Farm Report

Inside this issue:

WHAT'S HAPPENING ON THE FARM

As "What's Happening on the Farm" makes its triumphant return to the Farm Report for 2009, the Dairy Barn's staff extends its warmest, albeit belated, Happy New Year wishes to all of our domestic readers and kinga shinnen to those in Japan. We have already been faced with several management challenges thus far in 2009. Perhaps the most pressing issue is our co-op's contemplation of no longer accepting BST milk. Ration alterations and a plan for weaning a herd off BST will be crucial to insuring a smooth transition to a BST-free dairy operation. Although no action has been taken, potential changes include increasing BMR corn silage levels in the TMR and not enrolling any new cows on the BST program. Any impending changes to current protocols need to be carefully planned and implemented in order to maximize milk production during the transition, especially in a time when every pound of production is important.

Speaking of transitions, although the new dry cow barn still has a few kinks to work out, its construction has certainly proven beneficial. Cows are very comfortable in the sand-bedded far-dry pen and the sawdust/straw mixture bedded pack. The effects can be seen in the milking barn, as fresh cows and heifers are milking very well with few health issues from the start of their lactation. After an influx of heifer calves and my proposed hypothesis that the new barn would result in an inordinate ratio of heifer calves, I'm sad to report my theory has been officially debunked. We are still oscillating closely to nature's intended 50/50 split between the sexes. Those pesky X and (especially) Y chromosomes have somehow managed to outsmart me…

An unforeseen benefit of the dry cow barn construction regards management of bull calves and the prevention of infectious disease introduction to heifer calves. Because we now have some extra barn space, bull calves are housed away from the heifer calves in the old dry cow barn approximately two days post-calving, where they remain for several days until they are sold. When they are finally picked up and brought to sale barns, the transporter doesn't come in contact with the newborn heifer calves or their pen, helping to improve on-farm biosecurity. Therefore, risk of transmitting infectious diseases such as Johne's (Mycobacterium avium subspecies paratuberculosis) and scours (Escherichia coli, Salmonella sp., Rotavirus, Cryptosporidium parvum, etc.) via manure contamination from the outside environment is reduced. Providing a healthy start to calves' lives should pay off in the long term by playing a role in the development of high productivity. While this is only a single step in our calf health program, we believe it's an important one.

—Glenn Palmer, palmer@whminer.com

FROM THE PRESIDENT'S DESK – DROPPING SHOES AND SKINNING CATS

This past week we received a letter from our milk cooperative indicating that the days for them to accept milk from rbST treated herds are likely numbered. For the moment, our specific milk plant will continue to accept this milk, but we all feel that we are essentially waiting for the "other shoe to drop." And, I was told by a wise person recently that once one shoe drops, the other will drop quickly as well because no one likes to hop around on one foot. So, we have begun the process of devising a management plan that will hopefully allow us to maintain high levels of production without rbST as part of our tool kit. Interestingly, this past week I also received an email question from a dairy farmer with essentially the same question. The discussions we've been having here at Miner Institute really boil down to the old adage that there are several ways to skin a cat. In other words, there are numerous factors and management approaches that will lead to productive and profitable dairy herds, and rbST is just one of them.

We have all heard many times about the numerous factors that may influence performance of the herd. My goal here is not to review them all. But, we do need to focus on some key management factors if we hope to maintain a highly productive dairy herd. First and foremost, we need to redouble our efforts at harvesting high quality forage. Not exactly a newsflash, but it will be even more important to ensure that we offer our herd a TMR that contains adequate digestible fiber in addition to the more rapidly fermented nonfiber carbohydrates. To address this issue, we have already decided to plant more acres of BMR corn in 2009 since we can afford to sacrifice some yield to attain the assured increase in fiber digestibility. And, we know that our herd responds well to BMR corn silage from our past feeding experience.

We have milked our herd 3x/day for several years, but we have ignored any potential benefits to be gained from manipulation of photoperiod or even light intensity. We will focus more on these two strategies in 2009. In particular, we wonder if we are losing potential productivity by not meeting the cow's requirements for light intensity. Recently, our undergraduate students measured the light intensity throughout our barns and found that in several areas, the intensity was well below the recommended level. Much of this is due to the fact that we have been shutting off lights to be more energy efficient. What is the trade-off between saving energy and potentially losing milk production? It's a question we haven't asked ourselves until now.

Of course, cow comfort and all that entails remains important. I have harped on the importance of cow comfort, and the benefits to cow health and performance are well known. But, we still need to assess every aspect of our operation and make certain that we are providing the most comfortable environment for our herd. In particular, we have made several changes in our stall system in 2008 – how has this affected the cow's resting behavior?

The list of management factors to evaluate is long, but we simply (or perhaps not so simply) need to sharpen up some areas of our herd management that were perhaps neglected or underemphasized in the past. The bottom line: just because we stop using rbST does not mean we have to settle for mediocre herd performance.

—Rick Grant, grant@whminer.com

CROP RESEARCH NOTES

- Drought-resistant corn hybrids are just around the corner, with Monsanto's first generation drought-resistant corn in the final stage of development. The appropriate paperwork has been submitted to FDA for clearance, with the first commercial seed sales expected in two to three years. Where there's drought stress the hybrids are expected to increase grain yields by 6 to 10%, and early returns are beating that by a bit. This doesn't mean that you'll be able to grow 200-bushel corn in a dust bowl, but where corn is already reasonably well adapted the drought resistance trait will make it more productive under limited moisture conditions.
- Weed scientists at the University of Guelph in Ontario are learning that corn responds to weed pressure in ways not previously understood. When corn seedlings are shaded by weeds they sense the competition and respond by growing taller, reducing root growth and changing leaf orientation. As long as growing conditions remain good these responses don't reduce yield, but if the crop is stressed the results of this early competition can cause problems. That's one reason why in post-emergence herbicide trials there's often a substantial yield decline when the weeds are allowed to grow only an inch or so taller than recommended. The Ontario researchers found that under early-season weed competition corn plants grew 17% taller but had a 15% smaller root system. In weed-free corn almost all the leaves grow perpendicular to the row, which is desirable because these plants intercept more sunlight. But under weedy conditions, corn leaves are less likely to grow in this orientation.

VET'S CORNER: NEW THOUGHTS ABOUT VACCINOLOGY

At a recent Vet to Vet meeting, Dr. Chris Chase from South Dakota State University discussed several new thoughts about bovine vaccinology that affect route and timing of administration.

Under the skin route (SubQ) of administration gives the best response to vaccines because the dendritic cells are located there. When introducing a specific antigen by vaccination, the dendritic cells are the KEYSTONE because they contain the receptor that recognizes all pathogens and antigens. After antigen is injected SubQ, the dendritic cell takes the antigen to the lymph node, where a complex chain of events ensues which produces an immune response or memory to respond to a future exposure (anamnestic response).

Poor response to a vaccine can occur if the immune system is already responding to stress of chronic disease or parasites. If the immune system is actively fighting off parasites, the counter pathway which produces memory will be overcome and there will be poor anamnestic response. The new vaccines are working best in the best-managed systems. They are not a "silver bullet" that overcomes poor sanitation, nutrition, and/or ventilation and/or a heavy parasite load.

Immunity of the newborn begins at 150 days after conception, but is suppressed in the uterus and gradually improves over the first weeks after birth. If the newborn immune system was not suppressed, the dam's system could reject the fetus as a foreign body and abort.

New research is finding the time when newborn calves will response to vaccines. Generally, there is a good cell mediated response to intranasal and SubQ vaccination with virals such as IBR and BVD in the first three days of life. BRSV maternal interference may last 17-35 days, so it may be necessary to booster after three weeks for BRSV. Bacterial antigens such as Mannheimia, Pasteurella, and Clostridials tend to respond later so these vaccines should wait until 3-5 weeks old.

The best timing for booster vaccinations is to wait at least 20 days because apostisis (culling of poor T-cells) has had time to be completed. Best anamnestic response will be achieved by stimulating the best T-cells, so wait at least three weeks between boosters.

—Kent E Henderson, DVM, Northwest Veterinary Associates, Inc.
hugamoo@comcast.net

VIRGINIA HAM

Greetings from Virginia, home of ham biscuits, hush puppies, and full-immersion Southern Baptists. Ham biscuits and hush puppies are A-OK; so are Southern Baptists except for the few that, as the late Texas political columnist Molly Ivins once noted, must have been held under water a mite too long. (Or not long enough.) The Bride and I are doing quite well down here, in the initial stages of retirement: SS, CDs, IRAs, AARP…

I just finished a busy January, with speaking engagements in a different state every week including the dubious privilege of seeing the inside of no less than a dozen different airports. The Bride says that rumors of my "retirement" are untrue. Air travel is down, but then why is just about every decent-size airport in the process of expanding? None of the trips was south of Virginia so I got to see all I wanted of snow and frigid weather, including -24F two mornings at the Institute. It was 75F here on Christmas day and we spent the afternoon in the yard with the grandkids. (Sorry about that.)

Anyone who thinks air travel is fun doesn't do much of it. My air adventures included one aborted take-off and two aborted landings, all on the same flight. Therefore, on the return flight it wasn't very encouraging for the flight attendant to discuss what we should do in the event of a water landing, a neat trick in itself on a flight from Cincinnati to Richmond. With a water landing we should use our seat cushions as flotation devices. He did say, however, that after we got done floating we could keep the seat cushions, compliments of Delta Airlines. I thought that was a nice touch at the time, but that was a few days before the U.S. Airways flight splashed down in the Hudson River.

—Ev Thomas, thomas@whminer.com

TASK VARIETY HELPS MAKE HAPPIER WORKERS

In a recent study, migrant farm workers in the United Kingdom were surveyed on their health and well-being. The survey consisted of four standard health questionnaires that measured health, quality of life, physical and mental health attributes, and depression and happiness.

The surveys were distributed to the farm owners on small farms, and the human resources departments on the larger farms, for distribution to their field and packing employees. 605 completed surveys were returned from 8 vegetable horticultural farms, which included 5 conventional farms, 1 organic, and 2 with mixed conventional and organic practices. Of the respondents, 7% were UK nationals and 93% were born outside the UK. Only 3.5% of the respondents were older than 34; the rest were within the 18-34 age group.

There were no significant differences between how conventional and organic farm workers viewed their health, quality of life, and physical and mental health. However, the last of the four surveys found that workers on organic farms were happier than those on the conventional farms. This significant difference in happiness was attributed to the diversity of tasks (e.g. harvesting, weeding, packing, etc.) typically performed by farm workers on organic compared to conventional farms. The percentage of workers who typically performed two or more tasks per day was substantially greater on organic farms compared to conventional farms (87% vs. 37%).

Looking further into the issue of task diversity, horticultural workers, regardless of conventional or organic systems, are often isolated, work long days, and their personal life is often closely linked with work life (e.g. on-farm dormitory housing). Because the work and social time are often so enmeshed, a variety of tasks may be even more critical for the migrant worker than in other workplaces. This work suggests that greater job satisfaction on dairy farms may be attainable through the cross-training of employees on multiple tasks.

—Rachel Butzler, butzler@whminer.com

Reference: Cross, P., R.T.Edwards, B. Hounsome, and G. Edward-Jones. 2008. Comparative assessment of migrant farm worker health in conventional and organic horticultural systems in the United Kingdom. Science of the Total Environment 391:55-65.

NEMATODE SEED TREATMENT ON THE WAY TO MARKET

The first seed corn treatment for nematodes will be commercially available next year. It will be sold by Syngenta Seed Care, but the press release indicated that it will be "widely distributed in cooperation with seed companies" in field-scale test plantings in 2009. The nematicide Avicta would be added to the standard Cruiser + fungicide seed treatment. This would appear to be a very timely release, since with the increasing use of genetic traits and/or seed treatments for corn insects, nematode populations have been increasing. I did some testing for nematodes in Northeastern N.Y. corn fields many years ago, and we had them in numbers considered economically damaging. We had the most common nematode pest of field crops, the root lesion nematode, but also found a very high number of dagger nematodes in one field.

But if it ain't broke don't fix it, and we don't really know how much economic damage nematodes are doing to corn fields in the Northeastern U.S. Even though at least one soil insecticide is labeled as a nematicide, one university specialist said that he didn't think it was very effective. Even with the extensive soil insecticide strip tests we ran years ago it was almost impossible to determine how much damage nematodes were doing; if the insecticide-nematicide increased yields vs. the untreated plot, was it due to nematode control or insect control? And comparing a soil insecticide to one that claimed both insect and nematode control, if the latter resulted in increased yields, was that due to nematode control or simply better control of soil insects? Thus the difficulty of doing field research where more than one pest may be present. But the new seed treatment should allow us to compare Cruiser vs. Cruiser + Avicta in field trials. ("Us" in this case being Cornell University and other Land Grant Colleges in corn-growing states, to the extent that shrinking research budgets allow.)

—E.T.

FEEDING PRACTICES ON U.S. DAIRY OPERATIONS

Kurt Cotanch and I are busy this spring semester co-teaching the dairy nutrition portion of the Advanced Dairy Management curriculum, which is part of the Farm and Agriculture Resource Management Stewards (FARMS 2 + 2) program. Over the next several weeks we will make sure the students have a good understanding of the biological concepts associated with forage quality and dairy nutrition and current trends in feeding dairy cows. While preparing for a class about common feedstuffs fed to dairy cows, I came across a great overview of current feeding practices on U.S. dairy operations in the USDA's National Animal Health Monitoring System report "Dairy 2007".

As expected, dairy operations use a variety of feedstuffs based on nutrient profile, cost, and availability. Alfalfa hay/haylage, corn silage, corn, and whole soybeans or soybean meal are fed to cows on more than 80% of operations (Table 1). The feedstuffs are typically fed as a total mixed ration (TMR) on medium (100 to 499 cows; 85%) and large (≥ 500 cows; 94%) operations, but not typically as TMR on small (< 100 cows; 38%) operations. A TMR provides a consistent blend of feedstuffs to the cow and the rumen microbes compared with component feeding.

The majority of operations (60%) use either a feed company nutritionist (42%) or independent nutritionist (18%) for formulating diets fed to cows. Precision feed management is recommended by many nutritionists and university researchers. However, diets are formulated for either individual or groups of cows based on production/stage of lactation on only 33% of small operations, 34% of medium operations, and 71% of large operations. The majority of operations (57%; 47% small, 75% medium, 96% large operations) split dry cows into a far-off and close-up groups.

Table 1. Percentage of dairy operations by type of feedstuff fed to lactating and dry cows.

	Lactating Cows	Dry Cows
Feedstuff	% of Operations	
Alfalfa hay/haylage	92	76
Corn silage	88	80
Clover as forage or pasture	23	24
Corn	94	67
Barley	14	9
Wheat	7	5
Oats	18	20
Whole soybeans or soybean meal	84	46
Fat/tallow	33	8
Whole cottonseed	33	8
Cottonseed meal or hulls	9	3
Bakery byproducts	7	2
Brewery byproducts	37	20
Blood meal	13	3
Porcine meat and bone meal	8	1
Fish meal	4	1

Water availability and quality are important to cow health and productivity. The most common water source for all operations is a water tank or trough (93%). Unfortunately, water quality may be an issue on most operations since only about 1 in 3 operations clean the water source 13 or more times per year! The water source is cleaned less than 4 times per year on 61% of operations that use a single water cup and 42% of operations that use a water tank or trough.

—Heather Dann, dann@whminer.com

MAN'S BEST FRIEND

- A pet shop owner in Sao Paulo, Brazil built a "Pet Love Motel" over his shop, where owners can bring their dogs for their, uh, enjoyment. The room includes satin sheets, romantic music, and "special" DVDs. (Hmmm…are they rated "D" for dog?) Cost for a room is $41 for two hours.
- A man in Nepal married a dog, following a local custom that if an elderly man regrows teeth he must take a dog to be his "lawfully wedded wife". He reportedly believed that this would avoid great misfortune. He died several days later.
- Yet another hunter has been shot by his dog, this time in Oregon. The dog jumped into his master's boat, shooting the guy in the butt with a 12-gauge shotgun. The man claims it was an accident and that he's not upset with Drake, his 3-year old Labrador retriever. Man's best friend?
- Former French president Jacques Chirac was rushed to the hospital after being bitten "quite badly," according to his wife, by his poodle, which was being treated for depression. (The poodle, not Chirac.) He's expected to make a full recovery. (Chirac, not the poodle, though the poodle is still depressed.) It's not known where on his body Chirac was bitten. Well-wishers sent letters of support and concern; mostly for Chirac but a few for the dog.

REGIONALIZING RESEARCH

We take a proprietary interest in Brown Root Rot (BRR) of alfalfa since it was first found in the Northeastern U.S. in 2003 in a Miner Institute alfalfa field. Since then it's been discovered in most alfalfa fields examined in Northern N.Y. as well as many other places in the Northeast. Brown root rot, caused by the pathogen P. sclerotioides, was first identified as a problem in Wyoming many years ago. Since then, research has resulted in alfalfa varieties grown in Wyoming with at least partial resistance to BRR. Since this is the case, why spend increasingly limited research dollars to do BRR research in N.Y.; why not just use the alfalfa varieties planted in Wyoming? In the first place, there's no guarantee that alfalfa varieties that do well in Wyoming will be competitive in the Northeast, even without the presence of BRR. But more importantly, Cornell plant pathologist Gary Bergstrom and graduate student Michael Wunsch recently discovered that the fungus causing BRR in Northern N.Y. isn't a single pathogen, but occurs as several biotypes that are different than the Wyoming one. At least four P. sclerotioides biotypes exist in N.Y. "Biotype 1" is the primary BRR pathogen in Wyoming, and also is present in N.Y. But when an alfalfa variety resistant to Biotype 1 was planted in one of the Northern N.Y. trials, it was found to be susceptible to BRR.

So it's back to the drawing board for Cornell researchers, and 2009 research will attempt to clarify biotype x variety interactions that will be essential in identifying varieties (hopefully including some currently marketed ones) that are resistant to New York's version of BRR. That's why crop research must be localized, and why our tax dollars spent to support the Northern N.Y. Agricultural Development Program is money well spent. Since BRR was identified in several Miner Institute alfalfa fields, some of this research has been taking place on Institute fields. Yield-based alfalfa variety trials are needed that are inoculated with all four P. sclerotioides biotypes, and we're willing to let our fields be used as guinea pigs, so to speak. Trials established at the Cornell Baker Farm in Willsboro and at Miner Institute include 11 alfalfa varieties: 9 that are commercially available in N.Y. plus both susceptible and resistant check varieties. Cornell now has two years of data, but needs at least one more year of data to confirm preliminary conclusions.

Alfalfa affected with brown root rot collected from the trial in Willsboro. Note that the lesions completely girdled the crowns of the two plants on the right, killing the plant.

Bergstrom and Wunsch also discovered that perennial forage grasses can serve as alternate hosts for P. sclerotioides, acting as reservoirs for BRR even when alfalfa isn't grown in the field. Fortunately, forage grasses don't appear to be affected by the pathogen. All forage grass species inoculated with the BRR pathogen at Miner Institute and Willsboro were moderately susceptible, but none were killed by it.

—E.T.

HAY CROP TIPS

I recently had the pleasure of being on the same program as Dan Undersander, agronomist at the University of Wisconsin. Dan really knows his stuff when it comes to hay crops. Here are a few of his comments that I found useful:

- Flail conditioners cause 3 to 4% more leaf loss than roller conditioners.
- Wheel rakes pick up more debris from the soil surface than do rotary rakes, and as a result increase ash concentrations.
- Make as big a windrow as your chopper can handle. Chopping 2 tons of DM per acre takes only 10% more horsepower than chopping 1 ton; 90% of the energy is needed just to run the chopper.
- Is your roller conditioner doing its job? To find out, roll up a small sheet of tinfoil into a tube about as large as a pencil. Run the tinfoil through the conditioner with the power turned off. If the conditioner is properly adjusted it will crush or crimp the tinfoil to the thickness of a 25 cent piece.

—E.T.

NOTES FROM JAPAN AND THE ZENNOH RESEARCH FARM

I had the pleasure of traveling with Rick to Japan last month to deliver our 2008 research reports to Zennoh. The Zennoh Corporation sponsors a number of research projects on a yearly basis and we present the findings to their research and corporate staff. This was my second trip to Japan. We visited their new dairy and beef research facility of which I would like to share some pictures. The climate on the main island is very temperate, much like that of the Mid-Atlantic States. It was 40-50°F where we were outside of Tokyo, unlike the single digit temps back home. The dairy facility is designed more for hot than cold weather. Zennoh recently built a 120-cow freestall with bedded pack. The pack was quite deep and well groomed. Note how clean and comfortable the cows look in the freshly aerated pack. The feed manger was interesting as it was lined with pink marble from China. Seems like quite an extravagance for cows, but was very smooth and clean, and not too expensive being relatively local on the global scale. The dairy ration was chopped alfalfa and timothy hays with steam flaked corn, soy and almond hulls as the major feed ingredients. Their steam flaked corn is really steam flaked compared to the steam rolled/crimped corn we see in the northeast US. The density of their steam flaked corn I estimated at about 26 lbs/bu compared to our steam rolled corn of 34-42 lbs/bu. This less dense steam flaked corn certainly had a greater degree of starch gelatinization which results in an increased rate of ruminal fermentation. The chopped hay looked very much like our "Haybuster-ed" hay, nothing longer than 3-4 inches, and given such a dry TMR, little chance of sorting of the concentrate ingredients from the short dry hay.

The Chinese marble manger sounded like an extravagance but wasn't actually premium-priced.

Rick and I were able to watch an embryo flush of Zennoh's Japanese Black Beef cows. We had a chance to sample some later on and it was well worth it. Our hosts mentioned that consumption of high-end beef is down in Japan given the world economic situation. Rick and I agreed, some things you just should not cut back on, good beef is one.

A great trip, excellent hosts, well run airline in ANA (All Nippon Airways), so well run that I have no funny stories of stewardesses waking us up by waving the "mid-night BBQ snack" under our noses as has happened previously on another unnamed US airline.

— Kurt Cotanch, cotanch@whminer.com

The bedded pack in Zen-Noh's recently completed 120-cow freestall barn was deep and well-maintained, and the cows certainly appeared comfortable (left). The steam flaked corn in Japan had a much lower density than the typical U.S. feedstuff (right).

CAN WELFARE ASSESSMENTS HAVE A SCIENTIFIC BASIS?

Current trends, such as the National Dairy Well-Being Initiative (www.dairywellbeing.org) and the growing number of consumers who factor ethical considerations into production selection, affecting the dairy industry, suggest that welfare assessment may become a more routine aspect of management. Despite the growing interest in the welfare of agricultural animals, there are some rather glaring gaps in our understanding of the issues. The critical lack of a validated methodology for assessing welfare was reviewed in a paper published in the Australian Journal of Experimental Agriculture by Lindsay Matthews.

With the wide range of stakeholders in farm animal welfare, only a method that is rooted in science has a chance at being both consistently implemented and likely to satisfy the diversity of opinions inherent with this topic. This is one of the critical issues that was addressed within this review paper. The author identifies 4 topics that require a broader knowledge to move animal welfare assessments forward:

Association between animal welfare and health and productivity. This is a field of research that has resulted in highly varied interpretation of the available data. Often the variation is a product of the response variables used to assess a specific production system. For example, two reviews on the appropriateness of crate housing reached conflicting conclusions. One focused on immune function, disease incidents, growth rate, and injury, while the other focused on the frequency that abnormal behaviors are observed and the lack of ability to engage in natural behaviors.

Ability of livestock to have both positive and negative mental states. The capacity of animals to experience pain has been widely demonstrated. For this reason, 4 of the 5 Freedoms of Animal Welfare (freedom from fear and distress; pain, injury, or disease; discomfort; and hunger and thirst (www.fawc.org.uk/freedoms.htm)) are focused on the avoidance of detrimental conditions. The concept of a positive mental state is relatively new with the related scientific disciplines. For the most part, it is often evaluated through an animal's willingness to work for a specific reward or the cost that they will pay to obtain access to a resource. An example of this approach is research demonstrating the willingness of dairy cows to forgo feeding or socializing to maintain lying time.
Incorporation of data into one overall assessment. Unfortunately, there is no standard for how to combine the possible means of assessing welfare into one overall value. This aspect is one of the greatest limitations on animal welfare assessments and will require continued research that reduces the influences of human judgments.

Practical approaches. In order for assessment programs to gain the most wide spread acceptance, the measurements included must be related to both productivity and longevity. However, there must also be consideration of pain, access to key resources (i.e. lying space for dairy cows), and the occurrence of positive social interactions (i.e. allogrooming in dairy cows).

Although at this time there is insufficient data to develop welfare assessment that address these considerations, the challenges in their development don't seem insurmountable. The continued expansion of our knowledge of the behavior of dairy cows should eventually led to the development of a scientifically sound welfare auditing system that meets the expectations of the majority of the relevant stakeholders.

—Peter Krawczel, krawczel@whminer.com

Reference: Matthews, L. 2008. Methodologies by which to study and evaluate welfare issues facing livestock systems of production. Australian J. of Exp. Ag. 48:1014-1021.

WHAT GOES AROUND, COMES AROUND (Editorial comment)

In 2005 livestock farmers got wind (pardon the pun) of an Environmental Protection Agency regulation called "Air Emissions Reporting". According to long-standing federal law, facilities of any kind emitting hazardous chemicals such as ammonia and hydrogen sulfide are required to report these emissions if they exceed certain amounts in a 24-hour period. There was a slight problem in that nobody knew how much ammonia and hydrogen sulfide livestock operations emitted. So EPA and the dairy industry worked together to begin collecting air emissions data on several dairy farms in various parts of the U.S., including one in N.Y. EPA also worked with poultry and swine producers to set up

similar research. In the meantime, some in-the-know officials and educators were advising farmers to evaluate something called the "Air Emissions Consent Agreement" that would provide some protection from punitive action by EPA (and perhaps neighbors) until the studies were completed and analyzed. Since nobody knew the extent of emissions from livestock it was hard to imagine on what the fine would be based, but when dealing with the Feds it pays to be careful. Part of this "agreement" was paying a modest penalty, the idea of which (rather than the amount) bothered many farmers. But the Northeast Dairy Producers Association (NEDPA), working closely with its attorney and Pro Dairy, was the first dairy producer organization nationally to encourage dairy farmers to pay the penalty and sign the agreement. N.Y. had the highest participation of any state in the U.S., led of course, by dairy farms. Miner Institute was one of 162 N.Y. dairy farms signing the agreement. I held my nose when signing the requisition for the check we sent to EPA since it essentially was a "guilty plea" for a sin we didn't even know if we were committing. This is like getting stopped for speeding and paying a fine when there's no posted speed limit and even the police don't know what the speed limit is.

As of January 20th 2009, all livestock farms except Large CAFOs are exempt from reporting manure-related emissions of ammonia and hydrogen sulfide. However, large CAFOs that signed the Air Emissions Consent Agreement are NOT required to report emissions at this time. The owners/operators of large CAFOs in N.Y. must have listened to NEDPA and Pro Dairy since a high percentage of them signed the agreement and are in pretty good shape. The U.S. beef industry didn't participate in the air emissions consent agreement but might now be wishing it did, as much scrambling must have been necessary to comply. If you assume that the air emissions self-reporting form and the reporting process are simple and straightforward, you don't know much about our Federal government. We're told that some regional EPA offices weren't ready for the January 20th deadline, telling farmers who called to report emissions that they didn't need to report.

The operators of large CAFOs who signed the air consent agreement and are now exempt (at least for now) should give a big thanks to NEDPA and Pro Dairy, but also to Karl Czymmek, Senior Extension Associate in the Department of Animal Science at Cornell University. Karl has a solid background in agriculture including working as a crop consultant, and has milked his share of cows. He got a law degree because he thought that fighting nuisance and other citizen lawsuits was how he could best help agriculture. But after seeing farmers "win" some of these cases but in the process spending hundreds of thousands of dollars in legal fees, he decided to do what he could to prevent such lawsuits in the first place. If you're the owner or operator one of the large CAFOs who followed his advice and signed the air consent agreement, next time you see him you might say thanks. He's earned it.

—E.T.

TO B(st) OR NOT TO B(st)

Some possibly heretical comments on Bst, BMR, and corn genetics.

With apologies to Will Shakespeare, "To B(st) or not to B (st), that is the question" fewer North Country dairy farmers will be asking, since last month AgriMark announced that it will phase out accepting milk produced with rBst. This resulted in my receiving an email from the current Dairy Think Tank at Miner Institute, with the request that we switch much of our dual-purpose seed corn order to BMR. We ship to AgriMark and use Posilac. Of course, like many farmers we've already ordered most of our 2009 seed corn, and planned to plant only one-third to BMR, but they say plans are made to be broken.

Since the Institute won't be able to use rBst much longer, to help maintain milk production we could feed BMR silage to a greater portion of the herd, and at a higher rate of inclusion in the diet. Part of me doesn't mourn the loss of rBst since it's been a lightening rod for many consumer advocates. (Personally I'm all for hormones; at my age I can use all the help I can get.) However, if public pressure can result in the loss of a proven technology that has NEVER been found to cause any health problems in consumers, what's next on the hit list? Prostaglandin? Oxytocin? Mastitis treatments? 'Tis a slippery slope...

The decision on whether or not to feed more BMR corn, however, will be based on economics: Will it result in increased income over feed cost—with feed cost including the cost of producing BMR corn silage, of course? Here are the pluses and minuses we're dealing with as we make this decision:

BMR seed costs more than other seed corn, but the percentage difference isn't nearly what it used to be. BMR seed costs haven't decreased (about $280 per unit before discounts), but the price of most other seed corn, much of it loaded with genetic traits, has increased considerably. So, BMR no longer costs more than twice what "normal" seed corn does; in many cases it's about one-third more.

Newer BMR hybrids are supposedly narrowing the yield gap, which is probably true but there's still a difference. In the 2008 Cornell University corn silage hybrid trials, several BMR entries yielded about 13% less yield than the overall trial yields. Proponents of BMR say that the yield difference can be narrowed to 5-10% by properly positioning BMR—avoiding low fertility, droughty soils. However, much of the land we'd shift from dual-purpose to BMR has low fertility.

There are few other hybrid options if we want to significantly increase milk-producing potential: Only five percentage points or so difference in NDF digestibility (57% vs. 52%, for instance) between most non-BMR hybrids in the 2008 Cornell trials, while the BMR entries were at least 10 points higher in digestibility. And a couple of non-BMR hybrids bred for higher fiber digestibility didn't perform particularly well in the trials.

It appears that next year (2010 planting season) at least three companies will be selling BMR seed corn in the Northeastern U.S. Smaller differences between BMR and non-BMR corn in seed cost (real) and yield (perhaps) would mean that BMR corn silage could be economically fed to more cows (or groups of cows) on a farm. Dairy nutritionists have been saying for years that it's not economical to feed BMR to cows milking less than 60 lbs or so, based on the significantly higher production cost per ton of BMR silage. But as the cost per ton difference narrows—and there are varying opinions on the yield competitiveness of even the newest BMR hybrids—so might these guidelines.

—E.T.

SEEDING ALFALFA-GRASS

Over 80% of alfalfa in New York (and probably a similar percentage in New England) is seeded with a forage grass, and for good reason: Most soils in the region are better suited to alfalfa-grass. But one situation where a forage grass might hurt more than help is a field with low soil test potassium (STK). That's because grasses are much more aggressive users of potassium, and can thrive at low STK levels. In fields with borderline STK, newly-seeded alfalfa often gets off to a decent start but as the grass becomes established it starts to compete with the alfalfa for the limited supply of potassium. The field might go into the first winter as an alfalfa-grass stand but comes out of winter as grass-alfalfa and soon becomes almost 100% grass.

Unfortunately, we have experience with this problem at Miner Institute. We had a low STK field that started out as a pretty decent stand of alfalfa-reed canarygrass, but didn't come through the first winter looking good at all. We had lots of canarygrass but not much alfalfa. Since then we've manured the field every year, sometimes twice during the growing season. We soil sampled the field early this past fall and STK was close to 0! (It actually was zero the first test, which both the Cornell University soil analysis laboratory and the Crops Dude found unbelievable, so we took a second soil sample but that didn't test much above 0 either.) Yet the canarygrass we harvested from that field had a potassium concentration of 2.65%, which is considered normal—in fact, higher than ERNs (Eminent Ruminant Nutritionists) prefer for prefresh dry cows. Where did the grass find the potassium? You can't get something from nothing, so obviously there was some K in this soil that the grass was able to find but which wasn't detected by the extractant used by the Cornell soil test lab.

The simple solution is to increase STK levels to at least medium before seeding to alfalfa-grass, then aggressively manure and/or manure them after establishment. With potash fertilizer at extremely high prices, the most economical way to increase STK is with manure. But it might take a couple of years of heavy manure applications for potassium to reach adequate levels. Two alternatives for borderline STK levels are to seed clear alfalfa or to greatly reduce the seeding rate of grass, then apply plenty of potassium after establishment. We have no research data on this, but would suggest reducing the grass seeding rate from the normal 5-6 lbs/acre to no more than 2 lbs. Even this may be too much with timothy, which has over 1 million seeds per pound. A few farmers have reported success by drilling in grass well after the alfalfa has established, but I'm not thrilled with this idea. If the grass did catch—and the better the alfalfa stand, the less chance of this happening—once it became established we'd be faced with the same problem.

—E.T.

CORN CONGRESS

Hosted by Miner Institute

in collaboration with Cornell University

Tuesday, March 3, 2009

10:00am — Commercial Exhibits

10:00—11:00 a.m.	***Agribusiness Exhibits***
11:00—11:30 a.m.	***Hot Topics in Forage Analysis*** Rick Grant and Kurt Cotanch, Miner Institute
11:30—12:15 p.m.	***Alfalfa Snout Beetle Research and Alfalfa Varieties*** Elson Shields, Cornell Entomology
12:15—1:00 p.m.	***Lunch,*** available for $5.00
1:00—1:45 p.m.	***Plant diseases including Brown Root Rot, molds, and mycotoxins in corn*** Gary Bergstrom, Cornell University Plant Pathology and Plant-microbe Biology
1:45—2:30 p.m.	***Hay in a day and Forage Research Update*** Mike Davis, Crop and Soil Science Department, Cornell University
2:30—2:45 p.m.	***Door Prizes***

CCA and DEC Pesticide Applicator credits available.

Admission to Corn Congress is free.

New England Dairy Feed and Nutrition Conference; Thursday, April 9, 2009; Fireside Inn, West Lebanon, NH.

- Pat Hoffman, University of Wisconsin. "Factors affecting starch digestibility" and "Feeding heifers for increased efficiency"
- Limin Kung, University of Delaware. "Forage management from field to silo"
- Matt Lucey, University of Missouri. "Nutrition and reproduction"
- Joe Stewart, Stewart Farms Inc, Nampa, ID "Improving farm efficiencies from a producer perspective"

Registration information available through Northeast Ag and Feed Alliance, 27 Elk Street, Albany, NY, 12207 or 888-445-4595.

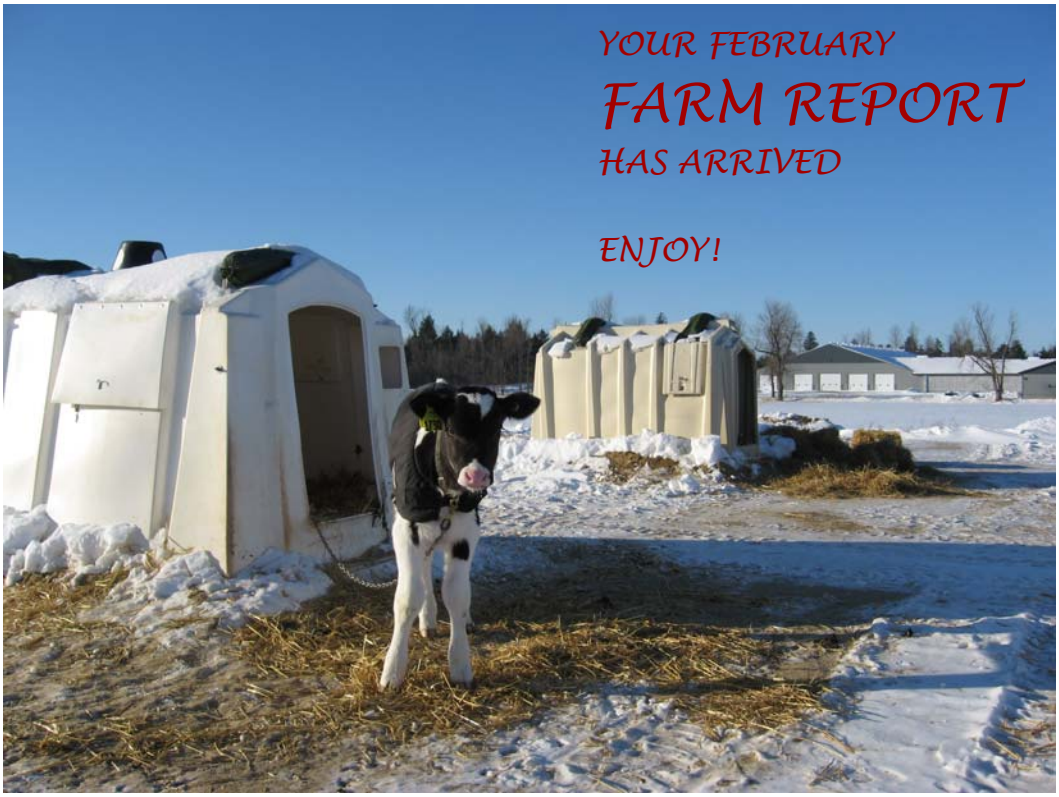
Vermont Large Farm Dairy Conference; Thursday, February 26, 2009, 9:00 a.m.—5:00 p.m. Speakers include:

- Damian Mason, a dairy producer from Indiana;
- Dr. Michael Hutjens, University of Illinois, "Higher Feed Costs with Lower Milk Prices,"
- Dr. Adam Lock, University of Vermont, "What's in Your Milk?",
- Lennart Petersson, IBA, Inc., "Milking Machines/ Milkers/Cows-A complex triangle"
- Dr. Normand St. Pierre, the Ohio State University, "US Dairy Production in a Global World Context." Pre-registration is $45, contact UVM Extension, 802-334-7325, ext. 11 by February 16.

The William H. Miner Agricultural Research Institute
1034 Miner Farm Road
PO Box 90
Chazy, NY 12921

Change Service Requested

Non-Profit
Organization
U.S.POSTAGE **PAID**
Chazy, N.Y. 12921
Permit No. 8



Closing Comment

Some family trees bear an
enormous crop of nuts.

www.whminer.org
518.846.7121 OFFICE
518.846.8445 FAX