



# Dairy Update



Quarterly Newsletter

Summer 2003

## SHORT DRY PERIODS

*UF results confirmed by researchers in Wisconsin, Idaho and Arizona*

**Kermit Bachman, Mehmet Gulay, and Herb Head**

Your Milk Check-Off dollars supported our research which has initiated the current national interest, among researchers and dairy farmers, in decreasing the length of the non-income producing dry period. Research published by the University of Florida concluded that cows given a 30-day dry period produced as much milk during the ensuing lactation as cows that had a 60-day dry period. No special treatments are needed (see Dairy Update: Fall2001; Winter 2002). The cow experiments conducted recently by researchers in Wisconsin, Idaho, and Arizona support our conclusion.

The university-affiliated researchers presented their results this June during the Lactation Biology Symposium: "Altering the lactation cycle in dairy cows" held at the annual meeting of the American Dairy Science Association. The Wisconsin study indicated that no difference in 4% fat-corrected milk yield existed for cows dry for 28 days (91.5 lb/day) and 56 days (93.5 lb/day). Cows with no dry period produced 79.6 lb/day.

The Idaho and Arizona study reported average milk yield through 119 DIM. For the cows that entered

their third or higher lactation, those that had 30 days dry produced 100.5 lb/day while the 60 day dry group averaged 104.3 lb/day. Young cows that entered their second lactation produced 88.4 (30 days dry) and 95.0 (60 days dry). These researchers also reported that, when given no dry period, mature cows produced 92.6 lb/day while young cows produced 71.0 lb/day.

Mature cows do not need a 60-day dry period. They will produce as much milk with a 30-day dry period. Try 40 days dry to establish your management approach and comfort zone. Of course, you must know when the cow became pregnant and realize that heat stress can induce an earlier-than-expected calving.

---

## BIOTIN: BENEFITS BEYOND IMPROVED HOOF HEALTH

**Charlie Staples and Lee McDowell**

Biotin is a B-vitamin that is found in the diet and produced by microorganisms in the cow's rumen. Between the two sources, about 25 mg reach the small intestine for absorption. Apparently this is not enough for today's lactating dairy cow. Five recent studies between 1998 and 2003 have each reported that feeding an additional 20 mg/cow/day increased milk production significantly. The average milk increase was 4.2 lb/cow/day with a range between 2.2

to 6.2 lb/cow/day. The milk production of the cows not receiving biotin averaged 80.5 lb/day. Dietary forages were corn silage-alfalfa mix or all alfalfa. The University of Florida conducted a study in which 18 multiparous cows were fed biotin prepartum (~17 days) at 20 mg/cow/day and then postpartum (70 days) at 30 mg/cow/day and compared to 20 cows not fed supplemental biotin. The study was supported by the Florida-Georgia Milk Check-Off Program and by Roche Vitamins, Inc., manufacturers of biotin. Although milk production was not improved in the Florida study, cows supplemented with biotin demonstrated improved metabolic status. Specifically, blood glucose concentrations were higher and blood nonesterified fatty acids (NEFA) concentrations were lower in the early weeks post calving. Lower NEFA concentrations indicate that the cows supplemented with biotin were mobilizing less body fat to support their milk production and relying more on dietary energy. In addition, liver was biopsied at 2, 16, and 30 days postpartum and samples measured for fat content. The fat concentration in the liver decreased at a faster rate postpartum in cows fed biotin compared to control cows. A liver with less fat is better able to synthesize glucose for milk production and to detoxify ammonia from excess intake of protein. These responses make sense with biotin's known role in synthesizing glucose. The price of biotin has come down of late partially due to the increased manufacture of biotin from China.

Feeding 20 mg/cow/day costs about \$0.04 per cow/day. Even if milk response is at the low end of 2.2 lb/cow/day, the benefit-cost ratio is quite favorable at about 7:1.

---

## WHAT DO WE KNOW ABOUT STRAY VOLTAGE?

*The following article was written by Douglas J. Reinemann, Ph.D. Professor of Biological Systems Engineering, University of Wisconsin, Madison, Wisc. Reprinted from the National Mastitis Council Newsletter 6-03.*

(Contributed by David Bray)

You may have read some recent articles containing confusing or conflicting opinions on the effects of “stray voltage” or other forms of electrical exposures on cows. I am aware that some people are very concerned about the possible effects of electricity on their cows and themselves. I have been asked by agencies in several states to investigate these concerns. As a researcher and educator, it is my job to inform society of the results of these studies and I would like to present to you a brief summary of what the research really says. The short answer is that animals will be affected if voltage and current exposure levels get high enough, however there is a threshold level below which no harm will occur.

The studies done at the University of Wisconsin are only a small part of the long history of research. Studies on cows began over 40 years ago while studies on humans date back more than 100 years. These studies by hundreds of independent research groups in many countries have given us a very good understanding of the way that electricity affects living organisms and the levels of electrical exposure that can be problematic to cows. A summary research on farm animals can be found on the web sites

[www.mrec.org](http://www.mrec.org) and [www.uwex.edu/uwmril](http://www.uwex.edu/uwmril).

Here are some of the notable findings:

- The first study of the effects of stray voltage on cows was published in New Zealand in 1962. It was concluded that 3 volts (60 Hz rms) would be a likely minimum level for a response.

- A review conducted by 15 scientists and published by the USDA in 1991 concluded that exposure levels should be kept below 2 - 4 volts (60 Hz rms) to prevent adverse responses.

- Research in the past 10 years has shown that high frequency events require much higher voltage and current exposure levels to elicit the same response as 60 Hz voltage and current.

- The state of Minnesota commissioned a 4 year, \$4 million study by a team of 8 national experts who concluded “We have not found credible scientific evidence to verify the specific claim that currents in the earth or associated electrical parameters such as voltages, magnetic fields and electric fields, are causes of poor health and milk production in dairy herds.”

- The Attorney General of the State of Michigan conducted a lengthy investigation of concerns over ‘ground currents’ created by utility grounding. An administrative law judge ruled that the complaint be dismissed because there was no evidence that a “stray voltage” problem resulted from the practice of grounding electrical distribution systems.

Wisconsin has established 1 volt in cow contact locations (or 2 milliamps of 60 Hz current flowing through a cow) as its regulatory standard. The research clearly supports this as a safe exposure limit. This standard is meant to apply to 60 Hz voltages and currents carried by ground and neutral wires. The voltage and current exposure produced by ‘ground currents’ are

typically 100 to 1000 times lower than this level.

Wisconsin has had the most aggressive program of any state in the nation to deal with the stray voltage concerns of the public. Stray voltage is not a mystery. We know how to measure it and we know how to reduce it. If you have a concern about electrical exposures on your farm request a measurement of cow exposure levels from your utility company. Make sure your farm wiring and the utility wiring meets electrical safety codes and exposure guidelines. Always remember to keep yourself and your animals safe. Never compromise the safety of your farm’s electrical system in an attempt to reduce electrical exposure levels.

---

## THE SHOCKING TRUTH

**David Bray**

Stray voltage is not a great problem in Florida. In a lot of cases an electrician actually has walked on the dairy. The biggest problem I see is the use of extension cords in the parlor to run a radio or fan. Most two year old cords will bleed 8 volts ac through the coating of the cord. A five year old will give you 25 volts ac. If this is going into the superstructure of the parlor, you may have a problem. If you must use an extension cord, hang it away from any metal. Use a plastic leg band or something to isolate the cord from the metal in the parlor. Almost everybody has some extension cords in their parlor - do you?

---

## FORAGE: WHICH VARIETY’S BEST?

**Mary Beth Hall**

Keep an eye on this website out of the University of Georgia:

<http://www.griffin.peachnet.edu/swvt>.

This site has UGA's yearly information on variety trials for crops as well as forages (corn, sorghum, sorghum/sudangrass, small grains, millet). The corn silage section has information on In Vitro Dry Matter Digestibility (IVDMD) of the plant minus the ear (to get an idea of forage digestibility without the starch), and the percentage of grain in the silage. The IVDMD is very important because the more digestible the fiber, the more nutrients and milk you can get from the forage (so long as there is enough effective fiber in the ration to keep the rumen working). If you don't have access to the internet, give me a call (352-392-1958) and I can send you a copy of their 2002 data for specific forage crops. The forages other than corn do not have IVDMD information, only yield data. Whenever you can, get comparative information on forage digestibility, so you can use the potential feeding value to select varieties for next year.



## **SELECTING YOUR MILC PAYMENT START MONTH FOR FISCAL YEAR 2004**

**Albert de Vries**

Most dairies participate in the Milk Income Loss Contract (MILC) program administered by USDA-Farm Service Agency. The MILC program financially compensates dairy producers when the Boston Class I milk price falls below \$16.94 per cwt. MILC payments are made on a monthly basis for up to a maximum of 2.4 million pounds of milk produced and marketed by the dairy per fiscal year. The 2004 fiscal year begins October 1, 2003 and ends September 30, 2004.

Payment rate per cwt is determined by multiplying 45% of the difference between \$16.94 and

the Boston Class I price for that month. For example, the Boston Class I price announced for July 2003 is \$13.02. Therefore, 45% of (\$16.94 - \$13.02) is \$1.764. MILC payment rate for July 2003 is \$1.764 per eligible cwt sold.

Most Florida dairies produce much more than the 24,000 cwt milk that is eligible for MILC payments in the 2004 fiscal year. Therefore, only part of the total amount of milk that is produced is eligible for payments. The MILC program allows dairy producers to select in which month of the 2004 fiscal year payments will be started. The question is which starting month do you choose.

The selected starting month will remain the same throughout the duration of the contract, unless it is modified. The starting month is indicated on MILC form CCC-580. Once a starting month is selected, the payments continue for the consecutive months that follow until the 24,000 cwt cap is reached or the fiscal year is ended. Dairy operations that have not designated a starting date on form CCC-580 will be issued fiscal year 2004 payments beginning with October 2003, unless the FSA office is notified that no starting month is yet selected. To select the starting month, or to change the selected starting month, dairy producers must notify their FSA office on or before the 15th of the month prior to selected month (September 15th if your start month is October 2003).

The highest MILC payments will be received when the Boston Class I milk price is the lowest. One way to predict the largest difference with the Boston Class I milk price is to look at the Class III or Class IV futures market. Take \$16.94 - \$3.25 (Boston Class I Differential) = \$13.69 and then subtract the Federal Order Class I mover (higher of Class III or Class IV futures values). The payment rate is 45 percent of the difference between \$13.69 and the Class I mover.

For example, a dairy chooses as starting month October 2003. On June 30th, 2003, the Class III and Class IV future values were \$12.83 and \$10.15, respectively. The Class I mover for October 2003 is the highest of these two, \$12.83. The predicted payment rate (on June 30th) for October 2003 is  $0.45 \times (\$13.69 - \$12.83) = \$0.387$  per eligible cwt.

An Excel spreadsheet is available on <http://www.animal.ufl.edu/devries> which allows users to enter herd size, milk production per cow, and the Class III and IV future values (available daily on for example <http://www.dairy.nu/ddh.htm>). Users can select different starting months and see which starting month results in the highest expected total MILC payments.

An important consideration (not included in the spreadsheet) is that any MILC payments received will be added into your farm income for calculating taxes due. So MILC payments received in 2003 will be added to farm income for 2003 and payments received in 2004 will be added to farm income for 2004. Considering that 2003 has so far not been a good year, signing up for MILC payments in 2003 may be smart if the dairy does not need to pay taxes over 2003.

Another consideration is that money received earlier is more valuable than money received later, because you can invest that money and earn interest on it (or pay bills).

Check with your local FSA county office for details. USDA-FSA's MILC website is <http://www.fsa.usda.gov/dafp/psd/milc.htm>.

## **EDIS: ANOTHER SOURCE FOR DAIRY INFORMATION**

**Albert de Vries**

EDIS is the Florida Cooperative Extension's Electronic Database Information Source. The EDIS

website (<http://edis.ifas.ufl.edu>) provides a comprehensive, single-source repository of all current UF/IFAS peer-reviewed extension documents. The papers have been written by UF/IFAS faculty, specialists, and agents.

A search on July 2<sup>nd</sup> listed 240 papers with dairy related information. The topics range from 4-H to nutrition and feeding, reproduction and health, milking systems, genetics, management and economics, and veterinary medicine. You can also browse these papers through the link [http://edis.ifas.ufl.edu/TOPIC\\_Dairy](http://edis.ifas.ufl.edu/TOPIC_Dairy). Dairy veterinary medicine is found under [http://edis.ifas.ufl.edu/TOPIC\\_Veterinary\\_Medicine\\_Dairy](http://edis.ifas.ufl.edu/TOPIC_Veterinary_Medicine_Dairy). Papers can be read on the screen in htm format or printed in pdf format.

From the EDIS site, more than three million educational print and electronic products are disseminated each year from some 4,800 publication titles. The site is also the ordering system for as needed printing of EDIS publications. Together, the streamlined publication process, universal access, and print as needed services not only reduce the cost but also expand the impact of the EDIS publications.

Take a look at EDIS and let us know what you think about the dairy papers.

---

## **ROGER NATZKE ACCEPTS NEW APPOINTMENT**

UF Vice President for Agriculture and Natural Resources Dr. Mike Martin announced the appointment of Dr. Roger Natzke as Senior Associate Dean and Director IFAS International Programs beginning July 1, 2003. While serving in that

role he will continue to spend 20% of his efforts to the Animal Sciences Department.

IFAS and the University of Florida recognize that it is important that our students have an appreciation for and a broad understanding of the International picture. Many of the employers of the future will be looking for bilingual employees who have an understanding of the world markets. To achieve our objectives it is important that the curriculum be altered to include the international perspective and that will come if our faculty gain exposure to management systems and conditions in other countries.

IFAS and the University of Florida have through the years developed formal agreements with institutions in other countries to facilitate cooperative research, training programs and student exchanges. With the agreements in place faculty members are able to tap into funding sources that would otherwise not be available. The joint research and teaching programs are designed to benefit the citizens and producers of each country.

A long term goal of our international efforts is to help people to help themselves to reduce hunger. A side benefit to our country is that as their economies improve they become better customers for products produced in the US.

---

## **FLORIDA DAIRY STUDENTS COMPETE IN N.A.I.D.C.**

**Albert de Vries**

Five UF dairy science students participated in the second annual North American International Dairy

Challenge (NAIDC) which was held in Lansing, Michigan in April of this year. The NAIDC is a dairy management contest that incorporates all phases of on-farm consulting in a fun, interactive and educational forum.

The 2003 NAIDC contest consisted of 24 teams from 22 universities from around the U.S. The UF team consisted of Meghan Eade, Nicole Reyneveld, Jose Rossignoli and Catarina Silveira. Ashley Bailey participated in an aggregate team with students from Cal Poly, University of Vermont and University of Wisconsin, River Falls.

Each team of four students was assigned a participating farm. The first day the students analyzed farm records, visited the dairy, and prepared a presentation with what they thought were the dairy's strengths, weaknesses, opportunities and challenges. The next day they presented their findings to a panel of judges from producers, allied industry, and academia. Both teams with Florida students did very well and received Gold awards.

In addition to the competition, there was time to interact with sponsors, industry leaders, and fellow students from other institutions. For coaches, the contest provided a good opportunity to discuss the dairy programs at the various schools. All participants enjoyed and appreciated the very educational contest. The June 2003 issue of Hoard's Dairyman features on page 434 an article about the NAIDC contest.

The NAIDC is supported financially through generous donations by industry and coordinated by a volunteer steering committee. You can find their names on the NAIDC website <http://www.dairychallenge.org>.