

Regional Dairy Newsletter



Cornell University
Cooperative Extension
Clinton County



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March 2010

You Light up Her Life! Emily Myers, CCE Regional Dairy Specialist

Unfortunately, that statement may only be partially true. Even though you supply her with high quality feed, water, shelter, a comfortable bed and maybe even a scratch now and then, your cows could be missing something so elemental that many don't think twice about it. **Light.**

Recently I've had several producers ask me about light in their barns. How much is enough? How intense does it need to be to have a positive effect? How significant will the effect of adequate light be and will it be cost effective? All good questions; especially at a time of year when everyone (both human and non-human) may be feeling a little down in the dumps due to short day length.

The ability of light to stimulate both milk production and growth has been clearly established in dairy cattle.

Studies have shown that increasing light exposure from natural day length (9-12 hours) and intensity, to a minimum of 16 hours at an intensity of approximately 200 lux (~20 foot candles) can result in a 10% increase in milk production in cows and a 15% increase in growth in heifers (Peters et al., 1978).

Increased milk production can be explained, at least in part, by increased levels of blood serum prolactin; a hormone highly influential in milk production. In

the above mentioned study, milk from cows exposed to supplemental light was the same as non-supplemented cows,



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meaning milk components didn't change when day length was increased to 16 hours.

It is important to note however, that cows that were exposed to 16 hour day length immediately after calving and throughout the subsequent lactation had a better milk yield response than cows who were exposed to 16 hour day length starting in mid-lactation. Also, if a farm decides to start leaving the lights on longer tomorrow, they

may not see an increase in production for two to four weeks.

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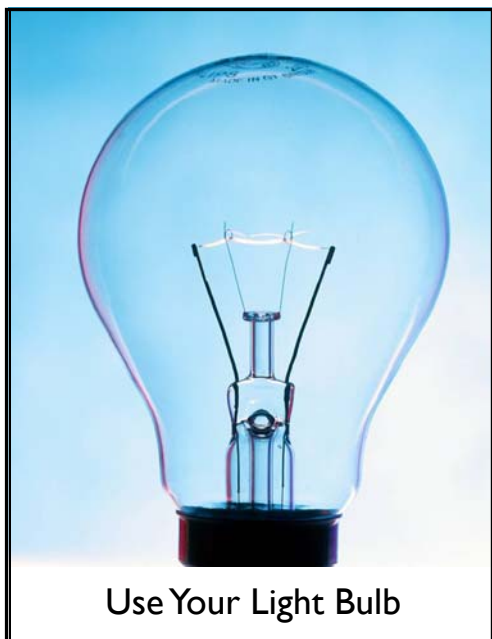
The economics behind providing 16 hours of light to cows will be different for every farm. Many farms may see a more modest increase in milk production depending on the light intensity and day length that currently exist in the barn. Cows have also been shown to increase

dry matter intake up to 6% when exposed to a longer day length, so slightly higher feed costs and the cost of electricity and installation of more lights or replacement of bulbs should be taken into account. Despite the associated costs, most experts agree that providing 16 hours of light at an adequate intensity is often a profitable decision, even if more lights need to be installed in the barn.

In addition to a potential milk production increase, well lit areas are easier for cows to move around in, making slips and falls less likely. Your veterinarian and/or herdsman will be better able to see visual signs of illness or heat, making treatment and breeding more timely and effective, and overall most people find a well lit working environment to be

far more pleasant.

In some cases, a little bit works great and a lot works even better. That is not the case with light. Leaving the lights on for 24 hours will not give you a greater increase in milk production than just providing 16 hours of light (Dahl et al.,



Use Your Light Bulb

1998).

The recommendations given by The American Society of Agricultural Engineers (ASAE) are to provide light for 16-18 hours at an intensity of no less than 20 foot candles in the feeding area and no less than 10 foot candles in the general housing and resting area. This should be followed by 6-8 hours of light at no more than 3 foot candles (the equivalent of night). For farms milking 3X, this is likely impossible.

Ultimately, increasing the light in your barn may be as simple as leaving the lights on longer, or cleaning dirty curtains to let more light in. The insulating air filled curtains seem particularly prone to accumulating dust

(personal observation), most likely due to increased surface area and nooks compared to a flat curtain. Or, this information might just be the motivation you need to go around changing some burned out bulbs in the barn. However you do it, we know that light is important for milk production, and that it is usually a profitable choice to provide adequate light for your cows and your workers. So, if you're dealing with a dark barn, it may be time to re-think that management practice.

If you are curious about the light intensity in your barn, give me a call and I'd be happy to measure it with our light meter.

Article Quick Facts

- **Increasing supplied light from 8-12 hours to 16-18 hours at an intensity of no less than 20 foot candles can increase milk production in cows and growth in heifers**
- **Leaving the lights on for 24 hours vs. 16 hours has not been shown to further increase milk production**
- **In addition to a potential milk production increase, well lit facilities make visible signs of illness and heat easier to observe**
- **Call Emily at 353-4949 if you'd like to check the light intensity in your barn**



UNWANTED PESTICIDES AND SCHOOL CHEMICALS DISPOSAL PROGRAM SCHEDULED

CLEANSWEEPNY IS AN ENVIRONMENTAL BENEFIT PROJECT that provides for the environmentally safe and economic collection and disposal of unwanted or unusable pesticides, school chemicals, golf course chemicals, and elemental mercury and mercury-containing devices (e.g. manometers and thermometers). CleanSweepNY also collects and recycles triple-rinsed HDPE plastic containers from agricultural and certain non-agricultural entities. The NYS Department of Environmental Conservation administers the CleanSweepNY project through its Albany, NY Central Office Pesticides Program. Funding for this environmental benefit project is administered by the Natural Heritage Trust.

To date, CleanSweepNY has collected and disposed of over 963,569 pounds of chemical wastes, more than 629 pounds of elemental mercury, and over 4,000 plastic containers that could have wound up in landfills across New York State. CleanSweepNY results in enhanced stewardship of the environment through improved management of those materials which can pose human health risks upon exposure and a significant hazard to the environment such as water resources.

A SPRING 2010 CLEANSWEEPNY collection targeting Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington Counties will build on the success to date. Holders of pesticides and chemical materials who are located in other counties may also participate but onsite services cannot be provided. The collection will occur during the week of May 3, 2010. Collection dates and locations are as follows:

May 4th – NYSDOT – 81 South Peru Street, Plattsburgh, NY 12901

May 5th – NYSDOT – 7735 NYS Route 9N, Elizabethtown, NY 12932

May 6th – NYSDOT – 3716 Burgoyne Avenue, Hudson Falls, NY 12839

ACCEPTED FREE OF CHARGE OR AT LOW FEE. CleanSweepNY funding was originally earmarked for the benefit of New York agriculture. Farmers and former farm owners can bring unwanted pesticides to CleanSweepNY events at no charge and with no quantity limit. For all others (excluding home owners), CleanSweepNY will accept 100 pounds or less of unwanted pesticides free of charge from these sources: non-agricultural certified pesticide applicators, retail establishments, commercial or home & garden pesticide holders, golf courses, schools, marinas, cemeteries and others. A nominal fee of \$1.35 per pound will be charged for each pound of pesticides over 100 pounds. The rates are substantially lower than typical fees for privately negotiated legal disposal. A pricing sheet is posted on the webpage.

CleanSweepNY services are not available to homeowners. Information about household hazardous waste collections can be accessed at <http://www.dec.state.ny.gov/chemical/8780.html>.

PRE-REGISTRATION & INFORMATION Pre-registration is mandatory to participate in CleanSweepNY. Spring 2010 Registration deadlines are April 7th for holders of unlabeled or unknown products and compressed gas cylinders, and April 16th for all other participants.

Requesting a registration packet is easy and can be done by calling 1-877-793-3769 or by e-mail to info@cleansweepny.org NOTE: Information received by CleanSweepNY is kept confidential.

There is **NO** enforcement potential for any product turned in as part of this collection project. **NO** enforcement has been taken on any of the 1,744 registered participants in 12 CleanSweepNY events.

Please participate and help us to properly manage unwanted pesticides and chemicals in NY State!

Understanding Fatty Acids, Part Two: Feeds, Supplements, and Anticarcinogenic Dairy Products

Emily Myers, CCE Regional Dairy Specialist

Last month in “Understanding Fatty Acids Part One”, we discussed some of the lingo used to describe fatty acids, and a little about why fatty acids in the diet are important. As a brief refresher; remember that unsaturated fatty acids are toxic to rumen microbes and to avoid these toxic effects, the microbes have developed ways of saturating the fats to detoxify them. Also, if rumen microbes are not able to fully saturate fatty acids before they leave the rumen, some of the partially saturated intermediates created by microbes can cause milk fat depression if they are absorbed in the intestine.

Feeds and Supplements

All feeds contain some amount of fat. Several common feeds are high in fat like seeds and seed meals, soybeans, obvious feeds like tallow, and less obvious feeds like certain fresh and ensiled grasses and legumes. As mentioned last month however, all fats are not equal and the degree of saturation present in fat varies widely. Table 1 shows some common feed ingredients, the total fat as a % of dry matter, the % of fat that is unsaturated and the ounces of unsaturated fat per pound of feed. Feed ingredient fat content was taken from the CPM Dairy version 3.0 feed library. Keep in mind,

Table 1. Fat content of several commonly used feed ingredients.

Feed	Ether Extract (Total Fat, % DM)	UnSat Fat (% of Total Fat)	oz of UnSat fat/lb of feed
Beet Pulp	1.0	54.6	0.1
Barley	2.2	56.3	0.2
MMG Haylage	3.0	31.2	0.1
Average Corn Silage	3.2	52.4	0.3
Corn Grain	4.2	77.7	0.5
Clover	4.2	47.7	0.3
Alfalfa	4.4	30.1	0.2
Wheat Midds	5.0	68.1	0.5
Distiller's Grain w/Solubles	9.2	64.9	1.0
Fresh Perennial Ryegrass	11.6	48.2	0.9
Whole Soybeans	18.8	67.3	2.0
Cotton Seed w/Lint	19.3	71.0	2.2
Megalac	84.5	42.9	5.8
Megalac R	84.5	69.4	9.4
Energy Booster	99.0	13.2	2.1
Bergafat	99.0	11.4	1.8
Beef Tallow	100.0	44.9	7.2

a dairy cow diet typically contains 5% or less total fat on a dry matter basis.

Feeds like cotton seed and soybeans are fairly high fat and the fat they provide is over 50% unsaturated, making these feeds a big source of unsaturated fatty acids when included in the ration. Corn grain, which is a much lower fat feed, contains 77%

unsaturated fatty acids, which is why a diet high in corn grain, corn silage and corn distiller's has potential to provide too much unsaturated fat for the rumen microbes to handle, even though these feeds aren't high in total fat content.

Fats like Megalac and MegalacR contain fatty acids

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that are chemically bound to calcium, making them unavailable to rumen microbes. This means a higher level of unsaturated fats can be fed using these fat supplements because the fats are “untouched” by rumen microbes. If a cow experiences acidosis however, the calcium-fatty acid bond is broken in the acidic rumen environment, resulting in unsaturated fatty acids once again available to microbes despite the “rumen protected” nature of those fat sources. At a pH of 5.2, 50% of the calcium-fat bonds will be broken, resulting in increased availability of unsaturated fat in the rumen. (Fotouhi and Jenkins, 1992)

Fat and Reproduction

Some research suggests that calcium bound fats are less palatable, spurring the development of fats like Bergafat and Energy Booster. These fat sources don't contain calcium, but instead have a much higher percentage of fully saturated fatty acids that won't interfere with rumen microbes. Makers of these fats claim higher palatability; however, these fat sources are missing certain unsaturated fatty acids that are essential in the diet. Unsaturated fatty acids like linoleic and linolenic must be provided in the diet to enable a wide variety of biological functions. Linoleic acid has been linked to increased reproductive performance as it is a precursor for production of

prostaglandin.

A recent study compiled data regarding the effects of feeding linoleic acid on reproductive performance and found that in studies where cows received supplemental conjugated linoleic acid (CLA) the probability of pregnancy was increased by 26%. In addition, cows fed CLA had 34 fewer days to conception (117 vs. 151 days in milk) compared to those not receiving CLA (de Veth et al., 2009), making a case for feeding certain unsaturated fatty acids.

Delicious Anticarcinogenic Dairy Products

This next bit will be excellent news for anyone that enjoys ice cream, heavy cream, whipped cream, sour cream, butter, half and half, cheese, milk and any other product containing ruminant produced fats.

Due to the fact that rumen microbes have the ability to modify fats present in feed, some of the resulting fatty acids they produce are different than almost any other fats that we consume. One of these fatty acids, called *cis*-9, *trans*-11 CLA (also called rumenic acid) has

been implicated as an anticarcinogen.

Koronowicz et al., (2009) exposed mammary cancer cells to rumenic acid and reported a 64% decrease in growth of the cells. Because rumenic acid is a fat, it can be stored in fatty areas of the body such as breast tissue, enabling it to impart its anti-cancer properties to the breast tissue. Other studies have also reported anticarcinogenic effects of rumenic acid on colon and prostate cancers. Vaccenic acid, another ruminant produced fatty acid found in milk, can be converted to rumenic acid in the body.

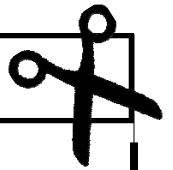
Ultimately, dairy products are the major source of rumenic and vaccenic acid in the American diet, just a little more proof of something we already knew....

dairy is good for you.



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Tell Us What You Would Like to Hear About!

Please fill out this short survey and send to:

Emily Myers

P.O. Box 90
Chazy, NY 12921

You can't say we didn't offer the information that you wanted if you don't send it in!

Newsletter - Please indicate the top five topics that you would most like to read about in future newsletters:

- New forage crop varieties
- Planting/plowing practices
- Forage harvesting practices
- Maximizing forage quality/quantity
- Fertilizer and soil fertility
- Crop & soil articles in general
- Transition/dry cow management
- Calf/heifer management
- New cow care drugs/technologies
- Hot off the press research
- Nutrition (basics)
- Nutrition (advanced)
- Reproduction
- Foot health/lameness
- Cow comfort/stall design
- Current topics in the industry
- Dairy and the environment
- Sustainable practices
- Pasture management
- Milk marketing
- Direct marketing to the consumer
- Biosecurity
- Farm ownership transition
- Disaster planning
- Grants that are available
- Ag plastics recycling
- Other (I'm sure I've forgotten something): _____

Extension Programming - Circle or check

- What time(s) are best for you to attend a program:
mid-morning mid-day evening
- Day(s) of the week best for you to attend programs:
M Tu Wed Th Fr Sa Su
- Length of time you can be away from the farm:
1hr 2hr 3hr 4hr or depends how good the program is
- Would you like to see more:

- Farm tours
- Discussion groups
- Professional speakers
- Pasture walks
- Hands on learning
- In class learning
- On-farm demonstration of new tools/practices
- Northern NY farm research projects
- Individual farm visits
- Mini-conferences and workshops
- Other _____



**Communication is important...
please return your survey!**

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CLASSES BEGIN MARCH 2ND, 2010 NOON - 3PM

Classes Will Take Place at Miner Institute on Tuesdays (Starting March 2nd) and the Canton Learning Farm on Wednesdays (Starting March 3rd)

- WEEK 1: BOOKKEEPING AND ACCOUNTING SOFTWARE**
- WEEK 2: ANALYZING THE BALANCE SHEET**
- WEEK 3: ANALYZING INCOME STATEMENTS**
- WEEK 4: UNDERSTANDING PROFIT AND CASH FLOW**
- WEEK 5: BUSINESS PLANNING AND BUDGETING**
- WEEK 6: DAIRY FARM BUSINESS SUMMARY, A TOOL FOR YOUR FARM**



Future News/Events

Forage Competition Update/Changes! - We are now accepting BMR corn silage in addition to non-BMR in the CCE forage cup competition. Get your samples in to your local CCE office no later than March 26! We currently have few entries per county so your chances of winning are quite high if you submit a sample.

Farm Labor Class - Taught by Anita Deming on Feb 23rd from 12:30 to 3pm at Miner Institute. Topics covered will include: recruiting farm labor, employment rules and regulations, training new employees and what employees expect from you. Register ahead of time, contact Anita Deming (518-962-4810).

NEDPA - North East Dairy Producers meeting is taking place at the Holiday Inn in Liverpool, NY on March 3rd and 4th. Register at <http://www.ansci.cornell.edu/prodairy/nedpa>. A wide variety of topics will be presented; just a few include: sustainable ag, reducing the dairy industries carbon footprint, the effect of sexed semen on heifer supply and animal welfare. One day registration is \$150 first day, and \$125 second day.

Intervet/Shering Plough Animal Health presents "Real World Review of the Estrous Cycle and the Application of Synchronization Programs to Benefit Your Dairy". Speaker is Dr. Richard Pursley, professor of reproductive management at Michigan State University and original developer of the Ovsynch program! This program will take place at the Hampton Inn in Colchester, VT (42 Lower Mountain Rd.) from 11-4pm on March 31st. Lunch is provided. Please pre-register with Rick Jackson (802-309-4226) or your veterinary clinic by March 24th. (Car pooling may be available, please call 353-4949 if interested)

Contact Information: Please call if you have questions or comments about upcoming programming. If you have a question you'd like answered in the newsletter, I'd like to hear it!

Emily Myers
Cell: 518-353-4949
Email: erm35@cornell.edu

Steven Roy
Owner/Operator

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