947	2.2	199	2.1	184
RUFUS YODER JR	Macon	12/30/2017	H	158	22980	2.3	150	2.5	214
MARTIN DAIRY L. L. P.	Hart	1/16/2018	H	347	23950	2.3	202	2.4	189
CECIL DUECK	Jefferson	1/25/2018	H	83	22217	2.4	109	2.7	228
RONNIE ROBINSON	Spalding	1/2/2018	H	111	14906	2.4	306	2.2	165
JERRY SWAFFORD	Putnam	1/22/2018	H	196	18467	2.5	188	3.1	274
BOB MOORE #2	Taliaferro	1/10/2018	H	537	21028	2.5	193	3	304
WHITEHOUSE FARM	Macon	1/11/2018	H	238	22151	2.5	249	2.8	243

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Top GA Lows Herds for SCC –TD Average Score – February 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	2/20/2018	H	35	18861	0.8	26	1.2	67
BERRY COLLEGE DAIRY	Floyd	2/23/2018	J	35	16394	1.4	55	1.5	61
BRENNEMAN FARMS	Macon	1/31/2018	H	48	21228	1.7	97	1.7	136
JEFF WOOTEN*JEFF	Putnam	2/7/2018	H	266	18458	1.7	119	2.4	195
J.EVERETT WILLIAMS*	Morgan	2/12/2018	X	2001	27917	1.7	124	1.8	139
DAVE CLARK*	Morgan	2/5/2018	H	1172	31364	1.9	176	2	227
JAMES W MOON	Morgan	2/20/2018	H	128	18684	1.9	217	2	158
ALEX MILLICAN	Walker	2/26/2018	H	101	18493	2	191	2	179
SOUTHERN SANDS FARM	Jenkins	1/19/2018	H	86	25045	2.1	131	1.9	145
MARK E BRENNEMAN	Macon	1/30/2018	H	149	19496	2.1	149	2.6	258
DANNY BELL*	Morgan	2/8/2018	H	274	29807	2.1	195	2.1	201
IRVIN R YODER	Macon	1/24/2018	H	218	24843	2.2	123	2.1	132
RUFUS YODER JR	Macon	2/9/2018	H	163	23335	2.2	181	2.5	210
EUGENE KING	Macon	2/22/2018	H	110	19600	2.2	196	2.6	261
COASTAL PLAIN EXP STATION*	Tift	2/15/2018	H	275	25178	2.2	198	2.2	199
MARTIN DAIRY L. L. P.	Hart	2/19/2018	H	348	23841	2.2	200	2.4	193
EBERLY FAMILY FARM*	Burke	1/29/2018	H	899	26798	2.3	205	2.4	209
SOUTHERN ROSE FARMS	Laurens	2/15/2018	H	101	20648	2.3	216	2.7	272
CECIL DUECK	Jefferson	1/25/2018	H	83	22217	2.4	109	2.7	228
DONALD NEWBERRY	Bibb	2/5/2018	H	135	14843	2.4	139	2.8	260

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