

THE MIDWEST

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AGRIBUSINESS IS ALSO CONSTANTLY CHANGING

Over time, I have occasionally used the first page of the newsletter to comment on the many changes in farming that we have seen over the past several years. I have also been involved in different agribusiness ventures since the 1960's, and I know from first-hand experience that there have been a lot of changes in the way we market and deliver cropping inputs and other products and services to farmers. The most obvious changes are driven by the total number of acres operated per farm as well as the size of the buildings, facilities, and equipment used in modern farming. However, some of the other big changes may not be quite so apparent to folks outside of agribusiness.

For me, the biggest change over the past few years is how we initiate and maintain contact with our customers. When I was in the grain equipment business in the 1960's and 1970's, we often took our prospective customers to other farms so they could see the equipment and talk to the current customers. In many cases, the farmers did a better job of explaining the benefits and features of the equipment than I could, and these folks were generally willing to share their knowledge and experience with the prospects. However, farming is much more competitive today, and we understand that many farmers are reluctant to give away information about products that are helping them to generate higher profits. For this reason, we have adopted our privacy policy, and we do not share names or other identifying information about our customers unless we get their approval in advance.

The second big change that I have seen is related to the type of information that we provide to our prospects and customers. Over time, farmers have become more knowledgeable about the technical details of crop farming, and they want more specific information about the product benefits. Although we provide less of this information in the form of testimonials than we used to (due to our privacy policy), we have been able to post more of this information at our web page. Also, we have dedicated less space to pictures and diagrams in the newsletter because we can post these materials on the internet, and we use the extra space to explain technical issues related to the products.

For example, the next two articles provide follow-up information about crop nutrients that build on the content of some earlier articles. We have also included a one-page insert that explains the overall benefits of the three main Chandler Crop Products.

MANAGING PLANT SUGAR LEVELS

In the past year or so, we have received a lot of questions about applying various forms of sugar at planting time with hopes of raising the sugar level in the plants. Higher sugar levels are desirable for a number of reasons, including the fact that sugar is one of the best natural insecticides. If you can maintain at least 10 brix (percent) of sugar in the plant, you can deter almost all insects from entering or feeding on the plant. High sugar content eventually kills these insects, and they prefer to feed on plants that have low sugar levels.

Our users rarely report insect problems when they apply Chandler Dry Seed Treat and Soil to their fields. First, the sugar has to be converted from an inorganic form to an organic form that can be used by the plant, and the sugars are converted by bacteria, fungi, and other microorganisms. Chandler Soil helps to multiply and support the growth of these organisms, and the increased microbial activity increases the amount of nutrient available for the plant. Second, Dry Seed Treat helps to develop a larger root system with more hair-like feeder roots which bring nutrients into the plant. For these reasons, many users of Dry Seed Treat and Soil no longer use insecticides and have reduced the amount of fertilizer that they apply to their fields while maintaining or improving crop yields.

To illustrate how much corn plant sugar levels can vary, we collected sugar samples from more than 150 fields over four years. All of the samples were conventional corn hybrids (no Bt corn), and the following results are measured in brix (percent):

Percent sugar	Avg	Low	High
Base of stalk	4.6	1.0	14.0
Ear section of stalk	9.1	1.5	17.0

In September of this year, we checked a seed variety plot that included treated and control strips, and the results were:

- The treated corn had 2,500 more ears per acre. We collected sample ears from both plots, and the treated ear had 22 rows of kernels while the control had 16 rows.
- The sugar in the base of the stalk was 4.0 brix for the treated corn and 3.0 brix for the control.
- The sugar in the ear section of the stalk was 9.0 brix for the treated corn and 6.0 brix for the control.

Given that we took these readings late in the season, most of the sugar had left the stalk and moved into the kernels. So, the readings would have been higher just 2-3 weeks earlier in the growing season.

MORE ON MAKING CROP NUTRIENTS AVAILABLE

In the September newsletter, we reported a table that shows the amount of nutrient contained in one acre of corn residue. These nutrients may be released and made available for the next crop by using Chandler Biocat 1000 to accelerate the residue decay process.

Over the years, we have revised and reprinted this information to reflect the changes in corn population rates, yields, and stalk weight. Although the nitrogen figures in this table often gather the most attention, we know that the other nutrients are also important for achieving high corn yields. For example, some of the recent articles in the farm newspapers and magazines highlight the role of available potassium (potash) in the early stages of corn production. The agronomists tell us that corn plants take up more potash than nitrogen in the first 100 days of growth, and the uptake of nitrogen only increases in the last 10-20 days before maturity. So, the overall need for potash and nitrogen is about equal by the end of the corn growing season, and the early-season needs for potash are similar for other crops.

Many of our Biocat 1000 users tell us that they no longer apply potash and have not done so for several years, and their soil tests indicate that they have adequate levels of available potash. In many of these cases, these folks were applying 250-300 pounds of potash before they started using the Chandler Crop Products. To illustrate the potential impact of the products on soil nutrient availability, we report some soil test results provided by one of our long-time users. The producer tested the soil in his three fields during the spring of 1988, and he tried some of the crop products on a trial basis during that year. In 1989, he started using all three crop products on the entire farm and has continued to do so each year. In the spring of 1992, he had the soil retested, and the samples were sent to the same lab facility so the test results would be comparable.

The soil testing lab reported the following recommended amounts of potash and calcium carbonate (lime) to apply per acre:

Location	Potash required	
	1988	1992
Field 1	155#	0#
Field 2	155#	60#
Field 3	135#	45#

Location	Calcium carbonate	
	1988	1992
Field 1	2800#	800#
Field 2	2800#	1800#
Field 3	3700#	800#

No calcium or lime of any form was applied between 1988 and 1992. Thus, the added potash and calcium that became available in the soil were generated by the enhanced microbial activity and the accelerated decay of the crop residue in the fields.

Similar findings were reported from a replicated plot study conducted over three years by a California testing organization. In each year, Chandler Biocat 1000 was applied to fertilized and unfertilized plots where cotton was raised following corn. On the unfertilized plots, the cotton yields were 12.5% higher with the Chandler Biocat 1000 treatment than for the control group. On the fertilized plots, the cotton yields were 43.6% higher with the Biocat 1000 treatment. Thus, the corn residue from the prior crop tied up the available nutrient and hampered the yields for the following cotton crop, even when the plots were fertilized. When Biocat 1000 was applied, the product helped to accelerate the corn residue decay process and release the nutrients (including the applied fertilizer) for use by the next cotton crop.

Our experience with the Chandler Crop Products in the Midwest also tells us that one of the key factors in these studies is the continued use of the products. In each case, the products were used for at least three years, which helps to sustain the initial increase in soil microbial activity that is started during the first year of use.

WINTER FARM SHOWS

As in the past, we will exhibit at several major farm shows from December, 2009 to March, 2010, and the dates and locations of the shows are:

- Dec. 1-3 Greater Peoria Farm Show
Civic Center
Peoria, IL
- Jan. 12-14 Fort Wayne Farm Show
Allen County Coliseum
Fort Wayne, IN
- Jan. 17-19 Quad Cities Farm Show
QCCA Expo Center
Rock Island, IL
- Jan. 27-28 Midwest Ag Expo
Gordyville USA
Gifford, IL
- Feb. 27-28 Agricultural Mech Show
Western Illinois University
Macomb, IL
- Mar. 2-4 Hawkeye Farm Show
University Dome
Cedar Falls, IA

Please be sure to stop by our exhibit booth and say hello if you attend one of these shows. Also, please remember that you can save on shipping charges by placing an advance order and picking up your product at one of the shows. If you want to do this, **please let us know at least five days before the show begins.** We usually bring some product to sell at the shows, but we try to limit the quantities. However, if we know you plan to pick up all or part of your order at the show, we can make sure to have it ready for you when you arrive.

NEW 2.5 GALLON JUGS

The manufacturer of our 2.5 gallon jugs was recently sold, and the new company changed the content markings on the side of the jug. We had the new jugs checked by outside sources, and the new markings are not correct. Although it looks like the jug contents are about 8 fluid ounces short, we guarantee that each jug contains at least 2.5 gallons (320 ounces) of product. We have also added a new label on the top of the jugs to explain this change.

Midwest Bio Tech, Inc.
Box 156
Erie, IL 61250
(309) 659-7773

Address Service Requested

PRE-SEASON DISCOUNT PRICE PROGRAM

We have enclosed a copy of our "Special Pre-Season Discount Program." The 12% December discount period ends at midnight on January 9, 2010, so you can benefit from the lower product prices in the 2009 or 2010 tax year. You can save more in the early months of the discount program, and the regular retail prices for all Chandler Crop Products go back in effect on April 1, 2010. Although we have had to pay higher product and shipping costs in the past year, we have maintained the **same** regular retail and pre-season discount prices for all Chandler Crop Products **over the past two years**. Also, please note that all orders over \$800 qualify for freight-free shipping, and you can place an advance order and pick up your product at one of the winter shows to avoid shipping charges.



*Seasons
Greetings*

I also want to take this opportunity to say "thank you" for the privilege to have served you in the past, and I look forward to serving you in the future. I also extend to you my personal "Seasons Greetings" and wish you a "Very Prosperous New Year."

Sincerely,
Jim Miller

Benefits of Using the Three Main Chandler Crop Products

What are the three main Chandler Crop Products?

We market the complete line of Chandler Products, which includes products designed for crop and livestock farming, lawn and garden applications, and waste management. For Midwest crop farms, the three main products in this line are Chandler Biocat 1000, Dry Seed Treat, and Soil. These products may be used on corn, soybeans, wheat and other small grains, fruits and vegetables, alfalfa and other forages, and many other types of crops. The detailed product descriptions are provided on the back of this page.

Do I have to use all three products?

No, you can use any of the products by itself or in combination with some or all of the other products. Unlike some other companies, we are not selling a system or package that requires you to make big adjustments in the way you operate your farm. Over the years, one of our main goals has been to help you fit the products into your individual farming operation.

In general, we do recommend that most farmers use all three Chandler Crop Products because the individual products are designed to enhance different functions of the soil and the plant. For example, many of our long-time users started by applying Soil (which enhances soil microbial activity) and then using Dry Seed Treat (which enhances seed germination) and Biocat 1000 (which enhances residue decay) later in the same season or during the next cropping year. Given that soil microbes also affect residue decay and seed germination, the performance of Dry Seed Treat and Biocat 1000 are further enhanced by the initial results achieved by Soil.

What is the per-acre investment if I use all three products?

Many of our users apply Chandler Soil and Biocat 1000 at the pint (16 ounce) per acre rate in order to get the most effective results, and the per-acre cost of Dry Seed Treat depends on the seeding rate. In most applications, the total investment for all three Chandler Crop Products is less than \$20 per acre when the liquid products are purchased in 30 gallon drums under our seasonal discount programs. The per-acre cost will be slightly higher if you purchase the product in smaller package sizes or at the regular retail prices.

What benefits can I get for this investment?

- Reduce seed costs by averaging at least 2,000 more corn plants per acre at harvest
- Eliminate most insecticides by increasing plant sugar levels
- Reduce herbicide application rates by 25-50% with equal or better performance
- Plant conventional hybrids and earn non-GMO premiums
- Reduce soil compaction by 5-6 inches for each year of use
- Deeper root penetration improves access to soil nutrients and moisture and reduces lodging
- Reduce water run-off and erosion problems by improving water penetration into the soil
- Produce more grain with faster dry-down and higher test weights
- Increase the availability of soil nutrients from applied fertilizers, manure, and crop residue

What are the features of the individual products?

CHANDLER SOIL

A liquid biological soil conditioner that is applied directly to the soil. The product may be applied by itself or in tank-mix combinations with other Chandler products as well as most liquid fertilizers and pesticides. Chandler Soil provides the following benefits:

- Stimulates the growth of beneficial soil organisms such as nitrogen-fixing bacteria
- Increases soil flocculation and improves water and air penetration
- Improves soil fertility and tilth and makes the soil easier to farm
- Reduces soil compaction by 5-6 inches for each year of use
- Helps to convert soil nutrients, applied fertilizers, and manure to forms used by the plant so that more of the nutrients are available for the next crop
- Enhances chemical performance at lower application rates and reduces carryover due to increased calcium availability in the soil

CHANDLER SEED TREAT

A dry or liquid enzyme seed treatment applied directly to the seed at planting. The product contains micronutrients and naturally occurring enzymes, proteins, and amino acids that are designed to enhance germination, root development, and nutrient uptake to promote higher crop yields. Chandler Seed Treat offers the following benefits:

- Provides nutrients to the seedlings until the roots can take nutrients from the soil
- Seedlings have more vigor and are more resistant to temperature extremes, drought, frost, chemical carryover, insect infestations, and other sources of plant stress
- Plants develop more hair-like feeder roots that bring nutrients into the plant from the soil
- Increased germination rates with 2,000 more corn plants per acre on average
- Produces higher yields with faster dry-down and improved test weight and grain quality

CHANDLER BIOCAT 1000

A liquid enzyme product applied directly on crop residue after harvest. Chandler Biocat 1000 contains micronutrients and naturally occurring enzymes, proteins, and amino acids that help to accelerate the residue decay process and release nutrients for use by the next crop. The product offers the following benefits:

- Faster completion of the residue decay process helps to avoid nutrient tie-up
- Residue is more manageable and does not clog planting and tillage equipment
- Cuts chemical and disease carryover and eliminates places for insects to harbor
- Reduces volunteer corn and other weed problems by decaying the seed
- The product is non-toxic and treated stalks may be pastured or grazed

Where can I find more product information?

All of our product information is posted at our website (www.midwestbioman.com), and the material includes product brochures, information about application rates and per-acre costs, on-farm yield test results and other product benefits, and several technical papers on product functions and performance. You are also welcome to contact us by telephone (309-659-7773) or by electronic mail (info@midwestbioman.com) if you have additional questions about the Chandler Crop Products.

**2009-2010
SPECIAL PRE-SEASON DISCOUNT PROGRAM
for
CHANDLER CROP PRODUCTS**

ORDER FORM
MIDWEST BIO-TECH, INC.
P.O. Box 156 – ERIE, IL 61250
Phone 309-659-7773

<u>Chandler Products</u>	Retail	Mar.	Feb.	Jan.	Dec.
15# Bkt Dry Seed Treat	150.00	144.00	140.00	135.00	132.00
2 to 5 Bkts - Per Bkt	145.00	139.00	135.00	131.00	128.00
6 or more Bkts - Per Bkt	140.00	134.00	130.00	126.00	123.00
(Each Bkt will treat about 60 Bu. or units of seed)					
Gal Liquid Seed Treat	125.00	120.00	116.00	113.00	110.00
2½ Gal Liquid Seed Treat - Per Gal	120.00	116.00	112.00	108.00	106.00
- Per 2½ Gal	300.00	290.00	280.00	270.00	265.00
30 Gal Liquid Seed Treat	110.00	106.00	102.00	99.00	97.00
(Each gallon will treat about 64 Bu. or units of seed)					
Gal Soil	92.00	88.00	86.00	83.00	81.00
2½ Gal Soil - Per Gal	90.00	86.00	84.00	80.00	78.00
- Per 2½ Gal	225.00	215.00	210.00	200.00	195.00
30 Gal Soil	82.00	79.00	76.00	74.00	72.00
Gal Biocat 1000	90.00	86.00	84.00	80.00	78.00
2½ Gal Biocat 1000 - Per Gal	88.00	84.00	82.00	78.00	76.00
- Per 2½ Gal	220.00	210.00	205.00	195.00	190.00
30 Gal Biocat 1000	80.00	77.00	74.00	72.00	70.00
Note - Biocat 1000 is a cellulose digester					
Gal Foliar	112.00	108.00	104.00	101.00	98.00
2½ Gal Foliar - Per Gal	109.00	105.00	101.00	98.00	95.00
- Per 2½ Gal	272.00	262.00	252.00	245.00	237.00
30 Gal Foliar	100.00	96.00	93.00	90.00	88.00
<u>Chandler Organic</u>					
Gal Organic	105.00	101.00	98.00	95.00	92.00
2½ Gal Organic - Per Gal	100.00	96.00	93.00	90.00	88.00
- Per 2½ Gal	250.00	240.00	233.00	225.00	220.00
30 Gal Organic	90.00	86.00	84.00	80.00	78.00

Chandler Organic can be sprayed on the soil or as a foliar on plants

Dry Seed is priced per bucket, **the rest of the products are priced per gallon.**

A – The 12% December discount will terminate at midnight on January 9, 2010

B – The other three months discounts will terminate the last calendar day of the month at midnight

C – Customer must pay for product within the specified month to get that month's discount

D – You may take delivery of the product at time of payment or we can store it for you until spring

E – Prices are subject to change

F – All prices are F.O.B. Erie, IL

Name _____
(please print)

Address _____

City _____ State ____ ZIP _____

Phone _____ - _____

Qty.	Products	Unit	Price
	15# Bkt Dry Seed Treat		
	Gal Liquid Seed Treat		
	2½ Gal Liquid Seed Treat		
	30 Gal Liquid Seed Treat		
	Gal Soil		
	2½ Gal Soil		
	30 Gal Soil		
	Gal Biocat 1000		
	2½ Gal Biocat 1000		
	30 Gal Biocat 1000		
	Gal Foliar		
	2½ Gal Foliar		
	30 Gal Foliar		
	Gal Chandler Organic		
	2½ Gal Chandler Organic		
	30 Gal Chandler Organic		

PRICES SUBJECT TO CHANGE WITHOUT NOTICE **Product Total** _____
UPS Shipping _____

TOTAL AMOUNT ENCLOSED _____
WHEN YOU WOULD LIKE DELIVERY OF THIS PRODUCT _____

All orders over \$800.00 will be shipped Freight Free
All orders under \$800.00 add the following UPS fee

Each 15# Dry Seed - \$14.00

Each Gal of Product - \$13.00

Each 2½ Gal of Product - \$15.00

Enclose Check or Money Order

Payable to Midwest Bio-Tech, Inc.

THANK YOU FOR THIS BUSINESS!