



FROM THE PRESIDENT'S DESK: STATE OF THE INSTITUTE 2009

Inside this issue:

2009: A good year to consider UAN?

Barn Building 101

Cow response to varying levels of TMR and pasture access

Lysine misbehaves

Phosphorus removal of milkhouse wastewater using treatment wetlands

Practical ruminants: gas production in the rumen

Vet's Corner: Evaluation of cost effective treatment of calf pneumonia

- 2
- 3
- 4
- 5
- 6
- 7
- 8

We just completed our year-end review of programs and activities at Miner Institute for 2008 and I thought I'd share some of the highlights with you. Each year, as I look back over the accomplishments of the Institute staff and their programs, I am amazed at what we are able to accomplish.

Our educational programs remain the fundamental reason that we exist. The Advanced Dairy Management program monopolizes our efforts during spring semester with dairy management students spending an entire semester in residence at the Institute. These are primarily students who have spent two years at Vermont Technical College and have transferred to University of Vermont for their final two

years. Our hope is that most of these students return to dairy farming or closely allied industry when the program is completed.

During fall semester, our focus shifts to Agriculture and the Environment and students primarily from SUNY-Plattsburgh with limited agricultural background. Here our goal is to use the Institute's farm and forested resources to teach students how agricultural practices interact with the environment. The contrast in student backgrounds, experiences, and expectations between spring and fall semester is a significant part of what makes it stimulating to work here.

Our Summer Experience programs in crop/dairy management, equine management, agricultural research, and Heart's Delight History remain vibrant and highly competitive, attracting students from across the US and even internationally (for example Puerto Rico in 2008).

Our research group conducted numerous studies on topics ranging from evaluating effects of stocking rate on dairy cow behavioral response to successfully feeding low starch diets. Student projects are a significant portion of our research and educational programs – providing them with a glimpse into the research process and simultaneously generating useful, practical



2009: A GOOD YEAR TO CONSIDER UAN?

UAN is most often used for sidedressing corn, but can also be used for topdressing grasses in early spring. This practice is increasing, and farmers switching from urea to UAN are very pleased with the results. While volatility of urea isn't usually a problem during our cool spring conditions, UAN volatility is even less since ammonium nitrate is almost completely non-volatile. Last year we used UAN for topdressing first cut grasses and were quite pleased. We had it custom-applied so it didn't interfere with other spring work. Our crop consulting firm, Agricultural Consulting Service, has had considerable experience with topdressing UAN on grass, and highly recommends it. Applied at the first signs of green-up and didn't see any burning of the foliage. We slightly reduced our application rate; we normally apply 90 lbs/acre of actual N as urea, but last year we applied 70 lbs/acre of N as UAN.

When pricing UAN vs. urea, remember that urea is 46% N while UAN is usually 30% N (though analyses can differ). Therefore, if the UAN is 30% N, multiply the UAN price by 1.53 to get an "equivalent" price. Research has shown that the two forms of nitrogen in UAN can result in a yield advantage, but this is hard to pin down since it depends on weather conditions, crop grown, etc. I simply like UAN better than urea, in part because of uniformity of application (Some dry fertilizer spreaders do a lousy job of distribution.) In switching to UAN we reduced our N application rate from 90 to 70 lbs per acre, even though I don't know of any research indicating that 70 lbs of N as UAN is as good as 90 lbs of N as urea. However, the combination of application uniformity and the chemical form of N makes UAN a product worth considering for 2009.

—Ev Thomas, thomas@whminer.com

(President's desk, con't from page 1)

knowledge. In 2008, 10 students conducted research projects ranging from the effects of diet on milk components (a M.S. student) to the effect of silage storage time on starch digestibility (an undergraduate project).

Industry outreach consumes substantial amounts of all staff time, and this reaches back to the Institute's core mission of application of the latest technological advances to solve problems confronting North Country agriculture (or, in fact, national and global issues). More than 2400 people attended over 40 workshops/seminars held at the Institute in 2008.

The Farm Report continues to be our outreach effort with the single greatest impact on crop and dairy farmers. In addition, The Stable Sheet delivers timely information to the equine industry. Increasingly, our web site is an important vehicle for delivering information. Over 2000 people per month visited the web site in 2008 with the Farm Report and Stable Sheet being most frequented.

The Institute's most visible demonstration program continues to be the dairy herd. The dairy staff did an excellent job of balancing research and educational demands with our need for maintaining a highly productive herd. Throughout 2008, herd milk

production averaged near 30,000 pounds rolling milk production. A high level of dairy herd performance is necessary for our research results to be applicable to the modern dairy industry, for relevant educational programs, and for effective demonstration of the latest technology in a dairy-crop system.

Obviously, I've skipped over many other significant accomplishments and programs, but I did want to provide a quick glimpse of the breadth and vigor of our research, educational, and demonstration programs. As I travel, I find that many folks have heard of Miner Institute, but usually their impression is one-dimensional. If this brief overview stimulates interest on your part in learning more about the range of Miner Institute programs, please feel free to contact us. And, most importantly, I hope that 2009 brings you prosperity!

—Rick Grant, grant@whminer.com

Congratulations to our Dairy Management Intern, Glenn Palmer, who was just recently admitted to Cornell Vet School and will be starting classes in August!

BARN BUILDING 101

In December 2008 cows were moved into our new dry cow barn for the first time. For the cows, it was a short trailer ride from the old dry cow/heifer barn to the new dry cow barn. However, for many of the Miner Institute staff, it was a journey that started during the fall of 2006. I was fortunate to join several of my coworkers in the process of designing and overseeing the construction of the barn. I had never gone through a process like this one and received a good hands-on education in Barn Building 101. Some of the lessons that I learned are listed below.

Designing the barn

- ▶ Define current and future goals of the dairy to identify use, size, and placement of barn. The barn was sized to house dry cows for a herd size of 450 lactating cows based on plans to expand the herd in the future. The barn was sited to allow for an addition on the south end to house lactating cows.
- ▶ Consider how the design affects manure management and the ability to meet environmental regulations. Ev made sure I learned this lesson. The barn was designed to have sand-bedded freestalls on one side of the barn and bedded packs on the other side. The existing manure management system for the lactating cows would not accommodate the sand-laden manure or the extra volume of manure and bedding. The solution was to build a composting site north of the barn and haul manure to it on a daily basis.
- ▶ Identify the needs and wants. The dairy staff, research staff, and finance officer had different lists, but we were able to compromise once the goals were defined. Research needs and wants complicated the design.
- ▶ Input from several people on the design is great especially when there are many proposed uses for the barn. However, one or two people need to take responsibility for making the final design decisions and keeping the project moving forward.
- ▶ It is easier to find fault with a design than to provide viable alternatives to the design.
- ▶ Designing a barn to have flexibility sounds great, but can be a challenge. Flexibility was needed in our barn to be able to vary the number and size of pens and switch between two feeding systems (headlocks and Calan gates to provide individual cow intake in

a pen setting).

- ▶ Remember the cow. She is the one that will live in the barn.
- ▶ The little details are important and remembering them during the design process will benefit you once the barn is finished. Placement of light switches, electric outlets, control panels, sinks, hoses, and gates were important for us.
- ▶ Stick to the budget. Contrary to popular belief, we don't have an unlimited supply of "George Washingtons" at the Institute.

Building the barn

- ▶ Good communication with the contractor is key to avoiding costly design mistakes and material purchases. Meeting with the contractor during the designing stage is highly recommended.
- ▶ Be on site as much as possible. At a minimum check on things daily as the building process can happen quickly. Planned weekly meetings and impromptu daily meetings with the contractor worked for us.
- ▶ Don't assume the professionally drafted plans are correct. Some discrepancies in the plans that were realized after the fact caused us to have a few areas of the barn that were not sized as originally intended.
- ▶ Things will be forgotten in the plans and unexpected problems will arise.
- ▶ Pick your battles wisely and be willing to compromise during the building process.
- ▶ Make someone else tells the contractor that the poles are in the wrong spot after they are set... thanks Steve C. and Steve F.
- ▶ There will always be something you want to change after the building is done. However, good planning and frequent discussions with the contractor during the building process will minimize them.
- ▶ There are several ways to finish concrete. If you care about the finish be sure to specify your choice to the contractor and concrete crew.
- ▶ Watch where you step to avoid fresh concrete and wet paint.
- ▶ Be careful of mud/sink holes after a rain on recently worked ground. I learned to wear my tall rubber boots after a few mud soaked shoes and socks.
- ▶ Construction workers do notice what you wear. Dirty

COW RESPONSE TO VARYING LEVELS OF TMR AND PASTURE ACCESS

Although the North Country is currently buried by recent snow, the idea of pasture access for lactating cows was returned to the forefront by research published in the Journal of Dairy Research. Researchers from North Carolina State University investigated the effect on productivity of feeding cows with a varying mix of TMR and pasture. There are two main rationales for considering the incorporation of pasture access into the management routine of dairy farms. First, there is some evidence that a relative short period of pasture housing (4 weeks) can significantly improve the locomotion of lame cows (this study was reviewed in the March 2008 edition of the Miner Institute Farm Report). Secondly, increasing feed and gasoline prices (gasoline is currently at a much more reasonable level, but how long that will remain is questionable) suggest that incorporation of pasture feeding has the potential to reduce the input costs of milk production. The key factor for this as a viable option is the ability of cows to maintain their productivity while consuming a portion of their daily intake from a pasture. The objective of the North Carolina State study was to determine the differences in milk yield and components from cows attaining their daily caloric intake from a) 100% TMR, b) 85% TMR and 15% pasture, c) 70% TMR and 30% pasture, and d) 55% TMR and 45% pasture during 8 week periods of Fall and Spring grazing.

To establish the individual intakes required to calculate the amount of TMR required to achieve the treatment allocations, cows were fed from Calan gates for 4 weeks prior to the initiation of treatment. The cows in the mixed feed treatments were given access to ryegrass pasture between the AM and PM milkings (roughly 7 hours per day) and received 33% of the TMR in the morning and 67% following the PM milking. Cows on the 100% TMR treatment were provided access to a dirt paddock for daily exercise. The response to Fall pasture (Exp. 1) was evaluated from late October to early December and the Spring response was quantified between late March and early May (Exp. 2).

During Exp. 1, cows ate significantly more TMR (as designed); however, they consumed more only when pasture consumption was factored in. This variation did

not result in meaningful differences in body weight or body condition score. Milk production (both in terms of raw or 4% fat corrected milk) did not differ between treatments. Milk composition was altered by the diets. Conjugated linoleic acid increased with the greater incorporation of pasture. Increased levels of pasture resulted in a decrease in total saturated fatty acids and an increase in total unsaturated fatty acids. During Exp. 2, total DMI intake and total intake of crude protein was greater for the 100% TMR cows than all of the pasture treatments. Yet, these increases in DM and crude protein did not result in biologically meaningful differences in body weight or body condition score. Greater milk production (both total and 4% FCM) was observed in the 100% TMR cows, but these cows tended to produce less milk fat (%). There were similar differences in milk composition observed during Exp. 2 as Exp. 1.

The results of this study suggest that it can be economically feasible to incorporate some pasture feeding in the management plan of lactating dairy cows. Furthermore, this study draws its conclusions solely from the milk production response, but as previously demonstrated there is a potential for additional benefits, related to animal welfare, to be achieved. Additional factors, such as distance from pasture to parlor, length of growing season and herd size need to be considered when considering the utilization of pasture.

—Peter Krawczel, krawczel@whminer.com

Source: Vibart, R. E., V. Vellner, J. C. Burns, G. B. Huntington, and J. T. Green. 2008. Performance of lactating dairy cows fed varying levels of total mixed ration and pasture. *J. Dairy Res.* 75:471-480.

(Barn building, con't from page 3)

- barn clothes don't get the same reaction as professional dress clothes.
- ▶ Your attitude rubs off on everyone working on the project.
- ▶ Take lots of pictures. Someday you may need to know where the electric cables or water pipes were buried.
- ▶ Timelines are adjustable and deadlines get broken.
- ▶ Enjoy the experience...not everyone gets to design and build a new barn!

—Heather Dann, dann@whminer.com

LYSINE MISBEHAVES

Dr. Glen Broderick at the U.S. Dairy Forage Research Center (Madison, WI) and I corresponded about measurements of lysine digestibility and availability a few years ago. In an e-mail, he had a question about the results of one of my experiments and stated his concern was that lysine “misbehaves”. Recently I had to explain the concept behind this statement to several people, and I’ve realized that it’s not the easiest concept to explain or understand. However, the concept is important to production animal agriculture. So, here goes:

Maybe the first question on your mind is why should we even worry about the “misbehavior” of lysine? Well, lysine is an important amino acid in ruminant nutrition. It’s an essential amino acid, which means that the cow cannot synthesize lysine in amounts adequate to meet requirements for protein synthesis and other metabolic functions. Therefore, lysine must be supplied to the dairy cow through microbial protein and by-pass protein. If lysine is not supplied by these sources in amounts adequate to meet requirements for protein synthesis, the amount of protein synthesized in the body, including the mammary gland, will be limited. Diets fed to dairy cattle in North America typically contain large amounts of corn products, which are relatively low in lysine compared with other feeds. Therefore, lysine is often a limiting amino acid for milk protein production in lactating dairy cows.

If lysine is limiting, improving lysine supply can positively impact production. To improve lysine supply to the dairy cow, it’s important to first maximize synthesis of microbial protein in the rumen. This will be a “cheap” source of lysine. Then you can choose sources of by-pass protein that contain higher amounts of lysine, such as blood meal or by-pass soy products. However, accurately measuring lysine supplied by by-pass protein is difficult because lysine “misbehaves”.

The chemical structure of lysine (Figure 1) is rather unique, and this structure leads to the “misbehavior” of lysine. The NH_2 group on the long carbon chain of lysine is a highly reactive chemical group that readily participates in chemical reactions. When feedstuffs are heated, this NH_2 group of lysine will react with glucose and other sugars to yield Maillard reaction products. During the Maillard reaction brown pigments and appealing aromas and flavors are formed in foods and

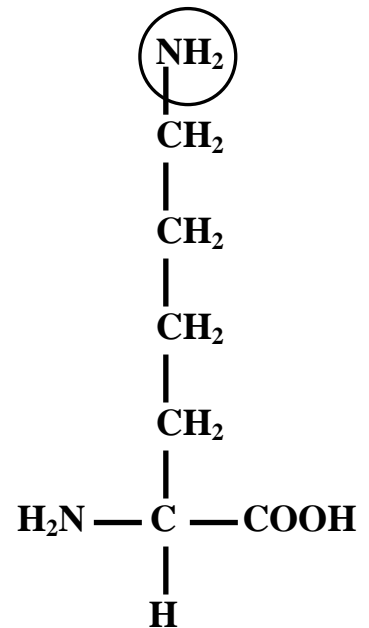
feeds. The Maillard reaction is part of the reason we like chocolate chip cookies so much. Lysine contained in the egg protein will react with sugar in the cookie batter when heated in the oven to yield the brown coloring and those yummy flavors and smells we all enjoy.

However, the implications of the Maillard reaction reach beyond our

taste buds and noses. In a feed, if lysine participates in the Maillard reaction it may not be available for digestion and absorption by the animal. If lysine is limiting for protein synthesis, “damaged” lysine will only add to the problem. In addition, when feeds that have been heated are analyzed for lysine content by traditional methods, some of the lysine that has participated in the Maillard reaction may revert back to lysine, which can result in overestimated lysine values. However, this lysine is not available to the animal for use in protein synthesis. Therefore, in feeds that have been heated, it is more accurate to determine reactive lysine content (lysine in which the NH_2 group has not reacted with another compound) than total lysine content. I am not aware of any commercial laboratories that currently perform this analysis, which may be partly due to the complexity and length of the procedure. However, it is still important to keep this concept in mind when formulating diets and purchasing feeds. If you are feeding feeds that have been heat processed, particularly proprietary products, and you are concerned about lysine, you may want to ask your feed rep about this issue. Understanding that lysine “misbehaves” is half of the battle; correcting the behavior is more difficult.

—Sarah Boucher, boucher@whminer.com

Figure 1. Chemical structure of lysine



PHOSPHORUS REMOVAL OF MILKHOUSE WASTEWATER USING TREATMENT WETLANDS

Although typically utilized for treating municipal wastewater, industrial wastewater, and storm water runoff, constructed wetlands can also be useful in managing agricultural wastewater. Physical, biological, and chemical processes contribute to a wetlands ability to remove nutrients from the water column. Physical removal is related to the velocity of the flow, and length traveled; a longer, slower route allows more particulates to settle. Biological treatment occurs through uptake by wetland plants and algae. Chemical removal is defined as a change in chemical structure of the pollutant in question; an example of this is phosphorous precipitating with calcium to form stable Ca-phosphate minerals in the soil.

There is some concern that as a treatment wetland ages, plant growth slows down after initial growth, plants or soil becomes "saturated" with nutrients, and the treatment loses its treatment capability. In a 2008 Wetlands article, scientists from the Nova Scotia Agricultural College wrote about monitoring phosphorous removal for 5 years in an agricultural treatment wetland. In 2000, a constructed wetland was built at the college to treat milkhouse wastewater obtained from local dairy farms. The approximate surface area was 100 meters squared, and had alternating deep (0.9 meters) and shallow (0.15 meters) depths. The hydraulic conductivity – or rate of water movement through the soil - was higher than recommended for treatment wetlands, so a polyethylene liner was installed. The shallow zones of the wetland were vegetated with cattails, and duckweed was present during the growing season in the deeper areas. The treatment wetland was surrounded by berms to minimize runoff inputs.

Dairy wastewater was stored, and allowed to enter the wetlands at variable rates to mimic natural variability expected with on-farm systems. Water flowing into and out of the wetland was sampled weekly from November 2000 to April 2005.

Outflow volume was greater than the wastewater inflow when precipitation, snowmelt, and other external events influenced the wetland. The efficacy of phosphorous removal was influenced by the overall water balance. When monthly outflows were low (less than 100mm), P

reductions were greater than 50%. When monthly outflow was high, (greater than 100mm), less P was removed, and sometimes more P was detected in the outflow than the inflow. The decreased P removal was often seen in conjunction with high amounts of precipitation, and ice and snow melt. High loading rates of wastewater (assuming at rates greater than the wetland was designed for) also contributed to less effective P removal.

Addressing the concern of aging treatment wetlands, this study showed that efficacy of P removal was related to acceptable loading rates more than the age of the wetland. Design and management of the wetland should minimize external hydrologic input, allowing the water balance to be controlled by wastewater loading rates. Design considerations such as berms, snow fences, and using reliable and practical wastewater flow estimates in the planning stage, can help minimize overloading the wetland.

—Rachel Butzler, butzler@whminer.com

Source: Wood, J.D., R. Gordon, A. Madani, and G.W. Stratton. 2008. A Long Term Assessment of Phosphorous Treatment by a Constructed Wetland Receiving Dairy Wastewater. *Wetlands* 28:715-723.

MONITORING SILAGE DRY MATTERS

Years ago the University of New Hampshire took daily dry matter readings for months on the silage removed from the face of a bunker silo. It wasn't surprising that percent DM changed from day to day depending on precipitation events: After rain soaked the face of the silage the % DM was lower. Duh. What was surprising though, at least to the Crops Dude, was the magnitude of the change. In fact, the silage DM the day after a significant precipitation event (in farmer talk, a "big rain") was so much lower (and heavier per unit of volume) that it would have been better to feed silage by volume than by weight. In other words, if you usually put 1 ton of corn silage into your TMR mixer, during and after it rains you should feed the same volume of corn silage as you did before it rained. In other words, if it's been taking two full front end loader buckets to equal a ton of corn silage, if the face of the silage is soaked then use two buckets full, regardless of weight.

PRACTICAL RUMINANTS: GAS PRODUCTION IN THE RUMEN

In the new “going green” world, we hear a lot of talk about carbon footprints and greenhouse gases and some heated discussion about what our cows as domesticated ruminants may or may not be contributing to these global gas pools. So, what gases are coming out of the rumen anyway?

Cows make their living by fermenting feed in the rumen and, to lesser extent, in the hindgut. Fermentation, regardless of where it takes place (in the rumen, at a brewery, in Swiss cheese, in the muck at the bottom of a swamp etc.), produces gases as byproduct. An active ruminal fermentation will release more than one quart of mixed gases per minute and, over the course of a day, a lactating dairy cow can release more than 500 gallons of gases from her rumen. Some of these gases are absorbed across the wall of the rumen and breathed out through the lungs but, because gas production greatly exceeds absorption, the majority of the 500 gallons of mixed gas is removed through a specialized process called “eructation” which is triggered when gas pressure builds in the rumen. The process starts with a contraction that empties the reticulum. Accumulated gases at the top on the rumen are moved into the empty reticulum then up the esophagus where they are exhaled with normal breathing. When eructation is prevented for varied reasons, bloat occurs and, with normal ruminal production of gases, can cause problems in a very short time.

The dominant gases produced by the ruminal fermentation are carbon dioxide and methane. Carbon dioxide is the primary fermentation gas and is generated as a byproduct of VFA production. Methane is generated in the next greatest amount with other gases such as hydrogen and hydrogen sulfide produced in small amounts. The yield and composition of the fermentation gas mixture produced is variable and dependent what type of feeds and how much went into the rumen when. Carbon dioxide usually accounts for 60% of the mixed gas and methane may account for one-third. Higher fiber diets produce proportionally more methane and higher concentrate diets proportionally less methane.

Putting carbon dioxide and methane from ruminal fermentation into the bigger greenhouse gas discussion,

the EPA estimates that dairy production accounts for 0.7% of greenhouse gas emission in the United States (See www.ansci.cornell.edu/bauman/envir_impact for a more complete discussion and accounting on this topic.) and the greenhouse gases produced in the ruminal fermentation would only be a portion of that. We must remember that the carbon dioxide produced during fermentation (and from the cow’s digestion and metabolism of nutrients for that matter) is not created from nothing, but is a continuation of the natural carbon cycle. Plants photosynthesize, removing carbon dioxide gas from the atmosphere and transforming it into solid compounds (fiber, protein, sugar, starch) that grow the plant. And whether the plant is eaten by a cow or just falls over and rots, the carbon dioxide within the building blocks of the plant is released to the atmosphere to continue the carbon cycle.

—Steve Mooney, mooney@whminer.com

PESTICIDE POISONING DECLINE

Data from the Poison Control Center and the National Center for Health Statistics indicate that “*serious pesticide poisonings*” declined 42% from 1995 to 2004, and unintentional deaths from pesticides declined 62% over the same period. Reasons cited for the decline are safer use, pesticide industry stewardship, and regulatory improvements by EPA. However, a reason not cited is the fact that today’s pesticides are a lot safer than the ones we used in the mid-1990s. Highly toxic pesticides have been replaced with less toxic ones, including some that have no known mammalian toxicity at all. So while we’d like to subscribe to the notion that the users of pesticides were more careful in 2004 than they were in 1995, a contributing factor is that we’ve replaced some highly toxic chemicals with less toxic ones.

We’d expect a continued decrease in pesticide poisonings after 2004 since in the past few years there’s been a big move toward controlling corn insects with genetic traits instead of insecticides. Most seed corn sold in North America now has at least one pest-related trait. We’ve also seen an increase in the popularity of the “corn rootworm” rate of seed treatments, which also reduce farmers’ reliance on soil insecticides.

VET'S CORNER: EVALUATION OF COST EFFECTIVE TREATMENT OF CALF PNEUMONIA

Despite advances in ventilation, nutrition, and vaccination, treatment of calf pneumonia remains a concern for the herd health veterinarian. By midwinter we have seen enough cases to have a clinical impression of which antibacterials are resolving cases best for this season and our area. A common strategy is to record temperatures and clinical scores on all calves at the beginning of the outbreak. Then three or four antibacterials are selected and used individually on calves for 48 hours. Temps and attitude are recorded again, and treatment continues on all calves with the antibacterial that most successfully reduced fever and improved respiratory rate.

During the choice of antibacterials the cost of the medicine is always evaluated but it's not as simple as choosing the least expensive bottle. Sometimes a more expensive bottle can be less expensive to use because of reduced dose size and longer duration of action which also cuts labor cost. The following table attempts to show that it's not as simple as choosing the cheapest bottle.

Of course, the most cost effective treatment is the one that quickly cures the calf and results in the least amount of permanent lung damage, but when selecting antibacterials to compare, these cost differences come into play. The least expensive bottle (Med C) did not have the lowest cost of treatment because it requires daily treatment, and the most expensive bottle (Med D) had a similar cost to the least expensive bottle because it is only used once. Med G was expensive because of repeated daily treatments and Med H was most expensive because of the higher volume of medicine needed per treatment.

In closing, the point of this discussion is not to start a guessing game about the identity of the meds and their prices. The examples listed are for 100 to 500 ml bottles and there have been significant price increases in six of

Total Cost	Treatment	Dosage	Cost/ bottle
\$1.24	Med A 4.5ml/100 lb SQ every other day for three days	2	(\$46.00/btl)
\$2.40	Med B 1.5ml/100 lb once	7	(\$160.05/btl)
\$3.68	Med C 2ml/100 lb IM once a day for 5 days	1	(\$36.84/btl)
\$3.97	Med D 1.1ml/100 lb SQ once	8	(\$360.63/btl)
\$4.28	Med E 1.5ml/100 lb SQ every third day for 2 shots	6	(\$142.75/btl)
\$6.27	Med F 6ml/100 lb SQ every other day for two shots	5	(\$130.65/btl)
\$6.57	Med G 2ml/100 lb SQ once a day for 5 days	3	(\$65.71/btl)
\$12.22	Med H 5.5ml/100 lb every third day for 2 shots	4	(\$110.10/btl)

these products since fall, so don't assume that these are current prices.

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

SOYBEANS IN CHAZY

One of lesser-known field crop "facts of life" in Northern N.Y. is the outstanding performance of soybeans in the annual Cornell University variety trial at Miner Institute. Corn silage and corn grain yields vary from really high to not very good at all, but in warm seasons and cool, dry seasons and wet, soybeans almost always yield well in this region.

Consider the past five years' yield results from the Cornell soybean variety trials at Miner Institute: In 2008, the early trial (ten Group I varieties) averaged 63 bu/A while the late one (eight Group II varieties) averaged 61 bu/A. All Roundup Ready varieties, since that's mostly what N.Y. farmers are planting. The top-yielding variety in the early trial was 66 bu/A and the lowest 58 bu/A; obviously, all of the seed companies entering varieties in the trial have good varieties. In the late trial, the top-yielding variety hit 68 bu/A and the lowest a still-

respectable 53 bu/A. These trials showed once again that farmers in Northern NY would be better off planting Group I varieties, which yield as well as the later ones but without the weather risk from a cool growing season and/or an early frost.

Looking back at 2004 through 2007 results: Yields those four years averaged 65 bu/A, ranging from a low of 56 bu/A in 2004 to a high of 72 bu/A in 2007. This doesn't mean that soybeans should replace forages on dairy farms. However, farmers interested in a profitable cash crop might consider soybeans, which require much less fertilizer than corn and which, as legumes, not only supply most of their own N but leave about 1 lb of N per bushel of yield for the following crop.

—E.T.

WHOLESALE FERTILIZER PRICES PLUMMET

Hopefully you listened to the Crop Dude this past fall and didn't buy your 2009 fertilizer needs back then. We recently ordered some UAN but with price protection if the price goes down further, which it almost certainly will. The wholesale prices of N and P have plummeted in the past month; urea by about 60% and phosphate fertilizers by about 40%. Muriate of potash has also declined, but not by nearly as much—by about \$100 per ton wholesale. While this may be good news for cash-strapped dairy farmers, it's putting fertilizer dealers who filled their bins when prices were higher in a real bind. They can't afford to sell the fertilizer they bought early for the price they paid, even with no markup. That's why retail fertilizer prices haven't declined nearly as much as wholesale prices.

This will be a rough year for many dealers, who will have to balance the losses they'll almost certainly take on these early purchases with profits on the less costly fertilizer they'll buy to refill their bins. As you bargain with fertilizer dealers this winter and spring, try to understand the financial pressure they're under. They were told that there could be shortages of some fertilizers, and took early delivery to assure their customers of adequate supplies. As you can see, high fertilizer prices don't always mean high profits for dealers. The risk is that if everyone waits too long to order (and more importantly to take delivery), fertilizer supply this spring could be a problem. This would be a good time to sit down with your dealer and the discuss

situation—both his and yours. You need to make a profit to stay in business, but so does he.

—E.T.

NOBODY ASKED MY OPINION, BUT...

- ▶ Anyone who's spent time in one of the poorer sections of a big city knows that cigarettes aren't always sold by the pack; one street person buys a single smoke from another, with the going rate about a quarter. If fertilizer prices stay high and milk prices stay low, dairy farmers will be going to their farm supply store this spring with a pail and asking for \$10 worth of 15-15-15. Make that a small pail.
- ▶ Chesterfield, Virginia, the Crop Dude's new winter home (just south of Richmond), isn't the Deep South, and we get the occasional nighttime low in the teens. But then I get on-line and check out the weather in Chazy and our weather here doesn't seem nearly so bad. The Bride agrees. (It was 75F on Christmas Day.)
- ▶ The term "lake effect snow" isn't in the vocabulary here. Any snow is cause for celebration by kids (no school!) and panic by local drivers, whose tendency when driving on snowy roads is to floor the brake pedal and wait until the car either slides to a stop or hits something solid. My son and his wife, Virginians now but native New Yorkers who spent about ten years living in Buffalo, are no strangers to snowy roads but they avoid driving during the rare snow event, purely in self defense.

—E.T.

TIME TO SAMPLE CORN SILAGE (AGAIN)

Both on-farm trials and forage lab summaries of digestibility analyses point to big changes happening (or about to happen) in the starch digestibility of your corn silage. One summary suggested that in vitro starch digestibility decreases slightly after ensiling and continues to decrease for a month or so, then starts to increase shortly after the New Year. And European research found that the big changes in corn silage starch digestibility didn't start until about 4 months post-ensiling—which for many farmers in this region is about now. The European study found that beginning at 4 months, starch digestibility continued to increase for a 6 months (which is when they ended the study),

suggesting that not only should you be testing your silage for digestibility now but that you should continue to do so into the summer. These changes in digestibility, especially in herds feeding a lot of well-eared corn silage, may be large enough to require ration changes. Is it simply coincidence that the increase in starch availability is occurring at just about the same time farmers start to report problems with "spring acidosis"? But what do I know, I'm just an agronomist.

The best time and place to sample is right out of the TMR mixer. Put corn silage in the mixer first, stir it up a bit, and sample from the discharge chute. Don't sample from the face of stack or bunker silos; not only is it harder to get a representative sample, but every year farmers are killed by falling masses of silage. One feed company wisely prohibits its nutritionists from sampling from the silage face of stack and bunker silos.

—E.T.

CRITTER NEWS

- ▶ Scientists are looking into the possibility of transferring the bacteria in kangaroo digestive systems into cattle and sheep. That's because the gas that kangaroos expel doesn't contain any methane, a noted greenhouse gas.
- ▶ Police in Benton, Illinois arrested a rooster after it confronted a woman and her child. The rooster was a repeat offender since this wasn't the first time he'd bothered pedestrians. During the arrest the police learned several fowl lessons, including Lesson #1: Never grab a rooster by the tail. At the police station the rooster was placed in a holding pen and given water and chicken feed.
- ▶ A Missouri man shot a 9-point buck, figuring that 2 shots with his trusty .270 were sufficient. But while he was admiring his "kill", the deer suddenly came to life and attacked him, and it took two more shots to finish the job. The hunter was treated for a concussion and bruises, and wound up with seven staples in his scalp.
- ▶ A 10-week old hedgehog took a spin the other day after wandering into a house and taking a nap in a laundry basket. The lady of the house tossed the basket of clothes into the washing machine and turned it on—fortunately on slow spin. After discovery, the stowaway was taken to the local wildlife hospital for rehabilitation, where she was reported to be doing fine. In fact, the manager of the hospital said that the hedgehog checked in clean

and shiny, without the normal infestation of fleas. (Do not try this at home.)

- ▶ Zookeepers in Hokkaido, Japan finally figured out why their two polar bears won't mate. They'd been living together since last June (the polar bears, not the zookeepers) but there hadn't been any "action", so to speak. They finally put the younger of the two bears, Tsuyoshi, under anesthesia and discovered much to their surprise that he was a she, which would explain the lack of affection. When examined at 3 months of age it was determined that Tsuyoshi was a male, but it reportedly was hard to tell because polar bears' long hair covers their reproductive organs.

TRANSGENIC CORN RESEARCH NOTES

Penn State's Greg Roth has a good article in the Penn State Field Crop News on the feed value of transgenic corn (Bt, Roundup Ready, etc.). In it he reports that several research trials have found no meaningful difference in feed value between transgenic and normal corn hybrids. If you want to read the full article, you can get it on-line: <http://fcn.agronomy.psu.edu/2008/fcn0834.cfm#b> (If you can't figure out to download the article, ask anyone in your household between the ages of 10 and 30.)

Another recent study concluded that there's no difference between Bt and non-Bt hybrids in the ability of corn residue to be broken down in the soil. This confirms the results of previous research.

The corn rootworm trait may consistently yield higher than other hybrids without this gene, even when rootworms are controlled by other means. Soil insecticides were applied to all hybrids in a University of Illinois field trial, but the Bt-rootworm hybrids still yielded up to 30 bu/A higher. The Bt-corn borer trait didn't have the same yield effect. The reason may be improved rootworm control from the Bt trait, but further research will be necessary to pinpoint it.

EQUIDAY: AN EQUINE CONFERENCE

EquiDay 2009 at Miner Institute is a daylong symposium on horse topics and a mini-expo to launch the spring season in the North Country. Saturday, March 21st the doors will open at 9:00 a.m. for FREE

registration and refreshments with the speaker program starting at 10:00 a.m. and continues until 3:30 p.m. ending with a door prize drawing. Lunch is available for purchase to benefit a local 4H club.

Whether it is your first foal or you're an experienced mare manager, Dr. Christina Cable's experience and expertise will be sure to prove helpful. As one of the partners of Early Winter Equine practice (www.earlywinterequine.com) from Lansing, NY, Dr. Cable and her husband, Dr. Michael Ball, provide care to all levels of performance horses as well as often traveling with the USEF's show jumping team.

Dr. Michael A. Ball, author of *Understanding the Equine Eye*, will speak on this topic. The horse's eye is complex; the ability to recognize a problem quickly is critical in maintaining good health. Dr. Ball has written several books on equine health care and published many articles in peer-refereed journals.

"Does NY have a limited liability law? What are my risks operating a horse business?" These are just two examples of the many questions asked by horse owners. Michelle A. Crew, Esq. is a lawyer and Regional Director of the New York State Horse Council. She will speak on these questions plus others you may not have even thought to ask yet!

Being environmentally friendly is not just trendy, but can be healthier for your horse too. Dr. Josie Davis, Professor of Equine Studies at the University of Vermont, will speak on different ways to become a "green" horse keeper.

Adirondack Tack of Plattsburgh, NY will put on a fashion show and describe the outfits for various disciplines. A good time to find out the latest in what's hot, what's NOT, or simply what's comfortable!

No matter the weather (EquiDay is famous for snowstorms), the show will go on. EquiDay is held in the Miner Center building of Miner Institute on Rte. 191, just west of exit 41 on I-87. For more information, check out Miner Institute's website: www.whminer.org, or contact Karen Lassell at 518-846-7121 x120 or lassell@whminer.com

CALENDAR EVENTS

Corn Congress at Miner Institute in collaboration with Cornell Cooperative Extension; Tuesday, March 3, 2009, 10:00 a.m.—3:00 p.m.

Speakers for this annual event will include Dr. Rick Grant and Kurt Cotanch from Miner Institute addressing research hot topics in forage analyses; Dr. Elson Shields, Cornell Entomology, will cover alfalfa snout beetle research and alfalfa varieties; and Dr. Gary Bergstrom, Cornell University Plant Pathology and Plant-Microbe Biology, will discuss plant diseases including Brown Root Rot and molds and mycotoxins in corn. Please mark your calendar and plan to join us on March 3.

Contact Wanda Emerich, 518-846-7121 x117 or emerich@whminer.com for more information.

Admission is free and lunch is available for \$5.00.

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", and 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.

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

1. Pat Hoffman, University of Wisconsin. "Factors affecting starch digestibility" and "Feeding heifers for increased efficiency"
2. Limin Kung, University of Delaware. "Forage management from field to silo"
3. Matt Lucey, University of Missouri. "Nutrition and reproduction"
4. 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.



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Closing Comment

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