



BIO-NEWS

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Fellers farm the biological program

"Our yields were not going anywhere. Something wasn't working quite right," recalls Wisconsin farmer Tim Feller. He and son Bryon tried conventional solutions, "but we needed to go in a little different direction."

Then, Tim went to a farm conference, thinking of going organic. Instead, he found a name for a philosophy he was already toying with —biological farming; a new source for knowledge (and farm products) with Midwestern Bio-Ag; and a new consultant, Duane Siegenthaler.

They made changes to their operation, changes that have improved quality and yield.

Quality forages

Cows know quality, that's what Tim and Bryon learned from their cows, and still see at feeding time. They first noticed their cows' selectivity several years ago. They had put out hay that was grown on the home farm, with the Bio-Cal program, at the same time that the cows also had hay grown on a rented field, where no Bio-Cal had been applied. The cattle dug right into the home-raised hay, but the others, "they wouldn't touch it," recalls Bryon, who milks a 40-cow Holstein herd on the family farm.

The Feller's observations of their fields on the Bio-Cal program included "a better yield" according to



After wheat harvest '07, GreenNGold interseed with extra oil seed radish was broadcast and disced in. Though the oilseed radish looked dominant...

Tim and "better quality," noted Bryon.

Others agree with their assessment. The Fellers sell a lot of hay every year, and find their customers, many of whom are repeat buyers, notice the quality and palatability.

While the Bio-Cal program is a key component in their hay program, it's just one of the many tools in their biological farming plan. They've embraced concepts like diversity, crop rotations, green manure crops, and micro-

nutrients, and are seeing the rewards building year to year.

The father-son duo farms about 1,200 acres near the small town of Monticello. "We have every soil type in the book—sand, black dirt, peat bottoms, rocky hillsides," says Tim, with some land owned and some land rented or leased..

Growing quality hay is a major part of their farming operation, because they appreciate repeat buyers, farmers who come back for more because they say their cows really like the hay the Fellers grow.

Tim notes that there are two key components to repeat customers in the hay business. One is making clean, mold-free hay, and the other is palatability.

"They've got to eat it. I'll hear

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... the clover, vetch, and ryegrass were growing underneath and will produce nitrogen for the spring 2008 crop.

Gary Zimmer's Spring Letter

Dear Farmer-Agribusiness person,

As I write this, it's the end of March and I'm watching it snow-- hopefully just one last time! Tomorrow, I head to California.

Dairying is all about growing quality forages. It seems so simple, but if you don't think about it or never had to do it, or don't know how to measure it, where do you start?

I spend most of my time, whether writing or speaking, on giving evidence as to why.

Louis Bromfield way back in the 1940's said teach a farmer the 'why' and he will figure out the 'how to'.

I recently did a meeting out East and gave an hour presentation on the how to from the soils right through cow feeding tips. It sure stirred up a lot of interest. On my California trip, my presentations will be all on 'how to's', from using calcium to supplying free choice minerals for the cow.

What are we really trying to do is get the soil right to grow the healthy, nutritious plants. It's the types and management of the plant that makes the cow productive. It's all about getting the plant right-- from soil minerals, health and harvesting.

There is more to this system than just putting on the right fertilizer. Every farmer is in a box, the box being how they do things now, for whatever reason. That might be what he/she read in a book, or tried on a small plot and saw results (even though that was ten years ago and it's no longer a limiting factor) or was told at a farm show, or heard or saw, etc. So to change for the better, you can think all day long about where you want to be but you are still in the box you're in.

You can undertake change, step by step, without too much risk but remember, no matter what, there will be a learning curve. You may need to invest in some soil correctives, or buy different planting tools. Certainly you can switch some of your fertilizer inputs, that's an easy step.

Other easy first steps for the dairy farmer might be to: Tighten rotations; add some soluble calcium, sulfur, and boron; use a balanced, high quality fertilizer; put some grasses in with your alfalfa; or manage the manure as the valuable resource it is. For most dairymen, you sure shouldn't need to buy any nitrogen from off the farm once the biological system and rotation gets working.

grow your own great feedstuffs). These are pretty straight forward easy steps, mostly risk free, and will work for a lot of farmers.

I was at a farm just a few days ago that was getting a lot of milk but with 20+% protein hay was still feeding 7#/grain/cow/day. On

our farm, production is the same, but we feed just one pound grain. If you grow the forage, you have to feed it! With good forage and buying your production, protein must still be too cheap.

For the corn-bean farmer, or the one who wants all

corn, plant diversity becomes a problem. Diseases and insects are hard to control. No diversity of plants equals not enough diversity in soil life, and more plant health problems.

If you knew the wheat price would stay favorable, adding this in rotation with clover added in spring giving a beautiful green manure crop in fall, allowing this to regrow in the spring, work down and plant corn--now the inputs for planting corn have just changed, and so has its health.

Do you really need all those genetically modified plant 'benefits'? Do you need the root-protecting insecticides? How much nitrogen do you need to grow corn? I do believe you are starting a system (there's more to do yet, however) that can really help you farm. Put calcium in your fertilizer program. Change to a balanced fertilizer. Watch root development.

What about tillage tools? Can you only use burn downs? I just read an article about burning down your green manure crop versus using shallow tillage into the soil.

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As we always say, you need to "Earn the Right." Feed a higher percent forage to the dairy cows (once you

....Gary's spring letter

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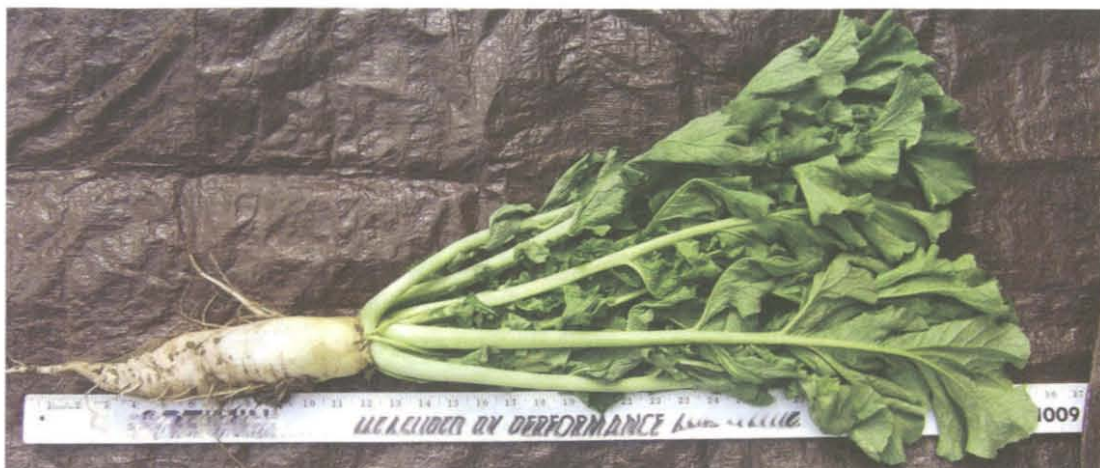
The report said you lose half the nitrogen value with killing with herbicides vs. shallow incorporation of residues. Nitrogen production is only one small reason to do green manures, but with today's high fertilizer prices, certainly on that basis alone, they're a really good idea.

If not wheat after beans, how about rye? What about oats added in early spring? Seeds are getting expensive and harder to get, so grow your own. How about flying on seed both for corn and beans late in the growing season? Always make sure you plant in ideal conditions.

What about zone tillage? How do you reduce trips over the field or at least, get paid really well for them? It appears a lot harder to move outside the box you're in if your farm has more acres. The present economics make it real rewarding, not only in money saved but with pay-offs in added crop yields and reduced weather risk.

The use of livestock manures also looks more attractive today. As we see bigger and bigger livestock farms, we see more manures available. Poultry manure from laying hens has always been one of our favorites. It's mostly corn, beans and lime run through a chicken, with all its digestive juices and acids. These large poultry farms are investing in equipment to make the handling and distribution of this product much easier. Another plus is that you can spread this material with a wide apron fertilizer buggy.

MBA is currently working with



This oil seed radish plant, grown after wheat harvest in 2007 as part of a green manure crop on the Feller Farm, was nearly 36" total length, with almost 13" underground, providing many benefits to the soils.

three different sources and we look for more of this product to be available in the future.

Ask our consultants, and check it out. Not only is it economical based on nutrient cost, it has added benefits, like the calcium. It's not a complete fertilizer but it's surely a good addition to your natural materials list.

We're back to the plants and getting ideal conditions for them to flourish in. Now this can't be the same for any plants. How about potatoes? Due to prices, quality and environmental concerns, we are doing a four year project in Michigan, really moving out of the box of conventional potato production.

We're doing four years, because I want two 'potato years'. Many potato growers stretch out the rotation beyond that to reduce disease and insect pressures. It's this plant diversity—you rotate to take the food away from the pests because

without food they die off, as most pests only live on a certain diet.

But with only one year off, what would you do? We also need to deliver nutrients to the next crop. I want to reduce the soluble commercial fertilizers and hook the nutrients to carbon, which means green manure crops, compost, and different fertilizer sources.

For green manures, we are using clovers, grasses, brassicas (the mustards, oil seed radish, rapeseed). These help control soil disease problems by giving off compounds during decay. The green manure crops also complex the fertilizer nutrients and provide health promoting products, called secondary metabolites (plant protective com-

pounds produced by different plants), and biological diversity.

This is an experiment, moving way out of the box. We are not doing the whole farm, just two pivots, enough so we can watch storage quality and keep it easy to manage, but more than little strips.

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Green manure crops complex the fertilizer nutrients and provide health promoting products and biological diversity.

....Gary's spring letter

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This is demonstration, and not a bad idea. It needs time, and the weather and seasons will affect the short term results. But it's what needs to be done if we ever want to move to a better quality, more environmentally friendly, profitable way of producing potatoes.

These are going to be demonstrations, a 'how to', just like the new book I'm working on. I don't need extra work but I really do see a need for a practical 'How to' guide not only on soil tests and fertilizer use but dealing with soil biology, plant roots, plant health, addressing limiting factors and evaluating along the way.

I've divided the book into three sections. The first is on soil fundamentals, the nice to know complex working functions of a soil; the second is on Myths, Beliefs and

Understanding: things you have to know or have to understand before you can implement a farm program. The last section is on the "How to."

There will be many examples and ways to learn and do it yourself. I would also like to have it as a teaching model for organic/biological farming for our school systems. Look for parts and pieces coming out this winter. My goal is to have it done in a year.

Finally as we approach this new growing season, I want to wish you all the best. Hopefully you get the moisture and correct conditions when you need them and the growing season is a GREAT one.

At Otter Creek Organic Farm (our family farm), we will be busy as always over the coming months. We are also trying to 'raise the bar' by adding extra inputs where needed,

paying more attention to details, making sure conditions are ideal at planting, and staying on top of weed control.

We will also be busy with more test plots and experiments preparing for learning and our August Field Day. We are proud to have been selected by MOSES as the Organic Farm of the Year (look for details in the Summer BioNews).

Our field day will be Tuesday, Aug. 19th—mark it on your calendars, and we hope to make it bigger and better. Our next newsletter, in July, will provide more details about this day which is both a celebration and an educational event. MBA and Otter Creek Farms are both working to make the day a worthwhile event.

See you there.

Gary F. Zimmer

...Fellers farm biological

(Continued from page 5)

ing on." One example is in visible soil life. "There were no worms the first spring," but they see more and more each season.

Using green manure crops did require some learning, and they made some mistakes. Making sure to get a green manure crop taken down on time is an important key they've learned.

Their hay rotations are affected by the land type, some fields being rocky and others highly erodeable. On good ground, the maximum is three years of hay.

Another change with MBA that they like is the micronutrients in the fertilizer. "We concentrated a little more on soil balance," Tim added.

Working with MBA

The Fellers like working with Midwestern Bio-Ag. "We've been getting good service. Whenever we have a question, they seem to be willing to answer, to find an answer."

Tim and Bryon also appreciate that with Bio-Ag's 'there's no dumb questions' and there's always a "willingness to work within our system." Conventional businesses, they noted "they want to sell fertilizer, not a program."

Bryon has charge of the dairy operation. "I wanted to get into farming, and that was the best way to go at it," he explains. He has his herd on a high-forage ration and Bio-Ag minerals. "We're not buying anything off the farm, all I've got to buy is minerals."

Added Bryon, "The cows seem

to be a lot healthier." How healthy? Last fall, they sold 21-head for dairy purposes. And this year, they're increasing the size of the herd from 40 into the 50s, all with entirely home-grown stock.

Excited about farming, and what they see happening on their land, "We'll keep on improving what we're doing," they say of the future, "just keep working the program."

The Feller's advice for those just getting started with the biological system?

"You've got to be willing to make some changes," says Bryon "Work within your own system." Tim adds.

"Patience," they agreed, because good things will happen.

...Fellers farm biological

(Continued from page 1)

if the cattle don't eat it. Customers tell me about it."

The Fellers pay close attention to many hay quality details, like fertilizers and time of day cutting.

Their forages fertilizer program includes a hay blend with some of the lower testing fields getting chicken compost. They apply Bio-Cal on a three-year rotation.

They also don't put manure on hay ground. "We have enough other acres we can haul manure on that we don't need to use the hay ground."

Cutting time matters, too. "We changed from 8 a.m. cutting and don't start at least until 11 a.m., and cut most from 1-5 p.m. That way we get the sugars into the plant."

Another big plus in their hay program was adding grasses in the alfalfa. "We're getting better quality using MBA's Dry Hay Blend," explained Tim, who formerly had brome grass in the alfalfa.

"I can tell the bales apart, it's a finer hay, more palatable. They like the grass in it," said Bryon. "They don't eat the pure alfalfa quite as well as the hay with the grasses."

The Fellers test all their hay, and since going on the Bio-Ag program, see good protein levels, more minerals, and less potassium. "It's more of a balanced hay," noted Tim.

Diversity

The Fellers believe in diversity not just in their hay crop, but across the farm. They grow about 450 acres corn, 250 acres beans, 250 acres hay and 150 acres wheat plus their own rye and oats for seed.

"It's cheaper to raise my own seed than to buy it. And we have enough acres," says Tim. "With the cost savings on seed and straw, and the beneficial diversity, I'm kind of paying myself."

The Feller's also believe in work-

ing their plan, and not being swayed by the swings in the market, or farming fads. Tim has seen the swing from the 70s when the call was for specialization; the 80s when diversification was the thing, and then the 90s when it was back to specialization.

"I'm not trying to outsmart the market," he says. "It's more important to keep that crop rotation. I've never left diversification."

Green manure crops

"I always wanted to do green manure crops but my dad thought it was a waste of time," says Tim. Today, the Fellers use a variety of green manure crops.

"Winter rye goes in after corn silage... on land that we're going to rotate into beans" is one standard rotation. Another he likes is corn silage followed by winter rye and then in spring, back into corn.

"Behind winter wheat, I put oats in," explains Tim. "Where I'm planting oats behind winter wheat, I have very few weeds the rest of the summer."

They also believe green manure crops help 'soak up' excess manure, and improve soil tilth. Last year, following wheat, they tried MBA's GreenNGold interseed with oil seed radish for the first time and liked the results.

Another soil improvement crop they use is clover.

Tim sees better crop yields with his rotations. "Corn-bean rotations get too much disease," he's observed. He likes a two year break

between bean crops, including one year of corn-winter wheat. "I get a 5-10 bushel increase if I skip a year," said Tim. "I'll get 65 bushel beans on a two year rotation, 50-55 bushels when only one year."

A green manure crop "brings out the nitrogen in the soil, loosens the soil up and keeps the weeds down."

Tim also noted that with all the green manure crops he uses to earn the right to decrease purchased ni-

trogen, his purchased N per bushel of corn ratio was low as .6:1. "We understand that we have to earn that right."

For most green manure crops, they use a three-point hitch mounted spreader and drag the ground after "just enough

to get them started." They use an off-set disc to work most of the crops into the soil

Taking on new land

They've seen some excellent progress with green manure crops, especially on recently purchased acres just across the road from their own.

This farm was a challenge having been row cropped year after year, with anhydrous applied and testing low pH. The ground was hard, compacted and plant roots were poor.

The Fellers subsoiled, used winter wheat as a green manure crop, and applied a ton each of hi cal lime and Bio-Cal the first year. Already, "it worked up better last year."

"There are some good things go-

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Tests on New Soil Calcium Amendment

By Leilani Zimmer-Durand

Calcium is one of the most important minerals in the soil. Not only does calcium itself play a crucial role in plant physiology, calcium facilitates the uptake of other nutrients into a plant. Here's a short list of some of the many benefits of having plant accessible calcium in your soils:

- Calcium is found in every plant cell as the main component of cell walls
- Calcium is important in facilitating movement of other minerals into plant cells
- Having adequate calcium reduces the ability of pathogens to invade cells
- Calcium helps 'open' clay particles, improving soil structure
- Calcium acts as a secondary messenger, allowing plants to respond to environmental stressors such as water deficiency, insect attack and disease
- Calcium improves nitrogen utilization
- Calcium is important in plant pectin production, and pectins are animal useable energy

At Midwestern Bio-Ag we like to see 65 to 75% calcium on a soil test. Of course, just because calcium shows up on your soil test doesn't mean it's in a plant accessible form. Calcium in the soil is only the first step. You have to get calcium up into your plants. And having the right soil pH does not guarantee plant accessible calcium. One way of knowing whether your calcium is plant accessible is to take a tissue test or feed test and measure calcium levels. If the test is low, no matter what your soil test says you need to get more plant accessible calcium into the soils.

So, how to get more plant accessible calcium?

The University of Wisconsin-Extension bulletin on soil nutrients states that calcium moves into plant roots through bulk flow. This means the calcium must be dissolved in water in order to move into the roots. Measuring the soluble calcium in water extracted from the soil solution is a means of determining how much calcium is

plant accessible.

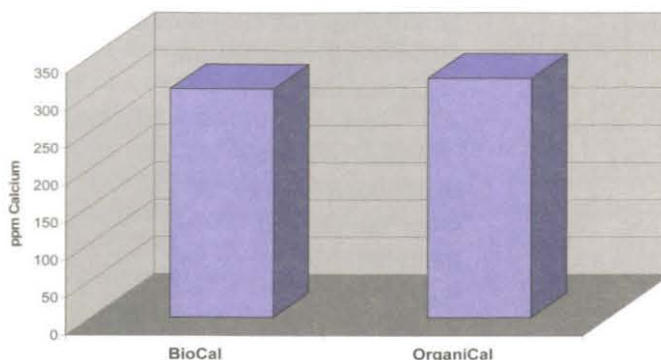
This past winter Professor Phillip Barak at UW-Madison tested the concentration of soluble calcium in two different soil types treated with either BioCal or OrganiCal at a 1000 lbs per acre equivalent rate. OrganiCal is a new product developed by Midwestern Bio-Ag that only uses ingredients acceptable for or-

ganic production: finely ground high calcium lime, gypsum (calcium sulfate), and finely ground humates (leonardite) in a spreadable form.

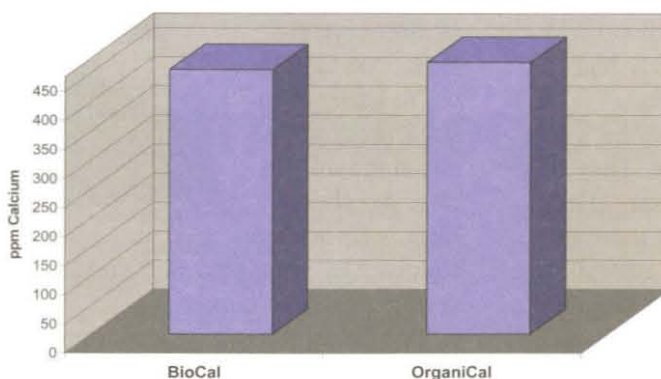
Results using Prof. Barak's MILD extraction technique, show that Bio-Cal and OrganiCal both have high levels of soluble calcium.

For many years now Midwestern Bio-Ag has been trying to find a product equivalent to BioCal that could be used on organic farms. Prof. Barak's tests show that OrganiCal has similar levels of plant accessible calcium. Addi-

Soluble Calcium Concentration on BioCal and OrganiCal Treated Silt Loam Soil



Soluble Calcium Concentration on BioCal and OrganiCal Treated Sandy Soil



tional testing shows similar levels of plant accessible sulfur, magnesium, potassium and silicon as well. OrganiCal uses only ingredients that comply with the National Organic Standards, and is registered for sale as a calcium source throughout the Midwest. Ask your consultant for more information on OrganiCal.

We will be running test plots on the Bio-Ag research farm this summer comparing soil and tissue calcium concentrations on plots treated with gypsum, high-calcium limestone, and OrganiCal. The test plots will be clearly marked so you can check them out yourself at our Field Day on August 19th. In addition, further information on soil and tissue calcium levels on the test plots, and on the MILD extraction technique, will be available at our Bio-Ag booth.



Flies be gone!

By Jerry Brunetti



Well, it may not seem an appropriate time to talk about them since the temperatures are hardly tropical but

it won't be long before "they" come and potentially make everyone's life miserable on the farm.

"They" of course are flies: house flies, stable flies, face flies, horn flies, heel flies, horse and deer flies. What they need that you and your livestock have is nourishment to reproduce and to feed their young, namely blood for the adult females and manure for their kids, the maggots. Of course, damp, rotting feedstuffs will do as well as manure.

The "Good News" is that you have multiple options out there. You can attack the problem on several fronts. The "Bad News" is (also) that you have multiple options out there and in order to really reconcile the problem you need to attack the problem on multiple fronts.

I grew up in a household with a mother who viewed her kitchen like an FDA supervised gnotobiotic (germ free) lab rat facility. Even a single fly was hunted down as if there were a bounty on its corpse. But it only took a 25 cent flyswatter in those days to restore a sense of safety and composure at home.

So, here are my suggestions to deal with our annual plague of an airborne livestock and human nuisance. It is a good idea to start with the prevention of the opportunism

by making sure you reduce their habitat, also known as manure sanitation. Don't let manure accumulate in the gutters, in calf hutches (especially clean daily! and add new bedding as shavings, saw dust, etc.) Stacked manure should ideally be moved 1/4 mile from the stable if possible, since that seems to be their preferred maximum flying distance. Try to compost the manure; or at least stack it as a "fermented" pile.

As you make the pile, add approximately 1/4-1/2 oz. daily per cow of the following minerals (can add these in the stable): Gypsum, Dyna-min clay, Humates, and Zeolite. Cover the pile with soil or a plastic tarp to disallow adults to lay their eggs. These additives eliminate the volatile gasses like ammonia, creating more nutrient-rich compost, and fewer gasses to attract flies. Liquid manure pits need to be "active" enough not to produce a crust, which is an ideal substrate for maggots.

Spilled, rotting and wet feedstuffs, including unprotected round bales and bunker silage, are also opportune sites for fly reproduction. If this kind of feed is continually exposed, dusting regularly with Diatomaceous Earth has been reported to be effective by some farmers.

Keep in mind that the life cycle in feed, silage bedding and manure is about 7 days. Allowing the substrate to be disturbed and to dry out is the key.

Composted bedding systems in the barn are great if you stir the surface daily. Bottom line is that wet (50-70%) manure/feed/silage is what they need. Conversely, dry manure (50-70% DM) attracts beneficial mites which parasitize maggots. In field trials, mites reduced flies by 45-70% better than pesti-

cides!

Other fly parasites are parasitical wasps (adults are the size of gnats), which are released beginning in April/May and then released weekly thereafter. Releasing their larvae around water troughs, manure piles, manure cleaner elevators, and group pens allows for very good coverage with encouraging results. There are several suppliers of these, that send larvae on a regular mailing schedule over the summer.

Out in the pasture it would be ideal if you had an aggressive population of dung beetles, hogs or chickens to work over the cow pies, as they are a blinking billboard for adults to lay their eggs. This is especially true of biting face and horn flies. If you don't have other critters to spread or bury the pats, you may want to drag the pastures to spread the pats and allow them to dry out.

Other wild friends you should have are birds like tree swallows! I was on a farm (70 cows) that had 135 tree swallow boxes, providing two sets of fledglings per season. They estimated the birds consumed 500,000 insects every single day! They also had Pueblo swallows that built mud nests on the wayward side of the barn, as well as blue birds and barn swallows. These guys were aggressive, even eating leaf hoppers, horse and deer flies.

Now to protect the stock when the pressure is high (wet, humid weather), consider fly repellents.

Some stockman use automatic applicators at the parlor exit door; for calves/heifers on pasture. An automatic mineral feeder apparatus (e.g. Protector) can be used which sprays the animal on the head, neck and shoulders each time it reaches in for salt/minerals. Adding oiler

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Why Plant Corn in 38" Rows in May?

By Gary Zimmer

In the last issue of the BioNews, I wrote an article on planting corn in 38" rows in mid-May. Is that how you grow 300 bushel corn? To grow 300 bushel corn you first have to earn the right.

I am sure that planting early with narrow rows along with putting more seeds in hard, tight ground is not the answer.

Doing better always seems to involve taking care of many little details.

It takes mineralized healthy soils. One really good measure of the health of your soils is growing larger crops without the 'need' for more nitrogen. Nitrogen is the only nutrient you can grow yourself. It comes from healthy, biologically active soils.

Now, you can extract many nutrients from the natural base in your soils, but you can't grow them. You extract them with larger root systems, good biology, and properly used chemistry.

Planting dates, populations, row spacing, nitrogen applications, soil biology, green manure crops, soil air, soil water, tillage or no-till, soil nutrients (not just NPK but also Calcium, Magnesium, Sulfur, traces in exchangeable form), placement of fertilizer, root systems--those are just some of the many decisions we all face in our farming operations.

With the present farm economics, it is certainly a good time to explore moving up the ladder to the next bar.

Decisions for planting early or on properly placing seeds in narrower rows, have brought benefits to some and certainly are a popular topic with farmers. As with liquid fertilizer, it's the easy things we can do. The farmers who go the extra mile, and now especially with the high input prices, are the ones who will be rewarded, as my winter meeting topic for this past year, Raising the Bar, brought out.

What you are really doing when farming is collecting the sun's energy and building carbons; developing/maintaining an aerobic soil, with a loose and crumbly texture, and filled with lots of soil life. It's breathing, taking in oxygen and

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...Flies be gone

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bags to this arrangement can provide even more thorough coverage. The surfactants and terpenoids actually "clean" the cows of manure and dirt, making them less attractive to flies.

"Passive" mineral feeders that have a gravity flow wicking system that saturates a felt layer with a repellent mixture underneath the rubber lid that covers the mineral feeder are also worthwhile though they protect mostly the head area.

Dusting cattle with finely ground white limestone (not hydrated lime) also acts as a repellent. Apparently, it works on a light reflection principle similar to "Surround" dust repellent on produce/fruits. You need approximately 1-3 lbs per cow/day, and you need good coverage.

Three ways to reduce fly pressure:

1. Reduce habitat
2. Supply/encourage predators
3. Use repellants

A very inexpensive to build, yet effective, walk through trap can be made from plans available from the University of Missouri, Columbia.

The plans available are identified as Plan 1-904-C-6 Fly Trap. It works by creating a dark tunnel effect, utilizing fans, water misters, chains, etc. to knock the flies off the cattle and forcing them into sticky tape, electric zappers, or one-way screens. The exit door contains plastic strips that remove the resid-

ual flies hanging on prior to the cattle going into the parlor/stable for milking.

"Mr. Sticky" type sticky tape is still a good idea to capture as many adults that are recreating in the stable. If you use attractant fly traps, stinky traps catch mostly house flies (as do electric light traps). The Olson Biting Fly Trap will attract stable and face flies and the house/deer flies are attracted to the Manitoba Trap.

So there you have it: controls that can create a balanced ecosystem on your farm where flies remain an incidental bottom of the food chain component that no longer create economic losses and misery for two and four legged residents trying to enjoy the sweet season of sunshine and fresh air.

....why plant corn in 38" rows in May?

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giving off carbon dioxide. It's all about nutrient exchange and diversity of soil organisms, and that's only achievable in a healthy soil.

With the present farm economy, it is certainly a good time to explore moving up the ladder to the next bar.

Although I wouldn't disagree that planting date does have an effect, I just read an article in a farm magazine giving the bulk of the credit for the 20+ percent increase in corn yields in the last 30 years to planting two weeks earlier. I know on our organic farm planting untreated seed early, and then having to deal with weeds and losing the opportunity for my early spring green manure crops, would lead to a crop yield decrease. It would be a step backward, and a very unpleasant experience.

I've tried it before, and it didn't work for us. I know that some years you can get away with it, but I'm not willing to take the risk. With all the high input costs of getting a crop in the ground, plus the real benefits of 'raising the bar' to much greater yields and quality with less risk and less inputs, many more farms need to dig deeper into this biological farming system.

This is the challenge and opportunity in agriculture. We can produce a whole lot more, a whole lot better quality, and do it in a lot more environmentally friendly way.

Raise the bar!—that means taking steps one at a time as they fit your farm. It is not about research projects, it's a common sense logical approach to dealing with the many aspects of growing food.

It is a system that includes

evaluation, nutrient placement, root development and looking for limiting factors. It's the fun in farming!

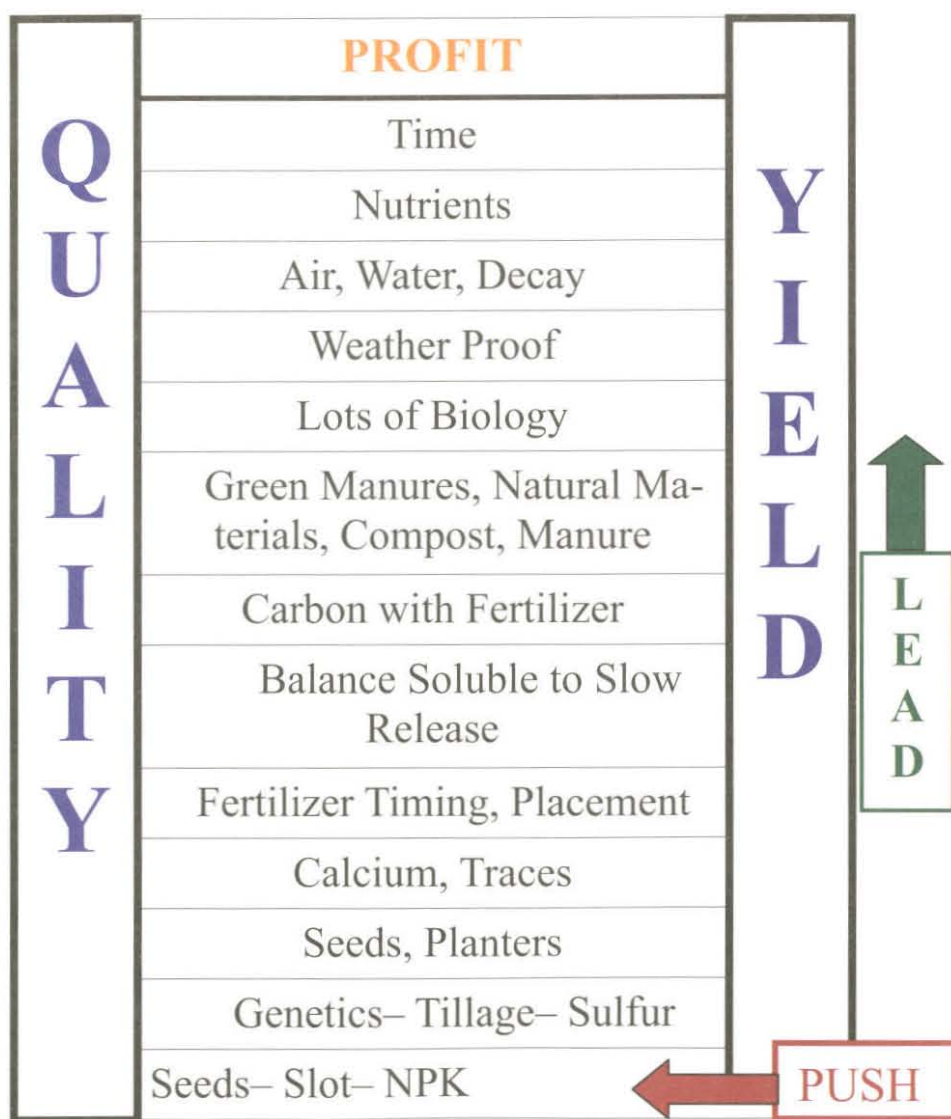
Don't miss the opportunities this growing season to test, dig, and look. Add a green manure crop, evaluate your rotations, consider using livestock manures or compost. Many more compost sources are becoming available and with the high fertilizer prices this year, they are becoming better and better deals. Chicken manure as a fall corrective is a bargain; at this time of

year, however, we have only a limited supply, so I hope you've placed your orders early.

Earthworms, lots of biology, green manure crops—these all 'grow' nitrogen. Just remember, it's not simply a numbers game.

Relish the fun and challenge of farming. I hope you have a great growing season in '08.

Why not have one of our consultants out to visit your farm for a 'dig' into the workings of your biological system?



Leading, not pushing, moves you toward profit.

Little Things, Big Differences

*By Dan Davidson
Staff consultant*

In our last newsletter, I offered some tips and observations from MBA consultants and staff regarding what are often considered "little things" which are in reality very important.

Here are a few more.

On dairy, Gary Zimmer encourages us to constantly be looking for ways to maximize the nutritional value of our forages.

Paul Deckard, our dairy specialist, reminds us of an often overlooked area, that is footing for our cattle. High traffic areas need to be carefully monitored. One rock or a broken piece of concrete is all it takes to start foot trouble.

Another item to watch is high moisture shell corn—feeding techniques for HMSC must be mastered, or we need to stop using HMSC storage units. Silos must be bleached at least every other year, and a good inoculant should always be used. He has seen improvement every time that someone has switched to using dry corn.

Another problem that's easy to overlook is having too much exposed feed surface of silage for the number of animals.

Finally, Paul reminds us of the need to include a variety of grasses in the dairy cow's diet to provide an important source of methionine and phosphorus.

Bob Schmidtkecht reminds us that animals are creatures of habit. We need to be consistent and feed the calves and milk the cows on schedule. Even five or ten minutes can make a difference. He says

that delaying milking can signal the animals that we don't want their milk and they may begin to dry off.

Regarding tillage, Bob counsels that conditions other than ideal are not acceptable. Plant small grains as early as possible but hold off on corn until the soil is warm. Harvest forages at the proper stage—early for milk cow feed and later for dry cow feed.

Certified Consultant Rick Knopp has observed that even small adjust-

ments in stall design can make a big difference in cow comfort. Provide enough lunge room so that the cow can get up without being rubbed.

Poor seed-

bed preparation is by far the biggest cause of seeding failure, says MBA forage specialist Karl Dallefeld. The seed-bed must be firm-- not more than a quarter inch deep shoe print-- before the seed is placed. Because of the small size of seeds, the seed to soil contact is much more critical than with corn.

Karl adds that quality forage is essential. Using balanced fertility, quality genetics that match the soil, cutting at the proper maturity and getting it put up quickly are keys.

Karl also mentions paying attention to cow comfort by providing adequate clean water, protection from the wind, and a dry place to rest. Don't skimp on nutrition: include probiotics in the diet, and keep free choice salt, mineral and buffer available at all times.

Steven Hooley, a consultant and grazer from Indiana encourages us to walk the farm: pay attention to the animals while they are drinking, eating and socializing. Take note of buildings or equipment that need maintenance, and then take care of it. Take time to explore how things might be improved. Read about what others are doing, ask advice of others, and get away once in a while to observe other ways of doing things. Ask the "what if?" questions. Are there changes that can be made that will lead to improved animal health and people health?

I think it is encouraging to know that it may only take a little thing to make a big difference. The guy that comes in first does not have to work twice as hard as the guy who takes second place. I realize that it is easier to talk about work than it is to actually get at it and do it, so as MBA consultants I (and the others quoted here) have the easier job, but I hope that I, and they, can help you to work smarter rather than harder.

My thanks to all the MBA consultants/farmers who contributed to these articles! I know from personal observation that each understands the importance of 'the little things' that can make a big difference.

I'll finish with some words of wisdom from Mr. Schmidtkecht. "What is right for one place may not be right for you. Don't put off until tomorrow what needs to be done today. We can't recycle time. If you want to stay youthful, stay useful. Get things done."

And while you're at it, have a good time.

I think it is encouraging to know that it may only take a little thing to make a big difference.

How did your Forages Overwinter?

By Karl Dallefeld
MBA Forage Specialist

Spring is already upon us. Soon we will be able to see how well our forages have survived a winter that has been challenging for most of us.

Remembering that our first and foremost goal is to produce the highest quality forage that we can for the benefit of our livestock, let's take a look at our forages for 2008.

Check the health of forage stands

As soon as the frost is gone and regrowth has started, take a look at your fields and pastures. Do they have healthy vigorous plants or will you need to look for alternative sources for quality forages?

Dig up a few plants to look for indications of plant health.

Alfalfa roots should be a bright white and be firm. Roots that are tan or brown and soft have been injured and the plant will either die back or be stunted. They may come out of dormancy and start growing, but they are more than likely using the root reserves out of their crowns to start the initial growth and later they will become unthrifty or die back.

Grasses should have the same bright, healthy looking root system as alfalfa and clovers.

While we do commonly find a small percentage of plants that are dying back in the spring, the majority should be healthy.

Strategies for increasing/improving forages

If we need to look at alternative forages, there are choices that can give us quality or quantity and sometimes both.

Stem Density	Note: This is a count of stems, not plants
Over 55	Not Limiting Yield
40-55	Limiting Yield Potential
Under 40	Severely Limiting Yield

One choice may be to tear up the alfalfa fields that are the poorest and plant silage corns such as the HQF 497 and reseed alfalfa in our normal rotation. One plus with this decision is that the alfalfa provides additional nitrogen for the corn crop.

(Continued on page 12)



....How did your forages overwinter?

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If most of your stands are injured, and you're going to be short on forages consider planting alternatives such as Italian ryegrass, Hybrid Sudangrasses, SorghumX-sudangrasses, forage oats and peas, triticale and peas, or berseem clover just to mention a few.

There are many forage options--your Bio-Ag consultant can give you more specific suggestions on what might work best for your area and management.

Here are a couple that I like (but remember, every situation is different)—

Italian ryegrass will provide lots of very high quality forage but needs to be harvested more frequently than alfalfa. Make sure that you get a true Italian such as Green Spirit and not an annual ryegrass. It should provide forage through the spring, summer and fall as long as you get ample rainfall. They do prefer higher levels of fertility. Italians will not generally produce a seed head until the temperature drops below freezing and this stimulates vernalization.

Other cool season options are triticale or oats and forage peas. This will be a 60+ day crop and should supply lots of tonnage of reasonable quality forage. After harvest you can come back in early August and reseed.

An alternative is, after the soil temperature rises above 60+ degrees consistently in mid-May to early June, you could plant a warm season annual for summer and fall production such as hybrid sudangrass, sorghumXsudangrass, or teff.

Sudangrass and sorghumXsudangrass will give the most tonnage of quality forage of the three. They are all multiple cutting forages. All



of the above forages could be grazed or ensiled or wrapped for wet baleage.

Hybrid Sudangrass and Sorghum X Sudangrass will definitely give the most tonnage and may be cut multiple times. Cutting height and timing are important for quality and regrowth.

Teff has the ability to be made for dry hay, but doesn't seem to give the high yields of other forage crops.

Any of the warm season crops could then be followed with a winter crop such as Triticale, Winter Wheat, or Winter Rye grain. It is possible to graze it once in the fall and either graze in the spring or make silage.

If you need to keep the stand for another year, you could extend the stand temporarily by seeding either berseem clover or Italian ryegrass. Both are good short term forages. Italian ryegrass is probably the best choice for interseeding and will return the highest feed value. Ber-

seem is sensitive to frost and needs to be seeded after all danger of frost has past. It will behave much like alfalfa.

In addition to interseeding additional legumes or grasses, fertilize to get the most benefit from the refreshed stand. Grasses respond to additional nitrogen and a balanced fertilizer and the clovers would respond well to an alfalfa fertilizer.

Don't forget silage corns

Along with the quality forages of alfalfa and grass blends, don't forget that we can produce more energy and effective fiber with silage corns.

When looking for a silage corn to plant, keep in mind that livestock not only need starch but also must have effective digestible fibers.

Midwestern Bio-Ag silage hybrids are selected to produce that forage quality by providing starch, fiber digestibility, and sugars after fermentation.

TRADING POST

FOR SALE

Gandy drop lime spreader— 715-571-1950

Case Intl. 183 6-row cultivator— Danish tines, rolling fenders, will deliver anywhere in Midwest 270-674-5633

100 big square wrapped baleage— about 1300 lbs. each, new seeding, triticale & peas with some alfalfa. Organic RFV approx. 121. Call 319-434-2017

Hay and straw— 4x4 net wrapped round bales, 1st-2nd-rd crops grass/alfalfa mix grown on Bio-Ag program. 262-224-4038

Case IH MX100 tractor for sale— 2 wheel drive, power shift; 2100 hours, excellent condition 262-224-4038

2008 organic feed available— 145 irrigated acres, Mosa certified organic alfalfa/brome hay. In 4x4 net wrapped, 5" cut length round bales 715-366-7671 or (mobile) 715-347-0545

MOSA certified organic dairy herd and feed— For sale, 15 Jersey 3/4 and milking shorthorn 1/4 cross bred heifers due in May, 12 due Sept. 08; 7 Jersey/Holstein cross open heifers, 2007 calf crop. This is a managed intensive grazed high forage low grain herd that is out-wintered. Also selling bulls. 715-366-7671 or (mobile) 715-347-0545

Organic wheat and barley— for sale, southeastern Dodge County, Wisconsin 920-625-2185
Bull for sale— 3-way cross Holstein-Brown Swiss-Jersey Born June 2007 715-235-2353

Yetter 60 ft. rotary hoe— on progressive folding tool-bar. Good hoe wheels. \$6,800. Call 815-438-4293 home or 815-499-4450 cell

WANTED

Dairy farm wanted to rent for rotational grazing, 608-575-4172

Herdsman/Milker— Otter Creek Organic Farm, SW Wisconsin, 200 cow organic dairy farm. Must be good

with cows. Some milking, rotational grazing, breeding, hoof care. Our objective is prevention. Great learning and career opportunity. 608-831-2778 or e-mail rgzimmer@MHTC.net

Meat producers wanted: organic beef, pork, poultry, lamb. Custom processing and wholesale organic pasture raised pork and beef. Get on our list as we grow! Only organic methods used. Can smoke, cook, make specialty products, and make your own farm label. Gorman's Locker, Lone Rock, WI 608-583-2781

Consultants wanted We have openings for full-time consultants to work with biological farmers. Farming experience or sales experience helpful. Help Midwestern Bio-Ag change agriculture! For more information, call 1-800-327-6012, ask for Tim

Wanted— Organic producers of milk, meat and eggs. Now and into the future. Please contact Organic Valley, 1- 888-809-9297 or on the web

Guests wanted at the 2008 MBA Field Day— Tuesday, Aug. 19 at the Bio-Ag Learning Center and Otter Creek Organic Farm

For Rent & Misc.

Save the bees. Need organic farms in NW Illinois to put bee hives on 815-248-3321

Dairy facility for rent— 62-cow dairy facility. Other arrangements possible. Some organic feed available. Land is certified organic. Rock City, Ill. 815-865-5288

Organic land for rent— 30+ acres tillable, terms available, near the Mississippi River; organic since 1982. Call 608-648-3420

3-year rolling acreage contracts from Organic Valley, with a minimum floor price for 15 crops including hay. For program description and enrollment packet, call 888-809-9297 or feed@organicvalley.coop

*Trading Post ads run one time free.
To place an ad in the Summer edition of the
BioNews, call Mary at 1-800-327-6012 by July 1.*

Feed home grown quality

By Jon Woolover
MBA Dairy Staff

Wow, what a difference a year can make! 6 dollar corn, 13 dollar beans, 4 dollar diesel and \$200/ton hay...and thankfully \$18-20/cwt milk. Inputs are higher, margins are smaller, and supplies are tight to non-existent for many commodities.

What does all of this mean for you the producer? Besides the obvious frustration and concern, it should remind you that the most economical and successful way to feed cattle is through homegrown, high quality forages. The last statement is no surprise to the committed Midwestern Bio-Ag customer or consultant. My goal today is simply to share with you how we

balance rations using high quality forages and the impact they can have on your operation.

It's important to occasionally remind ourselves how we define high quality forage. In the table on this page I've laid out Midwestern Bio-Ag's goals for alfalfa/grass based forages.

Of course there is more to high quality forage than just the test results. Always strive for healthy, pest free forages which were grown under ideal conditions. Also, it is critical to harvest and preserve these forages correctly in order to reap the full benefit of growing this type of feed. Baling or ensiling at the correct moisture & doing everything possible to limit spoilage is critical. Over the years we've had numerous producers tell us that MBA forages raised on our fertility "just feed better." This statement has been backed up by years of forage testing and on farm observations. The most notable quality of MBA forages are their highly digestible nature.

Tests such as NDFd48 and IVTDMD which measure the 48 hour digestibility of forages routinely show MBA forages are 5-10% more digestible when compared to conventionally raised crops. Livestock should be able to receive that much additional nutrition from MBA forages mainly in the form of energy from more digestible fiber in the plant.

This means that producers who feed high quality forages may be able to feed less concentrate or purchased inputs. Be sure to speak with

your MBA consultant about the optimum levels of grain and protein to feed your livestock!

Further testing shows that MBA forages are indeed higher in pectins, sugars, fats, minerals, and secondary metabolites. Pectins are highly digestible fibers in plants and can also be found in commodities such as soy hulls and beet pulp.

Pectins contain high levels of energy along with significant amounts of digestible fiber. Sugars and fats play the obvious role of fueling rumen microbe growth & providing energy to the animal. Minerals will be discussed later in this article.

Finally, secondary metabolites are those chemicals which all plants produce in different amounts through their natural processes. These metabolites are only beginning to be understood and are the basis for many of the nutraceutical products which are now on the market. They affect the health of the plant and may contribute to the health of the animal as well.

Dairies that are successful and have strong milk production have learned how to feed these "rocket fuel" forages correctly.

Creating a diversity of both plant species, and types of forages is crucial to making high forage diets work for you. Using grass blends in your alfalfa brings a different mineral and protein profile to your forage. Also, grasses can increase tonnage, palatability,

(Continued on page 15)

...the most economical and successful way to feed cattle is through home-grown, high quality forages.

Component	Target level
Crude Protein	18-22%
Nitrogen: Sulfur Ratio	10:1 or less
ADF	28-30%
NDF	ADF + 15%
NDFd48	>49%
IVTDMD	76-84%
Calcium	>1.5%
Phosphorus	>0.35%
Magnesium	>0.35%
Potassium	2.0-2.5%
Sulfur	10:1 N:S ratio
NEL	>0.65 Mcal/lb
RFV	>150
RFQ	>RFV+15

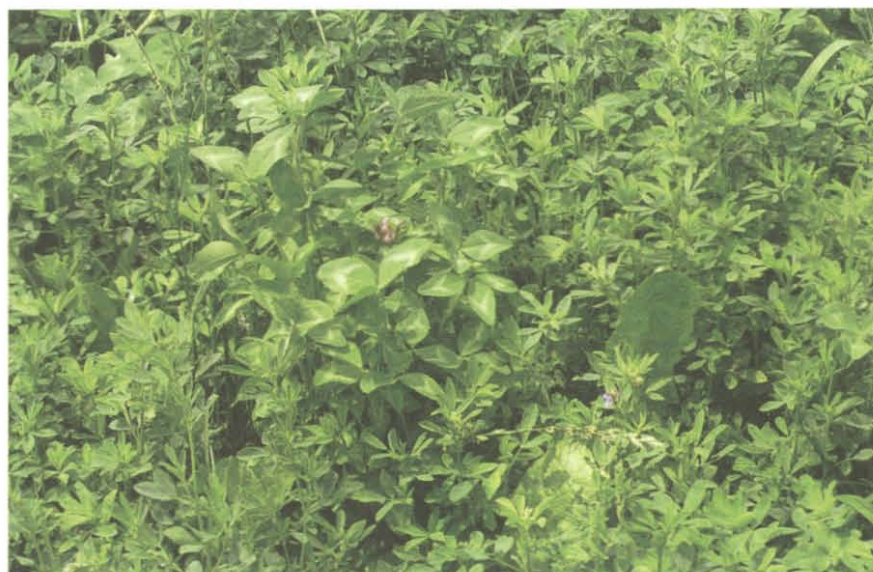
....feed home grown quality

(Continued from page 14)

and digestibility of forage. Phosphorus uptake in grass is excellent and highly available to the animal resulting in better reproduction and energy metabolism. Each grass species imparts a unique nutrient composition, flavor, and quality to forage blends.

You should also look for different types of forage for your ration. I suggest feeding a combination of dry hay, baleage or silage, & corn silage. Your goal as a producer should be to optimize rumen function and efficiency by providing a balance of protein and carbohydrates throughout the day. By combining forage sources you can ensure quality sources of protein, energy, pectins, digestible fiber, sugar, fat and minerals.

For example, silage/baleage brings soluble and readily digested protein to a diet which should be



paired with "faster" carbohydrate sources such as small grains, sugar, Alcomp (an alcohol based liquid feed), or finely ground corn. Then combine some slower digesting dry hay with energy sources such as corn silage & highly digestible pectin (from forages) to provide a balance later in the digestive process. This will maintain a high rumen microbe population throughout the day maximizing VFA production and microbial protein synthesis.

High quality forages bring more than just energy and protein to the diet. Forages are the main source of minerals & vitamins and because they come from a living plant these nutrients are highly bio-available. Minerals from plants are considered to be 80-85% available to an animal as opposed to purchased minerals which range from 25-45%.

Healthy forages grown on a balanced fertilizer program capture a huge amount of minerals, especially calcium, phosphorus, magnesium, and vitamin A, plus a host of trace minerals and other vitamins. The more minerals we can sequester from our forages, the less we have to purchase costly mineral supplements.

Feeding adequate levels of highly available minerals/vitamins is crucial to maintaining animal health, longevity, reproduction, and immune system function.

Many times we encounter farms which are feeding marginal forages with low mineral levels. These situations are almost always accompanied by health problems, poor breeding, high culling rates, and suppressed immune systems.

Focusing on the production of high quality forages should be the goal of every progressive farmer. Providing more digestible nutrients, higher levels of minerals and vitamins, and more energy and protein is the fastest and easiest way to improve production, increase production and eliminate costly health issues. Remember: the biggest return for livestock producers is spending money to create healthy, mineralized soils which produce high yields of mineralized, digestible, quality forages.

Visit with your MBA consultant to implement a high quality forage program on your farm today!

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Midwestern Bio-Ag

10955 Blackhawk Dr.,
POBox 160,
Blue Mounds, WI 53517
1-800-327-6012/1-608-437-4994

BioAg of Michigan

246 Cross Rd.
Kinde, MI 48445
1-989-874-6009/1-888-825-9373

Midwestern Bio-Ag of Iowa

18355 170th Ave
Monticello, IA 52310
1-319-465-3503/1-888-465-3503

MBA of Minnesota

16231 County Road 18,
Utica, MN 55979
1-866-485-4300

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