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## The Growers Solution

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WINTER 2007

VOLUME 20 ISSUE 1

### Jerger Farm Has High DHIA Cows

By Jennie Henry

In our TGS Winter 2006 issue, Dennis Jerger told us about their experiment with Italian ryegrass in an alfalfa field and how well the cows performed. Dennis and Kevin Jerger farm near Barnesville in the Red River Valley of western Minnesota. In February, they had a pleasant surprise at their West Otter Tail County Dairy Herd Improvement Association annual meeting. Dennis can tell the story.

“They picked the top three cows from about 4,700 head on the Association’s test. Out of 75 herds, we got the top cow. The award was for the ‘DHIA High Cow-Dollar Value,’ which

means she produced the most milk/income. We also had the number three cow in that category.

“We’re not feeding the way most dairy farmers traditionally feed their cows. We feed alfalfa haylage, corn silage, oats, shelled corn, and balance the ration with linseed meal and corn distillers. Then to the grain mix we add Growers (GMS) at the recommended rate, plus limestone.

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Left to right: Ken Jerger, Jim Halbeisen and Dennis Jerger.

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### Soils, Their Use, Abuse and Restoration

(In this third segment, our Maine potato grower, Sam Niblett, describes his dubious discovery of More Food From Soil Science, Dr. Tiedjens, Wilbur Franklin and calcium. Eds.)

By Sam Niblett

It was during the winter of 1977-78 that I became very serious about looking for another way of farming or looking for a job. One or the other. I was young enough to do something else and could perhaps outlive the stigma of bankruptcy, especially if we left the area, but “it was such a nice place to live!”

Luck is sometimes described as, “That point when preparation and opportunity meet.” I think Divine Providence plays a part, too. Be that as it may, in the fall of 1977, in the midst of my search for a way to grow potatoes that would yield, store

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An 11-inch potato weighing 3 pounds, 9 ounces, Sam Niblett, Easton, Maine. (Fall 1987)

## Elemental Balance Is Necessary

By Jim Halbeisen

According to many plant nutritionists, approximately 16 elements are required to grow a plant to maturity. Charts similar to the one shown here, Table One, list the elements and the quantities the nutritionists feel are necessary in plant tissue.

For years Growers Mineral Solutions (GMS) representatives have helped farmers understand the importance of growing crops with the complete balance of both macroelements and microelements. During Dr. V. A. Tiedjens many years of early research, which included much hydroponic work, he learned the value of nutrient balance needed for successful plant growth. Accordingly, in GMS he placed each of the elements in relative proper amounts. The element balance in GMS is unique in the agricultural industry, and ensures Growers Chemical Corporation's competitiveness.

It is pretty well known that Dr. Tiedjens developed GMS's balanced nutrition formula, in part, by way of his early and extensive work in hydroponics. For proprietary reasons, the formula remains secret, however, Dr. Tiedjens always said the secret is easily found; just go to the field, like he did, with uncounted different plant food nutrient ratios and then observe which one from plots replicated many, many times will make the farmer the most profit. No problem. It only took him, a very intelligent scientist, a large part of a lifetime.

Dr. Tiedjens' very important and relevant work has never been, and probably never will be, repeated. The beauty of his research is that GMS stands the test of time—over 50 years—and continues to perform on the farm as he intended.

Recently, while working with livestock and vegetable producers, our Florida GMS sales representatives learned of a nearby hydroponic strawberry operation needing help. By definition, hydroponic crops are not grown in soil. This means all the nutrients necessary to grow the crop must be supplied in liquid form which can be, and almost always is, complicated and difficult. This operation was using a three-element (N, P, K) liquid fertilizer material that had them adding extra elements.

GMS was introduced to the strawberries in two ways; through a trickle type watering system into the growing media and by foliar spraying the plants. With the change from their original embellished three-element fertilizer to GMS, strawberry production improved dramatically. Inspired, the producer now



Florida Hydroponic Strawberry operation Foliar Sprays and Tricklees, separately, twice a day, Growers Mineral Solutions for the crop's only nutrient source.

successfully uses GMS in all the other sectors of his operation.

It is important to note that the water used here for watering and foliar spraying is very soft which is ideal. GMS when mixed with water with much hardness in it can have some of nutrients precipitate resulting in nozzle or emitter plugging problems. Soft water has very little chemical interaction with GMS resulting in hardly any amount of GMS element imbalance. And, softer water carries a very low dissolved solid load which means there would be very little, or no, salt effect on the plants' leaves and roots. On the other hand, soft water carries practically no minerals, so minerals (GMS) have to be added to supply the elements needed by hydroponically grown plants.

Since neither the water nor the growing media is able to supply nutrient elements to the growing plant, this strawberry operation clearly

shows that GMS can successfully supply the elements necessary for profitable plant production. ■

Table 1

Concentrations of Nutrient Elements in Plant Material at Levels Considered Adequate			
Element	Chemical Symbol	Atomic Weight	In Dry Matter ppm or %
			<b>ppm</b>
Molybdenum	Mo	95.95	0.1
Copper	Cu	63.54	6
Zinc	Zn	65.38	20
Manganese	Mn	54.94	50
Iron	Fe	55.85	100
Boron	B	10.82	20
Chlorine	Cl	35.46	100
			<b>%</b>
Sulfur	S	32.07	0.1
Phosphorus	P	30.98	0.2
Magnesium	Mg	24.32	0.2
Calcium	Ca	40.08	0.5
Potassium	K	39.10	1.0
Nitrogen	N	14.01	1.5
Oxygen	O	16.00	45.0
Carbon	C	12.01	45.0
Hydrogen	H	1.01	6.0

*From Epstein (1965), after Stout (1961)*

# Antibiotic Resistance: Agriculture and Human Medicine

By Jim Halbeisen

The use of antibiotics in animal feed is being blamed, at least in part, for the rise of antibiotic-resistant bacteria, and as more people are touched by ARB, the issue becomes more sensitive.

In the late 1940s and early 1950s it was found feeding small amounts of antibiotics to chickens, pigs and beef cattle improved their growth and performance, and they also helped compensate for less sanitary and crowded conditions. Soon scientists began suggesting the nontherapeutic use of antibiotics at levels just high enough to control a host animal's bacterial population, but too low to wipe them out, thus encouraging resistant bacteria.

An excellent discussion by Gary Stix published in the April 2006 issue of *Scientific American* explains genetic mutation as it relates to antibiotics. The heavy use of antibiotics in both human medicine and animal agriculture has been allowing various bacteria to develop resistances. The excessive use of antibiotics in human medicine is well known and understood, but not so well known is that many of the antibiotics used by animals are also used in human medicine, and the volume used on animals is massive. Some USDA members say 70 percent of all US antibiotics are used non

therapeutically on animals.

An Environmental Defense study claims 26.5 million pounds of antibiotics are used in the United States each year as animal feed additives, but that 13.5 million pounds of those antibiotics are excreted. The USDA's Agricultural Research Service (ARS) in the February 13, 2006, issue of *Feedstuffs* said, "The trouble is that when animals excrete unmetabolized antibiotics and other pharmaceuticals in their waste, the compounds may linger in the environment. This so-called 'pharmaceutical pollution' can encourage bacteria to mutate and form strains that are resistant to current antibiotics," and bacteria, once inside the human body, can easily transfer their antibiotic resistance to other bacteria.

Dr. Henry I. Miller, M.D, in the May 15, 2006 issue of *Genetic Engineering News*, commented on the serious nature of the ARB problem, "As many as two million patients nationwide contract infections in hospitals each year, and 90,000 die. The death rate in such cases is alarmingly high, not because the patients initially are gravely ill, but because hospital germs increasingly are resistant to multiple antibiotics. About 70% of infections are resistant to at least one drug, hence, we must resort to drugs that are inconvenient to

administer or are toxic.

"And, many of today's routine medical procedures, from surgical operations to chemotherapy, will be far more dangerous if we permit the bacteria to outwit us. Antibiotic-resistant pathogens also lead to higher health-care costs because they often require more expensive drugs and extended hospital stays.

"An example supporting this pessimistic view is our waning ability to treat the common pathogen *Staphylococcus aureus*, or *S. aureus*, which causes pustules and abscesses on the skin and can spread to the bloodstream, lungs, brain, bones, or heart, causing severe organ damage and death. Nearly all *S. aureus* strains have now become resistant to penicillin, and many have become resistant to methicillin and other similar drugs comprising the second line of treatment for *S. aureus* infections.

"The CDC is saying, 'If we are unable to limit the emergence and spread of resistance, and replace drugs like vancomycin as they lose their effectiveness, *S. aureus* and other similar common bacterial infections may be untreatable, as they were 60 years ago...

"Federal officials, however, have paid little attention to the flip side of the problem: the shortage of new antibiotics. Most antibiotics in

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## On The Road Again

### WINTER 2007

Growers Mineral Solutions is scheduled to set up and staff booths at the following upcoming farm shows and conventions this winter. It's a great time to stop in and review your plant food and animal nutrition needs, hear about new developments at Growers or just chat with the folks who make it all happen—your friends and neighbors.

Jan. 5-7, 2007	Georgia Fruit and Vegetable Show Savannah, GA	Jan. 16-18	New Jersey Vegetable Marketing Atlantic City, NJ	Feb. 13-14	Alexandria Area Farm Show, Alexandria, MN
Jan. 9-11	Keystone Farm Show York, PA	Jan. 22-25	Delaware Ag. Week Harrington, DE	Feb. 14-15	Empire State Fruit and Vegetable Expo Rochester, NY
Jan. 9-11	Ontario Landscape Congress Toronto, Ontario, Canada	Jan. 23-25	Virginia Farm Show Fishersville, VA	Feb. 14-17	National Farm Machinery Show, Louisville, KY
Jan. 16-17	Ohio Fruit and Vegetable Show, Columbus, OH	Jan. 25-26	North Central Ohio Grazing Conference Wooster, OH	Feb. 22-24	New York Farm Show Syracuse, NY
Jan. 16-18	Fort Wayne Farm Show Fort Wayne, IN	Jan. 30-Feb 1	Mid Atlantic Fruit and Vegetable, Hershey, PA	Feb. 27-28	Pennsylvania Grazing and Forage Conference Grantsville, PA
		Jan. 31-Feb. 2	Southern Farm Show Raleigh, NC	Feb. 27-Mar 1	Central Minnesota Farm Show St. Cloud, MN
		Feb. 2	Northern Indiana Grazing Conference Shipshewana, IN	Mar. 7-9	Western Fair Farm Show London, Ont., Canada
		Feb. 6-8	Canadian International Farm Equip Toronto, Ontario, Canada		
		Feb. 8-9	Viticulture 2007 Rochester, NY		

Hope To See You!

## Committed To Growers

By Jennie Henry

Israel Cromartie, of Clarkton in North Carolina's southeastern coastal plain, decided to start out trying the Growers philosophy by buying a 1,000 gallons. "I wanted a thousand!", he said in his characteristic rapid fire dialogue. "If I'm going, no use in messing around!...If I get a thousand gallons, I'm going to use it, and I'll watch it! I'm going to go do it. I think Bill (his Growers sales rep) was shocked when I said that!" That was in 2003.

In the summer of 2006, planning ahead for the spring of 2007, Israel ordered attachments for his six row planter. When asked how the Growers planter attachments had worked for him, Israel replied, "Where we had them on the four row planter, I had to go through a whole lot of problems to get to them, moving a lot of stuff. So I had to do a little readjusting. Not much. I just kept monitoring them. I can do this, I can do that. And it worked. It worked perfect this year!

When asked what was on his corn, Mr. Cromartie said he only used 3 gallons of Growers on the seed and no dry fertilizer. "I about quit that dry fertilizer! It doesn't really make sense, not to me, it doesn't. It might make sense to somebody else. Number one nitrogen, number two phosphorus, three potash. So why would I want to go spread potash? Why would I want to come back and put nitrogen and phosphorus in the planter when I can do all three in one shot and I can save a trip? That's saving time and money."

And Israel knows the value of time, raising corn, cotton and peanuts on over 1,000 acres. As we drove through his neighborhood, I could tell his fields by the perfect health of the crops and the weed free fields. He smiled, "Yeah, I'm pleased with the crops. I don't know if Growers and Bill did it, the nitrogen, or what did it, but they look good."

While we drove, stopped to look at crops and take pictures, I mentioned I was impressed with his desire to do the best he could. Mr. Cromartie replied, "That's my goal in everything. That was our motto when we finished high school, 'a job worth doing is worth doing right.' And I've never forgot that. I try to do the best that I can. Whatever it is. ...I tell them, if you do that, it will become a everyday thing. ...If I see a weed, I have to pull it up. I can't leave it. I just can't stand it!

"I've got a lot of 'children' out here. I've got to look out for my 'children'. I've got to stay on it until I get them in. When I get them in, then I can rest better. I'm out there watching



Israel Cromartie of Clarkton, North Carolina.

them. You have to be alert. Catching things quick. Catch em quick. And you are much ahead of the game. If you watch everything fall apart, you are in trouble. It takes so long to get everybody going, get all of the parts, and reorder, by the time you get everything right, the summer will be over!" He bent over an

imaginary weed, "'Slow down a little bit, my tractor's in the shop!' You can't say that!"

Israel concluded, "You've got to cultivate your mind in the right time, and the right time is the main thing in everything." It appears that Mr. Cromartie has cultivated the Growers Program to be an asset to his farm. ■



# Who Is Guarding The Chicken House?

By Jim Johns

Interesting information has been coming our way recently. It seems the fertilizer industry via its lobbying organization, The Fertilizer Institute (TFI), and the various state and Canadian regulatory people via their national organization, the American Association of Plant Food Control Officials (AAPFCO), are together looking at heavy metals in fertilizers.

On an ag. co-op site, [www.csfco-op.com](http://www.csfco-op.com), Jim Halbeisen found an article stating the National Institute of Standards and Technology (NIST) has developed new reference materials designed to help the agricultural industry and state regulators monitor the concentrations of potentially hazardous heavy metal contaminants in fertilizers.

Jim checked the NIST web site and found they had issued a "Certificate of Analysis" titled "Standard Reference Material (SRM) # 695 in June, 2006.

State regulators tell us the impetus for this concern comes from the 1996 investigative work Duff Wilson, then of the *Seattle Times*, had done in connection with toxic waste materials being incorporated into farm fertilizers, rather than being taken to expensive toxic dump sites. He reported these toxic fertilizers were responsible for serious animal and human health problems and sterilized land. (See our Growers Web site, [www.GrowersNutritional.com](http://www.GrowersNutritional.com), under press releases for information on Duff

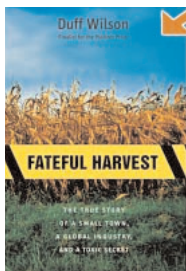
Wilson's book on the subject, *Fateful Harvest*.)

The NIST information comes on the heels of the Organic Materials Review Institute (OMRI) earlier this year, asking us, Growers, to comment on the heavy metal content in organic fertilizing materials. We replied to OMRI voicing our concerns. See *The Growers Solution*, Early Fall 2006.

As readers of *The Growers Solution* are well aware, for several years we have been very concerned about increasing amounts of heavy metals, particularly cadmium, being found in the systems of farm animals and in humans. But why are those supposedly responsible for preventing and correcting these toxicity problems just now making noises about doing something?

On the surface, the awareness on the part of the industry and the regulators that there may

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P.O. BOX 1750  
MILAN, OHIO 44846  
(419) 499-2508

October 19, 2006

XXX XXXXXX  
XXXXXXXXXX  
XXXXXX, XX XXXXX

Re: Heavy Metal Testing in Fertilizers

Dear XXXX:

Enclosed are copies of the articles I talked to you about Tuesday. The DTN article of October 13, 2006 was on a co-op web site we check; [www.csfco-op.com](http://www.csfco-op.com), under Ag News. We used Google to find the NIST article.

We like to think we follow industry happenings pretty closely, but this was our first clue TFI and AAPFCO had an interest in heavy metals. For several years our particular interest has been, and still is, various heavy metals, especially cadmium, appearing increasingly in fertilizers and feed. Now, after looking over the NIST SRM 695, we are concerned their testing methods are not sophisticated enough and the limits being set are not strict enough to prevent or correct problems.

In our experience we have found Neutron Activation Analysis needs to be used to detect cadmium. NAA is expensive and not readily available at most laboratories, but it finds minute amounts of Cd. The limits being set by NIST are too high (we suspect the TFI may have had some influence there) which is unfortunate, because even very small amounts of Cd can have very profound effects on animals in the food chain and ultimately people.

For some time the Center for Disease Control (CDC) has been on record blaming cigarette smoking as the cause of Cd being found in people. However, not long ago they put out a conflicting report stating that while the rate of smoking is declining, higher Cd levels are being found in people. Could it be in the food chain, and TFI and others, don't want to face facts?

We are concerned for our customers, the rest of the farming community and, of course, the people consuming the food produced. Thanks for your information.

Growers Nutritional Solutions  
James H. Johns  
Assistant to the President

## Antibiotic Resistance

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use today are chemically related to earlier ones discovered between 1941 and 1968. During the last 37 years, only two antibiotics with truly novel modes of action have been introduced...."

Two recent events illustrate the problem. In September, 2006, USDA documented over 200 cases of E.coli infections in humans, which caused almost a third to be hospitalized and about 15% to suffer a rare form of life threatening kidney failure. Although it was traced back to spinach grown in three California counties, the actual source of the harmful E.coli bacteria strain will probably never be known. The usual causes of E.coli are animal manure, polluted water supplies, flooding or contamination from farm workers. The manure from ruminant animals is suspect here. The intestines of ruminants are excellent breeding

grounds, usually being highly acidic, especially when fed high grain diets which is common. Large operation facilities also tend to stress animals, creating a need for antibiotics. These conditions set the stage for the promotion of antibiotic resistance and the development of very strong bacteria strains.

A DTN release of October 11, 2006, stated, "Antibiotic use as a livestock growth promoter increases the risk of human antibiotic resistance. The investigation team of the Marshfield Clinic Research Foundation, Marshfield, WI, focused on the use of a growth-promoting antibiotic, called virginiamycin, in poultry. According to Edward Belongia, MD, team head, "There is a relative lack of data on the impact of antibiotic use in livestock and its relationship to antibiotic resistance in humans, but there is a fair amount of indirect evidence suggesting that antibiotic use could pose a risk

to human health. Our study is one of the first to show an association between human carriage of antibiotic resistance genes and eating poultry or handling raw poultry.

"These results indicate that virginiamycin use in poultry leads to transfer of antibiotic resistance genes to human gut bacteria through the food supply and they provide additional evidence that the use of growth promoters in animals may have long-term consequences for human health. We need to have drugs to treat sick animals, but we should not be using antibiotics to promote growth."

The serious nature of this problem can not be overstated, and although most conscientious scientists suggest the true causes of ARB are unknown, we say, for the sake of precaution, and the experts agree, antibiotic use should be very significantly restricted. ■

## Who Is Guarding The Chicken House?

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be heavy metals in fertilizers seems encouraging. But looking at both OMRI's and NIST's proposed testing and limits, we are afraid it will continue to be "business as usual."

The testing procedures or methods proposed will not be sophisticated enough to find the minute amounts of heavy metals, especially cadmium, that can cause great amounts of damage or harm to crops, animals and people. In addition, the limits or levels of heavy metals to be tolerated in fertilizers are being set far too

high.

In an effort to satisfy our curiosity about why we were seeing this new (to us) heavy metal news, we phoned regulators from three different states. They said it was the result of Duff Wilson's "contaminated fertilizer expose," the concern has been there for some time, etc., and probably the NIST regulations would affect only west coast states.

In a letter confirming our telephone conversation with one of the state regulators, we are on record stating the NIST's proposed

testing is not sophisticated enough and their heavy metal limits are not strict enough. (See the letter on page 5.)

In our view, the TFI with one of its obvious agenda, defending fertilizer industry practices, should not be in a position to influence AAPFCO. This is especially true while AAPFCO is supposed to be regulating the fertilizer industry, that is, protecting farmers and the public from their abuses. ■

## Jerger Farm

*Continued From Page 1*

"Most guys use commercial fertilizers on their crops and have a tie stall set up. They can give each cow exactly what they think she needs. Ours compete with 132 other cows at the same bunk. It's a total mixed ration. Mike Grube (from the Growers office) makes the ration, maybe two times a year. Then we just kind of eye ball it.

"Our top cow was 7 years old and the third cow was 6, and both are pregnant! The average age of cows in Minnesota is maybe 3 years, and we won't even mention conception rates with cows on BST! We're not killing our cows with BST. Basically, we have milk fever under control, but we do have a little ketosis. We've been feeding corn with the BT gene, but we're thinking of going back to a conventional hybrid corn this year to address

the ketosis. If the worms can't eat it, I don't think cows can digest it either. We are looking

**"We're not killing our cows with BST. We've been feeding corn with the BT gene, but if the worms can't eat it, I don't think cows can digest it either. Now I feel I shouldn't be feeding a cow something you can't pronounce. I'm more comfortable with words like 'alfalfa' and 'corn silage', with things like 'NPK' put on them."**

at planting a lower lignin corn this year.

"I enjoy talking to young area farmers, and letting them know I just love not being beholden to a feed company. In the past, we always had a \$10,000 to \$20,000 feed bill. Now I feel I shouldn't be feeding a cow something

you can't pronounce. I'm more comfortable with words like 'alfalfa' and 'corn silage', with things like 'NPK' put on them.

"This winter we had some problems with the dry cows. We were feeding them 3 ounces of Growers (GMS) per day, but when we kicked it up to 5 ounces that straightened them out. When we have a problem, leaving everything else the same, we've found increasing the Growers usually takes care of it. Some people are opting to IV calcium gluconate to every cow that calves. I'd rather just feed a little bit more Growers."

When asked about his Italian ryegrass experiment in 2005, Dennis responded, "It kept the energy up there. I think the cows liked it. With the ryegrass, it didn't seem to affect forage

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## Soils, Their Use, Abuse and Restoration

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and grade-out at a profit, I became acquainted with a Mr. Roy Thomas of Houlton, Maine. He had been an agronomist for nearly sixty years and had tested soils in Maine long enough to notice a decreasing level of calcium, especially after World War II. That is when the boys came home and started dumping on the dry fertilizer in an attempt to increase yields — which they did for a few years.

Mr. Thomas had a book entitled *More Food From Soil Science* written by Dr. Victor Tiedjens, Vice President and Director of Research of Growers Chemical Corp. of Milan, Ohio. I read and reread the book until I had it firmly imprinted in my mind. The measures this man advocated were by far the most radical I had ever heard. From all I had learned until that time, lime would cause potatoes to scab and must not be used except on rotation crops and then only minimally, perhaps 500 pounds per acre every third year. Tiedjens talked of curing scab and most other soil problems with limestone. Something had to give! The establishment and Dr. Tiedjens could not both be right!

The book was now 14 years old, and I learned Dr. Tiedjens had died in 1975 at the age of 80, but his company was alive and well, dealing with farmers in 23 states. I corresponded with Mr. Wilbur Franklin, Growers Chemical's current Director of Research and Tiedjens' associate for 24 years. Wilbur told me he and Dr. Tiedjens had run and rerun tests originated by English, Dutch, German and Russian soil chemists, and what they saw, in "on the farm" situations, was that calcium literally controlled the fortunes of the farmer they had dealt with. Nothing else had so much effect, so often, as did the calcium level of the soil. They found that when the soil colloid is saturated to 85% with calcium, the structure of the soil is changed. The soil becomes mealy rather than hard when dry, or jelly-like when wet, it plows easier, it soaks up excess water faster, it is softer allowing root penetration, it allows all important air to permeate, promoting the oxidation of soil minerals thus reducing fertilizer needs. It also cleanses the soil.

In fact, it is the closest thing to a panacea a farmer could ask for. The only hitch is that little response is likely until the 85% base saturation of the soil colloid is reached. Calcium flocculates soil particles or draws them together into a crumb structure, whereas, sodium, potassium, magnesium, ammonia are



Sam Niblett, Easton, Maine

dispersing agents. They and other alkaline minerals cause colloids to swell and prevent air and water penetration, thus creating interfering influences that inhibit crop growth.

WOW! Now what? I had some decisions to make. But what about scab in potatoes? And what about lime? What kind and how much? The scab question was answered first. Wilbur told me that 90% of the scab problem was potassium "burn" caused by over fertilizing especially in dry years when rains can not flush the salts out of the root zone fast enough to prevent lesions from developing on the newly formed tubers. These lesions grow as the potatoes grow and show up as scab. How about that?

How much limestone would I need and what kind? Wilbur said I should use a finely ground, high calcium limestone, not dolomitic which is a high magnesium limestone and adds to the problems. OK! How much, Wilbur, how much? Wilbur said without soil samples, he could not answer. I sent in the samples and waited impatiently until the results arrived. How much, Wilbur, how much? "Twelve to sixteen tons per acre." Surely you speak in jest, Wilbur. That is a truck load per acre! "I know, I know. I have heard that song before," he said, "but you have extracted 80 to 90% of your available calcium and you must replace it plus the reserve that was once available and then use a ton every 2 or 3 years to maintain it. Any farmer who has

used double strength fertilizer for 20 to 25 years has extracted much of his available calcium. It is that simple. In addition, you must cut back on that fertilizer." How much, Wilbur, how much?

"Oh, I would say 700 pounds of 14-14-14 would be enough to grow a crop, in the presence of adequate calcium." What? That is less than a third of what I had used last year. "I know, I know, but its availability will be much higher when suitable quantities of calcium are present."

Indeed, I had some thinking to do. Everything the establishment told me said, "Don't do it. You can't afford the risk, and you will ruin your farm. Who ever heard of putting 15 to 16 tons of lime to the acre, especially on potatoes? Don't be crazy!"

I asked Wilbur again. Are you 90% sure that this is what the soil needs? "No, I am not. I'm 100% sure," he replied.

Well, I must decide by fall since it takes 6 to 12 months for the soil to react with the limestone and I'll lose a year if I wait until spring. So I decided to buy 100 tons of high calcium limestone and experiment a bit. I applied 8 tons per acre on one field and doubled it on one section. Ouch! Sixteen tons per acre and on one of my best fields. Better write that one off. I shuddered!! ■

# Growers MINERAL SOLUTIONS

Milan, OH 44846 • (419) 499-2508

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## WINTER 2007

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### Inside:

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- Elemental Balance Is Necessary
- Antibiotic Resistance: Agriculture and Human Medicine
- Committed To Growers

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## Jerger Farm

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even when it set seed. We got four cuttings, even with all of the rain. Of course we were chopping in November. We stopped when it started snowing! Italian rye is an annual, but about half of it came back this spring. We are planning to take the first cutting off, then work it under and plant soybeans, the Good Lord willing and the weather permitting.

"Because of the success with the ryegrass, this year, we are going to plant alfalfa with meadow fescue and use the Italian ryegrass as the first year nurse crop. Meadow fescue is

higher in energy. If cut right, it will yield outstanding production. In Europe, they plant all kinds of mixtures. They use alfalfa with different grasses and clovers. Just like people, cows like a mix of things. And, the crops complement each other. For example, the grasses benefit from the nitrogen the alfalfa produces.

"I think we have an integrated approach to farming. It borders on organic. I can't go the organic way, I like Growers too much! I can't see where it has hurt this farm. If I was an organic field inspector, I would let farmers use Growers. That little bit of urea is nothing. Our

farm kind of slips in between the organic and conventional people.

"We take time when we farm. Everyone else rushes around. We are making a living on 600 acres while most are farming many more acres, and having higher expenses with some of these chemicals. The universities are working to sell chemicals and fertilizers; companies are giving them grants. I can't trust them anymore. How do you pay for all of that stuff? We start two weeks after everybody and harvest at the same time. Our neighbor told me, 'Your ground has such hellish push.' I think maybe that's because it is not poisoned." ■

## The Growers Solution

Editor: Jennie Henry

Circulation, U.S.A. and Canada: 10,000

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### More About Growers

We hope you will find this newsletter helpful and interesting and we welcome your input. Please send letters-to-the-editor, comments, suggestions, etc. to: Growers, P.O. Box 1750, Milan, OH 44846, call 1-800-437-4769, fax 419-499-2178,

email to: [growers@hmcltd.net](mailto:growers@hmcltd.net) or see our website: [www.growersnutritional.com](http://www.growersnutritional.com)

## There Is Still Time!

### Early Order Discount

It is not too late to take advantage of the Growers seasonal Cash In Advance of Delivery (CIAD) discounts which are 6% for January, 4% for February and 2% for March. Call your Growers representative for an explanation of the early order discounts, quantity pricing and delivery of Growers Mineral Solutions.

There are three ways the GMS CIAD discount can pay customers:

1. The GMS CIAD discount pays more than most savings institutions' interest, so it pays to buy early if the cash is available.

2. The GMS CIAD discount pays more than most lending institutions' interest costs, so it pays to borrow and buy early.

3. The GMS CIAD discount results in orders being placed earlier. This allows deliveries to be more evenly spaced out, which requires less delivery equipment and helps keeps GMS prices down. ■