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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.

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Sincerely,

Shea Tao

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UNIVERSITY OF GEORGIA EXTENSION

Odds and Ends

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As I have gotten older, times seem to move faster but also events seem to be repeating. People also remind me that time has passed by me. Here are a couple of my observations about the dairy industry.

WHAT HAS HAPPEDED TO CHOCAOLATE MILK?

I recently was in the grocery store and buying milk in the dairy section. There were 24 doors in the cooler. Three were filled by fruit juices, primarily orange juice but also cranberry, cranapple and grapefruit. There were 9 doors filled with plant "milks". These were a variety of products and manufacturers.

Twelve doors were devoted to milk. There was fluid milk of various fat contents, cream, and creamers. This include 2 doors of organic milk. So milk was very well represented in the dairy case. What surprised me there was only ½ of a door filled with chocolate milk. When I was a child, 25% of the dairy case would be filled with chocolate milk and strawberry milk. Always my first choice.

The dairy case today reflects society's view of chocolate milk. We are having hearings and congressional debate whether to have chocolate milk available in our schools. People want to remove it because of its sugar content to lower the sugar content of the meals offered to children and to reduce children's sugar intake. The compromise proposed is to have chocolate milk in school lunches but to reduce the fat content of the milk and reduce the chocolate content (sugar). This may pass. The debate seems to be missing the studies that have shown the recovery power of chocolate milk after exercise but maybe this is not important as it is also proposed by many of the same people to eliminate recess and physical education classes.

When I was in graduate school in nutrition, the focus was on a balanced diet in moderation. We seems to have forgotten this.

On TV recently I saw an ad for the health and nutrition benefits of beets. They were promoting gummi beet chews to get the benefits. What happened to eating beets?

GEORGIA NUMBER 1 IN DAIRY PRODUCTION IN THE SOUTHEAST

This year Georgia became the number 1 milk producer in the Southeast. A great accomplishment for the dairy industry and justly celebrated. Georgia dairy industry has maintained cow numbers and increased milk production per cow to increase milk production.

The other part of becoming number 1 in the Southeast is the declining production of the other states in the Southeast. Table 1 shows the milk production by state from 1970 to 2020. For the 50 year period, states that had a 50% decrease in production are highlighted in red. Almost all of the states with Southeast production decreased at least 50%. Missouri, West Virginia, Kentucky, Tennessee, South Carolina, Alabama, Mississippi, Louisiana, and Arkansas all met the criteria.

Virginia and North Carolina also decreased but at less than 50% rate. The only states in the Southeast that increased production were Georgia and Florida.

The United States total milk production increased 90.85% during the 50 years. The green highlighted states are those that had a 100% or greater increase in this period. The only state east of the Mississippi River to meet this criteria was Michigan. The rest of the states with at least a 100% increase were Texas, Kansas, Idaho, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon and California. Some of these states experienced tremendous growth. For some of these state their growth was after 2000 as California dairymen looked for expansion opportunities as California production leveled off with population growth, environmental regulation for operating and expansion, and the lack of water.

Table 1. Milk Production by State from 1970 to 2022 and Percent Change

Milk Production by State	1970	1980	1990	2000	2010	2020	2022		% change	% change
	Million pound	Million pound	Million pound	Million pound	Million pound	Million pound	Million pound		1970-2020	2020-2023
Northeast	**24,224**	**26,139**	**27,223**	**29,365**	**28,709**	**30,708**	**30,541**		26.77	-0.54
Maine	619	665	614	668	587	593	554		-4.20	-6.58
New Hampshire	356	347	302	312	294	236	219		-33.71	-7.20
Vermont	1,970	2,289	2,368	2,683	2,521	2,603	2,554		32.13	-1.88
Massachusetts	658	570	461	376	242	200	188		-69.60	-6.00
Rhode Island	75	47	34	28	20	11	10		-85.47	-8.26
Connecticut	661	612	515	480	364	438	430		-33.74	-1.83
New York	10,341	10,974	11,067	11,921	12,713	15,296	15,660		47.92	2.38
New Jersey	730	494	352	244	140	101	87		-86.16	-13.86
Pennsylvania	7,124	8,496	10,014	11,156	10,737	10,279	9,949		44.29	-3.21
Delaware	130	125	123	146	90	71	48		-45.77	-31.77
Maryland	1,560	1,520	1,373	1,351	1,001	881	842		-43.53	-4.43
Lake States	**32,673**	**36,885**	**39,451**	**38,457**	**43,470**	**52,601**	**54,099**		60.99	2.85
Michigan	4,602	4,970	5,234	5,705	8,333	11,685	11,740		153.91	0.47
Wisconsin	18,435	22,380	24,187	23,259	26,035	30,749	31,882		66.80	3.68
Minnesota	9,636	9,535	10,030	9,493	9,102	10,167	10,477		5.51	3.05
Corn Belt	**17,334**	**15,880**	**16,775**	**15,166**	**16,313**	**18,198**	**18,357**		4.98	0.87
Ohio	4,420	4,310	4,667	4,461	5,270	5,618	5,519		27.10	-1.76
Indiana	2,382	2,210	2,276	2,419	3,416	4,334	4,413		81.95	1.82
Illinois	2,850	2,540	2,559	2,094	1,840	1,787	1,714		-37.30	-4.09
Iowa	4,670	3,994	4,233	3,934	4,342	5,374	5,770		15.07	7.37
Missouri	3,012	2,826	3,040	2,258	1,445	1,085	941		-63.98	-13.27

Northern Plains	**5,949**	**5,253**	**5,379**	**4,955**	**5,933**	**8,934**	**10,039**		50.18	12.37
North Dakota	1,065	939	1,073	686	384	328	319		-69.20	-2.74
South Dakota	1,578	1,669	1,716	1,474	1,884	3,120	4,161		97.72	33.37
Nebraska	1,566	1,315	1,345	1,255	1,168	1,460	1,416		-6.77	-3.01
Kansas	1,740	1,330	1,245	1,540	2,497	4,026	4,143		131.38	2.91
Appalachia	**8,202**	**8,415**	**8,073**	**6,454**	**4,744**	**3,987**	**3,831**		-51.39	-3.91
Virginia	1,749	1,974	2,004	1,900	1,719	1,522	1,424		-12.98	-6.44
West Virginia	374	350	270	265	157	89	75		-76.20	-15.73
North Carolina	1,485	1,631	1,522	1,189	866	895	912		-39.73	1.90
Kentucky	2,471	2,219	2,255	1,695	1,152	939	926		-62.00	-1.38
Tennessee	2,123	2,241	2,022	1,405	850	542	494		-74.47	-8.86
Southeast	**4,151**	**4,546**	**4,926**	**4,614**	**3,970**	**4,288**	**4,154**		3.30	-3.13
South Carolina	512	541	447	370	286	186	161		-63.67	-13.44
Georgia	1,182	1,367	1,440	1,433	1,395	1,772	2,028		49.92	14.45
Florida	1,641	2,028	2,526	2,463	2,133	2,286	1,933		39.31	-15.44
Alabama	816	610	513	348	156	44	32		-94.61	-27.27
Delta States	**2,823**	**2,569**	**2,506**	**1,724**	**611**	**329**	**247**		-88.35	-24.92
Mississippi	1,049	817	749	541	223	131	90		-87.51	-31.30
Arkansas	685	740	817	485	153	64	45		-90.66	-29.69
Louisiana	1,089	1,012	940	698	235	134	112		-87.70	-16.42
Southern Plains	**4,315**	**4,735**	**6,784**	**7,057**	**9,787**	**15,588**	**17,239**		261.25	10.59
Oklahoma	1,250	1,110	1,245	1,314	959	733	715		-41.36	-2.46
Texas	3,065	3,625	5,539	5,743	8,828	14,855	16,524		384.67	11.24
Mountain	**4,662**	**6,131**	**9,486**	**19,993**	**30,621**	**37,906**	**37,288**		713.08	-1.63
Montana	326	314	325	338	289	254	223		-22.09	-12.20
Idaho	1,490	1,947	2,949	7,223	12,773	16,237	16,628		989.73	2.41
Wyoming	140	132	125	76	120	189	240		34.86	26.91
Colorado	856	858	1,323	1,924	2,816	5,150	5,314		501.64	3.18
New Mexico	304	602	1,524	5,236	7,881	8,169	7,148		2587.17	-12.50
Arizona	585	1,031	1,645	3,033	4,151	4,889	4,772		735.73	-2.39
Utah	819	1,028	1,267	1,687	1,927	2,230	2,169		172.28	-2.74
Nevada	142	219	328	476	664	788	794		454.93	0.76
West Coast	**12,518**	**17,688**	**26,950**	**39,478**	**48,686**	**50,765**	**50,662**		305.54	-0.20
Washington	2,091	2,942	4,392	5,593	5,902	6,817	6,239		226.02	-8.48
Oregon	970	1,169	1,611	1,640	2,399	2,637	2,636		171.86	-0.04

California	9,457	13,577	20,947	32,245	40,385	41,311	41,787		336.83	1.15
United States	**117,007**	**128,406**	**147,721**	**167,393**	**192,877**	**223,309**	**226,462**		90.85	1.41

I have been associated with the Georgia dairy for nearly 50 years. One of the main attributes of the industry has always been its potential. In 1985 Extension Dairy Science published a special report: "Assessment of Fluid Milk Needs and Opportunities for Dairying in Georgia, 1990 and 2000" in response to the low prices due to the surplus of milk and the increasing demand for milk in the Southeast. Much interest was generated and there were some new dairies started (i.e. Masstock Dairy). At first there was a backlash by Georgia Milk Producers because they felt the increase in milk would lower the class 1 utilization; hence the price they would receive. After a short time, many realized that the more local milk produced the less milk would be needed to shipped into the market and affect the price. Reading the report today all of the factors in favor of growth remain positive.

The problem as it developed over the years as seen in the table was the Southeast states decreased production while demand increased and was supplied by milk shipping into the market. Looking at the table one characteristic of the dairy industry in the states that increased production, new processing capacity was constructed. This encouraged new production through expansion by existing dairies and new dairies, either dairies moving from other areas or new dairies.

The last column in the table is the % change in milk production for 2020 to 2022. A couple of interesting facts. South Dakota has increased production 33.37% in this time period. A combination of new plants and an encouraging dairy environment has supported this change. In this same time period Georgia increased 14.45% but Florida decreased 15.44% which highlights the problem for the Southeast. There needs to be new processing capacity to help stimulate new dairy production but other than Georgia there is no indication of any increase the other Southeastern states. All of the positives from the 1985 report still exist for the expansion of the Georgia industry but other states also have to indicate a movement to expand. If a new plant wants 3 million pounds of milk a day, then there needs to be an increase of approximately 46,000 cows. It can be done as South Dakota added 200,000 cows with new plants.

We need both to occur in the Southeast, increased milk production and plant capacity, but neither seems to want to start without a guarantee that the other will do it. Hopefully some changes will be made in the positive direction.

MILK PRICES

Reading the literature this June, milk prices are headed for a low with higher feed prices for a poor outlook for dairy income. Reading those same magazines in January the outlook was for a good year of milk prices. How quickly change can occur. Today there is a surplus of milk resulting in lower prices. This type of change makes planning very difficult and puts a premium on planning and financial management.

The changes seem to be happening at a faster rate and often of a greater magnitude than occurred 40 years ago. This puts more pressure on dairy managers and bankers to have good current information. Today with our technology this would seem to be a possibility but I am continually surprised that changes seems to catch us by surprise. Hopefully we will have a good crop year, no surplus and good milk prices.

Does every case of clinical mastitis need to be treated?

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A comprehensive review was published a couple months ago in the Journal of Dairy Science (JDS) titled "*Invited review:* Selective treatment of clinical mastitis in dairy cattle", conveniently coinciding with the new FDA rule effective June 11, 2023. Given the importance of this FDA rule and the relevant research covered in the journal paper, this DairyFax article will a) provide a reminder of details for the new FDA rule, and b) briefly highlight a few major key points from the JDS article in an effort to aid in mastitis treatment decision-making moving forward.

FDA Center for Veterinary Medicine Guidance for Industry (GFI) #263

Requires drug manufacturers to change labels on antibiotics that are medically important to human medicine and used in livestock to require a veterinary prescription.

To obtain a prescription, producers will need a valid veterinary-client-patient relationship (VCPR), ideally with formal documentation following a farm visit. Annual visit & documentation must be maintained.

If needed, an example form that can be utilized by farmers can be found at this link: https://nationaldairyfarm.com/wp-content/uploads/2018/11/Veterinary-Client-Patient-Relationship-Form.pdf.

Practical applications of *"Invited review:* Selective treatment of clinical mastitis in dairy cattle"

Historically, when cows displayed clinical mastitis (changes in the udder: swelling, redness, heat, hardness, pain or milk: clots, flakes, blood, etc.), a lactating cow therapy was administered as recommended by veterinarians. At the time, blanket treatment of all clinical cases was appropriate given the prevalent bacteria, mostly Gram-positive bacteria that were responsive to antibiotic therapy with cure rates ranging from 60 to over 80% (*Streptococcus agalactiae* and non-aureus staphylococci or NAS [formerly called coagulase-negative staphylococci or CNS]). Indeed, the National Mastitis Council's 5-point mastitis control plan (Figure 1) from the 1960s was largely focused on reduction of these pathogens, including *Staphylococcus aureus*. In addition, without the rapid diagnostics that are available today particularly for on-farm usage, blanket treatment of clinical mastitis was deemed to be appropriate. However, as a result of multiple factors, such as changing pathogen profiles and rapid diagnostics, selective treatment of clinical mastitis can and should be considered. Recent research shows that prevalent pathogens, on many farms include Gram-negative bacteria (such as *Escherichia coli*) and environmental streptococci or streptococci-like bacteria. Most of our intramammary antibiotics available are not labeled for use against Gram-negative infections and research demonstrates that cure rates are very low (as low as <10%) when administered. Therefore, intramammary antibiotics are not recommended. In addition to different prevalent pathogens, research shows that up to 40-50% of clinical mastitis cases show no microbial growth when cultured, meaning intramammary antibiotics are not necessary in the absence of bacteria. As a reminder, when we see mastitis, we are seeing the inflammatory response towards an insult or injury. In some cases, this visual indicator occurs after the pathogen has already been cleared from the mammary gland (so no growth when culturing milk).

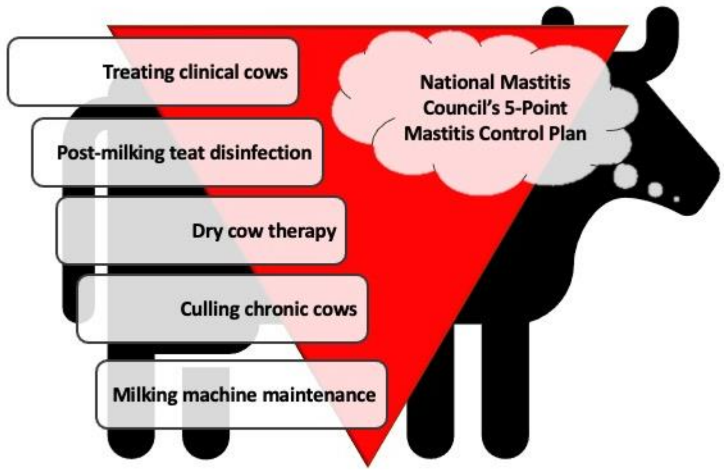

Figure 1. National Mastitis Council's 5-Point Mastitis Control Plan

Given all of this information, how can a program be implemented to selectively treat clinical mastitis, thereby reducing antibiotic use and costs associated with clinical mastitis? Figure 3 is a flow-chart for decision making from the referenced JDS article. The following points will cover the steps in decision-making as it relates to the chart. A veterinarian should be involved in decision-making for antibiotic treatment.

1) ***Assess severity (Figure 2):*** Clinical mastitis can be classified as mild, moderate, or severe. Mild mastitis is diagnosed by changes in the milk (clots, flakes, blood, etc.), moderate changes involves changes in the milk and also in the quarter or gland (swelling, heat, redness, pain), and severe mastitis involves systemic signs as well (fever, dehydration, etc.)
    a. In all cases, milk samples are collected and rapid diagnostics are utilized followed by 1) a 24 hour "waiting" period before administering treatment or 2) administering treatment then modifying regimen (or ceasing) once diagnostic results come in.
    b. Severe cases should be addressed immediately and may involve supportive therapy (electrolytes, anti-inflammatories) and antibiotics (mainly systemic, but potentially intramammary also).
    c. Mild and moderate cases do not need immediate treatment, but should be monitored.

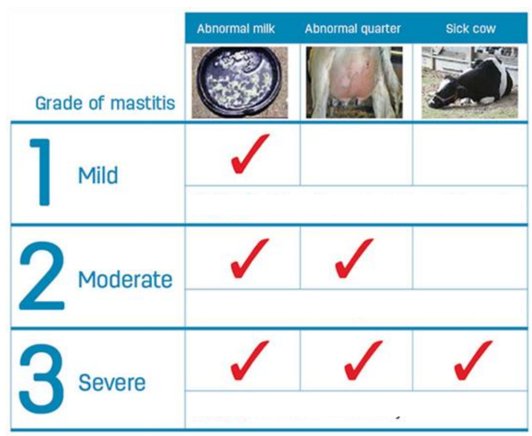

Figure 2. Classifying grades of mastitis
Adapted from: Boehringer Ingelheim

Research shows that waiting 24 hours for rapid diagnostic results, such as on-farm milk culture, does not impact the outcome of the mastitis event.

2) ***Identify causative pathogen***: The causative pathogen found, or lack thereof, should be considered in treatment protocols
    a. No growth or detection of pathogen = no antibiotics (unless severe)
    b. Gram-negative growth (*E. coli*, *Klebsiella spp.*) = no antibiotics (unless severe)
    c. Gram-positive growth = antibiotic administration dependent on probability of cure (or severity)
    d. Identification of non-bacterial causes of mastitis such as *Prototheca spp.* (algae), yeasts, molds, etc. or mastitis caused by *Mycoplasma spp.* = no antibiotics

While laboratories provide an excellent resource for highly specialized identification of mastitis-causing pathogens (and are useful especially when dealing with non-bacterial causes, *Mycoplasma spp.*, unique outbreaks or challenges), on-farm diagnostics allow for results in less than 24 hours to aid a selective treatment for clinical mastitis program. On-farm diagnostics primarily include culturing/culture-based (such as the Minnesota Easy® Culture System or Petrifilm™) or PCR (such as Acumen). Each of these has its pros and cons and we (Extension specialists and agents) are happy to help explore options which fit your farm.

3) ***Evaluate probability of cure***: The SCC and history of mastitis should be considered on a case-by-case basis in combination with causative pathogen. Considerations for potentially not treating with antibiotics (unless severe) include:
    a. High SCC (>200,000 cells/mL) on 2 out of 3 consecutive SCC test days
    b. High SCC in advance of clinical mastitis caused by *Staph. aureus* or some streptococci such as *Strep. uberis*
    c. Previous case of clinical mastitis

Authors also discussed various other considerations, which are briefly bulleted below:

- Susceptibility to antibiotics can be considered, and on-farm tests are available which provide this information. However, current recommendations are that results from antimicrobial susceptibility tests inform <u>choice</u> of antibiotic depending on pathogen profiles identified through diagnostics, rather than a decision to treat or not treat.
- Systemic administration of antibiotics does not generally increase chance of cure and would require veterinary oversight in the US as there are no systemic antibiotics approved for treatment of clinical mastitis. Certainly during severe mastitis, veterinarians commonly recommend systemic administration along with supportive therapy. Such as non-steroidal anti-inflammatory drugs (NSAIDs).
- Research is lacking for efficacy of most supportive therapies, but existing data suggests oxytocin, frequent stripping, NSAIDs do not consistently increase cure rates.
- The amount of antibiotic reduction will be dependent on pathogen profiles and current

program. For example, if blanket treatment is used and it is found that the herd largely has been treating gram-negative and culture-negative (no growth) cases, antibiotic reduction will be substantial. In contrast, if a herd largely experiences cases caused by gram-positive bacteria such as staphylococci and streptococci, the magnitude of antibiotic reduction will be less.

There are certainly a multitude of items discussed in the JDS article that were not included here. If you are interested in additional discussions or need assistance in evaluating mastitis prevention, control, and treatment plans, please reach out to your local Extension agent and we will be glad to work with you!

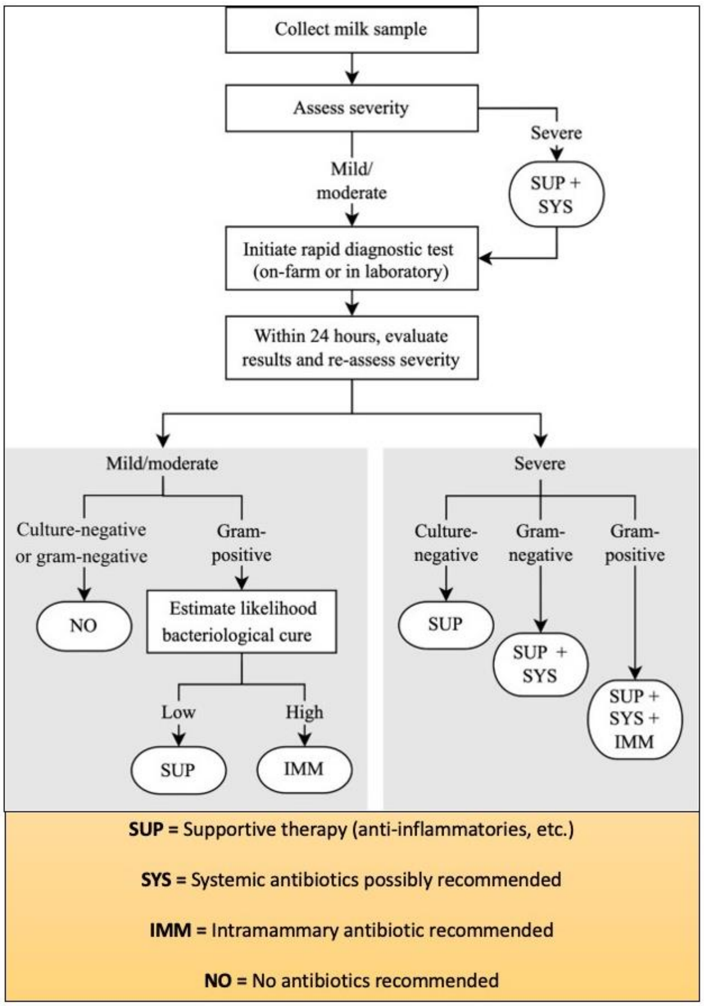

Figure 3. Suggested workflow for selective treatment of clinical mastitis.
Source: Adapted from de Jong et al., 2023. Invited review: Selective treatment of clinical mastitis in dairy cattle. J Dairy Sci. 106: 3761-3778.

Reference

de Jong, E., McCubbin, K.D., Speksnijder, D., Dufour, S., Middleton, J.R., Ruegg, P.L., Lam, T.J., Kelton, D.F., McDougall, S., Godden, S.M. and Lago, A., 2023. Invited review: Selective treatment of clinical mastitis in dairy cattle. *J Dairy Sci. 106: 3761-3778.*

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Role of CAZymes in forage degradation

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Cattle, sheep, and goats can degrade forages due to the vast microbial population their rumen hosts. Understanding the process of forage degradation is crucial to optimizing the quantity of forage provided to your cows because it serves as a source of energy for milk production or the growth of replacement heifers. The conversion of feed into energy by cattle involves a more complex process than simply feeding and excreting waste. In between these steps, many biochemical processes happen through the cooperation of countless microbes and the enzymes they produce.

Carbohydrates in forage, such as those contained in the fibrous components of plants, cannot be utilized by the animal until they are broken down by ruminal microorganisms. As part of the ruminal forage degradation process, fungi, protozoa, and bacteria secrete carbohydrate active enzymes (**CAZymes)** which are responsible for the breakdown of the complex carbohydrates and carbohydrate-bonded components (glycoconjugates) in forage (Davies and Sinnott, 2008). After the carbohydrates are broken into smaller components by the microbes, the enzymes are fermented and produce volatile fatty acids that are utilized by the animal as a source of energy.

There are several categories of CAZymes involved in this process such as glycoside hydrolases, glycosyltransferases, carbohydrate esterases, and glycosyltransferases (Thapa et al., 2020). Glycoside hydrolases are in charge of breaking down cellulose in fiber into smaller polysaccharide components. They can be categorized into three enzyme groups: endoglucanases, exoglucanases, and β-glucosidases, which work together to break apart cellulose, a component in forage structure (**Figure 1).** Additionally, accessory proteins such as expansins and swollins produced by bacteria or fungi can work with these enzymes by disrupting hydrogen bonds in cellulose; therefore, enhancing cellulase activity (Obeng et al., 2017).

Forages are not just made up of cellulose, but also contain other sugars such as pectin and hemicellulose. Polysaccharide lyases breakdown uronic acid-containing polysaccharides such as pectin and xylan through a β-elimination mechanism, which breaks the bonds that hold these carbohydrates together (Linhardt et al., 1986). Classes of polysaccharide lyases include galacturonan lyases (e.g., pectin lyases and rhamnogalacturonan lyases), alginate lyases, and glycosaminoglycan lyases. These lyases also work in conjunction with carbohydrate-binding molecules (**CBM**) by holding the microbes close to the forage and providing it tools to breakdown these carbohydrates (Garron and Cygler, 2014). Microorganisms produce carbohydrate esterases which breakdown hemicellulose, allowing further degradation of its components. Esterases can combat forage protection against hydrolysis (the use of water to break bonds) by breaking the bonds that provide this protection against other enzymes. Carbohydrate esterases can be classified into two major categories, hemicellulose deacetylating and pectin deacetylating (Sista Kameshwar and Qin, 2018).

The final class of CAZymes creates polysaccharides as opposed to degrading them. The secretion of glycosyltransferases by microbes creates of oligo- and polysaccharides such as xyloglucans and mannans that microbes can use to create new microbial cells. Formation of glycosidic linkages occurs between a sugar residue and a carbohydrate (Scheller and Ulvskov, 2010; Schmid et al., 2016). While the function of glycosyltransferases is understood, characterizing their role during forage degradation remains elusive (Yakovlieva and Walvoort, 2020).

Our understanding of CAZymes has been greatly improved by the revolution of Next Generation Sequencing (**NGS**) techniques. Next-Gen techniques allow us to discern the specialized roles of CAZymes produced by microbes during forage degradation (Chettri et al., 2020). The advent of this technology has increased the number of CAZymes recognized and allowed the creation of the Carbohydrate-Active Enzymes (**CAZy**) database, which catalogues CAZymes by family and subfamilies using sequencing data (Lombard et al., 2014). As more CAZymes have been recognized, our understanding of microbial production and activity in the rumen of these enzymes has improved. One example is the cross-feeding relationship of microbes during forage degradation using NGS to evaluate CAZyme production, which discovered a novel bacterial species, *Bacteroidetes spp*. The new species has a clustered region of genes called a polysaccharide utilization locus (**PUL**), which encodes codes many CAZymes simultaneously, allowing this bacterium to adapt more rapidly to forages being fed to cattle (Grondin et al., 2017). Similarly, NGS has also illuminated how another bacterium *Ruminococcus spp.* works; it utilizes CAZymes combined in an enzyme complex called a cellulosome, which creates a more coordinated attack of insoluble polysaccharides (Dassa et al., 2014).

Overall, how will understanding CAZymes benefit dairy production? The sequencing of CAZymes has shown us their diversity and their importance in the microbial population of ruminants because these enzymes are responsible for microbes' lignocellulose-degrading capabilities and energy derivation (Gharechahi et al., 2021). With the continued use of NGS, knowledge of microbial roles in forage degradation through the identification of important CAZymes will deepen. In the dairy industry, these techniques are being utilized to research the impact of different forage-to-concentrate ratios on microbial and CAZyme diversity, methane emissions, and improving the utilization efficiency of forages fed to your cows (Wang et al., 2019; Barrett et al., 2022). Additionally, as new CAZymes continue to be identified there are also potential industrial applications. For example, CAZymes can potentially be included as a feed additive to enhance degradation of polysaccharides and improve animal feed efficiency (Madeira et al., 2017). This represents not only an opportunity to improve nutrient utilization in dairy cattle and have more sustainable production systems, but to ultimately benefit the bottom line on your farm!

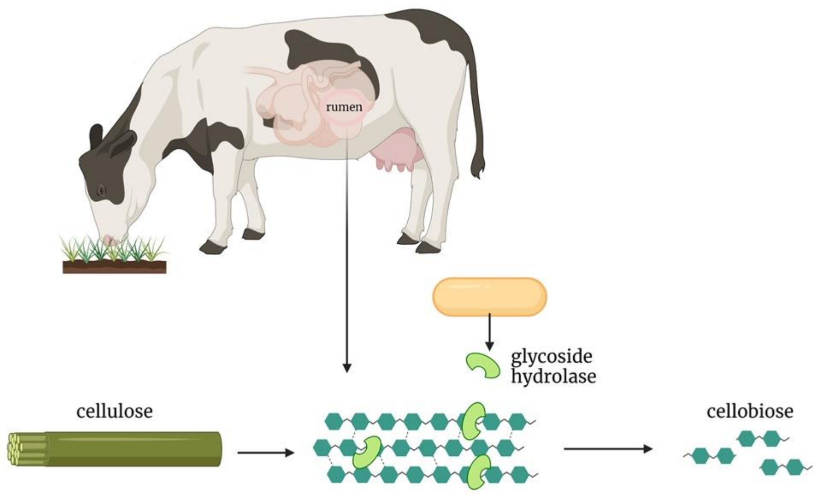

Figure 1. A common cellulolytic bacterium, *Fibrobacter succinogenes*, degrading cellulose. The presence of cellulose in the rumen signals the release of glycoside hydrolases, CAZymes which break cellulose down into smaller components such as cellobiose.

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Important Dates

2023

Annual meeting of the American Dairy Science Association

- June 25-28, 2023
- Ottawa, Ontario, Canada
- https://www.adsa.org/Meetings/2023-Annual-Meeting

UNIVERSITY OF GEORGIA EXTENSION

Top GA DHIA By Test Day Milk Production – March 2023										
					Test Day Average				Yearly Average	
Herd	**County**	**Br.**	**Test Date**	**[1]Cows**	**% in Milk**	**Milk**	**% Fat**	**TD Fat**	**Milk**	**Lbs. Fat**
SCHAAPMAN HOLSTEINS*	Wilcox	HO	2/25/2023	748	89	101.9	3.9	3.67	30415	1113
DANNY BELL*	Morgan	HO	2/28/2023	338	91	97.6	3.9	3.48	30351	1204
GODFREY DAIRY FARM*	Morgan	HO	3/6/2023	1220	89	97.1	3.7	3.26	31852	1245
WDAIRY LLC*	Morgan	XX	3/27/2023	1997	87	92.5	4.3	3.56	28818	1286
MARTIN DAIRY L. L. P.	Hart	HO	2/23/2023	302	89	90.7	4	3.24	26961	1142
A & J DAIRY*	Wilkes	HO	3/14/2023	388	93	86.8	0	0	29097	
SCOTT GLOVER	Hall	HO	3/7/2023	109	88	83.8	4	3.23	27610	1057
DOUG CHAMBERS	Jones	HO	2/21/2023	436	88	83.4	3.8	2.74	26197	961
TROY YODER	Macon	HO	2/23/2023	315	88	82.1	4.1	3.06	25767	971
OCMULGEE DAIRY	Houston	HO	2/23/2023	328	86	81.3	3.5	2.46	23483	860
VISSCHER DAIRY LLC*	Jefferson	HO	2/28/2023	751	86	81.3	0	0	24655	
BOB MOORE	Putnam	HO	3/13/2023	411	90	76.6	3.8	2.8	20815	833
JERRY SWAFFORD	Putnam	HO	3/20/2023	165	91	73.6	3.9	2.85	23329	879
ALEX MILLICAN	Walker	HO	3/9/2023	85	71	73	3.2	1.95	16429	550
UNIV OF GA DAIRY FARM	Clarke	XX	2/23/2023	135	84	72.5	4.1	2.6	20020	818
RYAN HOLDEMAN	Jefferson	HO	3/22/2023	117	92	70.4	3.7	2.49	22938	884
JAMES W MOON	Morgan	HO	3/14/2023	126	85	69.4	3.9	2.52	19174	732
HORST CREST FARMS	Burke	HO	3/3/2023	166	87	67.1	3.9	2.43	19628	783
RODNEY & CARLIN GIESBRECHT	Washington	HO	2/21/2023	410	93	65.1	3.9	2.31	21512	863
W.T.MERIWETHER	Morgan	HO	3/14/2023	74	82	64.4	3.6	2.1	18103	647

[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 – March 2023										
					Test Day Average				Yearly Average	
Herd	**County**	**Br.**	**Test Date**	**[1]Cows**	**% in Milk**	**Milk**	**% Fat**	**TD Fat**	**Milk**	**Lbs. Fat**
SCHAAPMAN HOLSTEINS*	Wilcox	HO	2/25/2023	748	89	101.9	3.9	3.67	30415	1113
WDAIRY LLC*	Morgan	XX	3/27/2023	1997	87	92.5	4.3	3.56	28818	1286
DANNY BELL*	Morgan	HO	2/28/2023	338	91	97.6	3.9	3.48	30351	1204
GODFREY DAIRY FARM*	Morgan	HO	3/6/2023	1220	89	97.1	3.7	3.26	31852	1245
MARTIN DAIRY L. L. P.	Hart	HO	2/23/2023	302	89	90.7	4	3.24	26961	1142
SCOTT GLOVER	Hall	HO	3/7/2023	109	88	83.8	4	3.23	27610	1057
TROY YODER	Macon	HO	2/23/2023	315	88	82.1	4.1	3.06	25767	971
JERRY SWAFFORD	Putnam	HO	3/20/2023	165	91	73.6	3.9	2.85	23329	879
BOB MOORE	Putnam	HO	3/13/2023	411	90	76.6	3.8	2.8	20815	833
DOUG CHAMBERS	Jones	HO	2/21/2023	436	88	83.4	3.8	2.74	26197	961
UNIV OF GA DAIRY FARM	Clarke	XX	2/23/2023	135	84	72.5	4.1	2.6	20020	818
JAMES W MOON	Morgan	HO	3/14/2023	126	85	69.4	3.9	2.52	19174	732
RYAN HOLDEMAN	Jefferson	HO	3/22/2023	117	92	70.4	3.7	2.49	22938	884
OCMULGEE DAIRY	Houston	HO	2/23/2023	328	86	81.3	3.5	2.46	23483	860
GRASSY FLATS	Brooks	XX	3/7/2023	669	89	60.1	4.1	2.46	17249	678
HORST CREST FARMS	Burke	HO	3/3/2023	166	87	67.1	3.9	2.43	19628	783
BERRY COLLEGE DAIRY	Floyd	JE	3/8/2023	29	84	58	4.9	2.35	18870	918
RODNEY & CARLIN GIESBRECHT	Washington	HO	2/21/2023	410	93	65.1	3.9	2.31	21512	863
BUDDHA BELLY FARM LLC	Brooks	XX	3/24/2023	658	88	57.4	4.2	2.31	17408	706
ROGERS FARM SERVICES	Tattnall	XX	3/7/2023	172	90	53.3	4.3	2.13	16603	737

[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).

UNIVERSITY OF GEORGIA EXTENSION

Top GA DHIA By Test Day Milk Production – April 2023										
					Test Day Average				Yearly Average	
Herd	County	Br.	Test date	[1]Cows	% in Milk	Milk	% Fat	TD Fat	Milk	Lbs. Fat
SCHAAPMAN HOLSTEINS*	Wilcox	HO	4/20/2023	779	89	102.7	3.9	3.72	30957	1144
GODFREY DAIRY FARM*	Morgan	HO	4/3/2023	1205	89	102.4	3.9	3.58	31700	1233
DANNY BELL*	Morgan	HO	4/4/2023	330	91	95.7	3.8	3.38	30521	1211
MARTIN DAIRY L. L. P.	Hart	HO	4/10/2023	298	87	88.9	3.6	2.77	27211	1133
WDAIRY LLC*	Morgan	XX	4/24/2023	1988	87	88.4	4.6	3.6	28738	1285
DOUG CHAMBERS	Jones	HO	3/29/2023	430	88	87.7	3.8	2.9	26082	964
A & J DAIRY*	Wilkes	HO	4/12/2023	396	92	86.5	0	0	28862	
ARROWHEAD DAIRY LLC	Burke	HO	4/5/2023	1207	90	86.2	3.7	2.91	27413	1026
TROY YODER	Macon	HO	4/6/2023	332	88	83.8	3.8	2.88	25954	984
SCOTT GLOVER	Hall	HO	4/10/2023	102	87	83.5	4	2.98	27492	1054
OCMULGEE DAIRY	Houston	HO	3/30/2023	331	86	78.2	3.7	2.6	23479	860
BOB MOORE	Putnam	HO	4/10/2023	393	90	76.9	3.6	2.68	20986	832
JERRY SWAFFORD	Putnam	HO	4/17/2023	163	91	76.1	3.4	2.57	23153	876
UNIV OF GA DAIRY FARM	Clarke	XX	3/29/2023	143	85	74.1	4.1	2.8	20622	842
ALEX MILLICAN	Walker	HO	4/7/2023	83	70	73	2.9	1.76	16165	536
RYAN HOLDEMAN	Jefferson	HO	4/19/2023	115	92	69.7	3.6	2.44	22762	878
HORST CREST FARMS	Burke	HO	3/30/2023	170	87	67.5	3.8	2.37	19558	782
W & R FARMS, LLC	Burke	XX	3/28/2023	216	90	66	4.2	2.54	18495	786
JAMES W MOON	Morgan	HO	4/12/2023	127	85	64.7	3.8	2.26	18955	726
DONALD NEWBERRY	Bibb	HO	4/3/2023	100	85	61.4	3.3	1.97	19341	643

[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 - April 2023										
					Test Day Average				Yearly Average	
Herd	**County**	**Br.**	**Test Date**	**[1]Cows**	**% in Milk**	**Milk**	**% Fat**	**TD Fat**	**Milk**	**Lbs. Fat**
SCHAAPMAN HOLSTEINS*	Wilcox	HO	4/20/2023	779	89	102.7	3.9	3.72	30957	1144
WDAIRY LLC*	Morgan	XX	4/24/2023	1988	87	88.4	4.6	3.6	28738	1285
GODFREY DAIRY FARM*	Morgan	HO	4/3/2023	1205	89	102.4	3.9	3.58	31700	1233
DANNY BELL*	Morgan	HO	4/4/2023	330	91	95.7	3.8	3.38	30521	1211
SCOTT GLOVER	Hall	HO	4/10/2023	102	87	83.5	4	2.98	27492	1054
BERRY COLLEGE DAIRY	Floyd	JE	4/4/2023	29	85	59.9	5.5	2.95	18894	922
ARROWHEAD DAIRY LLC	Burke	HO	4/5/2023	1207	90	86.2	3.7	2.91	27413	1026
DOUG CHAMBERS	Jones	HO	3/29/2023	430	88	87.7	3.8	2.9	26082	964
TROY YODER	Macon	HO	4/6/2023	332	88	83.8	3.8	2.88	25954	984
UNIV OF GA DAIRY FARM	Clarke	XX	3/29/2023	143	85	74.1	4.1	2.8	20622	842
MARTIN DAIRY L. L. P.	Hart	HO	4/10/2023	298	87	88.9	3.6	2.77	27211	1133
BOB MOORE	Putnam	HO	4/10/2023	393	90	76.9	3.6	2.68	20986	832
OCMULGEE DAIRY	Houston	HO	3/30/2023	331	86	78.2	3.7	2.6	23479	860
JERRY SWAFFORD	Putnam	HO	4/17/2023	163	91	76.1	3.4	2.57	23153	876
W & R FARMS, LLC	Burke	XX	3/28/2023	216	90	66	4.2	2.54	18495	786
RYAN HOLDEMAN	Jefferson	HO	4/19/2023	115	92	69.7	3.6	2.44	22762	878
HORST CREST FARMS	Burke	HO	3/30/2023	170	87	67.5	3.8	2.37	19558	782
BUDDHA BELLY FARM LLC	Brooks	XX	3/24/2023	658	88	57.4	4.2	2.31	17408	706
JAMES W MOON	Morgan	HO	4/12/2023	127	85	64.7	3.8	2.26	18955	726
ROGERS FARM SERVICES	Tattnall	XX	4/4/2023	163	90	51.3	4.7	2.23	16630	739

[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).***

UNIVERSITY OF GEORGIA EXTENSION

Top GA DHIA By Test Day Milk Production – May 2023										
					Test Day Average				Yearly Average	
Herd	County	Br.	Test Date	[1]Cows	% in Milk	Milk	% Fat	TD Fat	Milk	Lbs. Fat
GODFREY DAIRY FARM*	Morgan	HO	5/1/2023	1199	88	102.8	3.9	3.46	31564	1226
SCHAAPMAN HOLSTEINS*	Wilcox	HO	5/20/2023	754	89	99.2	3.7	3.3	31078	1154
DANNY BELL*	Morgan	HO	5/2/2023	333	91	96.8	4	3.64	30687	1218
WDAIRY LLC*	Morgan	XX	4/24/2023	1988	87	88.4	4.6	3.6	28738	1285
ARROWHEAD DAIRY LLC	Burke	HO	5/3/2023	1205	90	88.2	3.8	3.04	27389	1027
A & J DAIRY*	Wilkes	HO	5/10/2023	389	92	87.3	0	0	28792	
DOUG CHAMBERS	Jones	HO	5/22/2023	424	87	86.7	3.5	2.54	26025	966
VISSCHER DAIRY LLC*	Jefferson	HO	5/9/2023	725	85	83.6	0	0	24273	
ALEX MILLICAN	Walker	HO	5/4/2023	83	71	77.1	2.7	1.7	16618	543
OCMULGEE DAIRY	Houston	HO	5/25/2023	337	86	76	3.8	2.5	23560	866
TROY YODER	Macon	HO	5/4/2023	330	88	75.8	4.1	2.69	25681	982
SCOTT GLOVER	Hall	HO	5/8/2023	96	87	74.9	4.4	2.88	27203	1047
UNIV OF GA DAIRY FARM	Clarke	XX	5/24/2023	140	86	74.6	4.2	2.84	21372	884
BOB MOORE	Putnam	HO	5/12/2023	374	89	74.1	3.5	2.5	21200	832
JERRY SWAFFORD	Putnam	HO	5/15/2023	166	92	70.6	3.9	2.74	23169	875
DONALD NEWBERRY	Bibb	HO	5/1/2023	92	88	68	3.4	2.26	19799	662
W & R FARMS, LLC	Burke	XX	5/8/2023	214	90	67.8	4.2	2.52	18830	812
RYAN HOLDEMAN	Jefferson	HO	5/17/2023	112	93	67.6	3.8	2.55	22895	880
GODFREY DAIRY FARM*	Morgan	HO	5/1/2023	1199	88	102.8	3.9	3.46	31564	1226
SCHAAPMAN HOLSTEINS*	Wilcox	HO	5/20/2023	754	89	99.2	3.7	3.3	31078	1154

[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).*

UNIVERSITY OF GEORGIA EXTENSION

Top GA DHIA By Test Day Fat Production – May 2023										
					Test Day Average				Yearly Average	
Herd	**County**	**Br.**	**Test Date**	**[1]Cows**	**% in Milk**	**Milk**	**% Fat**	**TD Fat**	**Milk**	**Lbs. Fat**
DANNY BELL*	Morgan	HO	5/2/2023	333	91	96.8	4	3.64	30687	1218
WDAIRY LLC*	Morgan	XX	4/24/2023	1988	87	88.4	4.6	3.6	28738	1285
GODFREY DAIRY FARM*	Morgan	HO	5/1/2023	1199	88	102.8	3.9	3.46	31564	1226
SCHAAPMAN HOLSTEINS*	Wilcox	HO	5/20/2023	754	89	99.2	3.7	3.3	31078	1154
ARROWHEAD DAIRY LLC	Burke	HO	5/3/2023	1205	90	88.2	3.8	3.04	27389	1027
SCOTT GLOVER	Hall	HO	5/8/2023	96	87	74.9	4.4	2.88	27203	1047
UNIV OF GA DAIRY FARM	Clarke	XX	5/24/2023	140	86	74.6	4.2	2.84	21372	884
JERRY SWAFFORD	Putnam	HO	5/15/2023	166	92	70.6	3.9	2.74	23169	875
TROY YODER	Macon	HO	5/4/2023	330	88	75.8	4.1	2.69	25681	982
RYAN HOLDEMAN	Jefferson	HO	5/17/2023	112	93	67.6	3.8	2.55	22895	880
DOUG CHAMBERS	Jones	HO	5/22/2023	424	87	86.7	3.5	2.54	26025	966
W & R FARMS, LLC	Burke	XX	5/8/2023	214	90	67.8	4.2	2.52	18830	812
BOB MOORE	Putnam	HO	5/12/2023	374	89	74.1	3.5	2.5	21200	832
OCMULGEE DAIRY	Houston	HO	5/25/2023	337	86	76	3.8	2.5	23560	866
BUDDHA BELLY FARM LLC	Brooks	XX	5/15/2023	658	87	57.8	4.2	2.33	17445	717
DONALD NEWBERRY	Bibb	HO	5/1/2023	92	88	68	3.4	2.26	19799	662
HORST CREST FARMS	Burke	HO	5/25/2023	159	86	67	3.8	2.23	19529	782
JAMES W MOON	Morgan	HO	5/10/2023	129	84	62.7	3.8	2.14	18707	721
DANNY BELL*	Morgan	HO	5/2/2023	333	91	96.8	4	3.64	30687	1218
WDAIRY LLC*	Morgan	XX	4/24/2023	1988	87	88.4	4.6	3.6	28738	1285

[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 Low Herds for SCC – TD Average Score – March 2023									
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	3/8/2023	JE	29	18870	1.5	55	1.7	73
SCOTT GLOVER	Hall	3/7/2023	HO	109	27610	1.6	79	1.7	103
DANNY BELL*	Morgan	2/28/2023	HO	338	30351	1.8	144	1.8	147
WDAIRY LLC*	Morgan	3/27/2023	XX	1997	28818	2.1	144	2.3	177
UNIV OF GA DAIRY FARM	Clarke	2/23/2023	XX	135	20020	2.1	164	2.3	190
GODFREY DAIRY FARM*	Morgan	3/6/2023	HO	1220	31852	2.2	209	2.2	193
TROY YODER	Macon	2/23/2023	HO	315	25767	2.5	164	2.6	178
DOUG CHAMBERS	Jones	2/21/2023	HO	436	26197	2.5	215	2.7	244
MARTIN DAIRY L. L. P.	Hart	2/23/2023	HO	302	26961	2.6	233	2.5	167
W.T.MERIWETHER	Morgan	3/14/2023	HO	74	18103	2.7	231	3.1	310
ALEX MILLICAN	Walker	3/9/2023	HO	85	16429	2.8	372	2.6	244
RYAN HOLDEMAN	Jefferson	3/22/2023	HO	117	22938	2.8	238	2.7	270
JAMES W MOON	Morgan	3/14/2023	HO	126	19174	2.8	250	2.9	291
RODNEY & CARLIN GIESBRECHT	Washington	2/21/2023	HO	410	21512	2.8	274	2.8	294
ROGERS FARM SERVICES	Tattnall	3/7/2023	XX	172	16603	2.8	229	3.3	344
JERRY SWAFFORD	Putnam	3/20/2023	HO	165	23329	3	286	2.8	246
GRASSY FLATS	Brooks	3/7/2023	XX	669	17249	3	263	3.1	318
BUDDHA BELLY FARM LLC	Brooks	3/24/2023	XX	658	17408	3.4	361	3.6	407
BOB MOORE	Putnam	3/13/2023	HO	411	20815	3.8	425	3.9	426
HORST CREST FARMS	Burke	3/3/2023	HO	166	19628	3.9	494	3.1	285

[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).

UNIVERSITY OF GEORGIA EXTENSION

Top GA Low Herds for SCC –TD Average Score – April 2023									
Herd	**County**	**Test Date**	**Br.**	**[1]Cows**	**Milk-Rolling**	**SCC-TD-Average Score**	**SCC-TD-Weight Average**	**SCC-Average Score**	**SCC-Wt.**
DANNY BELL*	Morgan	4/4/2023	HO	330	30521	1.6	144	1.8	147
BERRY COLLEGE DAIRY	Floyd	4/4/2023	JE	29	18894	1.8	65	1.7	73
SCOTT GLOVER	Hall	4/10/2023	HO	102	27492	1.8	68	1.7	102
UNIV OF GA DAIRY FARM	Clarke	3/29/2023	XX	143	20622	1.9	148	2.2	185
W & R FARMS, LLC	Burke	3/28/2023	XX	216	18495	2	110	2.4	179
WDAIRY LLC*	Morgan	4/24/2023	XX	1988	28738	2.2	164	2.3	174
ARROWHEAD DAIRY LLC	Burke	4/5/2023	HO	1207	27413	2.2	179	2.1	160
ALEX MILLICAN	Walker	4/7/2023	HO	83	16165	2.2	190	2.6	249
GODFREY DAIRY FARM*	Morgan	4/3/2023	HO	1205	31700	2.2	207	2.2	192
ROGERS FARM SERVICES	Tattnall	4/4/2023	XX	163	16630	2.4	173	3.3	334
TROY YODER	Macon	4/6/2023	HO	332	25954	2.4	175	2.6	178
MARTIN DAIRY L. L. P.	Hart	4/10/2023	HO	298	27211	2.5	195	2.5	189
JAMES W MOON	Morgan	4/12/2023	HO	127	18955	2.5	276	2.9	296
DOUG CHAMBERS	Jones	3/29/2023	HO	430	26082	2.6	191	2.7	239
RYAN HOLDEMAN	Jefferson	4/19/2023	HO	115	22762	2.6	304	2.7	282
W.T.MERIWETHER	Morgan	4/11/2023	HO	77	17969	2.7	206	3.1	306
JERRY SWAFFORD	Putnam	4/17/2023	HO	163	23153	2.8	258	2.8	250
DONALD NEWBERRY	Bibb	4/3/2023	HO	100	19341	3.1	277	2.9	230
BUDDHA BELLY FARM LLC	Brooks	3/24/2023	XX	658	17408	3.4	361	3.6	407
HORST CREST FARMS	Burke	3/30/2023	HO	170	19558	3.5	453	3.2	304

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UNIVERSITY OF GEORGIA EXTENSION

Top GA Low Herds for SCC –TD Average Score – May 2023									
Herd	**County**	**Test Date**	**Br.**	**[1]Cows**	**Milk-Rolling**	**SCC-TD-Average Score**	**SCC-TD-Weight Average**	**SCC-Average Score**	**SCC-Wt.**
UNIV OF GA DAIRY FARM	Clarke	5/24/2023	XX	140	21372	1.7	155	2.2	188
DANNY BELL*	Morgan	5/2/2023	HO	333	30687	1.8	135	1.8	146
SCOTT GLOVER	Hall	5/8/2023	HO	96	27203	1.9	98	1.7	103
W & R FARMS, LLC	Burke	5/8/2023	XX	214	18830	2	133	2.2	142
BERRY COLLEGE DAIRY	Floyd	5/2/2023	JE	32	18784	2.1	80	1.8	76
ALEX MILLICAN	Walker	5/4/2023	HO	83	16618	2.1	133	2.5	239
ARROWHEAD DAIRY LLC	Burke	5/3/2023	HO	1205	27389	2.1	177	2.1	165
WDAIRY LLC*	Morgan	4/24/2023	XX	1988	28738	2.2	164	2.3	174
GODFREY DAIRY FARM*	Morgan	5/1/2023	HO	1199	31564	2.3	196	2.2	192
TROY YODER	Macon	5/4/2023	HO	330	25681	2.4	164	2.6	177
W.T.MERIWETHER	Morgan	5/8/2023	HO	76	17736	2.5	184	3	299
DOUG CHAMBERS	Jones	5/22/2023	HO	424	26025	2.5	210	2.6	228
JERRY SWAFFORD	Putnam	5/15/2023	HO	166	23169	2.6	206	2.8	254
JAMES W MOON	Morgan	5/10/2023	HO	129	18707	2.6	216	2.9	301
ROGERS FARM SERVICES	Tattnall	5/2/2023	XX	164	16583	2.7	217	3.2	327
SCHAAPMAN HOLSTEINS*	Wilcox	5/20/2023	HO	754	31078	2.7	268	2.7	246
RYAN HOLDEMAN	Jefferson	5/17/2023	HO	112	22895	2.8	413	2.7	297
DONALD NEWBERRY	Bibb	5/1/2023	HO	92	19799	3	235	2.9	239
BOB MOORE	Putnam	5/12/2023	HO	374	21200	3.2	310	3.9	429
HORST CREST FARMS	Burke	5/25/2023	HO	159	19529	3.3	430	3.2	322

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