Agri-News

September 7, 2009

Making Nitrate-Safe Silage and Greenfeed

Producers intending to make silage or bale greenfeed from crops that have been frozen in the field need to take time to ensure that the feed is nitrate-safe.

"The threat to livestock from nitrate accumulation in forages is that the nitrates bind with the red blood cells in the blood, reducing the animals' ability to move oxygen to the tissues," says Barry Yaremcio, beef and forage specialist with Alberta Agriculture and Rural Development. "This causes the animals to suffocate from the inside and, if the concentrations are high enough, the animal will asphyxiate and die from a lack of oxygen. When feeding cows in the last 30 days of pregnancy, if nitrate levels are high during that feeding period, it can cause spontaneous abortion of the calf."

Making silage out of frozen crops is a good practice that producers can use; however, the silage must be tested to determine quality and nitrate content. To get a representative sample, take a handful of green chop material out of each load, put it in a five-gallon pail and mix it together. Fill approximately half of a bread bag full of the sample, squeeze the air out of the bag, seal and freeze it and then send it to a laboratory for analysis. If making greenfeed, use a forage sampler to get a representative sample for analysis.

When baling greenfeed, round or square, if moisture levels are too high, the material will start to heat and can actually reach over 40 ºC. If that happens, nitrate will be converted to nitrite which is 10 times more toxic than nitrate. If nitrate accumulation is at all a concern, the greenfeed must be dry before it is baled.

"Work done in the early 1960s established 0.5 per cent as the toxic level of nitrates in feed," says Yaremcio. "This level was arrived at by administering sodium nitrate directly into an animal's blood stream, but this established a false level for ingested nitrates. Forages do not have the ability to go immediately into the blood stream in a concentrated form as it takes two to three days for the material to be digested. Therefore, nitrates at levels of 0.7, 0.9 even up to 1.0 per cent can be fed if introduced slowly and time is taken to acclimatize animals to that level of nitrates. Just remember that care must be taken."

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This Week

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Alberta AGRICULTURE, FOOD AND RURAL DEVELOPMENT

For further information on nitrate accumulation, visit Alberta Agriculture's website at www.agriculture.alberta.ca/publications to view the fact sheet ***Nitrate Poisoning and Feeding Nitrate Feeds to Livestock***.

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Body Condition Scoring and Early Weaning Reduce Winter Feed Costs

Recognizing and managing body condition in the fall will help stretch the forage supply and reduce winter feed costs. Body condition scoring (BCS) is a hands-on method of determining the amount of body fat a cow is carrying and is a useful tool in managing the feeding program.

"Cows that are too thin (BCS < 2.0) or too fat (BCS > 4.0) on a five point scale can be costly to keep," says Pat Ramsey, livestock business development specialist – beef with Alberta Agriculture and Rural Development. "Thin cows may have difficulty rebreeding; however, fat cows can be prone to calving problems and excessive feed costs, too. If fat cows are managed in such a way as to lose some body condition over winter, it will cost less to feed these animals than thin cows. Ideally, cows should be maintained in moderate to good body condition (BCS 2.5-3.0) through to calving for optimum rebreeding."

This year, many producers face waning pastures and limited winter feed supplies. Early weaning as a management practice reduces the nutrient requirement of cows by about a third since they are no longer lactating. Early weaning thereby stretches the forage supply and allows cows to gain weight and body condition going into winter, which in turn reduces winter feed costs. Early weaning is especially beneficial for first and second calving cows and older thin cows.

"An Alberta Beef Industry Development Fund supported research project evaluated three stages of weaning over a three-year period to determine the effect on cow and calf performance and on the economic bottom line," comments Ramsey. "A total of 250 spring calving cows (average date-of-birth - May 1) were either very early weaned (VEW - 72 days), early weaned (EW - 132 days – mid-September) or normal weaned (NW - 192 days late October to early November). Calves were backgrounded through various treatments and then all steers finished to slaughter weight and heifers sent to grass."

Results of this study showed that:

- early weaning will not increase morbidity and mortality rates in calves provided proper management and nutritional needs are met
- early weaned calves learn to eat palatable rations quickly; introduction to creep feeders and stock tanks before weaning will get calves settled quicker – stressful procedures such as castration and dehorning should be performed well ahead of early weaning
- management and feeding of very early weaned calves (less than 120 days old) is best achieved in a dry lot/confined feeding situation
- the younger the weaning age of the calf the higher the energy and protein levels will need to be in the ration – very young calves should get more grain than roughage because of smaller rumen capacity
- very early weaned calves, less than 120 days of age, backgrounded in a dry lot setting and fed to slaughter may have reduced carcass weights due to finishing sooner – there are however no adverse effects on carcass quality grades and/or yield
- calves weaned at 120 days or more, will have comparable finished weights, carcass qualities and yields to that of normal weaned calves (200 days)
- provided very early weaned heifers less than 120 days of age are not on an energy restricted diet (< 1.5 lbs /day) there will be no adverse effects on age of puberty and first estrus
- early weaning will reduce grazing pressure and/or grazing needs for the cow herd by at least 25 per cent
- early weaning will reduce the nutritional needs for protein and energy by 30 per cent or more and is an excellent management tool to better match cow requirements to what is provided by the forage resource
- early weaning significantly improved cow body weight and cow body condition going into the winter feeding period. These increases reduced the cost of winter feed from $50 to $100/head wintered (normal precipitation years)
- economic analysis that included differences in pasture expenses, winter feed costs and conception rates revealed that; very early weaning (< 120 days) did not generate as great a return as early weaning (> 120 days) or normal weaning (200 days). Early weaning had a slightly greater return than normal weaning during normal precipitation years. In dry years, early weaning would have an ever greater economic advantage over normal weaning

"Early weaning is a great tool for reducing cows' nutrient requirements and stretching pasture and feed resources," says Ramsey. "It is a simple way to add body condition to cows going into the winter months and to reduce the winter feed requirements. Provided the proper planning has been made there are little to no detrimental effects on the calf."

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Turning the Tide for Alberta Beekeepers

The ***2009 Bee Winterkill Survey*** confirmed the trouble Alberta beekeepers have had for the past three years with the failure of readily available pest control for varroa mites, presence of a new parasite species; *Nosema ceranae*, and unusual cold winter followed by cold spring. The average 30 per cent losses of their colonies each year prompted Alberta Agriculture and Rural Development with the support of the beekeeping industry to make a request in 2008 from the Pest Management Regulatory Agency (PMRA) for an emergency registration use of another miticide (Apivar) from France. When Apivar became available, 41 per cent of Alberta beekeepers switched their treatment to Apivar and were able to rescue the bees from highly destructive varroa mite populations.

"For nosema control, beekeepers continued to use fumagillin for treatment of honey bees," says Dr. Medhat Nasr, provincial apiculturist with Alberta Agriculture and Rural Development. "Although some of their attempts succeeded, the majority are still struggling. In our research, we found that most beekeepers seldom monitor for nosema prevalence in their honey bee colonies. Consequently, it is hard for them to determine if nosema is a problem."

Annual losses of 30 to 40 per cent of honey bee colonies are economically unsustainable for commercial beekeeping. However, survey results showed that 14 per cent of beekeepers were able to bring winterkill to previously known acceptable levels (15%). This drop in losses is encouraging. To continue these efforts, Alberta Agriculture has led the way in a partnership with the beekeeping commission, pollination companies and Alberta Crop Industry Development Fund (ACIDF), and commenced a new research project to improve honey bee health. Development and implementation of a sustainable pest management system is our goal.

The first research season is already underway. Some 1,200 honey bee samples were collected from 65 out of the 110 commercial operations in Alberta and analyzed for nosema and varroa. Results were sent to beekeepers so appropriate treatment actions could be taken as needed.

"Testing continues for developing new miticides and management practices," says Nasr. "Moreover, Apivar has been granted an emergency registration use for one additional year and is available for sale to be used by beekeepers. Beekeepers will now have the resources and benefits to help in protecting developing winter bees from any irreversible damage caused by varroa mites. Beekeepers must use Apivar according to the label and apply the prescribed application rates to attain acceptable treatment levels.

"Nosema is known as a silent killer of honey bees. Monitoring and treatment are required to ensure keeping healthy bees for winter. Beekeepers might consider medicating all winter feed with fumagillin. The proper recommended dose of fumagillin must be applied to ensure that bees have access to needed treatment through winter and early spring."

As for pathogen control, effective treatments are available. However, for developing healthy young winter bees, beekeepers need to evaluate availability of stored pollen. Pollen usually is the main source of protein required to produce bees. In many locations across Alberta where crops and honey production suffered from drought, beekeepers might have to feed pollen supplement to produce healthy winter bees. If beekeepers fail to feed colonies with pollen supplements, winter bees will not be produced. Consequently, the ability of honey bees to overwinter will be compromised. Currently, Global Patties Company has ensured that enough supply of pollen patties is on hand for use by beekeepers.

"Beekeepers have commented that for the past three years nothing seems to be going right for them," says Nasr. "They have struggled using alternative miticides that do poorly. They have struggled with new species of nosema invading their colonies. However, if they do nothing, the impact of pathogens will be much worse. But, this year bees are looking great and all needed medication is now available. These taken actions should help beekeepers to turn the tide."

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Feeding and Management Options in Dry Conditions

There are several things producers can do to when faced with low moisture conditions. First, it's important to establish critical rain dates after which time action will need to be taken. Such action might include reducing stocking rates, arranging for winter feeding, comparing costs of alternative feeds, moving cattle to the feed rather than the feed to the cattle, finding pasture in other parts of the province, and if necessary custom wintering cows elsewhere.

"Herd management options may include creep feeding, sending yearlings and cull heifers to the feedlot, weaning and pregnancy checking early, sending open, ornery and old cows to market as soon as possible, and selling bottom end of cows if feed costs will be too high over the winter," says Pat Ramsey, business development specialist – beef, with Alberta Agriculture and Rural Development. "Producers also need to use their contacts and the resources available to them such as local nutritionists, veterinarians, Ag-Info Centre at 310-FARM, Ropin' the Web at www.agriculture.alberta.ca, Foragebeef.ca and Alberta Agriculture and Rural Development specialists."

Some practical suggestions for producers:

- **Creep feeding calves** – under most pasture conditions, the average increase is weaning weight is 18 kg (40 lb) with a range from 10 to 27 kg (25 to 60 lb). Calves sucking good milking dams on good pasture will gain little from creep feeding, but if milk and/or pasture are poor, weaning weights can be substantially improved. When calves are on creep feed, they tend to substitute creep feed for forage in their diet. If a calf consumes 90 kg (200 lb) of creep feeding throughout the summer, a saving of about 68 kg (150 lb) of forage dry matter would result. This saving would represent an additional animal unit month of pasture for every four calves being creep fed. Creep feeding is beneficial as part of a preconditioning or early weaning program.
- **Adjust stocking rates** – every pasture has a set carrying capacity. If a pasture is overstocked, the resource will run out sooner. If dry conditions continue, move yearlings and cull heifers into the feedlot and consider early weaning.
- **Early weaning** – can be done when the calves are three to four months of age. A weaned cow requires 30 per cent less nutrients than a lactating cow. Benefits of early weaning include improved grazing distribution resulting in an extended grazing season, relieved drought stress on pastures, and improved cow body condition which leads to improved fertility at rebreeding.
- **Monitor body condition score** (1-very thin to 5-very fat) – a practical application of body condition scoring (BCS) is to watch for thin cows (BCS < 2.0). "When producers find low condition scoring animals they should look for reasons such as a lack of feed, excessive competition, parasites and disease," says Ramsey. "Thin cows (BCS <1.5) are more susceptible to problems such as increased dystocia (calving problems), increased calf death loss, delayed breeding or open cows, and lower weaned calf weights."
- **Feed testing/ration balancing** – increase production efficiency and profitability. Feed analysis in conjunction with ration balancing and body condition scoring can ensure an adequate supplementation program that reduces over or under feeding while minimizing winter feed costs.
- **Nitrates** – accumulate in forages under frost, cold, cloudy weather or drought conditions can result in nitrate poisoning. When high nitrate levels exist ($NO3 > 1.0\%$) it is wise to dilute the ration by including some feeds which are free of nitrates.
- **Starting calves on feed** – the goal is to feed in such a way as to overcome stress and rumen malfunction. Stress results in energy, protein, mineral (Cu, Fe, K, Se, Zn) and vitamin deficiencies (A, C, E), which lower the immune response and results in poor performance. Receiving diets should be palatable, bulky, high in nutrient content, similar to final ration, contain an ionophore (a chemical compound that acts as a mobile ion carrier), coarsely rolled, should contain more than 12 per cent crude protein (CP) with some by-pass protein.

"Feed your calves with the cow herd for a few days before weaning," says Ramsey. "Assemble all the calves going into a pen within three to four days and avoid mixing cattle. Morbidity and mortality are both lower when the receiving diets contain only good quality grass hay. Stimulate water intake by jamming the float on waterers. Feed in a bunk or along a fence line twice daily and watch for cattle not eating that may be sick and need treating. And don't forget to consult your veterinarian regarding vaccinations, pest control and antibiotics."

- **Step-up rations** – start with a ratio of 30 per cent grain to 70 per cent hay. Increase the amount of grain fed by 10 per cent every second day. Make changes in the evening when cattle are full. Introduce silage slowly after a few days or after disease problems have subsided.
- **Alternative feeds** – when considering alternative feeds, it is good to compare them on a cost per mega-calorie of digestible energy or on a cost per pound of crude protein basis. This can be done by dividing the feed cost per pound by its MCal DE/lb or by its per cent CP.

"Think about how you can influence the quality of feeds and how you might use cheaper alternative feeds," says Ramsey. "Work with your nutritionist to use commercial feeds to supplement home-grown feeds. Invest in needed supplements, but buy the right products and use them correctly. Feed test, ration balance and monitor your feeding program by body condition scoring cows."

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Alberta Hosting Canadian Farm Writers' National Conference

Dr. Spencer Proctor and Matthew Buck are just two of many featured speakers at this year's Canadian Farm Writers' Federation (CFWF) annual conference that is being held in Edmonton on September 10 to 12, 2009.

Proctor, a leading University of Alberta scientist will discuss capitalizing on Canada's science-powered opportunities. Buck, assistant director of the Food Alliance in Portland, Oregon, will outline this innovative U.S. program that is moving into Canada, and discuss the direct implications it has on marketing and production policy in Canada's agriculture and food industry.

"The conference theme this year is ***Shaping the Future Marketplace: The Opportunity Hunters***," says Janet Kanters, CFWF conference co-chair. "We wanted to feature Alberta producers, businesses and other leading authorities on how they are facing change head-on, and finding opportunity within that change."

Also featured during the meeting will be David Seymour, journalist and public policy spokesperson from the Frontier Centre for Public Policy. His discussion will include why the media's world is changing and what will be needed to survive.

Delegates to this year's conference will spend September 10 on tours in and around the Edmonton area. Tour one – *Pioneers of Yesterday and Today* – features family-oriented operations that are truly committed to agriculture, such as Highland Feeders and the Ukrainian Cultural Heritage Village. Tour two – *A Fork in the Road* – includes stops at Sunworks Organic Farm and the Viking Hutterite Colony. And tour three – *Alberta Spuds and Suds* – features Alberta entrepreneurship at its finest, with visits to the Little Potato Company, the Multicultural Heritage Centre, Inspired Market Gardens and Alley Kat Brewing Company.

The CFWF 2009 annual conference concludes on September 12 with an awards banquet featuring the best in Canadian agricultural journalism.

More information on the conference is available at: www.afwa.ca

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Agri-News Briefs

Eating Patterns in Canada

Canadians continue trying to find the perfect combination of taste, convenience and nutrition, with nutrition gaining in importance. Key findings from the ***2008 NPD Eating Patterns in Canada Report*** shed some light on general food trends in Canada and how the economic situation is affecting Canadians. NPD Group found that Canadian consumers are:

- cooking more meals at home
- planning meals in advance
- eating more efficiently (i.e. eating foods at non traditional time such as eating cold cereal for snacks and yogurt for dessert)
- carrying lunch from home more often
- eating out less in restaurants and when eating out choosing less expensive restaurants
- replacing eating out at restaurants with more home meal replacements
- trading down to less costly foods (e.g. more private label, less expensive cuts of meat)
- using coupons more

To read more about the report, visit Alberta Agriculture and Rural Development's website at www.agriculture.alberta.ca and search *Consumer Corner - Canadian Food Trends 2009*

Alberta Sheep Symposium

The 2009 Alberta Sheep Symposium, ***Innovation - A Shepherd's Toolkit*** is being held in Leduc on October 23 to 25, 2009. The Alberta Sheep Symposium has a long history of providing useful and practical ideas and information to producers and other stakeholders. It is held every second year and is organized by the Alberta Sheep Breeders' Association and the Alberta Lamb Producers with assistance from Alberta Agriculture and Rural Development. The Symposium includes many great presentations, a trade show, banquet and plenty of opportunities for networking. Registration forms and additional information are available online at http://albertasheep.ca/2009_alberta_sheep_symposium.htm
Registration made payable to Alberta Sheep Breeders' Association can be mailed to:

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