

Regional Dairy Newsletter



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February 2010

Do Down Cows Recover?

Dr. Heather Dann, Miner Institute Researcher
Emily Myers, CCE Regional Dairy Specialist

Public perception of dairy, and agriculture in general, is extremely important to continuing production of food in this country. Animal welfare in particular, has become an area of great concern, and although all farmers strive to take excellent care of their animals, they are sometimes perceived by the non-farming community as not concerned with the health and wellbeing of production animals.

In addition to the effects that animal welfare legislation may have on the dairy industry, some welfare issues also have far reaching implications for profitability and time management; meaning that good overall animal husbandry and farm management truly go hand in hand with animal welfare. A concept that should be well broadcast among those that are skeptical of production agriculture.

One area in which the dairy industry may be scrutinized is the care of nonambulatory cows, or down cows. It can be extremely difficult to make the decision when to give up on a down cow, and many producers may hold on to cows in the

hopes that calving injury will heal, or one more bottle of calcium will get her up. For this reason, the handling and care of down cows is a serious animal welfare issue on dairy operations.

According to a study conducted by the National Animal Health Monitoring Systems (NAHMS) more than 75% of operations in the 21 major dairy states had at least one down cow over the course of a year.

After giving it some thought, I decided to look into the rates at which down cows recover and the time frames associated with their recovery.

During a Google search on the topic, I came across the dairy portion of the NAHMS Nonambulatory Livestock Study published in the June 2008 issue of the Journal of Dairy Science. One objective of the study was to describe factors associated with the recovery of individual down cows. On page two is a table summarizing some of the findings of this study. Overall, the rate of



recovery of down cows and the time frame after which recovery becomes unlikely, may be startling to some.

The study found that older down cows were more likely to recover than younger down cows. Also, down fresh cows (less than 15 days in milk) had greater recovery than other down cows. These findings may be attributed to greater rates of milk fever in older, fresh cows and the greater recovery of cows with milk fever compared with other reasons, such as calving injury,

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Animal or Treatment Characteristic	Recovery %
Lactation number	
1 st	10
2 nd to 4 th	18
> 5 th	22
Days in milk	
< 15	28
> 15	6
Reason nonambulatory	
Calving injury	10
Lameness, slipping, falling	9
Hypocalcemia (milk fever)	50
Other	6
Received Ca, P, or K	
Yes	28
No	7
Length of time nonambulatory	
< 24 hours	33
> 24 hours	8
Repositioned	
Yes	9
No	28
Assisted rise	
Yes	11
No	19

(Continued from page 1)

lameness or slipping and falling.

Cows that were down for less than 24 hours were more likely to recover compared with cows that were down for greater than 24 hours. Typically, there is more severe muscle and nerve damage the longer a cow is down. The authors of this study indicated that 6 hours is a

critical threshold for down cows at which point muscle and nerve damage are more likely to occur, so down cows should really be treated as medical emergencies. Ideally, down cows should be repositioned (alternating between left and right sides) every few hours.

Even though repositioning and lifting down cows did not improve recovery rate in the

NAHMS study, the authors suggested that this finding is influenced by the quick recovery of cows with milk fever that did not require repositioning before they were able to rise successfully on their own. These findings should not discourage caretakers from repositioning or lifting cows that have been down for a prolonged period of time.

The take home message from this study was that euthanasia should be considered for cows that have been down for more than 24 hours based on recovery and animal welfare. In addition, the likelihood of these cows recovering after 24 hours decreases markedly. Based on the NAHMS study, the likelihood of a down cow recovering after 24 hours is only 8 percent, and recovery of cows at any length in time that have suffered calving injury, slipping, falling or lameness, is not much higher.

Down cows require immediate and thorough care in order to increase their chances of recovery. However, after 24 hours, and depending on the reason the cow is down, euthanasia should be considered. Not only do down cows take considerable time and money to manage properly, they have potential to damage the image of the dairy industry as being a humane industry. Euthanasia can therefore be both a good management decision, as well as a good animal welfare decision.

Dr. Heather Dann

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Dann @whminer.com



Does it Look Like an Alfred Hitchcock Movie in Your Barn?

The USDA Has A Solution For You



European starlings often congregate on dairy farms during winter in New York and cause damage by consuming and contaminating feed or through potential transmission of harmful diseases to livestock. A flock of 2,500 starlings consume approximately 155 pounds of grain each day. USDA Wildlife Services (WS) has developed a program to help reduce the damage caused by starlings at dairies.

Wildlife Services can visit a dairy producer's operation to make recommendations to reduce damage caused by starlings. In addition, Wildlife Services can use the toxicant DRC-1339 (which is registered for use in these situations) to reduce the number of starlings on the farm. Starlings that consume the toxicant begin to show signs of lethargy in about 6 to 8 hours and die within 24 hours. By the time of death, the toxicant has been metabolized and excreted, eliminating the possibility of secondary

poisoning. There are no hazards to pets or other wildlife.

The starling population reduction process begins with the use of fat pellet bait that is attractive to the birds in winter. This practice is called "pre-baiting" and generally takes 3 to 10 days. The pre-bait is placed in or near barns where starlings are accustomed to feeding. The alley between feed bunks is often an ideal location.

Once the starlings are consistently feeding on pre-bait, DRC-1339 treated bait is placed in the same location. Wildlife Services will provide the producer with necessary pre-bait, apply the DRC-1339 treated bait, and be on-site to monitor the uptake of treated bait and to ensure no non-target birds are affected. The treated bait will be removed when the birds stop feeding. It takes several hours from the time the toxicant is consumed to when the starlings die; it's likely that many of the starlings will die off-site. The

producer must advise neighbors of the starling damage management program and pick up any dead starlings. The dead starlings pose no hazard to people or pets because the toxicant has been metabolized and excreted prior to death.

The key to a successful control project is to establish good pre-bait acceptance. To minimize project costs, it is the producer's responsibility to apply the pre-bait, notify neighbors, and pick up and dispose of dead birds. Where good pre-bait acceptance has been established, reductions of 75% to 95% in starling numbers have been achieved. The program fee of \$750 helps cover the costs associated with prebait, bait, salary and fuel.

If you have any questions regarding this program please contact:

**518-477-4837 (Castleton)
315-698-0940 (Brewerton) or
315-267-2288 (Potsdam)**

Look for the 2010 Census in the Mail

Information Compiled by Emily Myers, CCE Regional Dairy Specialist

As required by the United States Constitution, every ten years a census must be completed across the US to determine accurate numbers of residents in each state. This information is used to determine each state's representation in the House of Representatives and to allocate governmental funds for programs in each state.

All residents must be counted including both citizens and non-citizens. This year is a census year and questionnaires will sent out to households in March. The data collected from these questionnaires is completely confidential and

will not be shared with any other federal agencies, law enforcement entities or businesses. Your address and other household information will be used only to obtain accurate numbers of residents in each state and the characteristics of the population in the state. The information gathered from the census will help guide local decision-makers on where to build new roads, hospitals, housing, schools and more.

This year the questionnaire contains only 10 questions and will take less time to complete than any census in history. Please keep an eye out for your 2010 census in the mail, complete and

return it in a timely manner so that New York will be accurately represented. If you forget to return your questionnaire Census Bureau workers will re-mail questionnaires in April and then follow up with visits to households that have still not returned a census questionnaire. If you have questions about the 2010 census or how the information collected will be used, please contact:

**Alma Ransom 518-358-4400
or ranson13@earthlink.net**

Understanding Fatty Acids: Part One, the Basics

Emily Myers, CCE Regional Dairy Specialist

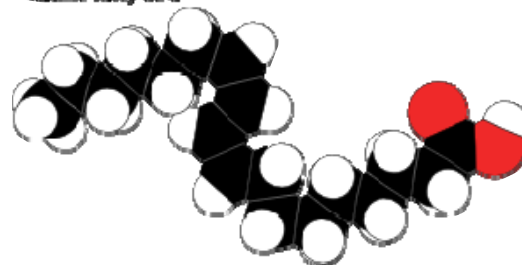
Have you heard terms like saturated, unsaturated, essential, or biohydrogenation pathway in regards to fatty acids and not understood exactly what those terms meant? If you answered yes, you are not alone.

Although fats make up a small portion of a dairy ration compared to other nutrients (typically less than 5% of dry matter) they are extremely important in a multitude of functions within the dairy cow. A little goes a long way you might say. Everything from

reproductive performance, to immune function and milk fat synthesis are related in some way to fatty acids provided in the diet. In addition to the complexities of fat metabolism, the microbes within the rumen are capable of changing fatty acids that have been eaten by the cow to different fatty acids, making some of the fats found in resulting dairy products different than those in almost any other foods on earth.

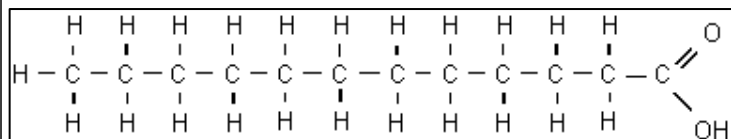
In order to understand fats and their function in a dairy ration,

unsaturated fatty acid

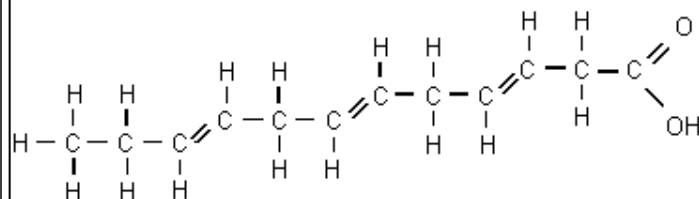


one must first have a basic understanding of what a fatty acid is and some of the lingo used when referring to fatty acids.

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Saturated Fatty Acid



Unsaturated Fatty Acid

Figure 1

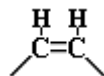
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Fatty acids are made of three elements: carbon, oxygen and hydrogen. As you can see in Figure 1, the carbons are attached to one another in a long chain, surrounded by hydrogen with a couple of oxygens at one end. Each carbon must have four bonds with other elements around it. In the chain they are each connected to two carbons (one on either side) and two hydrogens. At the end of the chain a carbon is connected to three hydrogens and one carbon, so on and so forth.

Double bonds can also be formed, as is the case on the Y shaped end of the fatty acid. The last carbon in the chain must double bond to a single oxygen in order to fill its four bond quota. When every carbon in the chain is bonded to as many hydrogens as possible, it is called **saturated**. This means it is "saturated" with hydrogen, no more can bind to the chain. Represented by the fatty acid on the top in Figure 1. If however, a carbon within the chain double bonds to its neighboring carbon,

its' four bond quota is filled even though it only has one hydrogen bonded to it. Now we have an **unsaturated** fatty acid, meaning

"unsaturated" with hydrogen (fatty acid pictured on bottom). Double bonds cause the chain to kink a bit, which decreases the melting point of the fat, making unsaturated fats like oils liquid at room temperature, while saturated fats like tallow are solid. In addition, the hydrogen atoms on either side of the double bond can be in either *cis* or *trans* formation. In *cis* formation, the hydrogen atoms are next to each other, like this:



In *trans* formation the hydrogens are present across from each other, like this:



The orientation of the bond as either *cis* or *trans* is surprisingly important to the function of the fat. For example, a fat with a *cis* bond may not cause milk fat depression, while the same fat with a *trans* bond in the same place would have devastating effects on milk fat.

Fatty acids like the ones pictured in Figure 1 can be

anywhere from 2 carbons to greater than 25 carbons long, and can contain one or more double bonds in either *cis* or *trans* formation at different locations along the chain. You are perhaps now getting an idea of how many possibilities there are for different fatty acids!

Cows can consume an unsaturated fatty acid like the one pictured in Figure 1, and microbes in the rumen will move the location of the double bonds up or down on the chain, or they may remove one or more of the double bonds and add hydrogen to the chain, making it saturated. This process is called **biohydrogenation**. The microbes do this to unsaturated fats because these fats are actually toxic to the microbes. Unsaturated fats interfere with the cell membrane of the microbes, so the microbes have developed a self defense mechanism to detoxify these fats by saturating them.

When a cow consumes unsaturated fat (which is present in most feeds) the microbes will go work trying to saturate it. This takes time however, and for a cow consuming a lot of unsaturated fat (such as cows supplemented with seeds like cottonseed or distillers grain) or a high producing cow with a high rate of ruminal passage, a good deal of unsaturated fat will make it through the rumen and into the intestine because the microbes

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don't have enough time to saturate it before it is passed. In addition, if the microbes are inhibited, as the case may be when acidosis is present, the biohydrogenation they are trying to complete will be slowed even further. This is important because if microbes are inhibited during biohydrogenation, several intermediates created during the process can be harmful if they are absorbed in the intestine; an example is **C18:2 trans-10 cis-12**. C18:2 means 18 carbons

long with 2 double bonds in the chain. The bonds are at carbons number 10 and 12, and are in *trans* and *cis* conformation respectively.

This fatty acid intermediate created during biohydrogenation is a major cause of milk fat depression. If as little as 3.5 grams per day reaches the intestine, milk fat production will be decreased by 25%. At 14 grams per day, milk fat production is decreased by 50% (Baumgard et al. 2001).

Keeping the rumen acidosis free and limiting supplying of unsaturated fatty acids will allow microbes to successfully saturate most fatty acids that are eaten. In addition, the unsaturated fatty acids that do end up leaving the rumen before saturation are less likely to be harmful intermediates like C18:2 *trans*-10, *cis*-12. Stay tuned for Part 2 where we will discuss some common fat supplements (bypass fats and tallow) as well as which fatty acids are essential in the diet and why.



Cornell University
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Dairy One

NNY Forage Quality Cup

Forage Quality Competition

How does your farm's corn silage and haylage quality stack up against other farms in NNY?



Who: Farms in Jefferson, Lewis, St. Lawrence, Franklin, Clinton and Essex Counties

Categories: Corn Silage (non-BMR only) and Haylage/Baleage



Prizes: \$50 for county winners

(one for corn silage and one for haylage)

\$200 for regional winners

(one for corn silage and one for haylage)

(Continued on page 7)



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Forage Competition Continued....How it works

- Take a sample of your forage as you feed out on a day **between now & March. 19, 2010**
- Place sample in a ziplock bag and freeze immediately
- Bring frozen sample(s) to your local CCE office (**no later than 3 pm on Friday March 19th**)
- Fill out Sample Submission Form & Survey Information (Forms will be at your local CCE office)
- Pay submission fee — \$5 per sample
- Samples will be analyzed at the Dairy One Forage Lab free of charge
- Samples will be judged based on forage quality analysis and milk per ton calculation
- **Winners will be announced in April!**

Questions? St. Lawrence & Franklin Co. —Stephen Canner, 315-379-9192, Clinton & Essex Co.—Emily Myers 518-353-4949

Future News/Events

Crop Congress - Feb 17th at Miner Institute and March 14th in Carthage. Program starts at 10am and runs until 3pm. Speakers include: Eric Young—Getting the Most From Your Soil Tests, Quirine Ketterings—Corn and Alfalfa Rotation Management, Anita Deming—Costs Associated with Roundup Ready Corn vs. Conventional, Karl Czymek—Emerging Environmental Issues on Dairies/CAFO Update, and Russ Han—Weed Management Update. Similar program offerings in Carthage. Contact Eric Young (518-846-7121) to register at Miner or Stephen Canner (518-483-7403) for Carthage.

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).

Corn Planter Calibration Meeting - We will meet at Randy Ooms Dairy in Franklin County (Constable, NY) on March 2nd for a demonstration of correct corn planter calibration. Please call for more details or directions to the farm (518-353-4949). Carpooling from Clinton County may be available.

Financial Management and Bookkeeping Class - Classes will take place from noon to 3pm in three locations: Tuesdays starting March 2nd at Miner Institute, Wednesdays starting March 3rd in Canton, and Thursdays starting March 4th in Burrville. Classes will continue for seven consecutive weeks, ending in mid April. The seven classes will cover: Bookkeeping, The Balance Sheet, Profitability, Cash Flow, Budgeting and Partial Budgeting and Farm Business Summary Completion. Contact Anita Deming (518-962-4810) to register.

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!

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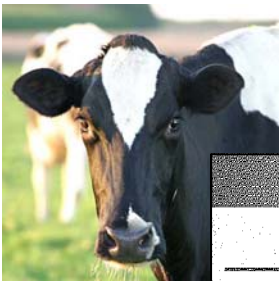


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