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The Growers Solution

WINTER 2012

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VOLUME 25 ISSUE 1

Long Term Growers Farm Operation

By Matt Gooding

I very clearly remember the day 30 years ago. The day the seed salesman drove up our long lane. Within minutes he was telling us our corn along the road was low in potassium, and he would help us overcome this deficiency by recommending large doses of dry fertilizers and by selling us his new improved corn hybrid. After Dad carefully explained the Growers program we were following, the salesman became highly agitated. He announced by using so little applied nutrition, within 5 years, we would be unable to grow anything but trees. The

corn he criticized went on to yield over 150 bpa, a little over average for our area back then. In 2011 that field yielded 175 bpa.

After using and selling the Growers program for over 47 years, my dad, Marvin Gooding, and I have heard many comments denouncing Growers Minerals Solutions and the Growers Program. Over those years dozens and dozens of companies have come out with products and programs claiming superior results, all to be replaced by yet other new and grand products and protocols. But to this day, the one criticism we hear most is how the Growers Program will “wear out your soil, because you do not apply enough to replace what you used to grow your crop.” Hearing these comments used to annoy us, but now it amuses us. It reveals a large lack of understanding on the part of the messenger.

The passage of time often gives validation to an idea or concept. Because most Growers representatives have used GMS and the Growers Program in their own operations for many, many years, they are convinced in their own minds they are doing the right thing for themselves and their customers.

One corn/soybean farm located in north central Ohio has been using GMS and the Growers Soil Program for 58 years, classifying

it as the longest continuously operating grain operation following the product and principles created by Dr. VA Tiedgens.

With a little over 400 acres of tough soils, ranging from yellow sand to heavy Toledo clay, Jim and his brother Joe Halbeisen continue to farm using the lime program and Growers Mineral Solutions much the same as Leo, their dad, did long years ago.

Driving past their farms this past year again shows their crops are looking competitive when

Please turn to page 6



Jim and Joe Halbeisen. Leo, their dad, was one of the first Growers customers.

Inside The Solution

Long Term Growers Farm Operation

Matt Goodingpage 1

The Growers Program and the 2011 ProFarmer Crop Tour

Jim Halbeisenpage 2

On The Road Again

.....page 2

Please Do Not Over Lime!

Jim Halbeisenpage 3

Third Party Verification

Jim Halbeisenpage 4

Corn Silage Comparison

Jim Halbeisenpage 5

Growers Conference Calls

.....page 5

GMS Pricing

.....page 5

The Growers Program and the 2011 ProFarmer Crop Tour

By Jim Halbeisen

Those trying to get a handle on the size of the 2011 corn crop by way of the ProFarmer Crop Tour conducted every August, learned it was to be a year of disappointing yields. Of all the areas in the US corn belt viewed by the tour, very few had very good or excellent yields, instead, most were predicted to have less than normal average yields. In almost all cases the tour experts said low plant populations were the biggest reasons for substandard yields, and low plant populations resulted from poor seed-to-soil contact due to planting in overly wet field conditions.

We at Growers Chemical Corporation feel more widespread use of the Growers Program could have significantly helped the 2011 US corn crop maintain its normal plant populations and yields.

Calcium Effect

When high calcium limestone is added to soil at rates elevating the exchangeable calcium percentage from 80 to 85% of the Cation Exchange Capacity (CEC), the soil becomes more porous, the soil "opens up." Increased porosity makes soils act significantly differently, that is, they conduct vertical water flow more quickly, crusts are less dense, they warm and dry faster, tillage results are more

positive, microbiology activity increases and they are easier to physically manage.

There are two basic reasons these physical improvements occur:

1. The calcium element has a physical size, along with its electrical nature, encourages soils to open up (flocculate) into a stable physical structure. This permits water to quickly move through, and, in turn, allows oxygen to be reintroduced back into the soil's physical structure.

2. The physical effect of the calcium on the soil (allowing air introduction) stimulates the growth of a large population of soil life; bacteria, earthworms, mycorrhizal fungi, and others. The body secretions from the added soil life gives the soil additional oxygen and adds even more to the soil's physical improvement.

GMS Effect

Anytime a seed is placed in a hostile environment, like our widespread wet and cold planting season of 2011, the new plant's ability to survive and be viable can be hindered. When these adverse conditions occur, they become serious problems, because they are also detrimental to the growth of the soil's microbiological life and its ability to help supply nutrients to the germinating seed and

developing plants.

GMS applied to the seed as added nutrition helps it survive. That same nutrition also feeds the soil's microbiological life making it a more productive asset to the new plant.

With the benefit of a half century of on farm experience, Growers Chemical Corporation has determined added nutrition needs to be applied close to the germinating seed. And to not cause toxic injury to the seed or the young plant, very importantly, any added nutrition must have a low salt content and the least possible amounts of heavy metals. Also, for nutritional variety and balance, 16 macro and micro elements are needed to start and grow a healthy plant. GMS has all the essential characteristics and necessary beneficial elements, plus many more.

Growers Chemical Corporation is certain adverse soil physics and soil chemistry caused by weather conditions brought on the 2011 crop season's poor stands. Most all Growers customers following the Growers Program advocating proper soil calcium levels, and using GMS as recommended, very successfully navigated the 2011 season's pitfalls and emerged with better than average, or at least economically profitable, yields. ■

On The Road Again — Winter 2012

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. 16-19 Delaware Ag. Week
Mon-Thu Harrington, DE

Jan. 17-19 New Jersey Vegetable Mktg
Tue-Thu Atlantic City, NJ

Jan. 17-19 Fort Wayne Farm Show
Tue-Thu Fort Wayne, IN

Jan. 17-18 Ohio Produce
Tue-Wed Growers Congress
Sandusky, OH

Jan. 19-21 Virginia Farm Show
Thu-Sat Fishersville, VA

Jan. 24-26 Empire State Fruit
Tue-Thu & Vegetable Expo
Syracuse, NY

Jan 31-Feb. 2 Mid Atlantic Fruit
Tue-Thu & Vegetable
Hershey, PA

Feb. 1-3 Southern Farm Show
Wed-Fri Raleigh, NC

Feb. 1 Southern Indiana
Wed Grazing Conf.
Odon, IN

Feb. 3-4 Northern Indiana
Fri-Sat Grazing Conf.
Shipshewana, IN

Feb. 7-8 Alexandria Area Farm Show
Tue-Wed Alexandria, MN

Feb. 7-9 Canadian International
Tue-Thu Farm Equip
Toronto, Ont., Canada

Feb. 15-18 National Farm
Wed-Sat Machinery Show
Louisville, KY

Feb. 22-23 Ontario Fruit &
Wed-Thu Vegetable Conv.
Niagara Falls, Ont., Canada

Feb. 23-25 New York State Farm Show
Thu-Sat Syracuse, NY

Feb. 28-Mar 1 Central Minnesota
Tue-Thu Farm Show
St. Cloud, MN

Mar 7-8 East Central Farm Show
Wed-Thu Lindsay, Ont, Canada

Mar. 27-29 Wisconsin Public Service
Tue-Thu Farm Show
Oshkosh, WI

Hope To See You!

Please Do Not Over Lime!

By Jim Halbeisen

Those of you familiar with the Growers Program and all our rantings about liming your ground, may think our title a bit out of character. Since 1955 Growers Chemical Corporation, d.b.a. Growers Mineral Solutions, has consistently impressed on farmers the importance of calcium in the soil. Considering the details of the Growers Program, as originally put forth by Dr. V. A. Tiedjens, the title is appropriate. He said apply enough calcium to get the best results, but beyond that, over applying much more may become economically unjustified—and is considered “over liming” here.

In the Late Fall 2010 issue of *The Growers Solution* we reported a really big 31 bushel per acre soybean yield increase in the ongoing County Extension Comparison Plots in Shelbyville, Illinois. The Comparison Plots alternate from corn one year to soybeans the next. Seems our Harold Kennell had put on the equivalent of 50 tons of high calcium lime on his Growers plot, but the increase actually didn't show up until almost four years later. Not a typical delay in beneficial results, but it does happen.

Harold probably over applied with his 50 tpa, but, again, the so called “over liming” obviously didn't hurt his yields in the least. In an actual farming situation, however, the expense of 50 tpa lime may have been problematic economically. But then, maybe not. We need to pencil out the cost of the lime over the period versus the 31 bushel soybean yield increase.

But how much lime was really needed? 5, 10, 20, 50 TPA? The Growers Soil test could have been used as a rough guide to determine how much lime should have been needed, but it, as with other soil tests, should not be relied upon to be the absolute authority as to how much should be applied. The ground should be considered a living organism, with all its biological life, earthworms, etc., its chemical make up is complicated, and any test results based on the soil's chemistry should not be used for anything more than a rough guide. And pH should never be used to determine the amount of calcium needed.

The Growers soil test, although a chemical test, is unique in that it tries to show nutrient availability, those soil nutrients actually available to the growing crop. The extraction solutions used in the Growers Soils Lab developing the soil test results are supposed to be about the same strength as would be the plant's extraction powers. Referring to our Composition of Soils chart, right, we see the average farm ground has some 35,000 pounds of Potash and about 5200 pounds of Phosphorus in a plow acre, the top six inches of an acre. While phosphorus, potash and other essential minerals may be, and probably are, in abundance in the soil, they could be, and often are, “tied up” and

not available to the crop. The Growers soil test is designed to indicate some of those shortages.

When the farmer's soil tests from the university tell him he should be applying so many pounds of potash and phosphorus, those tests are really telling him he is short on calcium and his P and K are mostly tied up. Why would a farmer want to spend the money applying 250 pounds of potash to his ground if he potentially has available 35,000 pounds there in the top six inches of his farm and probably that much more as he goes deeper into the subsoil, into his second and third farms down deeper?

Dr. Tiedjens' Growers Soil Program tells us we can make available “tied up” soil nutrients by satisfying the soil's calcium needs with adequate additions of high calcium limestone or other suitable liming products. Calcium can soon make tied up nutrients available to crops and in the proper balance as Mother Nature intended them to be.

Getting back to the question as to how much lime was actually needed on Harold's plot we will never know. Obviously 50 tpa worked spectacularly, but what lesser amount would have worked just as well?

To better pinpoint the actual amount of lime needed, and not over apply, Dr. Tiedjens always advocated lime plots; adding increments of lime to plots in the farmer's own fields. Say, the

Growers' soil test recommended 5 tons of high calcium lime per acre, he would have the farmer put out plots, of any convenient size, but with 3, 4, 5, 6, and 7 tons of a high calcium liming product per acre, and then watch for a year or two to see which paid off yield and quality wise. The plot with the lowest application rate and the best response would provide a fairly good indication as to how much he should apply to the rest of the field—no less, but perhaps a ton or two more to be sure.

Of course it also is important to Growers, its customers and prospective customers to not over apply lime, mainly, because, after applying the proper, most economical amount, they are more apt to have enough funds remaining to buy Growers Mineral Solutions.

OVER LIMING RESULT

In October 2011 a pentrometer was used at the Shelbyville High School corn and soybean plots to see if the 50 ton per acre lime application of a few years ago had made a difference in the soil's porosity. In the non limed area, the readings were 300 psi going to 14 inches which is as far as it could be pushed. In the limed area the readings were only 250 psi at 14 inches, but the pentrometer could be pushed clear down to its 36 inch hilt. ■

COMPOSITION OF SOILS
For 1 Plow Acre 6-2/3 Inches in Depth
Approximately 2,000,000 lbs., or 1,000 tons

Elements	Sandy Loam Pounds Per Acre	Silt Loam Pounds Per Acre	Clay Loam Pounds Per Acre
Organic Matter	20,000 =	54,000 =	96,000 =
Lbs. of Nitrogen	1,340# Nitrogen	3,618# Nitrogen	6,432# Nitrogen
Live Portion (Earthworms, Bacteria)	1,000	3,600	4,000
Silicon Dioxide	1,905,000	1,570,000	1,440,000
Aluminum Oxide	22,600	190,000	240,000
Iron Oxide	17,000	60,000	80,000
Calcium Oxide	5,400	6,800	26,000
Magnesium Oxide	4,000	10,400	17,000
Potash	2,600	35,000	40,000
Phosphate	400	5,200	10,000
Sodium Oxide	4,600	26,000	24,000
Titanium Oxide	13,600	18,000	14,400
Sulphur Trioxide	600	8,500	6,000
Manganese	2,500	2,000	2,000
Zinc	100	220	320
Copper	120	60	60
Molybdenum	40	40	40
Boron	90	130	130
Cobalt	50	50	50
Chlorine	50	200	200

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Third Party Verification

By Jim Halbeisen

Since 1955 Growers Chemical Corporation has encouraged farmers to use test strips for determining the amount of high calcium limestone needed on their fields. The company has also advocated the yield check, another form of a test strip, to verify economic profitability. Cost of production versus yield usually determines which production method accomplishes the best profitability. But often crop quality can become a most important factor determining overall profitability, too.

To give the yield check more credibility, it is always advisable to have the farmer help the sales representative conduct the check. Better still, a third party having no interest in the outcome does the crop measurement or yield check, gives the data even more credibility. And when the third party verification comes from an individual generally opposed to the farming practice being measured, complete credibility could probably be assumed.

Interestingly, a southern customer recently sent us the results of a corn silage yield and quality check which came from a situation similar to the last scenario above.

The idea was to compare the use of GMS as a row starter on corn. The test was quite simple in that the dairy farmer had the field ready to plant both chemically and physically. Another farmer planting the corn came with his own planter and planted all the same variety and population over the entire field. The one and only difference, however, at planting one half of the field received 5 1/2 gallons of GMS in a 2 inches beside and 2 inches below the seed configuration. The other half of the field did not receive any GMS.

Normally when measuring corn success, crop yield is the major issue. But when feeding a dairy cow the whole corn plant, corn silage, the crop's total nutrient quality can become a very important measure of profitability.

The dairyman in this case was interested to learn which of the two corn silages would produce the most milk.


At harvest yield checks measured the yields of the different plantings. The corn silage yield without GMS was 4.65 tons per acre of 100% dry matter, and the silage with GMS was 5.33 tons per acre of 100% dry matter. Considering the timing of the planting and the season's environmental conditions, both yields were considered very competitive for the area.

The ability of the two corn silages to produce milk in the cow came by way of the test for milk production called the Wisconsin Milk 2006 Test run by Dairy One of Ithaca, New York. The test showed the milk produced by 1 ton of 100% dry

matter corn silage by the non GMS corn was 3,416 pounds, and the milk produced by 1 ton of 100% dry matter GMS corn was 3501 pounds. This shows the one acre of the corn silage receiving the GMS would produce 18,660.33 pounds of milk, while the corn silage not receiving GMS would produce 15,884.40 pounds of milk. The result, five and one-half gallons of GMS in those southern soil and growing conditions created 2,775.93 pounds

more milk per acre. If we use the current \$18 per 100 pounds as our milk price; our investment of 5 1/2 gallons of GMS, costing, say, \$65.00 per acre, produced an extra \$499.66 of milk per acre. See calculations on page 5.

The chart shows Dairy One's lab report comparing Growers on the seed with no fertility on the seed. Interesting and unique, the data for these 2011 crop season yield and quality checks were collected by the County's Extension Agent. ■

Components		GROWERS		NON G	
		As Fed	DM	As Fed	DM
					
FORAGE TESTING LABORATORY DAIRY ONE, INC. Sampled Recvd Printed ST CO 730 WARREN ROAD ITHACA, NEW YORK 14850 607-257-1272					
Analysis Results					
		GROWERS		NON G	
Components		As Fed	DM	As Fed	DM
% Moisture		72.3		72.5	
% Dry Matter		27.7		27.5	
% Crude Protein		2.4	8.8	2.3	8.3
% Available Protein		2.3	8.4	2.2	7.8
% ADICP		.1	.5	.1	.5
% Adjusted Crude Protein		2.4	8.8	2.3	8.3
Soluble Protein % CP			38		39
Degradable Protein %CP			62		64
% NDICP		.5	1.9	.5	1.8
% Acid Detergent Fiber		6.6	23.7	6.8	24.7
% Neutral Detergent Fiber		11.7	42.3	11.9	43.3
% Lignin		.9	3.1	.9	3.4
% NFC		12.2	44.2	12.0	43.4
% Starch		8.3	30.1	8.7	31.6
% WSC (Water Sol. Carbs.)		2.9	10.4	2.0	7.4
% ESC (Simple Sugars)		1.7	6.3	1.2	4.4
% Crude Fat		.7	2.6	.7	2.6
% Ash		1.10	3.97	1.13	4.11
% TDN		21	74	20	73
NEL, Mcal/Lb		.21	.77	.21	.75
NEM, Mcal/Lb		.22	.78	.21	.76
NEG, Mcal/Lb		.14	.50	.13	.48
% Calcium		.07	.27	.06	.23
% Phosphorus		.07	.25	.07	.25
% Magnesium		.05	.17	.04	.15
% Potassium		.30	1.09	.27	.99
% Sulfur		.03	.12	.03	.11
% Chloride Ion		.08	.30	.07	.25
IVTD 24hr, % of DM			77		75
IVTD 48hr, % of DM			84		83
NDFD 24hr, % of NDF			45		42
NDFD 48hr, % of NDF			62		60
kd, %/hr			3.72		3.45
Milk Lbs./Ton of DM			3,501		3,416
Milk Lbs./Proc. Ton of DM			3,501		3,416
*SS NEL, Mcal/Lb			.76		.74
*SS Proc. NEL, Mcal/Lb			.76		.74
% Lysine		.06	.22	.06	.21
% Methionine		.04	.14	.04	.13

Corn Silage Comparison Calculations

With and Without GMS on the Seed

By Dairy One of Ithaca, NY using the Wisconsin Milk 2006 Test

GMS Corn Silage	= 5.33 tons per acre 100% dry matter
Non GMS Silage	= 4.65 tons per acre 100% DM
GMS Corn Silage	= 3501 # milk produced by one ton of DM silage
Non GMS Silage	= 3416 # milk produced by one ton of DM silage
GMS Corn Silage	= 5.33 tpa DM x 3501 # milk/ton DM = 18,660# milk per acre
Non GMS Silage	= 4.65 tpa DM x 3416 # milk/ton DM = <u>15,884#</u> milk per acre
	2,776# more milk per acre =
	27.76 cwt extra milk per acre
	x milk @, say, \$18.00/cwt =
	Extra milk per acre from GMS corn silage \$499.66
	Less cost of 5 ½ gpa GMS on seed <u>\$65.00</u>
	Extra milk from 5 ½ gpa GMS = \$434.66 Profit per acre

Corn Silage Comparison II

Another comparison using the Wisconsin Milk 2006 Test by way of Dairy One of Ithaca, New York, comes from South Central Kentucky. The people involved there were comparing corn silage grown with 6 gallons of Growers Mineral Solutions per acre on the seed with another fertility product's 6 gallons per acre on the seed.

About 22 tons of 30% dry matter silage was produced in each case, so 6.6 tons per acre of

100% dry matter silage was used for the calculations.

Of the Growers grown corn, the average of three tests showed 3,198 pounds of milk would be produced by one ton of 100% dry matter silage. Using their going milk price of \$20.00 per hundred weight, one ton of DM silage would bring \$639.60. Using 6.6 tons of 100% dry matter silage per acre in their calculations, the Growers grown silage would make a total of \$4,221.08 of milk per acre.

The other fertility's three test average showed it would produce 2,819 pounds of milk per ton of DM. Again, using their \$20.00 per hundred weight, one ton of 100% DM corn silage would bring \$563.80, and using the same production of 6.6 tons of dry matter silage per acre, the other fertility method would net \$3,721.08 of milk per acre.

Thus, the Test shows the Growers grown corn silage would produce \$500.28 more milk per acre than would the other fertility product. ■

Growers Conference Calls

The ongoing Growers Conference Calls are always on the second Thursday of the month. The next calls will be January 12, February 9, March 8, and April 12, all at 9:00 PM EST. To join in, dial 1 940 287 4000. When asked for the Participant Access

Code, dial in 8262757#, then press 1 to acknowledge the call is being recorded. The recording is for the benefit of those not able to listen in at the time of the Call.

Recordings of the most recent and previous Calls can be accessed on the Growers website,

www.GrowersMineral.com, under Calendar of Events, Conference Calls and Previous Call Recordings. Otherwise, call the office for the server's dial-in-number. ■

GMS Pricing

As of this writing—the end of December, 2011—the GMS pricing is as of November 1, 2011, remains in effect, as do our Cash In Advance of Delivery (CIAD) discounts of 6% for January, 4% for February and 2% for March.

Still very much in the picture, however, are the fluctuating commodity's prices. As the prices of corn, beans, etc., go up, we can expect our raw material prices to quickly follow suit, which will, out of necessity, likely be followed by GMS price increases.

In other words future pricing is very questionable and the best we can say right now is, "Prices are subject to change without notice." ■

Growers MINERAL SOLUTIONS

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WINTER 2012

Inside:

- Long Term Growers Farm Operation
- Growers Program & 2011 ProFarmer Crop Tour
- Please Do Not Over Lime!
- Third Party Verification

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Long Term Growers

Continued from page 1

compared to the neighboring farms around them.

Jim and Joe are matter of fact, salt of the earth individuals whose confidence and security comes from years of raising profitable crops, in spite of the wild weather they consistently encounter farming near Lake Erie.

Aside from a small amount of dry fertilizer used on a pure sand ridge (for soybeans) no other nutritional source has been applied but lime, Growers Mineral Solutions and a few pounds of 28% nitrogen over 53 years.

For corn the brothers apply 4.5 gallons of Growers Mineral Solutions directly on the seed with 15 lb. (5 gallon) of 28%, 2" down by 2" to the side, at planting time. Later another 75 to 105 lb. of 28% nitrogen is applied between the rows, followed by 2 separate foliage feedings totaling 5 Gallons of GMS with Growers Nutritional Additive.

Soybeans receive 3 gallons of GMS, 2" by 2", at planting time and two foliage feedings totaling 4 gallons, one feeding with glyphosate (Roundup®) for weed control, the second foliar feeding contains Growers Nutritional Additive.

This simple, inexpensive program has consistently provided excellent yield and quality crops, making the Halbeisen farm operation very competitive yield-wise, and even more so profitability-wise, against other farms in the area. And, after over half a century, there are no signs of the "soil wearing out" as predicted.

Even today, after all these years, whenever driving past our fields, we remember that seed salesman telling us, "Within 5 years using your Growers program, you will only be able to grow trees on that land." Well, like the Halbeisen's farm operation, our land doesn't seem to be wearing out as predicted, in fact, every type of crop we plant continues to improve in yield, quality and profitability.



Jim and Joe Halbeisen

Meanwhile, the logging prospects don't look too promising. ■

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