DONATION BUYS MILK METERS

The Small Ruminant Dairy Project and VT Dairy Herd Improvement Association are pleased to announce the purchase of 5 more Surge Tru-Test small ruminant milk meters. This will enable VT DHIA to handle more milk testing of goat and sheep dairies in Vermont. This purchase was made possible by personal donations made to the Small Ruminant Dairy Project in 2007 by Spencer Wright and Andrée Falardeau who live in Waitsfield, VT. Mr. Wright and Mme. Faldareau are owner/operators of CANUS Goat’s Milk ©, a maker of popular skin care products. Find out more at www.canusgoatsmilk.com. We send our great appreciation to these donors for supporting the small ruminant dairy industry in Vermont!

ARE TOO MANY SPRING KIDS GETTING YOU DOWN? ARE OTHER MANAGEMENT STRATEGIES AN OPTION? EXTENDED LACTATIONS TO AVOID KIDDING.

A current question raised by dairy goat businesses is, “What do I do with the male kids and extra doe kids?” One solution might be to breed dairy goats once every two years rather than every year. However, little research has been done to test the viability of this option. As summarized in the last issue of the Small Ruminant Dairy Newsletter in December 2007, www.uvm.edu/sustainableagriculture/smallrumi.htm, a farm in Spain compared the production of goats bred once a year and given a dry period with goats that were bred only once in two years and milked continuously. We presented the conclusion of that study and that was that extending lactation reduced overall milk yield over the 2 year period by 8.2% including a 32% reduction during the 2nd lactation when goats were not rebred. However, this reduction might be a worthwhile option when farmers are looking to reduce metabolic stressors...
on the goats during kidding and/or simplify herd management (Salama, Caja, Such, Casals, Albanell, 2005). While the research is valuable, there are two significant problems with applying it to the circumstances at New England goat dairies. First, it has not been replicated (measured and reported) and, second, there are many variables that differ between New England goat dairies and Spanish goat dairies.

Rivendell Meadows Farm in Albany, VT employed this method at one point when they had a commercial dairy/cheesemaking business. They did not like selling kids to slaughter and had exhausted their pet market. Oak Knoll dairy applies this practice only when certain does maintain good milk production (4 lbs per day) naturally when unbred. Does’ Leap Farm in Bakersfield is experimenting by milk through a small group of yearlings that kidded last spring.

**Fall Kidding at BlueTop Farm**

Another choice is to try to switch part or all of your herd to freshen in the fall to redistribute kid sales to another time of year when there are other holidays demanding kid meat and fewer farms supplying kids. One example of a goat dairy in Vermont that has operated that way is that of Lori Choiniere of Highgate. She only milks after her 35-50 goat herd freshens in September, so that the goats have a 5 month dry period from April – August. Lori and her husband, Luc, also operate an organic cow dairy and they do like to enjoy some summer vacation time on Lake Carmi so having the goats dry during the summer is desirable.

She has been breeding her small herd of goats out of season for 3 years or more and has not employed any special light treatment but kept the bucks separate for 6 months before introducing them. She admits that the does are in good condition and is feeding them about 1 lb. of grain per day during the mating period. The buck effect is large and she employs 1-2 bucks as she has a dry goat/doeling group and usually a group in the milking barn where some does are still milking too well to dry off in April. She puts the bucks in 5 months before she wants them to start kidding and keeps them together for 2 months. Lori has accepted a 50-70% conception rate in the past. We calculated this past season’s conception rate at 76% and she feels it gets easier each year to get them bred. I asked her how she selects does to keep and she could only offer that she has her ‘favorites’. The replacement doelings she keeps are raised and not bred until they are about 18 months. This group of kids born in the fall and other goats that have gotten into the schedule seem to follow that pattern much more easily than a new doe brought in who has always freshened in the spring.

Lori easily finds homes for the fall kids and can sell or decide to keep any does that don’t breed. She sells her milk to cheesemaker Joanne James in Alburg. Joanne can sometimes take does that don’t breed. As an aside, both herds have instituted a CAEV prevention program (Caprine Arthritis Encephalitis Virus) and Joanne has space to maintain the kids and growing replacement doelings. Lori is pleased with the milk production of the herd but the average lactation yield is still being calculated.

**Fall Kidding Using Light Treatment**

Another large herd in Pennsylvania did the switch years ago. This was done by using barn lights that can extend the “daytime” to give December the same number of daylight hours as June. What effect does changing daylight hours have on dairy goats? As related in “A Different Kind of ‘Seasonal’ Breeding” (2002 Dairy Goat Journal), Danny Harter and Anne Whitney of Pennsylvania decided to find out in 2001. They chose to breed their entire herd, starting with about 208 does, in the spring of 2001 and had 190 to freshen in September and October. That winter, they produced about 1,000 pounds of milk per day. Apart from the hand-breeding that they did in the spring, their success was attributed to the artificial light they used to reverse the daylight hours as experienced by their goats. They set their lights to 20 hours per day at the end of December and turned the lights off by March 1. The system worked well enough that within a month after the lighting was reduced at the end of February, the does started coming into heat. Harter and Whitney have continued to breed in the spring and freshen in the fall because their success has allowed them to take two weeks of vacation in the middle of the summer.

They used buck numbers of 3 bucks per 36 doelings and 2 bucks per 25 young does. Milking does were handbred when they came into heat. Ultrasounds done in June revealed any unbred (5)
does. Adult does kidded from mid-September and finished the first week of October. Seventy-five yearlings were busy kidding the first 2 weeks of September. Over the out-of-season breeding period, through the kidding and early lactation time, they culled 20% of the does for a multitude of reasons. They were satisfied with their milk production as it averaged 8 lbs per doe per day in October. In January, their 167 milkers gave just under 1,100 lbs a day (6.5 lbs/doe/day).

If using extended lactation as a management tool is more appealing, other factors that influence the outcome of extended lactation include seasons of breeding and parturition, length of nursing, nutrition, duration of lactation, reproductive performance, and method of breeding. Look for more articles in future issues here.


-Written by Dianne Johnson and Carol Delaney

ANTIBIOTIC TREATMENT RESIDUES

If you choose to use antibiotics in your goats or sheep to treat illnesses, what is the resident time the drug stays in the milk, cheese, meat or organs in kids or lambs fed this milk? There are withdrawal/withholding times recommended for these drugs based on research with cattle.

For example, some veterinarians could prescribe Oxytetracycline as a therapy for mastitis or lameness and treat the animal with an intramuscular injection with a single dose. In Italy, they researched the disappearance of the drug after treatment in Saanen milk goats. The experiment treatment was on 8 Saanen lactating does given a single dose of long-acting Oxytetracycline (20mg/Kg). They took milk samples from the does and fed kids with the treated milk and then slaughtered the kids at 35-40 days after drinking milk from treated goats.

They found drug residues in the milk and cheese until 180 hours after administration. The whey from the cheese made from this milk showed no residue after 156 hours of treatment of the animals. They describe the antibiotic molecule has having a tendency to bind to calcium and then get precipitated out in the curd. The concentration of the drug is actually twice as high in the cheese as it is in the milk because of this.

Kidney and muscle samples taken from kids fed this milk for a short time showed no drug residue after 35 days but it was present in the liver.

Ampicillin is a broad spectrum antibiotic used for pathologic conditions (intramuscular for respiratory, intestinal) and prophylactically (topical) to prevent mastitis against Gram + and – pathogens. The same Italian researchers treated lactating Alpine does by intramuscular injection of Ampicillin (long-acting formula using clavulanic acid and Sublactam; no dose level given). Similar sampling was done in milk, cheese and tissue from kids fed the milk.

They found Ampicillin residues in the milk, cheese and whey for up to 108 hours after the treatment. Most of the drug was found in the whey (up to 80%) vs the cheese. There was no residue in the liver, kidney and muscle samples taken from kids fed the milk 35-40 days before.

These experiments have confirmed that intramuscular use of long-lasting oxytetracycline requires 180 hours (7.5 days) of withholding for the milk and up to 35-40 days for meat in kids fed the milk. There still may be residues in organ meat. Ampicillin is clear from milk, cheese and whey after 108 hours (4.5 days) and not found in kids at 25-40 days after they have drunk contaminated milk.

For possible alternatives to antibiotics for prevention and treatment of diseases in goats or sheep, contact the VT Organic Farmers (at the office of Northeast Organic Farming Association of Vermont) at 802-434-3821. They can recommend books, practitioners and farmers to talk to on how they live without antibiotics on their farms. For me, one strong message is that feeding treated milk to kids continually will put residues in the meat and organs, so it would be advisable to avoid that practice.

THE GOOD THING ABOUT SPRING KIDS IS...

…it sets up your farm to take advantage of the low cost of grazing/browsing when the doe is at her highest feed intake. And, milk produced on fresh herbage means higher Vitamin A and E (as α tocopherol). Vitamin E is an anti-oxidant that protects lipids and cholesterol from being oxidized. This prevention of lipid and cholesterol oxidation has a health benefit as it is being discovered that it is the oxidized products that contribute to atherosclerotic plaque formation causing heart and circulatory disease rather than the cholesterol and lipids themselves. Research by L. Pissoferrato, et al. in Italy showed that goats fed on pasture produced significantly higher levels of Vitamin E in their milk and in the cheese than in goats fed hay. Feeding grain above 600 grams (1.3 lbs.) per day negated the benefits of grazing and the levels of α tocopherol were reduced to levels in the milk that were found with no pasture or indoor feeding.


CONSIDER BARLEY/OATS/WHEAT IN YOUR SUMMER PASTURE RATION

For ruminants on pasture and browse, the animal is continually seeking to balance the energy and protein in the diet to match its needs (among other nutrients). This is one way Dr. Fred Provenza from Utah State University explains the animal behavior of what livestock choose to ingest when they are eating fresh feed outside. In a high producing ewe or doe, she is going to seek higher protein and energy levels in her diet. On fresh forage, the protein is in a form that is rapidly digested by the microbes because much of the protein is in a more soluble form. To capture the protein, the microbes need a quick matching supply of energy or else protein is not only wasted, it robs energy from the ewe/doe to get rid of the excess protein as urea.

According to Provenza’s research, high energy feed is more palatable (animals choose to eat it and eat it at a higher rate) when offered after a high protein meal and vice versa. He says that on a daily basis, animals need 5 times more energy than protein in their diet. And they can store excess energy as fat. The palatability is highly influenced by the energy content of the diet.

One way to efficiently use the energy fed is to match the rates of digestion of the protein to the energy source. As we said, on grass/browse, the protein is rapidly broken down by rumen microbes. The microbes are happiest and give the most satisfying by-products to the animal (VFA’s, microbial protein) when they have the ready energy for the protein. Some proteins fed can be digested more slowly and this usually comes from protein in the concentrate from roasted soy or distillers grains. It is good to increase the portion of slower digested protein in the grain ration during the summer months.

To best match soluble pasture protein, specialists speaking at the 2008 NOFA winter conference recommended feeding a concentrate of up to 25% barley grains to cows on early pasture. Barley is a rapidly digestible energy source due not only to its amount of starch but its high amount of rapidly digesting starch. (see below). Oats and wheat mids are also useful in grazing diets.

Table 2. Starch content and degradation of grains (Herrera-Saldana et al., 1990).

<table>
<thead>
<tr>
<th>Feed</th>
<th>Starch Content</th>
<th>Starch Degradation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% DM</td>
<td>Range</td>
</tr>
<tr>
<td>Corn</td>
<td>76</td>
<td>72-78</td>
</tr>
<tr>
<td>Barley</td>
<td>64</td>
<td>60-74</td>
</tr>
<tr>
<td>Oats</td>
<td>58</td>
<td>52-69</td>
</tr>
<tr>
<td>Wheat</td>
<td>70</td>
<td>67-77</td>
</tr>
<tr>
<td>Milo</td>
<td>71</td>
<td>68-78</td>
</tr>
</tbody>
</table>

¹ Determined in vitro.
² Fraction that was rapidly degraded, determined in situ.

The Small Ruminant Dairy Project is supported at UVM by the Center for Sustainable Agriculture, the UVM Animal Science Department and UVM Extension. University of Vermont Extension, and U.S. Department of Agriculture, cooperating, offers education and employment to everyone without regard to race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or familial status. UVM Extension proudly supports the Center as a forward-looking model for community-university partnership.