UNIVERSITY OF FLORIDA
Institute of Food and Agricultural Sciences

Department of Animal Sciences

# Dairy Update

**Quarterly NewsletterFall2001**

## NEW GRANTS INITIATIVE FOR HEAT STRESSED COWS

**P. J. Hansen**

The USDA has recently awarded $1.5 million to scientists at Florida and 8 other institutions to develop methods to improve fertility in lactating dairy cows exposed to heat stress.The award was made through a relatively new program called the Initiative for Future Agriculture and Food Systems Program that seeks to develop projects that coordinate research activities with extension and education.

The project on heat stress has four major objectives: (1) conduct research to develop new strategies for altering the physiology, nutrition and genetics of the lactating dairy cow to alleviate infertility caused by heat-stress; (2) investigate technical and economic effects of new strategies for improving fertility and profitability on dairy operations using whole herd simulation and optimization models; (3) develop industry-wide and farm-specific recommendations for implementation of strategies for improving fertility on dairies and transmit this information to producers and (4) strengthen animal science graduate programs in the participating universities.

Dairy producers in Florida contributed to our success in getting this proposal in two ways.First, research supported in past years by the Florida Checkoff Program helped convince the USDA that the approaches to improve fertility that will be explored in the grant have a good probability of success.By supporting faculty in developing Federal grants, Florida dairy farmers are able to multiply their investment in research activities that benefit the industry.Secondly, Jim Frezel, the Chairman of last year's Checkoff Committee, wrote a letter of support for heat stress research and extension efforts that was submitted with the grant.

The faculty involved in the grant and the entire department thank you for the continued support and partnership with the industry.It is hoped that you will start to see the results of this grant in soon in the form of more research as well as increased extension effort towards development of recommendations for increasing fertility during heat stress.

## OCTOBER TRAININGS

The Master Hoof Care Technician Program is a training program for instruction in hoof care and trimming taught by Drs. Sarel Van Amstel, González and J.K. Shearer.It is specifically designed for health care technicians on dairy farms.However, several hoof trimmers and veterinarians have taken the course, as well. We teach the Dutch Method of trimming feet that was developed by the late Dr. Toussaint Raven of the Netherlands.The course is 4 days in length and includes 2 and 1/2 days of hands-on foot care and claw trimming.

This is PART ONE of a three part training program.PART TWO of the program will include use of the techniques presented in a dairy environment.After 3 months of "on the farm" experience, the participants will be eligible to

complete the program by participating in PART THREE which consists of a written/oral examination and a laboratory practical examination.

To successfully complete the Master Hoof Care Technician Program, the participants will be required to demonstrate a working knowledge of foot care as well as an acceptable level of technical skill in performing various foot care procedures and successfully complete the examination process. After successful completion of PART THREE the participant will be awarded a certificate of successful completion.

**The next course is in Spanish -October 3-6,English – October 10-13, 2001 at the University of Florida.**

Interested persons may contact J. K. or L. C. Shearer at 352/392-4700 Ext. 4112 (W) or 352/466-3307(H) or by email to: JKS@MAIL.IFAS.UFL.EDU or for further informationhttp://vetmed.ufl.edu/lacs/MasterHoofCourse.htm

## MILK CHECK-OFF REPORTS

### SHORTEN THE DRY PERIOD?

**K. C. Bachman and M. L. Schairer**

Parlor pressure determines how many cows can be milked daily.If your milking parlor is not being used to its maximum capacity you can profit by milking cows that are in very late lactation.Every cow on a dairy has a daily cost whether she is in the milk herd or in the dry lot.The daily variable cost is higher if she is being milked, therefore to justify her retention in the milk herd, instead of being dried off, the cow must produce enough daily milk income to offset the additional costs associated with being milked.To calculate the daily milk production needed, divide the difference between daily variable costs for the cow in the milk herd (~$4.00/cow per day) and in the dry lot (~$2.00 /cow per day) by the milk price per lb.For example, if the difference in daily variable costs is $2.00 and the milk price is $0.10 per lb, the breakeven daily milk production is 20 lbs.If the daily variable costs differ by $3.60 and the milk price is $0.12 per lb, the breakeven daily milk production is 30 lbs.If bST is being used, its daily cost must be included in the total daily variable cost for the cow in the milk herd. A cow that is producing the breakeven daily milk yield is contributing toward a profitable cash flow for the dairy.However, her continued presence in the milk herd must not interfere with the management and milking of a more profitable cow.

If a cow is producing the breakeven daily milk yield and she is expected to calve in 60 days should you dry her off to give her a 60 day dry period?Consider that if you continue to milk her for 10 more days while she is producing at least the 20 to 30 lbs per day of breakeven milk at $0.10 per lb, she would contribute at least 200 to 300 lbs of milk and 20 to 30 dollars of income.If milked a total of 20 more days to allow her a 40 day dry period she would produce 400 to 600 lbs of additional milk worth 40 to 60 dollars.But, is a 40 day dry period long enough to allow her to produce milk to her full potential during her next lactation?Our studies of dry period length suggest that the answer may be, “Yes”.

The study conducted on a Florida dairy indicated that 15 cows that had 34 day dry periods produced 20,077 lbs 305d ME while their19 herdmates with 57 day dry periods produced 19,771 lbs.Ten cows in the UF/IFAS Dairy Research Unit herd produced 24,268 lbs after 32 days dry while 9 herdmates with 61days dry produced 23,212 lbs.

Will a modern dairy cow, managed properly on your dairy perform as well if her dry period is shortened to 40 days from 60 or more days?Evidence suggests that she may.This practice may be worth considering.Of course, accurate diagnosis of pregnancy is needed to calculate the expected calving date.

**Forage does at least two** important things for a dairy:

¨Provides a base for a sound ration,

¨Allows recycling of manure nutrients on farm.

Our challenge in Florida has been growing forages that can withstand our environmental and pest conditions, offer good yields, and make good feed.The following projects are working to develop crops and systems for your needs.

### THE DEVELOPMENT OF CORN SILAGE VARIETIES AND CROPPING SYSTEMS ADAPTED TO SOUTH FLORIDA

**B. Shatters, B. Scully, R. Smith, and M. B. Hall**

***Corn Breeding:***Silage experiments were planted at two sites in 1999, 6 sites in 2000, and 6 sites in 2001.Inbred and hybrid evaluation blocks were planted in Palm Beach and Okeechobee Counties, along with five to ten acre strip trials planted in Okeechobee, Highlands and Hardee Counties.Strip trials at these sites indicated that the open pollinated ‘Tex-

Cuban' population compared favorably to the commercial hybrids planted by research cooperators in these counties.Across all sites, Tex-Cuban produced an average fresh silage yield of 23.0 ton/acre compared to an average of 20.9 ton/acre for the commercial hybrids.Average dry matter yields were 12,434 lbs/acre for 'Tex-Cuban' and 11,836 lbs/acre for the commercial hybrids.The average dry matters were 27.3% for Tex-Cuban compared to 29.1% for the commercial hybrids.Preliminary quality analysis indicated that 'Tex-Cuban" has higher levels of crude protein and lignin than the commercial hybrids, but lower starch levels.Digestibility analyses on the silages will give a better indication of the usefulness of Tex-Cuban to the dairy industry.

***Cropping Systems:***In order to improve land productivity and phosphate uptake from the spray fields, dairy farmers in southern Florida asked that a continual cropping system be proposed and explored for "under-pivot" production.A three crop cycle was presented for consideration, which includes;Cycle #1 – Corn silage grown from march through June; Cycle #2 – Sorghum grown from July through October, and; Cycle #3 – a winter legume such as the Faba bean or Austrian Pea to be grown from November through February.The first two cropping cycles are already practiced profitably on some southern Florida dairies.In the winter of 2000/01 Austrian peas were planted on a dairy north of Okeechobee, and 60 different types of faba beans were planted south of Lake Okeechobee in Belle Glade.Both legume species survived repeated freezes with little if any tissue damage, and are considered candidate crops for this winter production cycle.This project is ongoing.

**USE OF GENETIC ENGINEERING TO IMPROVE INBREED CORN LINES SELECTED FOR FLORIDA AND SOUTHERN U. S. SILAGE PRODUCTION**

**R. Shatters**

Genetic engineering has the potential to help meet the need for forage varieties in the southeast.Changing the composition of plants so we can select crops to better meet a herd's needs may be possible.

Corn plants were developed containing two new genes from soybean (sucprotein; vsp-b).This is the major protein in soybean leaves and can comprise from 15 to 50% of the total leaf protein.Plants expressing these genes were fertile and transferred the new genetic material to their offspring.The plants displayed complete resistance to herbicide application at rates well above those used in field applications. These plants also accumulated the soybean vegetative storage protein to approximately 1% of the total leaf protein.Therefore, we have successfully shown that corn plants can express and accumulate the soybean protein that is the primary source of protein in soybean leaf tissue, which has a much higher protein content than corn.Protein content and quality of the vsp-b expressing corn plants is being evaluated.This project is ongoing.