

## Are Your Cows Producing up to Their Potential?

James W. Smith  
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After looking at my report card, my mother used to say, ‘Well, all I can ask is that you try to do your best.’ As a producer, all you can ask of your cows is that they try to do their best. The problem is how to know if your cows are producing up to their potential.

The best measure of the genetic potential of a herd is predicted transmitting ability (PTA) values. If proper sire and dam identification is not provided through DHIA, PTA’s cannot be calculated by USDA. Also, cows sired by natural service will not have a PTA calculated. For both reasons, many herds in Georgia have less than 50 percent of the cows with a calculated PTA.

Another method of production evaluation is to examine average mature equivalent (ME) milk production of cows by lactation group. Mature equivalent records are lactation records that have been adjusted for age of freshening, frequency of milking and season of the year at calving. These records do not predict how much a cow or group of cows will produce in the future. Mature equivalent records simply estimate how much a cow or group of cows would have produced if she (they) were of mature age, calved during an average month and were milked twice a day.

Mature equivalent production values by lactation group by milk production level are shown in Table 1 for the South region. One might expect the highest ME production for first lactation cows since they should possess the highest genetic merit. However, when comparing lactation groups, second lactation cows tend to have higher ME’s since they have been culled for production more intensively compared to first lactation cows.

Use the information in Table 1 to determine if a certain lactation group in your herd is producing lower than expected. The ME production ratios provide a convenient method of comparing the relative difference between groups. For example, let’s say Mr. Herd Owner with a rolling herd average of 20,421 is concerned about the production of his first lactation cows. The average ME’s for his herd by lactation group are 20,438, 22,623 and 21,489 pounds respectively for first, second and third + lactation groups.

The average ME of his first lactation cows is lower than expected (20,438 lbs. vs. 22,459 lbs.) The ratio of his first lactation cows ME to second lactation cows ME is 0.90 (20,438/22,623). The ratio of first lactation cows ME to third lactation cows is 0.95 (20,438/21,489). Both ratios are lower than expected indicating that first lactation cows are underperforming in relation to the other two lactation groups.

Further investigation will be required to determine the reasons for the lower performance. Factors to consider are variations in culling rate, genetic merit and management among the three lactation groups. Health problems affecting a specific lactation group can also contribute to differences.

Table 1. Projected Mature Equivalent (ME) Milk Production by Lactation Group in the South Region by Milk Production Level.

South								
	Lactation					Lactation Ratio		
Herd Avg. (lbs)	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup> +	All		1:2	2:3	1:3
14000-14999	16802	16597	16522	16633		1.01	1.00	1.01
15000-15999	17906	17516	17473	17626		1.02	1.00	1.02
16000-16999	18742	18652	18323	18562		1.00	1.02	1.02
17000-17999	19699	19775	19098	19519		1.00	1.04	1.03
18000-18999	20892	21106	20274	20739		0.99	1.04	1.03
19000-19999	21769	22028	21299	21706		0.99	1.03	1.02
20000-20999	22459	22654	21656	22245		0.99	1.05	1.04
21000-21999	22875	23413	22556	22928		0.98	1.04	1.01
22000+	24729	24984	23884	24550		0.99	1.05	1.04

## DAIRY FAX HEADLINES!

### Dairy Field Day at Henry Cabaniss Dairy June 18, 2002

The University of Georgia Cooperative Extension Service is sponsoring a field day hosted by Henry Cabaniss and Sons Dairy in Maxeys, Georgia. Their new DeLaval rotary milking parlor will be featured. Registration will begin at 9:30 a.m. Lunch will also be served. The dairy is located about one mile north of downtown Maxeys on Route 77.

## Using Recycled Sand in Free Stalls

John K. Bernard  
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Sand is commonly used by dairy producers to bed free stalls. Sand is an ideal bedding material because it contains few nutrients that bacteria need for growth. Sand has a low water holding capacity and normally stays dry in humid conditions. The fine grains of sand move freely allowing distribution of the cow's weight and cushioning.

Anyone using sand knows that cows like sand bedding compared with other types of bedding, but they drag (or kick) a lot of sand out of the stalls each day. Estimates vary but many in the industry use an average estimate of 50 lbs. of sand per stall per day to maintain each free stall. The annual cost of maintaining free stalls varies across the state depending on the cost of sand which ranges from approximately \$4.50 per ton to more than \$14.00 per ton delivered. Recycling sand collected from flush water is one way to reduce bedding cost, but the potential for increased exposure to mastitis causing pathogens is a concern.

For the past year we have been evaluating the potential of using recycled sand for bedding free stalls. Two sections of our free stall barn at the Tifton Dairy Research Center were fitted with one of five different commercial sand retaining devices. Stalls were bedded with either fresh or recycled sand each week and the amount of sand required was recorded. Samples of sand used for bedding and from each free stall surface were collected for analyses of dry matter (DM), organic matter (OM) and bacteria concentrations.

The average DM and OM concentrations of fresh (96.7% DM and 0.6% OM) and recycled sand (96.5% DM and 1.1% OM) used for bedding were similar. Sand collected from each of the freestall sand retaining systems contained similar concentrations of DM and OM; 97.8% and 98.2% DM and 1.2% and 2.1% OM respectively for fresh and recycled sand. The recycled sand had higher concentrations of bacteria than the fresh sand, but the microbial populations that were present in the greatest concentrations were not ones that have typically caused mastitis. There were differences in bacteria concentrations in the free stalls, but total concentrations are well below those considered necessary to cause mastitis. Concentrations of some microbes were higher for the recycled sand and others were highest in the fresh sand. There were not differences in bacterial concentrations among the sand retaining devices.

The amount of sand required to maintain free stalls in our studies ranged from 28 to 41.5 lb./day. Stalls fitted with either the Sand Trap or Agriweb required less sand (28 to 29 lb./day) than the control stalls or those fitted with the Pack Mat or Sand Mizer (40.8 to 41.5 lb./day). Others have reported reduced sand usage for stalls fitted with the Pack Mat and the difference may be related to how the stalls were maintained or how the Pack Mat was installed. Some producers have reported problems keeping products such as the Sand Trap and Agriweb from working their way out of the sand, but we have not had any problems to date.

Results of this study indicate that recycled sand can be used to bed free stalls without increasing the exposure of the cow to pathogens. It is important to manage the recycled sand to keep the OM concentration below 2%. Higher concentrations of OM would provide nutrients to support greater growth of bacteria that could potentially become a problem. In regards to sand retaining devices, producers should first strive to provide the most comfortable free stall for the cow to maximize cow comfort and then work to reduce sand usage. Reducing sand usage may not be the best for cow comfort,

health, and productivity for the long run. There are still many questions remaining about the use of sand retaining devices in free stalls, such as which is the better product, and what are the best management practices for reducing sand usage.

We are continuing to monitor the bacterial concentrations in our stalls. This is part of a larger study supported by the Florida Milk Checkoff in cooperation with University of Florida researchers and we will have more to report in the future.

### **UGA Animal Science in Action**

William M. Graves  
Extension Dairy Scientist

Animal Science in Action is a two day program designed for rising high school juniors and seniors with an interest in a Bachelor of Science degree and career in the animal science field. The University of Georgia Animal and Dairy Science Department encompasses science and hands-on learning opportunities with beef and dairy cattle, horses, swine, and sheep. A degree in animal science can lead to a great variety of careers including sales in feed and pharmaceuticals, extension and other instructional roles, meats industry options, or many of the supportive roles in the livestock industry. Animal and Dairy Science degrees also can be tailored to satisfy pre-requisites for veterinary or graduate school.

This year's program is set for June 12-13, 2002. Deadline for applications is May 1, 2002.

High school students come to UGA to engage in a series of labs and experiences that give them a "feel" for the animal science program. Groups visit each of the main teaching farms for hands-on activities with the animals and other UGA sites. Students stay in a UGA dormitory to experience dorm life. Current animal science students lead various activities and interact with the students to share the opportunities available at UGA in animal science. The program starts mid-morning on Wednesday and ends late afternoon of the next day. Parents are invited to attend, especially the opening and closing sessions that involve admissions and scholarship information.

The event costs \$50.00/student. High school students should provide PSAT or SAT scores, be a rising junior or senior, and not have attended a previous Animal Science in Action program. We encourage you to get your application in today.

For more information or to obtain an application contact Dr. Bill Graves (706-542-9106) or Joyce Oliver (706-542-2581).

## Commercial Dairy Heifer Show Reaches New Milestone

Warren D. Gilson  
Extension Dairy Scientist

The 2002 Commercial Dairy Heifer show was held on February 23 and 24 at the Georgia National Fairgrounds. This show represented the culmination of a five month long project.

FFA and 4-H youth obtain young calves from cooperating dairy producers and provide the daily care for five months. The youth learn a variety of skills including responsibilities, persistence, determination and sportsmanship. They also learn about the dairy industry and the requirements for rearing a young calf.

The project was begun in 1996 with the first show in 1997. Eighty-one calves and 74 youth were entered the first year. This year 359 calves were entered and 312 youth. This represents an over 300% increase in entries in just six years.

The number of youth who exhibited at the show also reached a new level this year. There were 250 youth who exhibited 275 calves at this year's show. This represents almost a 400% increase in the number of youth exhibitors and over a 400% increase in the number of calves exhibited.

The success of this project is due in no small part to the willingness of dairy producers to provide calves for these youth. Thanks to the following dairy producers for their support:

Alan Bridges	Double R Dairy	Judd Chambers
Albert Hale	Elmer Yoder	Kingsley Dairy Farm
Alex Millican	Everett Williams Dairy	Lewis Harrison
BrooksCo. Dairy	Franks Farm	Mark Dawson Dairy
Bruce Harper	Gary Evans	Mark Coody
Calvin Evans	Glo Crest	Mike Sumners
Charles Strange Dairy	Glynn Holmes	Muddy H. Holstein
Chris McElveen	Harold Gilbert	Neal Tallon
Chuck Coburn	Heath Greene	O'Brian Bragg
Chuck Lee	Henry Cabaniss	Pete Miller
Dan Durham	Jan Duvall	Randy Stubbs
Dan Warren	Jeff Smith	Richard Hardie
Danny Bell	Jim Moon	Roger Bruce
Dave Clark	Jody Farmer	Ronnie Long
David Moss	John Daniel	Shady Oaks Dairy
David Reece	John Potter	Stanley Yoder
Donnie Vernon	Jones Dairy	Steve Hilsman
Double C Dairy	Joseph Pritchett	Steve Crawford

Ted Perfect  
Truelove Dairy

Wayne Williams

## Get the Big Picture in Dairy Reproduction

W. M. Graves  
Extension Dairy Scientist

Select top ranked bulls bases on high Net Merit Dollars (NM\$) values. A producer should be cautious in using bulls with reliability (REL) less than 80 percent since the NM\$ values are not as accurate. Sires should be selected from the top 30 percent of the current sire list. This would include bulls over 400 NM\$ values.

Use proper AI techniques and develop a sound heat detection program. Keep only a six month inventory of semen in your tank. Update sire selections with each new summary. Semen inventory can be easily maintained on the PC-DART program.

Select bulls of high fertility to use on repeat services. Estimated relative conception rate (ERCR) information is available through Dairy Records Management Systems on bulls with more than 300 services.

Mating programs work best if good bulls are used, not necessarily because of a specific mating. Also, the more traits selected, the more the overall effect will be diluted. Use production traits of high heritability in making your decision. Production traits should receive at least 75 percent of the effort in sire selection. The physical trait that appears to have the greatest heritability is stature. The udder trait with the greatest heritability is udder depth. Producers also need to use a sire summary to select sires that provide the best choice economically. Finally, calving difficulty information should always be used when making breeding decisions for heifers.

Don't forget the cow! A cow must have a healthy reproductive tract and be cycling every 21 days in a successful AI program. Producers should watch for heats regularly and use estrus and ovulation synchronization schemes to get animals bred sooner. Begin breeding animals 50 days after calving and watch semen handling and placement in the cow. Breed animals according to the AM-PM rule in most cases.



## **Injection-site Lesions in Cull Dairy Cows**

John K. Bernard  
Dairy Research and Extension

The average dairy culls approximately 30% of their herd each year. These culls represent another source of income for dairy producers, but the price of cull dairy cows is low compared to other beef prices. Part of this is due to the lower proportion of salable meat from cull cows, but dairy cows also have a history of poorer quality meat due to injection-site lesions.

Injection of most products into the muscle results in the formation of a lesion. The size of the lesion is influenced by where the injection was given (muscle group and depth), and what was injected. A study reported in the March issue of the Journal of Dairy Science indicated that more than 1 in 3 dairy cows has injection-site lesions in the round based on an audit of cow culls from 1998 through 2000. The frequency of injection-site lesions has decreased from 60% in 1998 to 35% in 2000 which is still much higher than that observed in cull beef cows. Most cows with lesions have an average of  $1.6 \pm 1.2$  lesion sites.

The Beef Quality Assurance program recommends that most shots be given in areas such as the neck with a 3/4 inch needle to minimize the formation of injection-site lesions. A recent report from the National Animal Health Monitoring System indicated that 47% of producers and 37% of veterinarians administer intramuscular injections in the upper or lower leg of cows rather than recommended sites. This reflects the concern of giving a shot from the rear when the cow is in a head-lock or in the milking parlor and a lack of training on the effect of injections on meat quality.

Injection-site lesions reduce the value of the meat and also reduce consumer interest in purchasing more meat. Think about a piece of a steak that you may have tried to eat that had the consistency of shoe leather and you begin to understand why the industry penalizes cull dairy cows.

We included an injection-site demonstration as part of the dairy heifer field day we hosted last October. A Holstein steer was injected with various products commonly used for vaccinating against disease, treating sick animals, and managing reproduction. Most of these injections were given intramuscularly and all resulted in lesions or in an abscess. The veterinarian who was conducting the demonstration pointed out that it is important to administer each injection according to the label, preferably subcutaneously, so that the product can work. If the injection goes into the muscle and forms an abscess, the vaccine or antibiotic will not work.

Educating yourself and employees is the first step to prevent injection-site lesions. Many county livestock associations sponsor Beef Quality Assurance programs. I highly recommend

you attend an injection-site demonstration to learn first hand about the effects of improperly

administering medications. Develop a standard operating procedure for administering injections that will minimize lesions.

Taking steps to reduce injection-site lesions will improve the value the meat from cull dairy cows and improve cull prices. This will take some time, but from the study results it appears many producers are working to improve injection techniques.

Reference: Roeber et al. 2002. Frequencies of injection-site lesions in muscles from rounds of dairy and beef cow carcasses. J. Dairy Sci. 85:532-536.

<b>Dates to Remember</b>		
April 19	Spring Dairy Show	Athens
April 20	State 4-H & FFA Dairy Cattle Judging Contest	Athens
April 27	So. Invitational Holstein Sale	Perry
June 12-13	Animal Science in Action	Athens
June 18	UGA Dairy Field Day - Cabaniss Dairy Farm	Maxeys
Nov. 12-13	Southeast Dairy Herd Management Conference	Macon