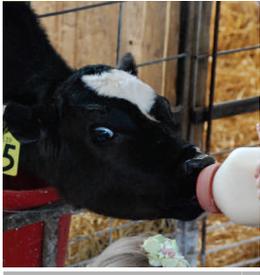


DAIRY PIPELINE

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CALF NUTRIENT REQUIREMENTS DURING COLD WEATHER

“...nutrient requirements of young calves increase during cold weather.”

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As we move into the winter months, it is important to remember that nutrient requirements of young calves increase during cold weather. Calves less than three weeks old have a thermoneutral zone ranging from about 59-77 °F. This means that in temperatures below 59 °F, calves must expend energy to maintain their body temperature. Calves are born with limited reserves of body fat, so in the first few weeks of life, they have a limited ability to store energy for later use. This makes it difficult for calves to keep warm for long periods of time in extreme cold. In order to generate heat for herself, a calf will shiver and increase her metabolic activity, subsequently increasing her maintenance requirements for metabolizable energy. Increased energy requirements for maintenance means that nutrient intake must increase for the calf's health and survival. Calves will only gain weight after maintenance requirements are met, therefore, increasing nutrient intake in calves is also important for growth during the winter.

Temp. (°F)	Milk Replacer Powder (lbs.)	Whole Milk (lbs.)
59	1.00	7.3
32	1.35	9.6
5	1.77	12.1

Table 1.

Table 1 shows the amount of milk replacer powder or milk needed per day to meet the maintenance requirements for calves younger than 21 days of age with a body weight of 110 lbs., according to the ambient temperature. Note that this intake only meets the nutrient requirements for maintenance, and intake must exceed these amounts for calves to gain weight! Perhaps the simplest way to ensure that maintenance requirements for metabolizable energy

in young calves are met during cold weather is to provide calves with more milk replacer or milk every day. This may be accomplished by increasing the meal size by up to 25-30% or by feeding an additional meal each day. The former method works well for producers on a conventional feeding program and does not significantly add to labor costs. However, adding an extra feeding after the evening meal provides some needed energy during long, cold nights.

Another approach is to increase the fat content of the liquid feed for more energy density. During the winter months, a fat content of 18-25% in milk replacer is sufficient for young calves. Another option is to add a commercial fat supplement to milk replacer to increase the energy density.

In addition to providing young calves with more metabolizable energy, other calf care practices are important in managing nutrient requirements in cold weather. Mitigating the effects of cold temperatures by preventing drafts and offering abundant, dry bedding in calf pens or hutches is important in ensuring that maintenance requirements for preweaned calves are met. It is imperative that enough clean straw is provided to enable calves to nest. Also, offering plenty of clean water and fresh calf starter encourages nutrient intake. Adequate management of environmental factors helps to lessen the amount of energy a calf needs to expend to maintain body temperature.

—Alyssa Dietrich, Master's student with Dr. R.E. James
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For more information on Dairy Extension or to learn about current programs, visit us at VT Dairy — Home of the Dairy Extension Program at: www.vtdairy.dasc.vt.edu.

R.E. James

R.E. James,
Dairy Extension
Coordinator &
Extension Dairy Scientist,
Dairy Nutrition

VCE AND THE DAIRY SCIENCE DEPARTMENT WELCOME JEREMY DAUBERT AND HIS FAMILY TO VIRGINIA

Jeremy Daubert began his duties as the dairy extension agent based in Rockingham County on November 10. He was raised on a registered Brown Swiss dairy in Pennsylvania and earned a B.S. in Dairy Science from Virginia Tech in 2000. Upon graduation he spent two years as a herdsman on a large dairy located on the eastern shore of Maryland. In 2004 he and his wife, Becky (also a 2000 Virginia Tech Dairy Science graduate), started their own dairy on a rented facility in Lancaster County, PA. In 2006 they moved their herd to NY where they operated their dairy on two different purchased facilities. In 2011 they sold the farm and the majority of the cows and moved to Myerstown, PA where they managed a 250 cow robotically milked dairy. Jeremy and Becky are the proud parents of two children, Hayley (9) and Trey (3). We are so pleased to welcome Jeremy (and his family) back to Virginia!



Upcoming Activities

—Jan. 13-17, 2014

[Area Dairy Conferences](#)

—Jan. 21, 2014

Massanutten DHIA annual meeting, Traditions Restaurant, 6:30 pm
RSVP 540-564-3080

—Feb. 2014—Date TBD

Dairy Energy Efficiency Meeting

—Feb. 19–21, 2014

[VSFA & VT Nutrition “Cow College”](#), Hotel Roanoke, Roanoke, VA.

Franklin County:

•Feb 5—Vantage No-Till Winter Conference at Olde Dominion Ag Complex Chatham

•Feb 21—PCDart training at Franklin Center

•Feb 22—Farm Transition Workshop: Overview of Farm Transition

Farm Transition Programs

Feb 8—Courtland, VA

Feb 19—Blackstone, VA

Feb 22—Rocky Mount, VA

See [VTDairy](#) for additional details.

If you are a person with a disability and require any auxiliary aids, services or other accommodations for any Extension event, please discuss your accommodation needs with the Extension staff at your local Extension office at least one week prior to the event.

“Raw milk is milk from cows, sheep, or goats that has not been pasteurized to kill harmful bacteria.”

SAY NO TO PURCHASING RAW MILK

Over the past several years there has been a growing interest in the local food movement. This has resulted in many consumers seeking to buy locally grown foods direct from local farmers. Some consumers purchase raw, unpasteurized milk directly from farmers because they perceive raw milk to be healthier than pasteurized milk. In Virginia it is illegal to sell unpasteurized milk to consumers for human consumption.

Raw milk is milk from cows, sheep, or goats that has not been pasteurized to kill harmful bacteria. “Raw, unpasteurized milk can carry dangerous bacteria such as *Salmonella*, *E. coli*, and *Listeria*, which are responsible for causing numerous food borne illnesses”.⁽¹⁾ Contaminated raw milk and milk products can cause:

- Diarrhea and stomach pain, (which may be severe), from infections with *Campylobacter*, *Salmonella*, or *E. coli* O157:H7 bacteria;
- Severe kidney damage from infection with *E. coli* O157:H7 (called hemolytic uremic syndrome, or HUS);
- Miscarriage/stillbirth, or severe illness or death in the newborn when a pregnant woman is infected with *Listeria* bacteria.

People with weakened immune systems, including young children, the elderly, pregnant women, and people with certain medical conditions, are at highest risk for severe infections from contaminated raw milk and milk products.⁽²⁾

“The Center for Disease Control and Prevention reported that unpasteurized milk is 150 times more likely to cause food borne illness and results in 13 times more hospitalizations than illnesses involving pasteurized dairy products.

Pasteurization is a process that kills harmful bacteria by heating milk to a specific temperature for a set period of time. While pasteurization has provided the public with a milk supply that is free of pathogens for over 120 years, there are some members of the public who believe that raw milk is a healthier alternative. Research has shown that there are no

meaningful differences in the nutritional values of pasteurized and non pasteurized milk.”⁽³⁾

“VDACS provides permitting and inspection services to Virginia’s approximately 630 Grade “A” dairy farms producing unpasteurized milk for use in Grade “A” milk products like milk, cream, cottage cheese, and yogurt. The regulations require a minimum of two inspections per year and four milk quality samples in any six month period on each grade “A” dairy farm. Inspections focus on facilities and equipment repair and maintenance, cleaning and sanitization of milking equipment, milk cooling and storage requirements, water supply, and general housekeeping. Milk samples are tested for numbers of bacteria, numbers of somatic cells (a measure of udder infection, brucellosis (a disease of cattle and humans), and added water.

The regulation requires that all milk be tested for the presence of animal drug-residues prior to processing. Milk screened positive for animal drug-residues at processors is confirmatory tested in either Virginia Department of Agriculture and Consumer Services laboratories or state certified laboratories. **All milk confirmed positive is destroyed and the permit of the dairy farm responsible for contaminating the load of milk is suspended.**⁽⁴⁾

“Dairy farmers continued in 2012 to improve their already stellar track record of keeping antibiotic residues out of the milk supply, with the most recent national survey finding that only 0.017 percent of all bulk milk tankers, or 1 in 6,000 loads, showed any sign of an animal antibiotic drug residue.”⁽⁵⁾

In this day of social media, it is up to consumers to make informed purchasing decisions based on scientific research. Thus consumers should choose to purchase pasteurized milk and dairy products to avoid the serious health risks of harmful bacteria that may be present in raw milk.

—Peter Callan, Extension Agent,
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Culpeper County
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1. The Dangers of Raw Milk: Unpasteurized Milk Can Pose a Serious Health Risk, Food and Drug Administration, June 17, 2013.
2. Health Risks from Consuming Raw (Unpasteurized) Milk and Milk Products, Seattle and King County Public Health, Aug. 16, 2013 Aug. 16, 2013 Aug. 16, 2013 Aug. 16, 2013 August 16, 2013.
3. The Dangers of Raw Milk: Unpasteurized Milk Can Pose a Serious Health Risk, Food and Drug Administration, June 17, 2013.
4. Regulations Governing Grade “A” Milk (2 VAC 5-490), Virginia Department of Agriculture and Consumer Services.
5. Annual Survey of Antibiotic Residues in Milk Finds Continuing Improvement. National Milk Producers Federation, March 8, 2013. National Milk Drug Residue Data Base, Fiscal Year 2012 Annual Report, October 1, 2011 - September 30, 2012.