

DAIRY PIPELINE

Conception Rates - Dry Matter Intake (DMI) and Negative Energy Balance (NEBAL): Prevention of excessive mobilization of body fat in the first 4 weeks of lactation is of primary importance for subsequent fertility. Cows will tolerate a loss of approximately 1 body condition scoring unit in the first 4 weeks after calving; more extreme condition loss will predispose her to lower conception rates at first service. One unit change in body condition score represents about 120 lbs of body weight change and about 400 Mcal of energy. Feeding management that maximizes DMI is also essential to minimize body condition loss and to re-initiate ovarian cyclicity within approximately 3 weeks after calving. Ideally, the second ovulation will occur by 50 days postpartum when uterine involution and repair will also be complete. Increased negative energy balance may delay first ovulation 60 to 75 days or longer extending the postpartum effects and recovery of the uterine environment. The stimulation of appetite to ensure adequate DMI in normal, healthy cows is essential to provide nutrients for maximum milk production, follicular growth, ovulation, uterine involution, and the initiation of pregnancy. First ovulation usually occurs approximately 10 to 15 days after the point of greatest NEBAL and sometime before the peak in daily milk secretion. Nevertheless, dairy cows with greater DMI, despite having a NEBAL, produced more milk, lose less body weight, and ovulated earlier postpartum than those with lower intakes. Additionally, cows with greater intakes also reached their low point of energy balance earlier and experienced a more severe, but shorter, period of NEBAL, suggesting that when cows are more efficient in partitioning dietary and stored nutrients toward milk synthesis, they are also better able to recover ovarian cyclicity. Increased feeding frequency and better feed bunk management to maintain a fresh, adequate supply of feed and multiple sources of clean water are critical for stimulating appetite and maximal DMI.

-- Ray L. Nebel

Dairy Extension Coordinator
Reproductive Management Scientist
(540) 231-4432 email: rnebel@vt.edu

Get a handle on sub-clinical mastitis. Did you know that for every case of clinical mastitis that you have in the herd, there are anywhere from 15 to 40 cases of sub-clinical mastitis? This can equate to an increase cost of \$200/cow/year and be the cause of elevated Bulk Tank Somatic Cell Counts (BTSCC) and loss of monthly premiums. There are ways to help you manage this often overlooked problem. Two of the most effective ways are DHIA records and the California Mastitis Test or CMT (see

October 2003, *Dairy Pipeline*). To determine who your chronic sub-clinical cows are, use the Milking Cow Somatic Cell Report that you receive monthly after test. Identify those cows that have a SCC greater than 400,000 for the current and previous test. Usually these are the cows at the top of the list, but not always. I suggest you go one step further and look at the lactation information for those cows. If you have PCDART, you can look at all lactations in one place on the Cow Page-Test Day tab (and do not have to go through lots of paper!). Sub-clinical cows will have multiple tests, not necessarily sequential tests, with SCC's greater than 400,000. These cows would be the ones to do a CMT on and identify problem quarters. The individual positive quarters should be sampled and sent off for laboratory analysis. One comment I receive often is "I sent some samples off and they came back with no growth!" One way to minimize this occurrence is to take multiple samples at different milkings. Some of these organisms are intermittent shedders and won't be found at one point in time. Take three or four aseptic samples, freeze them, send them off for analysis and make sure to ask the lab to pool samples for each cow. You greatly increase your chance of eliminating false negatives. By targeting these sub-clinical cows, you can identify whether you have an environmental problem (usually facilities related) or a contagious pathogen (Staph Aureus or Strep Ag). Work with your Veterinarian or Extension Agent to then develop a control program. By targeting these cows, you can greatly reduce your BTSCC and increase your chance of obtaining a monthly premium!

-- Sue Puffenbarger

Extension Area Dairy Agent,
Franklin County

(540) 483-5161 email: smp@vt.edu

Winterizing your calf program. At this time of year many homeowners are getting ready for colder weather by installing more insulation, adding storm windows, or putting more fuel in the tank for the furnace. It's time to do the same for your calves! Young calves, by nature of their size, lose heat more rapidly than older, larger animals. Cold weather can present serious challenges to the young calf. What can the calf raiser do to ensure healthy calves through the winter? Fine tune those dry cow feeding programs. Ensure that rations have adequate energy, protein, minerals and vitamins. An energy deficiency will result in thin cows giving birth to calves with little reserves of body fat. A prolonged cold snap or low intake of milk or milk replacer can be deadly for the calf. Excellent colostrum management encourages efficient absorption of

antibody-rich colostrum. Quality (older cows and first milking), quantity (one gallon during the 1st 12 hours of life), and timing (feed at least 2 quarts within the first 6 hours of life) are essential for effective colostrum management. Earlier colostrum feeding is even better. Consider increasing the nutrient content or quantity of milk or milk replacer fed to the calf during the winter. The influence of season and liquid diet on calf growth is shown in the following table which represents expected growth of a 125 lb. calf fed either whole milk, a 20% protein:20% fat, or a 28% protein:20% fat milk replacer at different feeding rates and different environmental temperatures.

Liquid	Lb./day	68°F		32°F	
		Energy allowable gain	Protein allowable gain	Energy allowable gain	Protein allowable gain
Whole milk	8.6 lb.	.47 lb.	.76 lb.	Weight loss	Weight loss
	20 lb.	2.46 lb.	2.18 lb.	1.88 lb.	2.18 lb.
20:20 milk replacer	8 lb. @ 12.5% DM	.10 lb.	.48 lb.	Weight loss	Weight loss
28:20 milk replacer	14.7 lb. @ 17% DM	1.4 lb.	1.77 lb.	.72 lb.	1.77 lb.

Traditionally, calves are fed about a gallon of liquid a day, regardless of the source of nutrition. The table shows that feeding a gallon of whole milk (3.2% protein, 3.85% fat) provides only enough energy for about a half pound of gain/day. However, when the temperature drops to freezing the calf will lose weight. A 20% protein: 20% fat milk replacer fed at about a gallon/day will result in only a tenth of a lb. of gain per day when it's 68°F. When it drops to freezing, the calf loses weight. Higher protein milk replacers have increased in popularity. These "intensive" milk replacers are also fed at higher feeding rates. This table shows that even at lower temperatures the calf will continue to grow when fed the intensive replacer. Higher feeding rates of whole milk also encourage healthier gains during cold weather, although at considerably greater expense. In addition to higher body weight gain with higher feeding rates, these faster growing calves are usually healthier, resulting in lower treatment costs. Benefits of liberal feeding programs are more pronounced with smaller, younger calves that lose body heat more readily. When temperatures drop, keep the dilution the same and feed more liquid to the calves. Consider trying the "intensive" milk replacers during the winter. In addition to dietary management changes, more liberal bedding of calf hutches or calf stalls and the use calf blankets reduces body heat loss as well. Keep those calves warm this winter!

-- Robert E. James
 Extension, Dairy Scientist,
 Dairy Nutrition
 (540) 231-4770 email: jamesre@vt.edu

** Upcoming Activities**

Area Dairy Conferences

Culpeper, Alan Grove Dec 14
Brandy Station Fire Station
 Rockingham, Alan Grove & Dec 15
Tina Horn, Evers' Restaurant
 Southwest VA, Andy Overbay Dec 16
Virginia Tech
 Franklin Co., Sue Puffenbarger Dec 17
Waidsboro Ruritan Club

Nutrition Cow College, Jan 11-13, 2005
Virginia Tech
 PCDART Workshops March 17-18
Virginia Tech

Raymond L. Nebel
 Dairy Extension Coordinator
 and Extension Dairy Scientist, Reproduction