

DAIRY PIPELINE

Department of Dairy Science

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www.vtdairy.dasc.vt.edu

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“Waste milk feeding systems can be very successful, but producers should consider all factors before choosing salable or waste milk as the sole source of nutrition for pre-weaned dairy calves.”

Photo courtesy of Flickr

PROS AND CONS OF FEEDING MILK TO CALVES

Nature designed whole milk as food for baby calves. It contains 3–3.4% protein, 3.5–4.5% fat and 12.5% total solids. On a dry powder basis, milk contains 24–27% protein and 28–36% fat. It seems obvious that calves would grow better when fed whole milk as it is richer in nutrients than the traditional 20% protein: 20% fat milk replacer powder. So why feed a milk replacer?

- 1. 20:20 milk replacers** were developed to support minimal growth, encourage early consumption of calf starter, and promote early weaning of calves at low cost per day. Recent research shows that milk replacers containing 28% protein encourage faster growth which appears to be very important during the first month of life. Milk replacer companies have developed milk replacers with high protein enabling growth comparable to whole milk. These higher protein milk replacers are more expensive, but the cost per unit of gain is usually less due to higher rate of gain. Performance on higher protein milk replacers is comparable to whole milk.
- 2. Salable milk prices** have varied from \$12 to \$25 / cwt in the last two years, so on a dry powder basis, whole milk would cost \$.90 to \$1.80 per lb. or \$45 to \$90 per 50 lb bag! In most cases milk replacer prices will track milk price fairly closely and be less expensive on a unit of nutrient basis. Whole milk may seem cheaper because it is not a cash expense.
- 3. Quality of milk as compared to milk replacer:** milk fed to calves primarily comes from fresh and treated cows. If the supply is insufficient, salable milk is drawn from the bulk tank. Many dairy producers don't take adequate precautions in handling “calf” milk and it can be a source of Johne's bacteria, E. coli, Salmonella, and

Mycoplasma, which are health threats for calves as well as people. Milk is an ideal bacterial culture. Any delay in cooling results in rapid bacterial growth. Mr. Chase Scott, Wythe County Dairy Extension Agent, conducted waste milk pasteurization studies on dairies in North Carolina and California. He found that bacterial levels varied from less than 10,000 cfu (colony forming units) to more than 5,000,000 cfu/ml. Pasteurization was unsuccessful in reducing bacterial counts to less than 20,000 bacteria/ml of milk in about 20% of samples. He found that nutrient content varied considerably with fat and protein as low as 2%, likely due to added “flush” water at the end of milking. If milk is fed to calves it must be pasteurized and fed as soon as possible to prevent excessive microbial growth.

4. Variable supply of unsalable milk: A large dairy producer in this study found that daily volume of waste milk varied from 200 lb. to more than 800 lb. daily. Most studies of the economics of pasteurized waste milk assume sufficient waste milk to feed all calves. Most farms will have serious herd health problems to produce adequate quantities of waste milk. A typical Virginia dairy farm of 150 cows will include 25 calves consuming 1 – 2 gallons of waste milk per day and requiring 215 to 430 lb of milk daily. This volume would require 4-8 cows in the “hospital group” each producing 50 lb. of non-marketable milk per day. Herds with SCC of less than 200, 000/ml would likely not generate enough waste milk to feed all calves.

Waste milk feeding systems can be very successful, but producers should consider all factors before choosing salable or waste milk as the sole source of nutrition for pre-weaned dairy calves. Well designed pasteurizer systems re-

(Continued...)

Upcoming Activities

Dairy Tour, Shenandoah Valley, July: date TBA.
Contact Beverly Cox at (540) 483-5161 or becox@vt.edu

Southeast Dairy Youth Retreat, July 6-10, South Carolina. Contact Dave Winston, (540) 231-5693 or dwinston@vt.edu

Franklin Co. 4-H Dairy Show, July 24, 1:00 pm
Franklin Co. Recreation Park. Youth age 5 to 19 can show. Contact Beverly Cox at (540) 483-5161 or becox@vt.edu

Fresh Cow Management Workshop, July 29, 11:30-2:00 pm, Rocky Mt. Contact Beverly Cox at (540) 483-5161 or becox@vt.edu

Virginia PDCA Show, August 7, Rockingham Co. Fairgrounds, Harrisonburg.

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 1 week prior to the event.

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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 on the web at: www.vtdairy.dasc.vt.edu.

Bennet Cassell

Bennet G. Cassell,
Dairy Extension Coordinator &
Extension Dairy Scientist,
Genetics & Management

quire a significant investment along with careful and continuous maintenance. Waste milk varies widely in nutrient content and must be cooled rapidly to prevent bacterial growth.

A spreadsheet available at www.vtdairy.dasc.vt.edu evaluates the economics of different calf milk feeding systems.

—Bob James,
Extension Dairy Scientist, Dairy Nutrition
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EPA – TESTING THE WATER

In April 2010, EPA made it known that it would be conducting inspections of farms in the Shenandoah Valley Region. At a stakeholders meeting prior to their visits, representatives from EPA made their case for targeting the Shenandoah Valley. They indicated that the nature of the Valley's agricultural industry generated more manure nutrients than could reasonably be utilized. Using 2007 Ag Census data, they surmised that greater than 1 million tons of surplus manure existed. Accordingly they, indicated that they would be inspecting CAFOs (Confined Animal Feeding Operations) to determine if they were complying with the Federal Clean Water Act. Their stated goals were threefold (paraphrased);

1. To make sure that facilities that need National Pollutant Discharge Elimination System (NPDES) CAFO permits have them.
2. To determine that framework is in place to insure compliance with NPDES permits.
3. To determine that framework is in place to insure protection of water quality.

Historically, EPA has ceded authority for enforcement of water quality to individual states. In Virginia, the Department of Environmental quality has filled that role.

Through it's Virginia Pollution Abatement (VPA) program, DEQ has regulated operations that confine more than 300 animal units and has overseen smaller operations on a complaint generated basis. EPA has retained regulatory authority for larger

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Dr. Bennet Cassell, Dairy Extension Coordinator & Extension Dairy Scientist (and a Hokie for over 45 years!) will retire July 1, 2010.

The Dairy Extension group would like to take this opportunity to thank Dr. Cassell for his service to both VCE and the dairy industry. Both are stronger as a direct result of his many contributions.

—We wish him well.

(Photo: Dr. Cassell as a student. Virginia Tech Judging Team, 1966.)

CAFOs over 750 animal units and operations of any size considered a “point source” of pollution.

As a result of their inspections, EPA issued a press release on June 2nd stating:

“The U.S. Environmental Protection Agency today announced that it has ordered two Virginia farms to cease discharging pollutants to a stream without a National Pollutant Discharge Elimination System (NPDES) permit, as required by the Clean Water Act.”

The next step for these operations will be to give notice of intent to obtain a NPDES permit and come into environmental compliance. What is apparent from this action is that EPA has lowered or redefined the threshold for what it considers to be a point source of pollution. Specifically they have identified the following areas of concern as potential threats to water quality:

- ◆ Manure management
- ◆ Mortality management
- ◆ Clean water diversion
- ◆ Milk house wash water
- ◆ Winter applications of manure
- ◆ Stream fencing and livestock exclusion
- ◆ Denuded feeding areas
- ◆ Groundwater contamination

In summary, it is advisable that dairies across the state assess their current environmental status.

—John Welsh
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