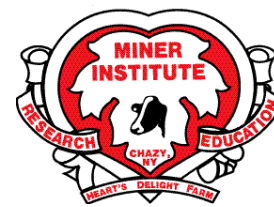


William H. Miner Agricultural Research Institute FARM REPORT



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FROM THE PRESIDENT'S DESK— FLAVORS TO IMPROVE FEED INTAKE?

I just read an interesting article in the most recent issue of the *Journal of Dairy Science* concerning the use of a liquid flavor supplement during the transition period to improve feed intake. The work was conducted at the University of Illinois where the research group has a history of investigating the effects of flavors on dairy cattle feeding behavior.

Of course, the transition period from about 3 weeks before to 4 weeks after freshening is a time of immense stress and higher risk of metabolic disorders and health problems. We try to achieve higher feed intake in the close-up and fresh cow pens in an effort to minimize the incidence of these health problems such as ketosis, fatty liver, and abomasal displacement. Previous research with feed flavors has involved fairly short time periods of less than three weeks and has focused primarily on the postpartum period. The conclusion of these previous studies is that there appears to be a small improvement in feed intake that may be short-lived and that sweet (from sucrose) flavor results in the greatest improvement in dry matter intake. Some trials have failed to show a feed response to flavoring the ration. For example, we conducted a trial at the Institute last year where we flavored the TMR in the close up pen, but observed no increase in feed intake.

In the experiment reported this month from Illinois, a liquid flavor available from Wheeling, IL, (details on the product are provided in the Journal article) was incorporated into the TMR from 3 weeks before to 6 weeks postpartum at a rate of 0.24 ml/pound of TMR at mixing. The base TMR contained 33% corn silage, 17% alfalfa hay, and 50% concentrate mix. The results showed that cows fed the control diet and the flavored diet had similar dry matter intake both pre- and postpartum. However, cows fed the flavored TMR lost less body condition by 1 and 2 weeks after calving. In other words, more body weight was mobilized in the control cows to support milk production than in the cows fed the flavored TMR. Cows fed the



NEW DAIRY BARN OPEN HOUSE SCHEDULED

Miner Institute's new dairy barn will be showcased at an open house celebration scheduled for Thursday, October 7, 2004. The public is invited to this informative and educational event, so mark your calendar now. Look for details in future issues of the *Farm Report*.

control diet were in greater negative energy balance during early lactation than cows fed the liquid flavoring compound.

The bottom line from this research is that cows fed a flavored TMR should have greater overall economic efficiency of milk production. Although the mechanism to explain how adding a flavor to the diet improved performance is elusive, the results appear convincing. We still need to investigate the effects of the basal diet, amount of flavor to add (and perhaps what type of flavor), and how the ration is presented to the cow. But, based on this research and some earlier results, we can conclude that flavor additives improve energy balance of early lactation cows and may reduce the risk of health and reproductive problems associated with negative energy balance.

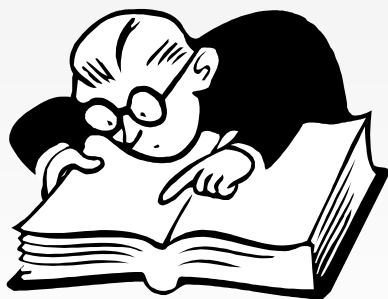
Stay tuned. I think we will see more useful research in this area in the next few years that will allow us to better feed our transition cows, improve feed intake and health, and smooth the passage from healthy dry cow to high-producing fresh cow.

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NEW WORDS

The Washington Post's "Style Invitational" asked readers to take any word from the dictionary, alter it by changing a letter, and supply a new definition. A few of the winners seem appropriate for *Farm Report* readers:

- **Bozone:** The substance surrounding stupid people that stops bright ideas from penetrating. The bozone layer, unfortunately, shows little sign of breaking down in the near future.
- **Decafalon:** The grueling event of getting through the day consuming only things that are good for you.
- **Dopeler effect:** The tendency of stupid ideas to seem smarter when they come at you rapidly.
- **Intaxication:** Euphoria at getting a tax refund, which lasts until you realize that it was your money to start with.



PERSONALIZING POTASH RATES FOR ALFALFA

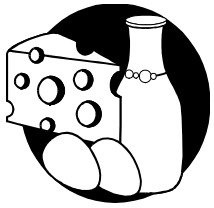
Facts about soil analyses for potassium needs and soil test labs:

- ➔ All soil test labs have the ability to accurately analyze soils for potassium (K).
- ➔ Unless you've been using the same laboratory (or two labs using the same soil extractant) for a number of years the soil analysis itself won't tell you much; you'll need to rely on the potassium recommendation that is based on the analysis.
- ➔ Not all soil test labs have the ability to accurately recommend K fertilizer needs. This is in part because soils differ greatly in their yield potential, and a soil test can't measure that. That's why Land Grant colleges (Cornell, UVM, Penn State, etc.) have spent so many years and countless dollars on fertilizer response research. When faced with uncertainty, many commercial labs aim high, often recommending more fertilizer than is needed "just to be safe."
- ➔ If you've been using the same soil test lab over the years—highly recommended—you may be able to combine your past fertilization practices with the change in soil test K level to fine-tune K fertilization. Here's how:

For example: If you've been applying 120 lbs of 0-0-60 per acre each year to your alfalfa fields and soil test K levels have decreased since the last time you tested these fields, you'll need to increase your fertilizer rate (unless soil test K levels were very high to begin with and are still high). A potential problem: If you apply potassium fertilizer (or manure) in the spring or right after an early first cut, your alfalfa may suck up a lot more K than it needs—called "lush consumption." This is more likely early in the season because plants take up more K under cool, moist conditions. That's why it's better to apply potassium fertilizer after second or third cut, when soil conditions are more likely to be warm and dry. Alfalfa or alfalfa-grass with K concentration approaching 4% is a waste of fertilizer and can raise havoc with dry cow rations. Lush consumption can also deplete soil K and after two or three more harvests might not leave enough to get plants through the winter.

If, as has happened on the Miner Institute farm, your soil test K levels are decreasing while forage test K isn't abnormally high, then you should consider increasing your potassium fertilizer rate. You could also increase your manure rate if you're manuring alfalfa-grass stands—or start manuring them if you aren't. However, before running out there with the spreader, check soil test phosphorus levels on these fields. If soil test P is already high, use 0-0-60, not manure, to increase your K rate. (Of course if soil test P is even higher on your corn fields, hay fields will have to be OK for at least some of your manure.)

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FUNCTIONAL FOOD TRENDS AFFECT THE DAIRY INDUSTRY

Editor's note: Heather Dann is a postdoctoral research assistant at Miner Institute.

The top 10 functional food trends for 2004 were discussed in a recent issue of *Food Technology* (www.ift.org). Health will rival convenience as the most important new food product attribute for the first time in history.

- 1. Just a little bit better for you.** Approximately 69% of consumers have added foods to their diet in an attempt to eat healthier, while 66% have avoided some food.
- 2. Counting carbs.** Two-thirds of adults are watching carbohydrate intake as part of a life-style change to eat and live healthier.
- 3. Healthier kids.** Two-thirds of households are looking for healthy foods and beverages that can be eaten on the go. The foods and beverages need to appeal to kids since last year kids under the age of 18 influenced 84% of household food spending.
- 4. Serious considerations.** 87% of consumers believe that eating healthfully is better than medication to manage disease.
- 5. "Must have" ingredients.** 46% of consumers recognize that functional foods have a specific ingredient or compound that provides a positive effect on preventing or curing disease.
- 6. Fizzy, fruity, and flavored.** Consumers are looking for mid-calorie, fortified but natural based beverages that can address a health concern.
- 7. Higher-powered alternatives.** Energy drinks were the fastest growing supermarket category last year.
- 8. Pace-setting restaurants.** Chain and fast-food restaurants were quick to respond to a decrease in take-out and dining by consumers by providing low carb and healthy alternatives to the traditional menu.
- 9. Naturally gourmet.** The organic market is estimated to grow at 21% per year with organic "ready meals" leading the way.
- 10. International leanings.** Europe is marketing several unique functional foods and beverages with probiotic products (drinks, yogurts, candies, breads, and other products containing "gut-healthy bacteria") leading the way.

The dairy industries in the US and Europe are beginning to embrace these trends with new products and consumer education about the health benefits of dairy based foods and

beverages. In the U.S., yogurt and milk-based drinks like Dannon's DanActive probiotic drink are gaining popularity. Europe is marketing several innovative dairy products, such as yogurt that "balances your blood sugar level and lowers your cholesterol," nighttime milk that contains melatonin to "help you sleep," milk containing bioactive peptides that "lowers blood pressure," and milk containing omega 3 fatty acids for "heart health." For more information about functional dairy products check out the National Dairy Council website (www.nationaldairycouncil.org).

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AG NOTES

- A survey revealed that 73% of dairy farmers in Holland think that dairy cows are stubborn.
- A British survey of 11,000 self-described vegetarians found that only 42% don't eat meat or fish. The newly coined word for these people is "flexitarians."
- USDA economists project that the average 2004 all-milk price will be more than \$16/cwt., a record. However, in 2005 milk prices are predicted to average almost \$3 below 2004.
- Spruce Haven Farm and Cornell University will conduct feeding trials to increase the level of conjugated linoleic acid (CLA) in milk. The goal is for New York dairy farmers to market high CLA dairy products and increase the sale and value of New York milk. According to Cornell's Dale Bauman, "Our studies have demonstrated that CLA found in dairy products is among the most potent naturally occurring anti-carcinogens known."
- Research nutritionists have named lowfat milk and yogurt among the "10 most-important foods."
- After dropping sharply about 10 years ago, per capita dairy product consumption has been slowly increasing in the past few years and is currently the highest it's been since 1987.

VET CORNER

Fresh cow treatment protocol review was our topic at the Miner Institute dairy farm this month. Since the initial protocol was written up a little more than a year ago, several changes in therapy choices have occurred that require change in the protocol. Annual review with your herd health veterinarian is strongly recommended.

ECP is an estrogen derivative that Pfizer has chosen to discontinue, instead of renewing expensive and unlikely FDA approval. With the public highly aware of food safety, it could be hard for the dairy industry to market a food product from cows that were treated with an estrogen derivative, which could be perceived to cause human cervical and/or breast cancer. With ECP out of the mix and Prostaglandin ineffective until 12-14 DIM, we will rely on earlier prophylactic antibiotic use (Naxcel and Polyflex) to get ahead of uterine infection.

This spring our vet practice changed the formulation of our fresh cow drench product to contain a higher calcium, magnesium, and energy source. Since the Institute herd experienced a DA storm this spring, we are in hopes that using the higher calcium treatment in off feed fresh cows will reduce the problem.

Since moving to the new barn, fresh cows are in a pen with automatic headlocks. The headlocks will improve the efficiency of the treatment crew. Ideally, two workers will perform the exams and treatments in a shorter time than it would take one worker. Dr. Earl Aalseth, Snohomish, Washington, proposes a goal of 1 man-hour per day to evaluate and treat the fresh cows for a dairy with 500 in milk. By assigning two workers, the farm should receive a net labor cost

savings and also respect the fresh cows' "time budget."

The person **behind the cows** will:

1. Temp every cow under 10 DIM.
2. Rectally palpate cows on the fourth and eighth DIM to determine feces consistency and vaginal discharge character and odor.
3. CMT all cows three days after calving.
4. Check rumen motility by placing a fist against the rumen for a minute.

The person **in front of the headlocks** will:

1. Record findings of the person behind the cows on

a newly devised exam page made for every cow that runs a temp or doesn't look okay.

2. Pump oral fluids in cows that don't look okay.
3. Administer IV and IM treatments.
4. Observe and record unfavorable appetites after 30 minutes in lock-up.

One of the biggest values to the reviewed fresh cow protocol and record keeping will be the collection of data to evaluate transitional dry cow management. This early warning system will be a proactive step to improve successful outcomes of entire lactations.

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RAPID GROWTH SYNDROME

On occasion young corn plants behave strangely when good growing conditions follow a period of cool, lousy growing conditions. Just such a series of events occurred this year, mostly to corn about two feet high, as much of the spring was very cool. What happens is that the upper whorls of the plants don't properly unfurl. The younger leaves down in the whorl continue to develop, but can't emerge through the unfurled upper leaves. The whole whorl bends and kinks from the pressure of the younger leaves. (First photo.)

The good news is that most of the plants eventually unfurl, and the effect on yield is small or, more likely, nonexistent. Right after the plants break out of their prison though, the newly emerged leaves often are "crinkly" appearing and are quite yellow, unduly alarming farmers. (Second photo.) It's not herbicide injury, just Mother Nature playing a trick on us.



Photo 1: Twisted Whorl



Photo 2: Crinkly Leaves



WHAT'S HAPPENING ON THE FARM

“It’s more stressful in the new barn than the old barn,” complained one of the supervisors. And he’s right, for some odd reason we all feel a lot more pressurized in this spacious, comfortable new dairy barn facility. While the cows seem to have settled in with amazing ease, the staff are still struggling to find their footing. It’s a common phenomenon of course, this difficulty in adapting to changes, irrespective of whether it occurs in the work place, personal life, or the world-at-large.

We are working at drawing up new protocols right now: detailed, written lists of routine tasks that constitute a uniform code of operation. The most important thing we have found is the realization that moving into a new dairy barn and getting it running efficiently requires a solid grasp of the fact that it is an evolutionary process. While some people are caught up in a mad and obviously self-defeating dash to get everything right immediately—and upsetting everyone else in the attempt—it’s become important to the dairy barn staff to be methodical, focused, and patient in overcoming the myriad little hiccups that happen every day. A rubber flooring section rips out, a milk meter doesn’t read correctly, one curtain will not obey its electronic instructions, a water trough overflows, a manure pump does not empty a pit—if we were to simplistically define our lives by our jobs, I’m sure most of the dairy staff would have quit several weeks ago. It’s a growth process, a steep learning curve that functions at its own pace. Patience; we’ll get it right!

Out on the pastures the grazing animals are thoroughly enjoying

their natural surroundings, including the regular rains and their overall improved health—no DAs, no hoof problems, no hock abrasions, just lots of space, an abundance of assorted grass and a tasty mix of flavors (our pastures are comprised of several mixed species, including white clover, fescue, ryegrass, timothy, orchardgrass, and reed canary-grass).

Forages are, once more, a major challenge. The weather is not a friend it seems. While the laboratory analyses look promising, we do not really know what we have to feed until the tarps are removed and we commence mixing the material into the rations. It’s a waiting game, all about risk and chance. Although we do everything we can to minimize the variables, in the end the result is not in our hands. The gaming tables of Las Vegas and Monte Carlo are child’s play compared to the gambling of North Country farmers putting up haylage at this time of the year.

New asphalt flooring in the feed area, a discontinuance of adding cottonseed to the TMR, sales of grass silage from last year, and the arrival of another load of alfalfa from Wyoming, summer students learning to operate heavy machinery and take care of milk cows—a lot is going on right now. The crops crew no longer knows what time-off is all about, the split-shift milkers are finally getting their internal clock biorhythms adjusted, and supervisors are doing a lot more communicating.

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SNIPPEN SPEAKS: ALFALFA VS. GRASS

Ev’s alfalfa article in last month’s *Farm Report* elicited a Letter to the Editor from Eminent Ruminant Nutritionist Charlie Sniffen. Following are excerpts from his letter:

“ This is the year that warms my heart—I am the grass guy! Plant reed canarygrass, timothy, ryegrass, or maybe fescue. Select the varieties that have done well in Canada, plant it straight, not with alfalfa, and follow your and Cornell’s recommendation for management. You once said that grass for an agronomist is boring! You plant it and there is nothing to do but put on a little fertilizer and harvest it! From the cow perspective they are healthier, live longer, and make as much milk as you can make from your average North Country, New England alfalfa. We have also used corn silage as the answer—to dilute out the problems with the alfalfa! Wait a minute—the lower part of the corn plant has lignin—we can solve that—cut the corn higher. Now we have 33 to 37% NDF corn silage and 41 to 44% NDF alfalfa—high energy—no effective fiber—not a problem! We can solve that—buy \$150+ straw from the Canadians—they love us! Something is not right here.

I think it is time for the nutritionists and agronomists to get together and decide what is best for the cows, then grow it!
(Signed) Your retired old bald noggin ERN.”

As usual Charlie has things partly right, partly right being quite normal for ERNs. (The reason God created ruminant nutritionists is to make climatologists look good.) A few specifics:

☛ Charlie is correct in that continuous grass is indeed a boring crop (no

(Continued on page 6)

(Continued from page 5)

bugs, no weeds, no diseases, no rotation decisions), but applying “a little fertilizer” will produce only a little yield. While alfalfa produces its own N, grasses have a powerful hunger for nitrogen. The most aggressive grasses need 100 lbs of actual N before first cut and another 70-100 lbs for second and perhaps that much again for third cut. With current N prices that’s a big expense. Manure can certainly be used to supply some of the N, but most farmers find that at least for first cut, nitrogen fertilizer is needed in order to get the job done early without cutting up fields too much.

- The real challenge is harvesting a considerable acreage of grass at the ideal maturity. “When you can see the head, the quality is dead.” While we can select early and late varieties of timothy, ryegrass and tall fescue, most reed canarygrass varieties head about the same time. Following is the range in heading dates, based on 2003 Cornell research:

Timothy May 28-June 23

Ryegrass May 25-June 16

 (“Barleone” June 16, other 21 varieties May 25-June 10)

Tall fescue May 19-May 26

Reed canarygrass May 30-June 6

 (“Lara” June 6, other 6 varieties May 28-June 1).

Selecting grass varieties based on heading date is something we’ve long recommended, but probably not as energetically as we should. However, until recently the number and maturity range of forage grasses was much less than it is now.

- Another problem with putting all your eggs in the grass basket is that so much of the total yield is in the first cut, and most forage grasses don’t produce much second and third cut yield under hot, dry summer conditions.

—E.T.

WESTERN ALFALFA HAY

Farm Report readers may recall the Crops Dude’s angst last year when, in an effort to boost milk production, we purchased a load of very expensive alfalfa hay—from Wyoming (!). The dairy gurus around here were casting aspersions on our farm-produced alfalfa-grass silage. We purchased very expensive hay again this year—from Montana (!!), but this time we did a cost-benefit analysis to evaluate the practice (as well as to shut the C.D. up, who can be a pain in the angst when the Institute’s forage quality is challenged). Sarah Messmer, one of our 2004 Advanced Dairy Management students, did the study, assisted by the Miner Institute research team.

Forty cows each were randomly assigned to Treatment and Control groups. Cargill Animal Nutrition balanced the diets, and we analyzed the rations in week four (Table 1). The Treatment group was fed 2.25 lbs of Western alfalfa hay and 19 lbs of alfalfa-grass silage, while the Control group was fed no hay and 24 lbs of the Institute’s alfalfa-grass silage. The rest of the TMR was identical except for an additional 0.5 lbs of corn meal in the Control group.

Table 1. Diet comparisons

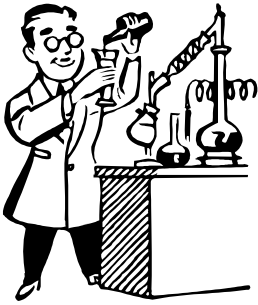
	As Balanced by Cargill		Week Four Analysis	
	Control	Western alfalfa	Control	Western alfalfa
DM	55.2	57.5	52.2	53.1
NDF	29.9	30.8	31.7	33.4
ADF	18.7	20.3	22.3	22.1
CP	17.8	17.9	19.9	21.7
Soluble protein	36.7	35.6	40.0	32.0
Sugar	4.5	4.5	6.9	7.7
Starch	24.1	22.9	27.0	20.7

Results:

- There was no statistically significant difference between treatments for body weight, body condition score, milk production, or milk components. Milk production: Control 82.3 lbs, Western alfalfa 80.2 lbs.
- Feed efficiency (fat corrected milk divided by dry matter intake) appeared to be better for the Control group (1.57 vs. 1.47). This wasn’t statistically analyzed because it was calculated from estimated dry matter intake.

These results obviously warm the cockles of the Crops Dude’s heart, but of course there’s a disclaimer—isn’t there always? Analyzing the rations via CPM 3.0, the diets only supplied 89% of the required peptides, and the crude protein was also a bit low for a high group diet. The sugar in the ration required higher rumen degradable protein (RDP) sources to be utilized by the rumen bugs. The imbalance of NSC to RDP may have reduced the milk response. This is why you shouldn’t analyze things too much, since if you do there’s always too much of something or too little of something else. But the bottom line—Marco, are you listening?—is that the supposedly wonderful Western alfalfa wasn’t quite so wonderful after all. Our alfalfa-grass silage looked better on paper (higher NDF digestibility), and it performed at least as well in our cows as the high-priced stuff.

—E.T.



FORAGE LAB: WESTERN ALFALFA HAY TRIAL

For the sake of public relations with producers of premium Western alfalfa hay and those that highly value this forage, I feel it my responsibility to respond to the Crops Dude's article on this subject. Like any good thing, when not used properly premium alfalfa can quickly become a very bad thing. The alfalfa hay we purchased last winter was a very good forage: 20% CP, 34% NDF, and 20% soluble fiber. Previous Crops Dude attempts to raise such a feed as dry hay have shown that... well, we just can't. Mother nature just does not afford farmers in the northeast the conditions to do so. (Recall previous research concerning the AM versus PM mowing of alfalfa for haylage.) The extended periods of wilting required in the Northeast allow prolonged cellular respiration of mowed forage to consume any extra sugars that may have been generated by mowing later in the day. That is if the sun came out. So, the idea of getting some premium alfalfa hay to add to the TMR was inviting. Besides, Marco knew this guy out in Wyoming that makes super hay, and....

Now why did we not see a production response when the hay was fed? I can hear Crops Dude right now forewarning you, the reader, to listen for the bells and whistles of Nutritionist's DISCLAIMER! People, these are the facts, only the facts:

1. TMR DM% of the hay diet was 57%, the diet without hay 56%. Already on the edge of too dry a TMR allowing for particle separation and sorting in the bunks. My personal belief is that sorting is a function of both DM **and** particle length. At higher DM, forages separate more easily as particle length increases. With greater particle length differentiation, we have more separation issues than if they were all, for instance, short and dry particles. Thus, sorting was more likely with the hay diet.
2. The trial was run in February and March of 2004. And you all may well know that the old Miner Institute barn runs about 10 degrees colder than outside temps. No way to moisten this ration, no water in its liquid phase.
3. Flooring. Frozen manure, bad footing, poor DMI, poor production, or no increased production.
4. Possible nutritional limitations between carbohydrate and protein fractions.

As with any research trial it is often difficult to pinpoint cause and effect responses to a given variable, in this case the inclusion of premium alfalfa hay in the diet. So many other uncontrollable variables work their way into the trial, thereby clouding any definitive conclusions. As researchers we try our best to control for those secondary variables in order to confidently draw conclusions about the one-treatment variable we hoped to study. And lastly, the quality of a feed not only depends on its nutrient value but more importantly on its nutritional value in the diet.

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CRITTER NEWS

An assistant manager at a New York Champs Sports store got more than he bargained for when he tried to kill a spider by dousing it with a flammable substance and setting it on fire. The resulting conflagration caused serious damage to the store and forced the closure of the mall in which it was located. The employee was charged with arson; there was no word on the condition of the spider.



UPCOMING EVENTS

- **Northern New York International Ag Expo**, July 9-10, 2004, Malone, NY. \$2 admission; children free.
- **Empire Farm Days**, August 10-12, 2004, Seneca Falls, NY, Dairy Profit Seminars featuring: The care and feeding of high-producing cows, Risk management strategies that work, and There's more than one way to raise heifers.
- **Advanced Dairy Nutrition and Management for Agriservice Professionals**, August 16-19, 2004, Cornell University, Ithaca, NY. For registration, contact: Robin Huizinga at 607-255-4478 or dmconf@cornell.edu.

CLOSING COMMENT

Never attribute to malice something that can be explained by stupidity.