



GEORGIA DAIRYFAX

<http://www.ces.uga.edu/Agriculture/asdsvm/Dairyscience/dairypage.HTML>

May/June 2003

Dear Dairymen:

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

The following information is included:

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Sincerely,

James W. Smith
Extension Dairy Scientist

County Extension Director or County Agent

/jlo

The Effect of Gonadotropin-Releasing Hormone (GnRH) and Double Insemination on Repeat Breeders

W. M. Graves
Extension Dairy Scientist

Many of you have been trying to get problem cows bred the past few months. Many may have tried hormone treatment or using twice as much semen in an effort to get an animal bred so she will calve again and start a new lactation. Several years ago a study was conducted to evaluate the effect of GnRH and double insemination on third and fourth service conception rates. A total of 193 cows were bred during a 20-month field study at five farms in Monroe County, Tennessee. Cows were assigned to one of four treatments: 1) No GnRH injection and bred with one straw of semen according to the AM-PM rule; 2) 2cc GnRH (100 mcg. Cystorelin) injected IM into the hip muscle; 3) No GNRH injection and bred with two straws of semen according to the AM-PM-AM rule; 4) 2cc GnRH injected IM and bred with two straws according to the AM-PM-AM rule.

The five herds ranged in size from 82 to 146 cows and averaged 20,780 lb. of milk. Conception rates on DHI for all services on the five herds ranged from 39 to 44%. Conception rates for each of the four treatments were: 1) 28.0% of 50 animals not injected; 2) 41.2% of 51 animals injected with GnRH; 3) 39.6% of 48 animals that were double inseminated, and 4) 31.8% of 44 animals injected and double inseminated.

A total of 38.6% of 132 third service and 27.9% of 61 fourth service animals were pregnant. The average overall conception rate was 35.2%. Conception rates for Sept.-Oct.-Nov. were 39.7%, Dec.-Jan.-Feb. were 32.7%, Mar.-Apr.-May were 46.8% and Jun.-Jul.-Aug. only were 15.2%. Only 15.2% conception on repeat services during the summer!

This study showed an overall increase in conception rate at repeat services of over 13% using either GnRH or double insemination. Which would be cheaper for your operation? Also note that an effort should be made to get animals bred before hot weather arrives. Now that we are already there, the best choice may be to transfer a day 7 embryo. Florida research has shown them to be more viable during heat stress periods. Embryo transfer rates are higher than conception rates with AI during the summer. Also, remember that Ovsynch has been shown to be helpful with repeat breeders. This is not much of a surprise since it involves two shots of GnRH.

Relationship Between Mastitis and Reproductive Performance

J. W. Smith
Extension Dairy Scientist

Costs associated with mastitis and reduced reproductive efficiency are well known. Mastitis reduces milk production and treatment is expensive and often ineffective. Lower reproductive efficiency is important since each day a cow is open over 90 days is estimated to cost over \$2.50 per day.

Various research studies have shown a relationship between clinical and subclinical mastitis and reproductive performance. However, the exact mechanisms by which mastitis reduces reproductive efficiency are unknown.

Results of studies at the University of Tennessee concluded that (1) both subclinical and clinical mastitis reduce reproductive performance, (2) cows with mastitis before first service have more days to first service, more days open and more services per conception and (3) days open and services per conception increase in infected cows when mastitis occurs during the breeding period.

The effect of somatic cell count score (SCCS) (a measure of subclinical mastitis) on reproductive performance measures was studied at the University of Georgia using DHI Herd Summary records obtained from DRMS, Raleigh, NC. Holstein herds were divided into four groups based on SCCS. Table 1 shows the relationship of SCCS with average days open and actual calving interval. As SCCS increased both of these measures of reproductive efficiency also increased.

The relationship between SCCS and reproductive performance of herds breeding primarily by AI is shown in Table 2. Days to first service, days open and actual calving interval increase as SCCS increases. Services per pregnancy increase and then level off with the two highest SCCS categories.

This limited study does not prove that there is a direct relationship between subclinical mastitis and reproductive performance. Herd managers who control mastitis may also be better managers of reproduction. However, this study does support other studies showing the relationship between mastitis and reproductive performance.

The control of clinical and subclinical mastitis during early lactation is obviously important. This control also appears to improve reproductive efficiency which would be an added benefit.

Table 1. Effect of Herd Somatic Cell Count Score on Average Days Open and Actual Calving Interval

SCCS	No. of Herds	Days Open	Calving Interval (mos.)	Milk Production (lbs.)
Less than 2.0	140	143	13.5	23216
2.0 - 2.9	3691	154	13.8	21789
3.0 - 3.9	4624	169	14.2	20208
4.0 and above	683	182	14.4	17777

Table 2. Effect of Herd Somatic Cell Count Score (SCCS) on Reproductive Performance of AI Herds

SCCS	No. of Herds	Days to 1 st Service	<u>Services/Pregnancy</u>		Days Open	Actual Calving Interval (mos.)	Milk Production (lbs.)
			Preg. Cows	All Cows			
Less than 2.0	124	89	2.13	2.87	137	13.5	23350
2.0 - 2.9	3293	91	2.23	3.14	151	13.8	21979
3.0 - 3.9	4061	97	2.28	3.33	165	14.3	20461
4.0 and above	546	103	2.24	3.28	179	14.6	18107

Feeding Genetically Enhanced Corn Varieties

John K. Bernard
Dairy Research and Extension

Questions arise from time to time about feeding grain or silage produced from corn varieties that contain glyphosate-tolerant (Roundup Ready) or corn rootworm protected (Bt) genes. Most of these questions relate to the effects of these genes on digestibility of the silage or grain or the potential impact on the natural micro-organism population in the rumen.

Researchers in Wisconsin compared the chemical composition and in vitro digestibility of corn varieties included in variety testing programs with and without genetic enhancements. Results of these analysis indicate that these genes do not alter nutrient digestibility. Thus, if the genes are inserted into varieties with above average digestibility, digestibility of the genetically enhanced variety should still be above average. Inserting the genes into a variety with below average quality will not improve the quality of that variety.

Nebraska researchers recently reported the results of two trials in which they compared diets containing silage and grain produced from normal varieties or varieties containing Roundup Ready and Bt genes. In the first trial the Roundup Ready variety was harvested last and had a higher dry matter (DM) content due to rapid drying conditions. Intake and milk production were similar for all treatments except the Roundup Ready variety which was lower. This was due primarily to the lower DM intake of this variety due to the higher DM content of the diet. In the second trial, no differences in intake, milk yield or composition were observed among normal and genetically enhanced varieties. Similar results have been reported by research from Illinois.

Many of the problems encountered with silage produced from high quality varieties are related to management decisions rather than the variety itself. Stage of maturity at harvest, packing density, management of the silo face during feeding, and bunk management all impact nutrient content as well as the performance of animals eating the silage.

Biosecurity: More Than a Buzz Word

Dana Cole, DVM
Food Animal Health & Management Program

Biosecurity is keeping infectious disease from entering your herd. We have all heard this term thrown around a lot lately and most producers probably have their own ideas about how it should be approached. My conversations with numerous producers and veterinarians have shown me that there is clearly no consensus on how much biosecurity is enough. However, there are a few primary areas that all biosecurity plans should address.

1. New Additions

Over 25% of dairy operations purchase new animals, either replacement heifers, lactating cattle, or bulls (NAHMS 1992). In addition, about 4% of operations have their replacement heifers raised at a different facility (NAHMS 2002). The bad news is that most diseases are introduced to a farm through new additions. The good news is that the NAHMS (National Animal Health Monitoring System, 2002) study found that 95% of producers have precautionary management practices for their replacement heifers. The following guidelines will help you develop a biosecurity management plan for incoming animals:

1. Testing: All new animals should be tested for BVD, and adult animals for Johne's, before purchase. Culture for infectious mastitis agents and assessment of BLV status can also be done.
2. Quarantine: The NAHMS study in 1992 found that only 28% of dairy producers quarantine animals. This has likely increased recently, but this is still a weak area in the industry. All animals arriving on the premises should be kept in separate facilities for up to 8 weeks. In addition, pregnant animals should calve in a separate pen and the new calf tested for BVD before joining other calves.
3. Waste management: All wastes from new animals while they are in quarantine need to be handled separately, paying attention to potential areas of runoff.
4. Fence contact: Even fence contact between new purchases and herd animals can result in the transmission of disease, so keep your quarantine pen away from the rest of your herd—especially your young animals.

2. On Farm Traffic

All dairies have to deal with constant traffic on their farm. In most cases, this traffic

doesn't represent any significant risk. However there are a few visitors you might want to consider:

1. Rendering trucks: Where do you put your dead animals to be picked up? Consider what rendering trucks are hauling and make sure that they do not have to come onto your farm very deeply or cross any animal traffic areas to get your animals. Make a pickup place as close to the edge of your place as possible to be sure that your animals are protected from contamination.
2. Hoof trimmers/Reproduction specialists/Veterinarians: These visitors are usually not a source of concern. They travel to different farms routinely and know the risks associated with it and take the proper precautions. However, you can help them by keeping areas that they may be using free of cattle wastes. Have your animals to be examined up and easily accessible to them. If you have any concerns, ask them how you can help them protect your own and the next client's biosecurity.

3. Wildlife

It's not just cattle that can bring in disease. Wild animals are also frequently associated with disease of cattle. The 2002 NAHMS report found that over 90% of operations had deer sharing pastures with cattle during the summer months. More importantly, over half of operations had deer contact with feed or water sources for cattle. Birds and rodents can also be important carriers of *Salmonella* and *Leptospira*. Although this is probably the toughest area of a biosecurity plan to manage, efforts should be made to protect commodities and water sources from these critters.

The risk of foreign animal disease has never been greater. Every day there is a new headline about an outbreak of foreign animal disease. However, it doesn't take a foreign disease on your farm to create a big headache and compromise your profitability. Attention to biosecurity can help prevent the accidental introduction of disease in your herd.

Dates to Remember

July 15-19, 2003	Southeastern Dairy Youth Retreat, Madison, Georgia
November 11-12, 2003	Southeast Dairy Herd Management Conference Georgia Farm Bureau Building, Macon

The University of Georgia Dairy at Athens: An Update

Lane O. Ely
Extension Dairy Scientist

The University of Georgia's dairy at Athens has been in the news the last six weeks since the Dean announced that the dairy was to be closed and the cows were to be moved to Tifton. After several discussions by students and friends of the dairy, a proposal has been made to downsize the dairy and develop a teaching dairy. A final decision has not yet been made.

Activities at the University of Georgia Dairy at Athens continue while we wait for a decision on its future. A project to evaluate methods to recondition the lagoon is being conducted by the Department of Agricultural and Biological Engineering. This project is in cooperation with Auburn University. A bag system is being used to separate the solids. A floating pontoon pump is being used to remove liquid and solids from the lagoon. Also a solid separator is under construction at the dairy.

Dr. Graves is obtaining milk weights and Somatic Cell Counts on the last group of heifers that were treated with a mastitis treatment before calving. He is also in the middle of a synchronization project for the first breeding of all cows in the herd. He will have a total of 100 cows on four different treatment protocols at the end of the trial.

We have just taken the last samples in a study trying to determine the variability in the total mixed ration and how often feed samples need to be taken to insure ration stability. With all of the rain in May, it will be interesting to see the silage dry matter values.

This past spring semester there were three student interns at the dairy who worked in all areas of the dairy during their program. Two of these students have continued as student laborers this summer. Last semester there were 20 laboratories conducted at the dairy for Animal and Dairy Science classes, 2 agent trainings, 3 laboratories for the Veterinary School, 4 judging classes and workshops and 16 tours for school groups.

Like everyone else in North Georgia spring silage harvest was an adventure with all of the rain. It was finally finished with a good yield but early samples showed lower energy and higher fiber as the crop was more mature than desired.

The dairy herd classification was updated this spring with two cows being classified as excellent so now there are three excellent cows in the herd.

Southeast Dairy Youth Retreat

Warren Gilson
Extension Dairy Scientist

The University of Georgia will be hosting the 2003 Southeast Dairy Youth Retreat. The retreat is held each year in June or July and the location rotates among the states of Virginia, North Carolina, South Carolina, Florida and Georgia. This is Georgia's year to host the event. It will be held July 15-19 in the heart of Georgia's dairy industry in Madison. Headquarters will be the Ramada Inn.

The retreat will include visits to local dairy farms, a processing plant and other local attractions. The youth will also participate in educational workshops and have an opportunity to demonstrate their knowledge. It promises to be a fun and educational event.

Youth who may be interested should contact their county extension office for further details.

Tuesday, July 15	1:00 to 7:00	Registration, Swimming, etc in the afternoon
	7:00 - 10:00	Get acquainted mixer
Wednesday, July 16	9:00	Tour Henry Cabaniss's parlor
	11:30	Educational workshops at UGA arena (SUDIA, Mobile Dairy Classroom, judging clinic
	12:30	Lunch
	1:30	Educational workshops continue
	4:00	Herdsman contest
	6:30	Dinner
	7:30	Dairy Olympics
Thursday, July 17	8:30	Tour DoubleBubble museum
	10:00	Tour Williams' Dairy and Judging Contest
	12:00	Lunch at Pennington recreation area
	1:30	Horsemanship demonstrations
	7:00	Dinner and Dance at Motel
Friday, July 18	9:30	Tour Mayfield's dairy plant
	12:00	Lunch on way to Stone Mountain Park
	3:00	Arrive at Stone Mountain Park
	5:00	Dinner on own
	9:00	Laser show at park
	11:00	Return to motel
Saturday, July 19		Return home

**2003 Southeastern Dairy Youth Retreat
Registration and Lodging Reservation Form**

Complete this form and return to: Dr. Warren Gilson
Rhodes Center for Animal & Dairy Sciences
425 River Road
University of Georgia
Athens, GA 30602-2771

Registration Fee: \$150.00 per delegate due by Friday, June 27

REGISTRATION INFORMATION *(Please type or print clearly)*

The mailing address you provide will be printed in the conference roster.

LAST NAME _____ FIRST NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIPCODE _____

DAYTIME PHONE (____) _____

LODGING RESERVATION

Delegate: Youth, Age _____ Sex: Male _____
Adult _____ Female _____

List the person(s) you want as roommate(s). If you do not, we will randomly assign you a roommate(s).
It is our intent to house 2 adults per room and 4 youth per room unless you indicate otherwise.
Individuals from each state will be housed with others from same state.

1. _____

2. _____

3. _____

Arrival Date _____ Approx. Time _____
Departure Date _____ Approx. Time _____

MAKE CHECK PAYABLE TO: GEORGIA 4-H FOUNDATION
DUE: JUNE 27, 2003

For questions, please contact:
Dr. Warren Gilson
(706) 542-2581 or (706) 542-9105