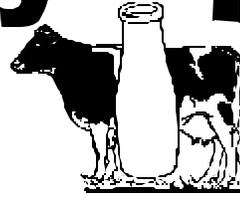




UNIVERSITY OF
FLORIDA

Institute of Food and Agricultural Sciences
Department of Animal Sciences

Dairy Update



Quarterly Newsletter

Fall 2002



WHAT HAVE WE DONE FOR YOU LATELY? BEHIND THE SCENES

Mary Beth Hall

There are many projects and programs that we do to meet the needs of the Florida dairy industry. Some are funded by the Milk Check-Off, others funded with funds from other sources, and others, with your tax dollars. Two newly funded projects focused on Florida Dairy issues include sorting out if the protein in our tropical forages is more or less available to the animal than those in temperate forages (\$90,300 over 3 years from the T-STAR granting agency); this could change how we supplement cattle when tropical forages are used. Another research project in collaboration with Soil and Water Science addresses the question of why phosphorous in manure moves differently in soils than does fertilizer phosphorous (\$586,000, 5 years, NRI). Farms need this information to decide what needs to be done to address nutrient movement on farms.



IT'S TIME TO TUNE UP THE SNOWMOBILE

David R. Bray

The nice thing about Florida is that we don't have to worry about this subject. This also means that what happens "up north" does not always apply here. There is new evidence that sprinkling cows more often is the way to go.

If we think about how evaporative cooling works, we wet the cows to the skin, shut off the water and let fans dry-off the water taking the heat with it. In Florida it takes about 15 minutes to do this. In climates with low humidity they dry-off much quicker, hence you can cool cows better the more you wet and dry them.

We tried these short cycles about 10 years ago, never got any change, because we could not dry-off the cows faster in this humidity.

What can we do to speed up our cooling? Move to Kansas or increase airflow to help evaporate the water off the cow. A slightly dirty fan will cause a 45% decrease in airflow, thus making cooling even slower. We all know that heat stress causes lower milk production, digestive upsets, poor reproduction and more mastitis.

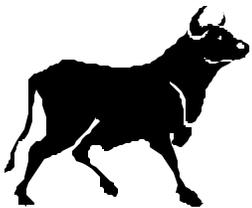
How can we improve these problems?

1. Hire a fancy nutritionist, one who sells lots of minerals and stuff to combat heat stress.
2. Buy lots of drugs to off set reproduction problems, increase conception rates from 6% to 10% for a million dollars.
3. Buy more drugs to treat mastitis, maybe sample cows more often, repeated sampling will really help cow mastitis,

Or – we could:

1. Clean out fans once a month – unless you are a total screw up you can clean them with a pressure washer in a shorter period of time. The fan that don't work, don't get real dirty. You might want to fix them.
2. Look at you cows and see how long it takes to get them wet and adjust the timer to that time, each barn may need to be observed, due to water supply, pressure, nozzle size etc.
3. Look at your cows and see how long it takes to dry them off and adjust your timer.
4. Have a thermostat control the water cycle in each barn, set between 75-78 degrees F to activate, each barn may be different settings due to its location, roof height, this means on hot nights the sprinklers need to run.
5. Run fans day and night or use a thermostat set at 65-70 degrees F to turn them on . Dairy cows ideal climate is 55 degrees F. During the day fans do not cool the cows, they evaporate the sprinkler water and cool the cow, at night the difference between the outside temperature and the cows temperature may be great enough to cool the cow, and those hot muggy nights you still need the sprinklers to run.
6. Mow your pastures before the careless weed start to scratch the cow's ears.

Park a snowmobile outside the parlor, maybe the imported cows from the “north” will “think winter” and give more milk and get pregnant.



THE DAIRY INDUSTRIES NEXT GREAT CHALLENGE: ANIMAL WELFARE

Roger P Natzke

Over the past 20 years the dairy industry has struggled with the challenge of meeting all of the environmental regulations. The challenge continues as new stricter regulations are put in place. And just about the time we have that aspect under control the next challenge is about to rear it's ugly head. Animal welfare will indeed be the next big challenge.

Over the past few months we have witnessed the fast food restaurants introducing restrictions on the producers of the poultry and eggs that are sold. Cage sizes, de-beaking and molting will now be regulated. A new initiative will be on the Florida ballot this fall to outlaw the use of farrowing crates in swine production.

Where is this all coming from? Well, you have an interesting situation with two groups of people with different goals getting together. On the one hand you have the people who love animals and have trouble accepting some of the management practices currently applied on farms. The other group is the animal rights activists. The first group wants to change some management practices to reduce pain and to have a more

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humane existence for farm animals. However, animal rights activists have a simple goal- eliminate the use of all domesticated animals. Each group recognizes that they must get public sympathy on their side in order to cause the changes, which they seek.

So why have they selected the swine industry in Florida? Recently someone was quoted, as saying there are less than 5 swine producers in the state that use crates. The answer is simple; with the limited number of producers in the state they can expect limited resistance. The grand scheme then is to use the victory in Florida to gain similar public support in other states.

If animal rights activists want to eliminate all domesticated animals then why are they willing to fight to simply eliminate swine farrowing crates? Again it goes back to the concept that they must gain public support. At this point they know they would not be successful with a plan that called for the elimination of all swine operations. They are willing to go about their business one step at a time.

So what does this have to do with dairy producers? After all they are not attacking our industry. The answer is simple; they will not stop with a victory with the swine industry. An effort is already underway to force supermarkets to only accept milk from producers that produce milk according to guidelines, which are acceptable to the activists. It is safe to assume that in the near future dairy farms will be forced by the supermarkets to be inspected regularly to demonstrate that the animals are being managed according to an accepted set of guidelines. With that ahead of the industry, a couple of approaches, need to be considered.

The first is one that the Animal Agriculture Coalition is currently involved in. That is to assemble a group of scientists to develop guidelines for animal care, which can be supported by science. The charge to the writers is to examine all of our management practices and determine if any of them cause pain and suffering. If pain is caused they must determine if there is a long-term benefit. If there are benefits then they must look for ways to reduce the pain or find an alternative practice. As an example it has been shown that dehorning causes pain but at the same time is of benefit to the animal because it reduces injuries. Thus the practice will be acceptable but it will be necessary to carry out the procedure at a young age. In this case the use of anesthesia should be considered. Our writing group should have that set of guidelines available by the end of August 2002.

The second approach is for the dairy industry to do a self-analysis and determine which practices need to be changed to make them acceptable to a non-farm reared audience. This is very difficult for us (those of us who were raised with animals) because we tend to accept what has been done in the past as the norm and thus we assume that it is OK. That may be OK for you and I but it will not be acceptable to those people who grew up with Disney cartoons that give human personalities to animals. While we may be convinced that their perception is wrong, they are the ones who will vote on the ballot initiatives.

So what can we do to convince the public that we have the best interest on the animals in mind and that we do not accept cruelty to animals as a way of life? Here are just a few items. Animals should never be deprived of feed and water nor denied accessibility to shade as protection from the Florida sun. Do we provide bull calves and downer animals with these minimal needs? Euthanasia: do we know and follow the correct techniques? Dehorning, do we do it at a very young age? Housing, do we provide facilities that minimize slipping, injury and disease? Do cows have clean relatively dry places to lie down?

We are very fortunate that the number of animal rights activists is small enough so that they will not be able to get animal welfare laws passed on their own. Thus if the dairy industry can adopt management practices that are acceptable to the other animal lovers that are currently supporting the animal rights people in the farrowing crate initiative, then we can be effective in preventing the establishment of laws that will prevent us from handling dairy animals efficiently.



UPDATE ON USE OF TIMED EMBRYO TRANSFER TO IMPROVE PREGNANCY RATES DURING THE SUMMER

Pete Hansen, Jeremy Block and Maarten Drost

Dept. of Animal Sciences and Dept. of Large Animal Clinical Sciences, University of Florida

For cows exposed to heat stress, pregnancy rates to embryo transfer are often higher than following AI because effects of heat stress on the oocyte and early embryo are bypassed. Several problems must be overcome to make the use of embryo transfer an economical alternative for getting cows pregnant in the summer. Limitations include costs of embryo production, effects of heat stress on estrus detection, and less-than-optimal pregnancy rates. In vitro fertilization using oocytes recovered from slaughterhouse ovaries represents an inexpensive method for embryo production but altered sex ratio and birth size can be a problem when embryos are produced in this way. Effects of heat stress on estrus detection can be bypassed by using the Ovsynch procedure to synchronize ovulation sufficiently to allow embryo transfer without detection of estrus. This procedure, which is analogous to timed AI, is called timed embryo transfer (TET).

An experiment was conducted between June and September, 2001 to determine if pregnancy rate following TET could be improved by 1) treating embryos before transfer with a hormone called IGF-1 that has been reported to enhance embryonic development and 2) treating recipients with GnRH to enhance the ability of the embryo to establish pregnancy. Embryos were produced by in vitro fertilization and were cultured in medium in the presence or absence of IGF-1. Embryos were transferred to a total of 210 lactating Holstein cows subjected to the OvSynch protocol. Recipients randomly received either GnRH (Cystorelin⁷, 100 µg) or placebo on day 11 after presumed day of estrus (i.e., 4 days after transfer). Pregnancy was diagnosed 8 weeks after transfer and the number of calves born was also determined.

Recipients which received IGF-1 treated embryos had higher pregnancy rates at pregnancy diagnosis than controls. The pregnancy rate for all cows was 22.7% for IGF-1 treated embryos (28 of 123 cows receiving embryos were pregnant) vs. 10.3% for control embryos (9 of 87 cows). Including only those cows in which the OvSynch worked successfully (i.e., cows with low progesterone on the day of expected estrus and high progesterone on the day of transfer), pregnancy rates were 25.7% for IGF-1 treated embryos (28 of 109 cows) and 11.1% (9 of 81 cows).

Of the 37 cows pregnant at day 54, a total of 9 lost their pregnancy before birth (24%) and 2 calves were born dead. The proportion of cows receiving embryos that gave birth to live calves remained higher for IGF-1 embryos (13.8% for IGF-1 vs 6.9% for controls for all cows and 15.6% vs 7.4% for cows responding to Ovsynch). Treatment with GnRH also tended to improve pregnancy rate and live birth rate but the effect was not statistically significant. Overall, the proportion of cows receiving an embryo that gave birth to a live calf was 16.1% for GnRH-treated recipients and 8.5% for control recipients. The average birth weight of the calves was 98 lb for control embryos and 93 lb for IGF-1 treated embryos. A total of 64.3% of the calves born were males.

Results of this experiment indicate that pregnancy rate following embryo transfer in the summer can be improved by treatment of embryos with IGF-1 before transfer. Further work is needed to determine whether GnRH treatment might also be an effective treatment for increasing pregnancy rate. Problems of a high rate of fetal death loss, large calf size, and skewed sex ratio need to be solved to enhance the effectiveness of embryo transfer using IVF-derived embryos in the summer. with more details in the coming weeks.



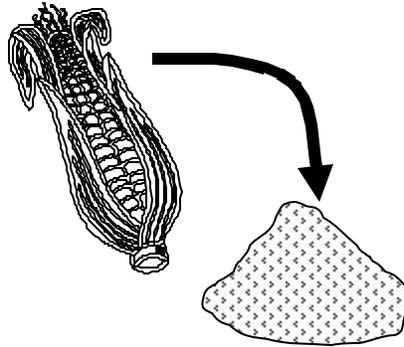
Two of the heifer calves born following timed embryo transfer in the summer. Shown (l-r) are Maarten Drost, Jeremy Block, and Pete Hansen.

Embryo transfer (cont'd)

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**SIEVING GROUND CORN:
SO YOUR COWS USE WHAT
YOU FEED**

Mary Beth Hall

Do you really want to feed something that is going to make manure rather than milk? There's been information out for some time that the finer that corn is ground, the better the cow will be able to digest and use it to support production. The coarser the corn is ground, the more undigested corn you see in the manure. A small amount of undigested ground grain in the manure might not be much of a concern, but an appreciable amount can represent a waste of feed dollars. Dr. Mike Hutjens of Illinois has been recommending sieving corn meal to decide if it's the right particle size. Using official USA Standard Testing Sieves, you can get an estimate of how finely the

corn is ground. The sieves used are #4 (0.187 inch mesh opening), #8 (0.0937"), #16 (0.0469"), #30 (0.0234") and the pan to catch material that passes through all the sieves. The # 4 sieve retains kernels that are about ¼ kernel or larger. The #8 sieve retains very coarsely ground corn. Ideally, little to no corn will be held on the #4 or 8 sieves. That said, you have to make sure you have enough forage in the ration to keep the animals ruminating and healthy if the finely ground corn is fed. (You can evaluate the proportion of corn on the other sieves, but I'm not sure how to properly interpret the information.)

Your options:

- 1) Sieve the corn to get an objective number to describe the feed, and work with your supplier to get the corn ground to a particle size your cows can use well in a ration containing enough fiber to keep them healthy.
- 2) Feed coarsely ground corn that passes into the manure, but is less likely to cause acidosis problems, because it doesn't get digested.

Number 1 is the best use of your feed dollars and space in the ration. Always check with your cows to see what you need to consider doing. Sieves are available from Fisher Scientific and other suppliers.

