

DAIRY PIPELINE

Department of Dairy Science

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THE IMPORTANCE OF MILK CULTURING

A great deal of information can be gained from a milk culturing program. Standard milk bacteriology can be run on aseptically collected quarter milk samples and in turn can reveal causes of both subclinical and clinical mastitis, as well as the reason for a high somatic cell count. Additionally, we can use this knowledge to assess dry cow management programs and determine whether a case of mastitis has cured. Each individual herd has its own bacterial profile which will be dependent on specific management practices on that herd, including milking procedures, bedding type, and the use of various products including bedding additives. By understanding the bacterial profile, we can

construct and evaluate control programs with regards to milking procedures, as well as programs related to dry cows, lactating cows and also calf management. The Virginia Tech Mastitis & Immunology Laboratory is currently accepting milk samples for culture. If you would like more information with regards to sample collection and submission, please contact me at cspw@vt.edu or 540-231-4767. I would be happy to discuss how to get started and what to do with the information once you have received your results.

—Christina Petersson-Wolfe
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DAIRY FARMING IS CHANGING

Change is inevitable in the dairy business, through constant evolution in response to all kinds of economic and technological pressures. What is always surprising, however, is the pace of change, especially in the last five to ten years. The USDA Economic Research Service recently documented changes in herd structure and profitability since 2000 in Report #47 “Profits, costs, and the changing structure of dairy farming.” This detailed report is full of facts and figures, some of which I’ll digest here. Full details are at <http://www.ers.usda.gov/Publications/ERR47/>. In the year 2000, 29% of milk produced in the US came from herds of less than 100 cows. By 2005, that percentage had dropped to 20%. Mega dairies took up the slack, and then some, as herds of more than 2,000 cows increased from 11% of total milk production in 2000 to 24% in 2005. Milk production in the Southeast continues to decline. Only Texas appeared among the top 16 states in milk production, and growth in that state is in the Texas Panhandle, which is much more Southwest than Southeast. Economies of scale – the efficiencies resulting from highly specialized management skills, bulk purchasing power, and marketing advantages contribute to the growth of very

large dairies. These businesses buy feed and hire labor, whereas the small dairies rely on unpaid family labor and homegrown feed, with much lower purchased feed and hired labor costs per hundredweight of milk produced. Net returns on total costs (where unpaid family labor and interest on investment is charged against the business) clearly favor herds of over 500 cows. What does this mean for Virginia? Our state has not seen the dramatic shift to larger dairies that has occurred elsewhere. Growth has occurred, however. In January 2000, the 480 herds on supervised DHI test in Virginia averaged 130 cows apiece. In July 2007, the 325 herds remaining averaged 159 cows. Specialization works its way into Virginia herds in a more gradual fashion than national trends. Dairy production is a way to convert farm grown forages and family labor into cash. Business savvy operators wouldn’t start a new dairy that way today, but existing operations can get along pretty well with good management. Nevertheless, the handwriting is on the wall. Survivors in the Virginia dairy business of the future will be increasingly specialized – either through low input approaches or through larger herds, more purchased feeds, and increased reliance on hired labor.

—Bennet Cassell
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Upcoming Activities

4-H Dairy Club meeting –
Oct 9 –6:30 at the Select
Sires building in Callaway

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.

FLUID THERAPY FOR SICK COWS: TO PUMP OR NOT TO PUMP

There are many diseases affecting cows on dairy farms today. These diseases include milk fever, retained placenta, metritis, ketosis, mastitis, lameness, rumen indigestion, and displaced abomasums. These diverse diseases have one thing in common—they often cause cows to have significantly reduced feed intakes. As in humans, nutrient intake in cattle is key in helping the cow overcome the disease. Both veterinarians and farmers have become very good at primary treatment of these diseases. Getting the cow started back on feed will help ensure a better recovery rate for your patients. In the past these cows often received “pink pills” which contain magnesium hydroxide, a powerful alkalizing agent. Years ago when most cows were slug fed grain in the parlor and received limited forage on the bunk many may have suffered from grain overload, leading to the severe acidosis these pills are

designed to treat. In today's herds, while subclinical rumen acidosis can be a big problem, it is unusual to see cases of severe acidosis. In fact, the rumen of cows that have been off-feed for more 24 hours is usually very alkaline. The normal bacterial flora of the rumen can survive and thrive around pH 7. If the pH becomes too high many more bacteria will die off leading to cows that are more difficult to get started back on feed.

People often overlook other things that can be done to increase the success rate in treating these diseases. Fluid therapy is one of the most beneficial things that can be done for cows that are off feed. Fluid therapy provides the nutrient that cattle have the *highest* requirement for: *water*.

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Several of the diseases mentioned above cause dehydration both from reduced intake and diarrhea. An adult dairy cow can easily tolerate 10 gallons of water being administered into the rumen. At least five gallons need to be administered if a significant difference is going to be made for the cow. High volumes of fluids can be administered by either the Cattle Pump System® (Magrath Company), the AAS® drench system (Advanced Agri Systems), or a homemade gravity flow system. Each of these systems allows one person to quickly administer large volumes of fluids.

Fluid therapy also provides a convenient method for administering other nutrients to the cow. These nutrients fall in to four categories: minerals, nutritional support for the cow, nutritional support for the rumen bugs, and rumen microbes. Many commercial products are available that can be added to the water. These products vary greatly in content and expense. Table 1 contains guidelines for evaluating these products. Calcium is probably the most important thing that can be added. Sixty to 100 grams of calcium are needed. Salt should be added at a rate of 120-160 grams and potassium chloride at a rate of 90 grams. A glucose precursor is important for preventing or treating ketosis. Sixteen ounces of propylene glycol, or 12 ounces of propionate once a day is sufficient. Megalac® can be added to provide additional energy for the cow. Ground alfalfa meal is a good source of nutrients for the rumen bugs. Three to five pounds can be added to the mix. Lactobacillus and yeast fermentation products are the most common microbe products that are commercially available.

There are numerous commercial drenches on the market. Some of these drenches are very good and contain most everything you could want in a drench. Others do not contain enough Ca and other ingredients to be as beneficial as the more complete drenches. Both AAS drench from Advanced Agri Solutions and BC Dairy Drench from Renaissance Nutrition are complete drenches that are readily available to Virginia dairy producers.

—John Currin
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AMOUNT	PRODUCT	INGREDIENTS
0.5 lbs	Nutra-Cal®	Calcium and Propionate
1 pound	Fresh Cow YMCP®	Calcium, Propionate, Lactobacillus,
90 grams KCl	50 lb bag KCl	KCl
160 grams NaCl	50 lb bag white salt	NaCl
0.5 lbs	Diamond V Yeast®	yeast
3 lbs	50 lb. bag ground alfalfa meal	alfalfa

Table 1. Nutrient requirements for an adequate dairy cow drench

RANK	INGREDIENT	AMOUNT
1	Calcium	60-100 grams
2	Propylene Glycol or Propionate	16 ounces 12 ounces
3	Potassium Chloride (KCl)	90 grams
4	Alfalfa Meal	3-5 lbs
5	Salt (NaCl)	120-160 grams
6	Lactobacillus	Cfu???
7	Yeast	0.25–0.5 lbs
8	Megalac®	0.5–1 lbs

Table 2. A homemade recipe for making your own drench

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.

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