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The Growers Solution

LATE FALL 2006

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VOLUME 20 ISSUE 4

Is Agriculture Entering a Different Era?

By Jim Halbeisen

Since the beginning in 1955 Growers Chemical Corporation has recommended using plant and animal supplementation minerals markedly different from those proposed by the agricultural establishment. The Growers' approach, first proposed by Dr. V. A. Tiedjens, is to use much lower levels of supplementation, but added at strategic times during the plant's or animal's various growth stages meant to take advantage of natural efficiencies.

For example; a plant's makeup, according to plant physiologists, is 96% carbon, hydrogen, and oxygen. These are just plain sunlight, air, and water! Plants do not need tremendous levels of nutrition or fertilization if supplementation is made available to the plant's system in the correct form and at the correct time. This idea has always been rejected by the agricultural establishment, because it would "wear out" the soil and eventually "bankrupt" the farming operation.

During the consolidation years following the Russian Grain Deal in 1974, agriculture moved towards using more inputs in agricultural production. This made the Growers approach seem even less viable as cheap inputs and higher priced commodities allowed the establishment arithmetic to work to some degree.

As the atmosphere of high inputs and larger operations increased in scope, Growers Chemical Corporation saw the quality of production regressing and went on record saying that lower quality production would be a future agricultural problem. As expected, the agricultural establishment played down the quality issue as being not important since all marketing venues were based on volume of production, not quality. If no one would pay for quality, why worry about producing it? Heading into the 21st century, the concept of producing quality food stuff seemed to be important only to Growers Chemical Corporation and our customers.

What is Different?

Now, a half decade into the 21st century, we have many clients discussing significant developments with their Growers Mineral Solutions (GMS) representatives.

1. Newspaper and magazine articles, and a published book, are saying toxic heavy metals are present in materials used for agricultural supplementation for both plants and animals.
2. United States Government offices are reporting accumulations of heavy metals in human tissue.
3. Bacteria having strengths not seen in the past are causing human infection outbreaks, and many are questioning the safety of agricultural practices used today for both plant and animal production.
4. Agricultural input prices have risen significantly due to their direct relationship to crude oil's increased cost.
5. As demand for energy increases, the need to replace crude oil coming from unstable governments has taken center stage following the events of 9/11/2001. So, the agricultural industry of the United States may not only be in the food business, it may be in the fuel business as well.

These and others events, seem to be sending the general business of agriculture towards those quality ideas Growers Chemical Corporation has

been promoting for more than 50 years.

Why the Growers Program?

From his hydroponic work during World War II, Dr. V. A. Tiedjens found balance and purity of supplementation minerals were keys to growing healthy productive plants and animals. The Growers Program he designed followed those principles. The purity of GMS ingredients did create initial cost problems, but in this 21st century environment, applying small amounts of clean supplementation is becoming even more economically competitive. Especially as the popularly used low grade bulk fertilizers and minerals have increased in price. For example; foliar spraying GMS in place of applied nitrogen is quite profitable and productive.

Or using GMS as a starter instead of cheap low grade "pop-ups" leads to more profits per acre, because "pop ups" need help from low grade bulk supplementation to maintain yields over a period of time. (Article # 1, NY Times, Contaminated Ingredients.) Also getting the end users' attention, these high volume supplementations create imbalances that influence the quality of the finished product. The University of Wisconsin's Milk2000 test has shown applications of GMS and the Growers Program have improved the feed value of both corn silage and haylage. See Figure # 1.

Is United States Agriculture Changing Due to Ethanol and Global Warming?

President George Bush's reference to biofuels in his January of 2006 State of the Union address has caused gyrations in both the financial and commodities markets. It is thought that in the short term, ethanol production may strongly influence commodity markets, while in the long term, biofuels could change all of agriculture significantly.

That interest in biofuels United States sky rocketed in 2006 is easily understood noting articles like this portion of an AgWeb.com release from September 7, 2006.

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On The Road Again

Late Fall, 2006

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.

- Nov. 17, 2006 Truck Patch Connections
LaGrange, IN
- Jan. 5-7, 2007 Georgia Fruit & Vegetable
Savannah, GA
- Jan. 9-11 Keystone Farm Show
York, PA
- Jan. 9-11 Ontario Landscape Congress
Toronto, Ontario, Canada
- Jan. 16-17 Ohio Fruit & Vegetable
Show
Columbus, OH
- Jan. 16-18 Fort Wayne Farm Show
Fort Wayne, IN
- Jan. 16-18 New Jersey Vegetable
Marketing
Atlantic City, NJ
- Jan. 22-25 Delaware Ag Week
Harrington, DE
- Jan. 23-25 Virginia Farm Show
Fishersville, VA
- Jan. 30-Feb. 1 Mid Atlantic Fruit
& Vegetable
Hershey, PA
- Jan. 31-Feb. 2 Southern Farm Show
Raleigh, NC
- Feb. 2 Northern Indiana
Grazing Conference
Shipshewana, IN
- Feb. 6-8 Canadian International
Farm Equip
Toronto, Ont, Canada
- Feb. 14-15 Empire State Fruit
& Veg. Expo
Rochester, NY
- Feb. 14-17 National Farm Machinery
Show
Louisville, KY
- Feb. 22-24 NYS Farm Show
Syracuse, NY
- Feb. 27-28 Pennsylvania Grazing
& Hay Conference
Grantsville, PA

Hope To See You!



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DATE SAMPLED	LAB RECEIVED	DATE PRINTED	STATE	CO	FARM
	07/24/06	07/24/06			
NO GROWERS APPLIED					
SAMPLE DESCRIPTION	FARM	CODE	LAB SAMPLE		
MML SILAGE		301	10105790		
NO 2					
ANALYSIS RESULTS					
COMPONENTS	AS SAMPLED BASIS	DRY MATTER BASIS			
% Moisture	57.3				
% Dry Matter	42.7				
% Crude Protein	8.6	20.1			
% Available Protein	8.0	18.8			
% ADICP	.5	1.3			
% Adjusted Crude Protein	8.6	20.1			
Soluble Protein % CP		63			
Degradable Protein % CP		75			
% NDICP	1.1	2.6			
% Acid Detergent Fiber	15.9	37.2			
% Neutral Detergent Fiber	21.3	49.9			
% Lignin	3.4	8.0			
% NFC	8.3	19.5			
% NSC	3.1	7.4			
% Starch	.6	1.5			
% Sugar	2.5	5.9			
% Crude Fat	1.4	3.2			
% Ash	4.24	9.93			
% TDN	26	61			
NEL, Mcal/Lb	.26	.61			
NEM, Mcal/Lb	.25	.59			
NEG, Mcal/Lb	.14	.33			
Relative Feed Value		112			
% Calcium	.53	1.23			
% Phosphorus	.13	.30			
% Magnesium	.09	.22			
% Potassium	1.23	2.87			
% Sulfur	.10	.23			
% Chloride Ion	.18	.42			
VFA Score		7.65			
Est. Total Acids		6.0			
I VTD 48hr, % of DM		79			
NDFD 48 hr, % of NDF		57			
kd, %/hr		6.36			
Relative Forage Quality		140			
Milk Lbs./Ton of DM		2540			
**SS NEL, Mcal/Lb		.58			
**SS Proc. NEL, Mcal/Lb		.58			
% Lysine	.35	.83			
% Methionine	.11	.27			

DATE SAMPLED	LAB RECEIVED	DATE PRINTED	STATE	CO	FARM
	07/24/06	07/24/06			
THIS WAS SPRAYED WITH GROWERS					
SAMPLE DESCRIPTION	FARM	CODE	LAB SAMPLE		
MML SILAGE		301	10104900		
ANALYSIS RESULTS					
COMPONENTS	AS SAMPLED BASIS	DRY MATTER BASIS			
% Moisture	39.1				
% Dry Matter	60.9				
% Crude Protein	13.6	22.3			
% Available Protein	12.6	20.7			
% ADICP	.9	1.5			
% Adjusted Crude Protein	13.2	21.7			
Soluble Protein % CP		44			
Degradable Protein % CP		69			
% NDICP	2.5	4.1			
% Acid Detergent Fiber	17.6	29.0			
% Neutral Detergent Fiber	25.9	42.6			
% Lignin	4.0	6.6			
% NFC	16.4	26.9			
% NSC	7.3	11.9			
% Starch	1.4	2.3			
% Sugar	5.9	9.6			
% Crude Fat	1.8	3.0			
% Ash	5.71	9.38			
% TDN	40	66			
NEL, Mcal/Lb	.41	.68			
NEM, Mcal/Lb	.40	.66			
NEG, Mcal/Lb	.24	.40			
Relative Feed Value		145			
% Calcium	.85	1.39			
% Phosphorus	.19	.31			
% Magnesium	.15	.25			
% Potassium	1.47	2.41			
% Sulfur	.16	.26			
% Chloride Ion	.35	.57			
VFA Score		5.08			
Est. Total Acids		1.1			
I VTD 48hr, % of DM		82			
NDFD 48 hr, % of NDF		59			
kd, %/hr		6.49			
Relative Forage Quality		174			
Milk Lbs./Ton of DM		2935			
**SS NEL, Mcal/Lb		.58			
**SS Proc. NEL, Mcal/Lb		.58			
% Lysine	.56	.92			
% Methionine	.18	.30			

Figure # 1 Shows Milk 2000 Testing of Mostly Mixed Legumes (MML) Silage. The sample on the right had one Growers Nutritional Spray application and sample # 2 on the left did not. All other conditions; harvest date, field, etc. were the same. Comparing the "Milk lbs./Ton of DM" readings show the Growers treated sample should give almost 400 pounds more milk per ton of dry matter fed to the cows.

Different Era

Continued from page 1

"Projecting annual cuts up to 3.9 billion gallons in petroleum use and 14 million tons in greenhouse gas emissions, the Bush Administration today proposed a Renewable Fuels Standard (RFS) Program designed to reduce the nation's dependence on foreign oil by doubling the use of renewable fuels such as ethanol and biodiesel. The program, authorized by the Energy Policy Act of 2005, will promote use of fuels largely produced by American crops.

"For years, our nation's rolling farm fields have filled America's breadbaskets. Now, by helping meet President Bush's renewable energy goals, these same fields are filling America's gas tanks," said U.S. EPA Administrator Stephen L. Johnson. "Under President Bush's leadership,

EPA is working with our partners in agriculture and industry to produce solutions that are good for our energy security, good for our environment, and good for the American people..."

"The new regulation proposes that 3.71 percent of all the gasoline sold or dispensed to U.S. motorists in 2007 be renewable fuel. Last December, EPA issued a rule implementing the Energy Policy Act's default standard of 2.78 percent for 2006, which will continue to apply through this calendar year."

By encouraging biofuels President Bush is not only replacing the United States dependence on imported oil, but he is also drawing attention to the problem of global warming which many scientists are attributing to the use of fossil fuels.

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Different Era?

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In regards to the issue of global warming, industrial leaders in the United States have followed the lead of the editorial board of *The Wall Street Journal* in claiming global warming is probably not occurring, but if it is, it is the result of environmental cycles and not related to human produced greenhouse gases. This attitude by industry has come under attack by world scientists who believe that the effects of increasing temperatures in the earth's atmosphere could lead to higher sea levels and species extinction. In fact an article in *Scientific American* in October of 2006 states that independent research by the National Academy of Sciences "finds it plausible that the northern hemisphere was warmer during the last few decades of the 20th century than during any comparable period over the preceding millennium." Some scientists say we need to start now to stabilize the earth's temperature for future generations. The evidence must be compelling because despite the absence of decisive United States government action, a growing number of companies in the United States are undertaking aggressive voluntary programs to reduce their greenhouse gas emissions.

With high priced crude oil, operating ethanol plants are making excellent profits, and with the Bush administration's lead, the ethanol industry is building heavily in the United States. As more plants start into production, more corn is removed from the market causing higher corn prices. A typical ethanol plant being built today consumes about 40 million bushels of corn per year or about 110,000 bushels of corn per day. The vision of increased corn usage is being welcomed by an over burdened corn market,

however, the fuel and food debate raises some serious questions about the future supply of corn for the world.

What's the Effect of Corn as Fuel Instead of Corn as Food?

Along with the fast growth of the ethanol industry in the United States serious detractors have come forward.

David Pimental from Cornell University and Tod Patzek from the University of California at Berkeley have research data demonstrating it takes more energy to produce a gallon of ethanol than is present in that gallon. However, other recent independent research by several authors included in the September, 2006, issue of *Scientific American* showed ethanol having positive net energy of almost five megajoules per liter.

An article opposing ethanol recently published by the Competitive Enterprise Institute and Dennis Avery argues that there is not enough land in the United States to allow its food production to feed the world's poor and upgrade developing countries diets while still supplying fuel for the American people. Mr. Avery says that in years of severe drought, ethanol plants will have to shut down, so as to guarantee a continuing supply of cheap food for the American people. Also, because he claims Brazilian ethanol from sugar cane is more efficiently produced than ethanol from U.S. corn, he suggests ethanol tariffs should be removed to allow much cheaper Brazilian ethanol to be imported. Mr. Avery's doesn't address the issue of becoming more energy self sufficient.

How Does Animal Agriculture and Ethanol Fit Together?

Purdue University extension marketing specialist Chris Hurt is telling the livestock industry the days of cheap feed energy (corn) is about to end. He says "Agriculture's traditional role as the foundation of the food industry will experience increasing competition as more corn is used for fuel. The rapid growth of the use of corn for ethanol in the coming months and years means that the livestock industry has a new major competitor, at least for corn".

This means, in the future, livestock feeders will incur more feed costs which will raise the price of all protein, although these increases will take time and a certain amount of industry consolidation.

Where Does Quality and The Growers Program Fit With Ethanol?

As ethanol discussions in corn production circles take center stage, seed companies are looking to identify corn hybrids that will produce more ethanol from the

Table 1
Oxygen Bomb Measurements of Shelled Corn

		Total Energy BTU/lb.
Variety 1	Total Growers Program	7751
Variety 1	Modified Growers Program	7309
Variety 2	Total Growers Program	7829
Variety 3	No Growers Program	7488
Variety 4	No Growers Program	7567
Variety 5	Total Growers Program	7909
Variety 6	Modified Growers Program	7145
Variety 6	No Growers Program	6937
Variety 7	Total Growers Program	7930
Variety 8	No Growers Program	7726

Table #1 from the 1996 Yield Results Book, shows the energy (BTU's) derived from a pound of different varieties of Shelled Corn grown with and without "The Growers Program."

distilling process. In the search they have enlisted NIR (near-infrared) spectroscopy to measure starch levels in corn. In referring to these starch levels, various names are being used such as; "fermentable starch," "high total fermentable starch (HTF)," or simply "fermentables." Some ethanol facilities are using the NIR scanner to measure starch in the shelled corn as it is received and are paying according to the corn's quality.

For years, Growers customers, following Dr. V. A. Tiedjens' soil program, have found their crops have more feed value, and they have healthier more efficient animals. In the 1990's we at Growers began to attribute this efficiency to higher energy levels in the feed. Many customers were using the refractometer to measure sugar levels in plants and feed, believing sugar to be directly related to energy content. It now seems they were pretty much on target.

About the same time, experiencing some very hot burning corn furnaces using Growers grown corn, we did some actual energy testing. With the help of Skyview Laboratories, Inc. in Pennsylvania, we measured corn energies using an instrument called the "oxygen bomb." For years the feed industry ignored the oxygen bomb (bomb calorimetry) because it was not accurate enough for differing feed types. However, we at Growers Chemical Corporation felt it was relevant, because we were comparing just one feed species, shelled corn. We learned from bomb calorimetry that shelled corn raised on the Growers Program had more energy, and this leads us to believe shelled corn raised with any portion of the Growers Program should score very well on the NIR spectroscopy test for fermentables. See Table # 1.

In the forage testing arena, the Milk2000 test is designed to measure the potential milk production of forages (see *The Growers*

The New York Times

May 23, 2000

Environmental Protection Agency Seeking Agricultural Products Tainted With Toxic Metal

WASHINGTON, May 22 — The Environmental Protection Agency is scouring the country for fertilizer and animal feed made from imported raw materials contaminated with cadmium, a toxic metal.

Officials involved in the search said they were not sure how the contamination occurred. The agency's enforcement officials are considering two possibilities: that the cadmium was accidentally included because of poor quality control in China, or that somewhere in the production process industrial wastes containing cadmium were deliberately added to agricultural products bound for export.

Article #1.

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Growers NUTRITIONAL SOLUTIONS

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Different Era?

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Solution, Spring 2006). The test has shown forages grown on The Growers Program have the ability to produce more milk. Research literature tells us plants used for feed will have more production potential when calcium and trace elements are part of the plant's tissue complex. If we can believe this research, why wouldn't it be true when producing shelled corn?

While growing sugarbeets in the 1960's, we found lower nitrogen applications created sugarbeet tissue that allowed the processing plant to extract more sugar. As with potassium in forages, nitrogen in sugarbeets suppresses usable sugar production. Thus, we at Growers believe using less nitrogen and potassium will yield shelled corn having more usable sugar or fermentables, and we trust the ethanol industry testing will reward farmers accordingly. Conceivably, this testing for higher quality or higher fermentables could change the payment basis for all grains away from just high volume to high quality production.

Is There a New Yield Results Publication in the Future?

When Growers Chemical Corporation came

into existence in 1955, Dr. Tiedjens chose to use on-farm yield and cost comparisons to prove the Growers Program would work in real farm conditions, and test plot comparisons became an important sales tool. In 1957, the first *Growers Yield Results* book was produced and it has been published every year since. Its focus has been on production yields and the costs incurred to achieve those yields. With their permission, the farmers' names and addresses of are given. No other firm in the industry has accumulated this kind of data; a proven track record spanning almost a half century. See photo #1.

In recent years Growers Chemical Corporation has been searching for ways to incorporate quality along with quantity into the *Growers Yield Results* book, and now there appears to be a meaningful measure of shelled corn quality acceptable to the agricultural industry.

Through our contacts with an ethanol company, we and our GMS representatives now have access to NIR technology and can arrange to have fermentables in the 2006 shelled corn crop measured. Growers customers or potential customers who believe the ethanol industry will be changing the face of agriculture should contact their local GMS representative to have



Photo # 1. Each "Yield Book" verifies the profitable Results coming from the use of Growers on various crops that year. Including 2006, the record spans nearly a half century.

their shelled corn tested for yield and fermentables. Our GMS representatives are on the lookout for corn crop comparisons measuring yields and fermentables. *The Growers Yield Results* publication starting with the 2006 growing season will have fermentable data. Our goal is to expand on this and establish a track record comparing corn yields, fermentable readings, crop costs and per acre profits on corn crops grown using the Growers fertility approach with the readings from any and all other protocols used. ■

The Growers Solution

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Purchase Discount

Early Order Discount

November 1, 2006, starts our new 2007 fiscal year. The early order Cash In Advance of Delivery Discounts (CIAD) remains the same as in previous years: 10% for November order payments, 8% for December,

January 6%, February 4% and March 2%.

NOTE: Call your Growers representative for an explanation of the early order discounts, quantity pricing, and delivery of Grower Mineral Solutions. ■