

THE MIDWEST

BIO-TECH NEWS

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March, 2006

TWO MAJOR TOPICS

While talking with our users and other folks at the winter farm shows, we found that there were two topics of conversation that always popped up. First, most people in this part of the country are concerned about the continued influence of the 2005 drought on the coming crop year. We have more 2005 crop yield results as well as some weather outlook information for 2006 to share with you. The other major topic of interest is fertilizer application rates and prices, and this issue affects farmers from every part of the Midwest. Over the past six months, the fertilizer question has received more attention in farm magazines and other press outlets than at any other time in the recent past. We also want to share some ideas on ways to reduce or control your fertilizer costs.

CONTINUED IMPACT OF THE 2005 DROUGHT?

As we reported in the last two issues of the newsletter, the drought area extended from central Missouri through northern Illinois to southern Wisconsin. Our area was especially dry, and the weather station at the Quad Cities airport reported that 2005 was the driest year in more than 120 years. Although we didn't have to drive too far west into Iowa or east toward Indiana to find areas with more normal rainfall, it is hard to find areas with ample soil moisture for the coming crop. In fact, USDA reported in late November, 2005, that most areas in Illinois and Iowa had low to very low soil moisture content.

Based on the latest information from the USDA Drought Monitor, there is some good news as well as some reason to remain concerned about the coming crop year. An area of severe drought still runs from far northeastern Missouri to the Wisconsin-Illinois line. For most of this area as well as much of southern Iowa and southeastern Nebraska, the dry conditions are expected to persist in 2006. There has been some relief in northern Missouri due to autumn rainfall and in parts of northern Illinois and southern Wisconsin due to heavy winter snowfall, especially in the areas near Lake Michigan (northeastern Illinois and northern Indiana). A separate drought region with severe to extremely dry conditions extends from southwest Missouri through eastern Oklahoma and across much of Texas. The dry weather conditions are also expected to persist in much of this area through 2006.

From our observations during the past year, the current drought conditions in the northern Corn Belt remind us a lot of our experiences during 1988. Although the dry areas were much more widespread in 1988, the current drought conditions are more severe in certain parts of the northern Corn Belt than in 1988. Also, there are lots of areas outside the current drought region that could run into seedling emergence and plant stress problems during dry weather in 2006 due to limited soil moisture. We certainly hope we don't have to face two dry years in a row, but the latest weather information indicates that this is a distinct possibility. For now, we will have to work with this data until better information becomes available later in the spring.

NEW RESULTS REPORTED BY CHANDLER USERS

In the December newsletter, we reported some results from users who faced very dry conditions in 2005. After visiting with more users during the winter farm shows, we have some additional field results to pass along. As we found during the drought of 1988, many users observed very large differences between the yields of treated and untreated crops. One major advantage of using Chandler Crop Products is that they help the plant to survive dry weather and other types of stress that can reduce crop yields. In accordance with our new privacy policy, we do not report names, locations, or other identifying information for these users who kindly shared their results:

- One of our users in northeastern Missouri farms in the drought region and had corn yields that were two times the yields achieved by his next-door neighbors.
- A user in central Illinois reported that he had 8 inches less soil compaction after using Chandler Soil for the first time.
- A user from west central Illinois applied Chandler Seed and Soil to his corn and harvested over 270 bushels per acre. The corn was irrigated, but he did not pump more than the usual amount of water, even during the driest spell.
- Several Chandler users who farm in Illinois and Iowa found that they did not have to spray their soybeans or alfalfa for insects last year. Most of these people stated that their neighbors who did not use the products had to spray 1-3 times during the summer.
- One of our long-term users from eastern Iowa farms on the edge of the drought area. His bean yields ran from 60 to 75 bushels per acre.
- Another long-term user in eastern Iowa applied Chandler Seed and Soil to her tomato plants, which produced large and meaty tomatoes with limited watering. The plants remained alive and productive until the first hard frost.

WHAT TO DO ABOUT HIGH FERTILIZER PRICES?

No matter where you look in the farm papers these days, you are bound to find at least one article on crop fertilizer rates and costs. Of course, nitrogen gets most of the attention because the cost has jumped sharply due to higher petroleum and natural gas prices, and it represents the largest share of most corn fertility programs. It is interesting to note that the authors of these articles often put a different spin on the issue. Some people are truly trying to help farmers by suggesting ways to cut back on fertilizer application rates and save money. For example, USDA and some universities recently posted materials at their websites that compare methods farmers can use to save nitrogen, but some of these ideas are old news (replacing commercial fertilizer with manure). On the other hand, it seems to us that some of the articles were written to help the fertilizer companies by justifying continued use of high nitrogen rates.

We are happy to see that the application rate issue is now open for debate. For the past several years, farmers who regularly use Chandler Soil have found that they can reduce their fertilizer rates by up to 50% or more while maintaining or improving soil fertility levels and crop yields. During times like this, the potential savings and impact on your bottom line can be very substantial.

We are also encouraged to see that some of these articles mention the relationship between soil nutrient availability and crop residue. Recently, a university agronomist noted in one of the articles that residue is one of the key factors that limits nitrogen availability in the soil. He pointed out that corn farmers could apply less nitrogen for the next crop if the residue from the last crop was removed. Of course, you don't really have to remove the crop residue from the field to solve the nitrogen problem. As users of Chandler Biocat 1000 know, you only have to break down the residue and release the nutrients for the next crop.

CHANDLER SOIL AND SOIL MICROBIAL ACTIVITY

In the last March issue of the newsletter, we reported the results of some field research on the impact of Chandler Soil on increased microbial activity in bean plots. Chandler Soil is a liquid biological soil conditioner that contains micronutrients and natural organic compounds that promote soil microbial activity. The results showed that the soil treatment generated from 300 to 1,000 times more microbe colonies per gram of soil for three types of soil microbes (bacteria, actinomycetes, and fungi). The findings are impressive and help to show that Chandler Soil can have a significant impact on the various types of microbial activity in the soil.

Since we first presented this information, we have received several requests from users who want additional information. We provided a bit more background data on the functions of these soil microbes in the June, 2005, newsletter, and we have included an insert in this newsletter that provides a more complete picture of their purpose and activity in your soil. For more information about Chandler Soil, please visit our web page at www.midwestbioman.com.

STRONG SALES OF CHANDLER FOLIAR

During the past year, we have also seen a large jump in the sales of Chandler Foliar. Based on talks with our users, it appears that the combination of lower crop prices and higher fertilizer costs has prompted many farmers to evaluate the economics of their crop fertility programs. Foliar feeding programs are an alternative way to support plant growth at a critical stage of crop development. Chandler Foliar is a liquid plant food that provides micronutrients and biostimulants that promote efficient plant growth. We will provide complete details about the benefits of Chandler Foliar in the June, 2006, newsletter, or you can visit our web page at www.midwestbioman.com for more information.

RECEIVE YOUR NEWSLETTER BY EMAIL

Over the past six months, several people have opted to receive their newsletter by email. If you would like to receive the June, 2006, newsletter electronically, please send email to info@midwestbioman.com, send a fax to (309) 659-7827, or call us by phone at (309) 659-7773. We will also include a sign-up sheet in the June, 2006, newsletter. We will not use your email address to send unsolicited promotional materials, and we will NEVER provide your email address to any third party without your permission.

APPRECIATION DINNERS

Beginning this season, we will host our traditional Appreciation Dinners for users in a new format. Now that everyone has more demands on their time than ever before, we have adopted a more flexible format that does not include a formal presentation or meeting. We will continue to furnish a meal to show our appreciation for your business, but the schedule is open and you can arrive at your convenience. As before, we will be happy to answer your product questions, and you can pick up your product at the dinner in order to save shipping charges.

Invitations will be sent to all current users in areas where we do not have an active dealer, and the areas are listed below. If you would like to attend, please call us at (309) 659-7773, fax us at (309) 659-7827, or send email to info@midwestbioman.com to find out the location and time of day for a dinner near you:

- Gilman, IL March 21
- Preston, IA March 23
- Calmar, IA March 28
- Oelwein, IA March 28
- Davenport, IA March 30

IF YOU HAVE AN UPDATED ADDRESS THAT IS DIFFERENT FROM THE ONE ON YOUR ADDRESS LABEL, PLEASE SEND IT TO US OR GIVE US A CALL SO IT CAN BE CHANGED FOR FUTURE NEWSLETTERS.

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 the full price list and shipping cost schedule under our "Special Pre-Season Discount Program." The regular retail and pre-season discount prices for all Chandler Crop Products are the same as last year. The 4% March discount is available through the last day in March, and the regular retail prices for all Chandler Crop Products go back in effect on April 1, 2006. Although UPS increased their shipping rates since January 1 of this year, we have held our shipping charges at the same level for more than a year. As always, we provide freight-free shipping on all orders over \$800, and you can avoid shipping charges if let us know in advance that you want to pick up your order at one of the upcoming Appreciation Dinners.

NEW INFORMATION AT WWW.MIDWESTBIOMAN.COM

Copies of all full color product brochures for Chandler Biocat 1000, Foliar, and Soil are now available at our web page. The brochures were recently updated and include the most current information about product application rates, per-acre costs, details about the major product benefits, and yield trial results from users in the Midwest and elsewhere. We have also posted the latest copies of our Chandler Product performance sheets ("Benefits of Early Crop Residue Decay" and "Chandler Biocat 1000 Field Results for 2005") along with the latest prices and shipping rates. Please visit our company web page at www.midwestbioman.com to view the most up-to-date information on the full line of Chandler Crop Products.

Benefits of Increased Soil Microbial Activity with Chandler Soil

Product Summary

Chandler Soil is a liquid biological soil conditioner designed to improve soil fertility and soil tilth. Chandler Soil stimulates growth and metabolism of beneficial soil bacteria and other microorganisms that convert soil nutrients and decompose organic materials like crop residue. Chandler Soil also contains several micronutrients and naturally occurring organic compounds (enzymes, hydrolyzed proteins, and amino acids) that promote microbial activity in the soil.

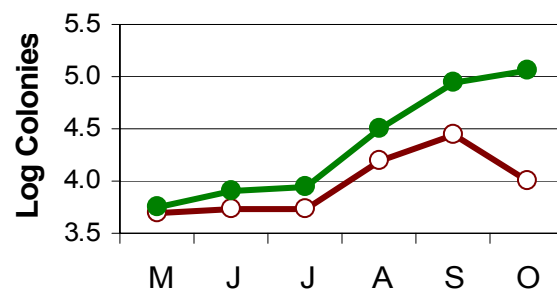
Recent Field Research

To demonstrate the potential impact of Chandler Soil on soil microbial activity, we have results from a field trial conducted at the University of Louisiana at Monroe. The trial measures microbial activity by comparing the number of soil microbe colonies formed in soybean field plots with and without Chandler Soil applied at the recommended rate (ten ounces per acre). The counts in the treated and control plots were taken each month from May to October, and Chandler Soil was applied to the treated plots in early June. The monthly colony counts (per gram of soil) for three types of beneficial soil microbes (bacteria, fungi, actinomycetes) are plotted on the right.

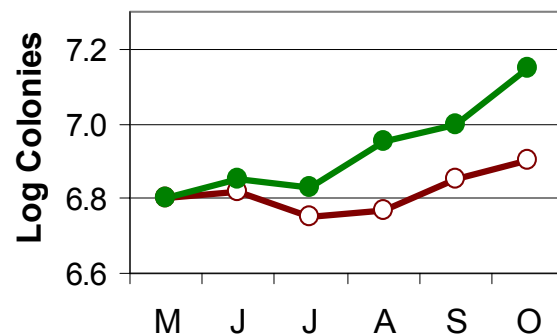
The solid dots are the microbe counts for the bean plots treated with Chandler Soil, and the circles represent the control results. The colony counts are stated in a log scale, which measures the multiplier effect of the soil treatment on the soil microbe counts. For example, an increase from 4 to 5 under the Chandler Soil treatment represents 1000 times more microbe colonies than the control.

As we should expect from a fair test, the microbe counts are about the same in May before Chandler Soil is applied. After the June treatment, the counts of all three types of microbes increase in the treated plots relative to the control plots. By October, the fungi and actinomycetes counts in the treated plots are about 300 times the control counts, and the bacteria counts in the treated plots are about 1000 times the control counts.

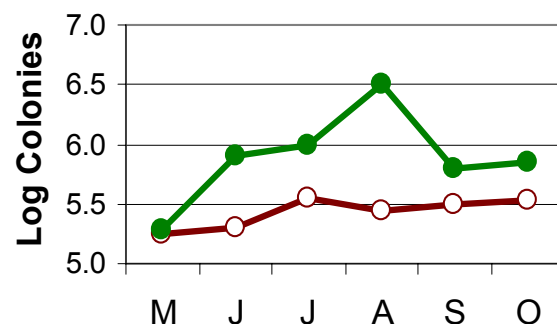
Bacteria



Actinomycetes



Fungi



What are These Soil Microbes? Aren't Bacteria and Fungi Bad?

Actinomycetes are a type of bacteria that decompose the toughest plant materials like cellulose that form the plant walls. They generate the earthy smell from freshly turned soil or a newly opened compost pile. When you dig into a compost pile, the actinomycetes may be seen as gray web-like filaments in the outer 4 to 6 inches of the pile.

Bacteria are the most numerous of the soil microbes, but there are different types of bacteria. Some bacteria convert plant nutrients to forms that the plant can use, and other types work to decompose plant material in the soil. The decomposers work on plant material after the actinomycetes and fungi are done with the heavy work, and these soil bacteria generate the heat found in the center of a compost pile. Also, soil bacteria release a sticky mucus-like substance that binds the soil particles and builds soil tilth and structure.

Some forms of soil bacteria are pathogens and are responsible for soil-borne disease. However, the beneficial soil bacteria form a protective shield around the plant roots to keep the harmful bacteria away. Also, the beneficial bacteria attract other types of soil microbes that feed on the harmful bacteria and reduce their numbers. The key to soil disease prevention is to maintain strong and active colonies of beneficial bacteria.

Mycorrhizal fungi also form a protective shield around the plant roots and help protect the plant from soil pathogens. They also send out root-like vessels known as hyphae that can extend several feet away from the roots to carry water and nutrients back to the plant. Like the beneficial bacteria, mycorrhizal fungi generate sticky substances that help to build soil structure. Other types of fungi are like the actinomycetes and decompose cellulose, and the fungi in a compost pile may be seen as fluffy gray colonies on or near the surface.

Benefits of the Increased Microbial Activity

Beneficial soil microbes may decline in number or become dormant when placed under stress, especially after excessive tillage, heavy nitrogen or phosphorus applications, and soil surfaces are left bare or unprotected. You can use Chandler Soil in conjunction with a minimum tillage program, reduced fertilizer applications, and proper residue management to protect the soil and realize the following benefits of increased soil microbial activity:

- All soil-borne and applied nutrients (fertilizer, manure, lime, etc.) have to be converted to a form usable by the plant, and soil microbes play a major role in this conversion process. Soils with a healthy balance of microbial activity can generate up to 80% of the nutrients needed for crop growth. So, increased microbial activity reduces the need for applied fertilizer and helps the plant make better use of the nutrients you do apply.
- Beneficial bacteria and fungi form a protective shield around the plant roots and help to reduce the number of soil pathogens. In the field study summarized on the first page, the Chandler Soil treatment reduced the number of harmful soil nematodes by 34 percent.
- The sticky substances secreted by bacteria and fungi help to build soil structure and tilth, and a biologically active soil will be more flocculent or porous (more air spaces among the soil aggregates). The result is a reduced risk of soil compaction, deeper plant root penetration, better rainfall absorption and retention for dry periods, fewer standing water problems, and less erosion from runoff. Thus, you can farm more of your soil.
- The sticky substances secreted by soil bacteria contribute alkaline character to the soil, and the mycorrhizal fungi secrete acids that they use to break down plant materials. By maintaining healthy microbial activity, you can help to balance your soil pH.

**2005-2006
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

Name _____ (please print)
Address _____
City _____ State _____ ZIP _____
Phone _____ - _____

<u>Chandler Products</u>	Retail	Mar.	Feb.	Jan.	Dec.
15# Bkt Dry Seed Treat	120.00	115.00	112.00	108.00	106.00
2 to 5 Bkts - Per Bkt	115.00	110.00	107.00	104.00	101.00
6 or more Bkts - Per Bkt	110.00	106.00	102.00	99.00	97.00
(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 7, 2006

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

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 - \$9.00

Each Gal of Product - \$8.00

Each 2½ Gal of Product - \$10.00

Enclose Check or Money Order

Payable to Midwest Bio-Tech, Inc.

THANK YOU FOR THIS BUSINESS!