

# THE MIDWEST

# BIO-TECH NEWS

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**September, 2006**

## **US CORN AND BEAN CROPS ARE IN GOOD CONDITION DESPITE SOME DRY SPOTS**

The latest crop report issued by USDA on August 11 shows that the overall condition of the US corn and soybean crops is pretty good. The national average corn yield is expected to be 152.2 BPA, which is higher than last year by about 4.3 bushels and would be the second best on record. Total production is expected to be about 1% less than last year due to the decline in corn acreage, but this would still be the third largest corn crop on record. The corn yield picture is a bit more mixed when you look at particular states, and yields will be higher in the eastern Corn Belt but lower in western Corn Belt and Great Plains states relative to last year. The 4% increase in US bean acreage is offset by a nearly 10% decline in yield to 39.6 BPA, and total US soybean production is expected to be 5% lower than last year. As with the corn crop, the bean yields are higher in eastern Corn Belt states and lower in the western and southern production regions.

As we all know, things can change a lot in the course of a year. At this time last year, we reported that we had experienced one of the driest summers on record in our part of Illinois. This year, we have had plenty of rainfall, and the crops look as good as they ever have in this area. Over the past few months, I have been able to travel through most of the Midwest (from Ohio to western Kansas and from Minnesota to southern Illinois), and I have found that the crops in most of these areas look about as good.

However, other areas are still very short on rainfall and soil moisture, and they are facing serious drought conditions. The southern part of Illinois looked pretty dry, and there are still parts of western Illinois that are as dry as last year. In fact, some of the corn around Quincy was completely brown by August 1. Most areas in western Missouri need 9 to 15 inches of rainfall just to get back to normal, and much of the corn is fired from top to bottom in these areas, too. I also saw that some farmers east of Kansas City had started chopping the driest corn for silage as early as the first week in August.

There are also some localized drought areas outside the Corn Belt, especially as you move to the west or south. Several papers reported last week that the corn crop in South Dakota is so short that they may not be able to redecorate the murals at the Corn Palace in Mitchell, SD, with local colored corn --- this is the first time this has happened since 1940.

Prices on the wheat markets have been moving higher due to the expectations of a much smaller crop, and the August 15 USDA wheat outlook report indicates that this is due to 6% fewer harvested acres and 10% lower yields than in 2005 for all types of wheat. The biggest drop will be in durum wheat production, which is expected to decline by 46% from last year. USDA also projects that world wheat production will drop this year due to large declines in western Europe, Canada, and Argentina, although the Russian and Ukrainian wheat crops in eastern Europe are expected to be a bit larger than 2005 production.

## REDUCE FERTILIZER COSTS WITH BIOCAT 1000

Some of the petroleum market analysts are now seeing the signs of increased fuel supplies, including oil from new sources and petroleum alternatives like ethanol. Although the increase in supply may lead to lower prices for petroleum products by next year, crop fertilizer costs are expected to remain high into the coming crop year. As we report in our product brochures, you can reduce the cost of your crop fertilization program by using the nutrients available in crop residue. The crop residue in a typical field contains the following amounts of nitrogen (N), phosphorus (P), and potassium (K) in pounds per acre:

<b>Crop</b>	<b>N</b>	<b>P</b>	<b>K</b>
Corn	100	37	145
Soybeans	90	20	50
Oats	25	15	80
Wheat	40	10	70

The actual nutrient content of the residue in a particular field will vary with crop genetics, population density, stalk size, and other factors. Also, these nutrient values are based on average hybrids that produce 5 tons of residue and 150 bushels per acre. Higher yielding hybrids with heavy stalks may generate 8-10 tons of crop residue with twice as much nutrient content.

Chandler Biocat 1000 is a liquid enzyme product that contains micronutrients, amino acids, and proteins designed to stimulate the soil bacteria and other organisms that convert residue to nutrients available for the next crop. Although the activity of the soil organisms temporarily reduces the amount of nutrient available as the decay process reaches its peak, the amount of available nutrient increases as the decay process nears the end. Thus, it is very important to begin the decay process as soon as possible after harvest. Early decay activity also eliminates winter harboring sites for insects, reduces plugging of tillage and planting equipment, and prevents other problems associated with excess residue.

## APPLICATION RATES FOR CHANDLER BIOCAT 1000

Chandler Biocat 1000 may be applied to crop residue using conventional spraying equipment and is non-toxic when used as directed. As we show in our technical paper on timing of the decay process (see the Biocat 1000 page at our website), you should apply Biocat 1000 to the residue as soon as possible after harvest because the soil bacteria become twice as active for each 10 degree rise above 38 degrees F. The product also requires some moisture to work effectively, so Biocat 1000 should not be applied under severe drought conditions.

The recommended application rate for Chandler Biocat 1000 depends on the type and amount of residue in the field:

### **Corn residue**

Up to 150 BPA	8 oz. per acre
150-180 BPA	10 oz. per acre
180-200 BPA	12 oz. per acre
Over 200 BPA	14 oz. per acre

### **Soybean and Small Grain Residue**

8 to 10 ounces per acre

Many of our users spray Biocat 1000 with Chandler Soil in the same pass. The product may also be applied in a tank mix with other products and is compatible with most commonly used liquid fertilizers and pesticides. However, we recommend that you test all new tank mix combinations for compatibility. You should apply Chandler Biocat 1000 with enough water (10-20 gallons per acre) to provide good coverage of the residue, and the product may be applied with newer spray equipment that uses lower water flow rates.

The per-acre cost of Chandler Biocat 1000 depends on the application rate. At the full retail price (\$90 per gallon), the per-acre cost of Chandler Biocat 1000 is:

8 ounces per acre	--- \$5.63 per acre
10 ounces per acre	--- \$7.03 per acre
12 ounces per acre	--- \$8.44 per acre
14 ounces per acre	--- \$9.84 per acre

The per-acre cost is lower if you buy in larger sizes (2.5 gallon jugs or 30 gallon drums) or during our Fall Discount Program (September 1 to October 31, 2006).

## **NEWSLETTER INSERT FOCUSES ON THE BENEFITS OF DRY SEED TREAT**

Chandler Dry Seed Treat is a talc-like powder applied directly to the seed at planting time. The product is non-toxic and is designed to enhance the germination process, promote plant root growth, and provide an early source of nutrients for the plant. As I explain in the enclosed two-page insert, we now hear more about root systems than we used to, but we still find that some farmers don't take time to understand the importance of the root system in plant growth and yields. We have written the insert in order to highlight the many benefits of generating early root growth and to explain how Chandler Dry Seed Treat can help you support the plant root system and generate higher crop yields. We have also posted an electronic (Adobe PDF) copy of the two-page insert at the Dry Seed Treat page on our website ([www.midwestbioman.com](http://www.midwestbioman.com)), and you can refer to the website for more details.

## **DRY SEED TREAT FOR WINTER WHEAT AND OTHER SMALL GRAINS**

With wheat prices moving higher due to the short crop in 2006, we know a number of farmers who are thinking about planting more wheat acres this fall. However, some of the people we have talked to are concerned that the short moisture situation may hamper the fall growth and winter survival of the next wheat crop. If you will be planting wheat, rye, or other cereal grains this fall, you should apply Chandler Dry Seed Treat to help the seedlings emerge faster and to protect against winter kill. For about \$2 to \$3 per acre (depending on your seeding rate), Dry Seed Treat can also help to increase the number of stools or tillers per crown, cut back on planting or seeding rates, reduce lodging, and generate yield increases of 5 to 7.5 bushels per acre in small grains.

## **FALL DISCOUNT PROGRAM NOW INCLUDES SAVINGS ON CHANDLER FOLIAR**

As in past years, we offer a special Fall Discount Program for most of the Chandler Crop Products (Biocat 1000, Seed Treat, Soil, and Organic). This year, we have also extended the discounts to include Chandler Foliar, which is a non-toxic liquid plant food that promotes efficient plant growth.

Over the years, we have typically sold most of the Chandler Foliar for summer applications to beans, alfalfa, and other full-season crops. However, we have recently received a growing number of requests for information about fall applications of Foliar to winter wheat and hay. As we explain in our product brochure, Chandler Foliar helps to promote vigorous late-season growth and to prevent winter kill, especially under cold winter weather or dry soil conditions. For users who want to apply Chandler Foliar to fall crops, we have extended the fall discount program to this product.

The full price list is enclosed as an insert to the newsletter, and you will find that the fall discount and regular retail prices are the same as last year. The discount is 12% for orders received from September 1 to 15, 10% for orders received from September 16 to 30, 7% for orders received from October 1 to 15, and 4% for orders received from October 16 to 31, 2006. The regular retail prices listed on the insert are back in effect after October 31, 2006. You must pay for the product within the stated period in order to qualify for that discount, and you can take delivery of the product when you place the order or request that we store it for later delivery to you.

If your total order is \$800 or more, we will ship the product freight-free. Otherwise, our standard UPS freight rates apply --- \$8 for each gallon jug, \$9 for each 15 pound Dry Seed bucket, and \$10 for each 2.5 gallon jug. Complete details on the Fall Discount Program and our shipping charges are also posted at the Midwest Bio-Tech website, [www.midwestbioman.com](http://www.midwestbioman.com).

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

Address Service Requested

## **MANAGE HEAVY CORN RESIDUE WITH BIOCAT 1000**

One major problem resulting from modern corn production is residue build-up that can hamper field operations and yields of the following crop. This problem will only tend to increasing over time, especially for corn growers who adopt Bt varieties with very heavy stalks. We have even heard that some farmers are going back to moldboard plows in attempt to handle the heavy trash. As we know, this is a clear step backwards because burying corn residue is not an effective way to manage the decay process. By using Chandler Biocat 1000, you can convert the residue into nutrients for the next crop and reduce residue carryover problems. For more information, refer to our Biocat 1000 webpage, which includes a 2005 field report showing how the product helped to decay the remaining corn residue in a no-till bean field.

## **RECEIVE THE NEWSLETTER BY ELECTRONIC MAIL**

For more than a year, we have provided readers of The Midwest Bio-Tech News the option to receive the newsletter by electronic mail instead of the regular mail delivery. Several readers have already signed up for electronic delivery, and we want to take this opportunity to issue a reminder. The electronic version of the newsletter is identical to the paper copy and is distributed in the Adobe PDF file format. If you want to receive the email newsletter in addition to (or in lieu of) the paper copy delivered by the post office, please send us your name, current post office or mailing address, and electronic mail address. You can send us this information by regular mail, fax, phone, or email, and we will update your newsletter delivery information in time for the December, 2006, issue of The Midwest Bio-Tech News.

**2006**  
**SPECIAL FALL APPLICATION PROGRAM**  
**for CHANDLER CROP PRODUCTS**

**ORDER FORM**  
**MIDWEST BIO-TECH, INC.**

P.O. Box 156 – ERIE, IL 61250  
 Phone 309-659-7773

<b>Chandler Products</b>	<b>Retail</b>	<b>Oct. 16-31</b>	<b>Oct. 1-15</b>	<b>Sept. 16-30</b>	<b>Sept. 1-15</b>
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
<b>Chandler Organic</b>					
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 Treat is priced per bucket --- **the rest of the products are priced per gallon**

- A – The early September and October discount periods end at midnight on September 15 and October 15, 2006
- B – The late September and October discount periods end on the last calendar day of the month at midnight
- C – Customer must pay for product within the specified discount period to get that discount
- D – You may take delivery of the product at time of payment or we can store it for you
- E – Prices are subject to change, and product cannot be returned for credit or exchange due to insurance regulations
- F – All prices are F.O.B. Erie, IL

Name \_\_\_\_\_  
 (please print)

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_ ZIP \_\_\_\_\_

Phone \_\_\_\_\_ - \_\_\_\_\_

<b>Qty.</b>	<b>Products</b>	<b>Unit</b>	<b>Price</b>
	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 - \$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!**

# Benefits of Generating Early Root Growth with Chandler Seed Treat

## Product Summary

Chandler Dry Seed Treat is a talc-like powder that is applied directly on the seed at planting time. The product is **non-toxic** and contains micronutrients and naturally occurring enzymes, proteins, and amino acids that enhance the germination process and provide an early source of nutrients for the plant. The result is faster seedling emergence, higher germination rates, and more vigorous plant growth. As the emerged plant grows, Dry Seed Treat continues to work for you by enhancing plant root development (including nodulation in soybeans and other legumes), nutrient uptake, and plant growth. At harvest, Chandler Dry Seed Treat promotes faster maturity and dry-down, higher yields and test weight, and less lodging. Chandler Seed Treat is also available in liquid form for use in liquid seed treatment applicators.

## Why is Early Root Growth Important?

We have seen the importance of generating a good plant root system ever since we started testing enzyme products for crop production. Although the seed companies and other input suppliers are now talking more about the role of root system size and health, this relationship between roots and yields has not always received the attention or appreciation it deserves. For example, I talked with an aggressive young farmer at the Minnesota Farmfest a few years ago and tried to explain the benefits of using Chandler Dry Seed Treat to build larger corn root systems. He quickly informed me that he didn't care about the root system and was only interested in the ability of the products to increase yields. Based on my experience over the past 25 to 30 years, I find that producers who don't take time to understand the root system and other key plant components are likely to miss out on those high crop yields that they care so much about.

To be specific, the quality and quantity of crop products is directly related to the size and health of the plant root system because the roots take up water and other soil nutrients to feed the plant. Plants with larger root systems are better able to support vigorous crop growth and generate yields nearer to the genetic potential of the plant. Chandler Dry Seed Treat increases the number of hair-like feeder roots that carry these nutrients into the plant. Of course, the soil nutrients must be in a form that can be used by the plant and must be available in ample quantities, and the benefits of Chandler Dry Seed Treat are further enhanced when the product is used along with Chandler Soil and Biocat 1000.



## Keeping the Nutrients Flowing

A large and healthy root system is also better able to take up the right kinds of nutrients for the plant. We can also see the impact of Chandler Dry Seed Treat on nutrient uptake by splitting corn stalks lengthways (from the roots to the top of the plant). At each joint, the corn plant has a filter that acts just like a fuel filter. The plant filters become darker in color as more impurities are removed from the absorbed nutrients. If these filters become plugged, the nutrient flow slows and may eventually stop (just as a plugged fuel filter may shut down an engine), which hampers crop growth and yield production. Users of Chandler Dry Seed Treat often find that the filters in treated corn plants appear to be white or very lightly colored, which means that the filters are clear and open. Chandler Dry Seed Treat helps to promote high crop yields throughout the season by keeping the nutrients flowing into the plant.

## The Role of Plant Sugar in Crop Health and Yields

Chandler Dry Seed Treat also enhances plant sugar content, which is an important measure of plant health and yield potential. Although some people can judge sugar content by tasting the plant matter, the best way to measure sugar content is to use a refractometer. The plant sugar content is typically reported in percentages or brix, and higher brix counts indicate healthier plants. For a corn plant, the readings may range from 1 to 20 brix, and we should find higher readings as we move up the plant and closer to the ear. Higher sugar content also indicates that the plant will tend to have fewer insect problems, especially if you can maintain plant sugar content of 10 brix or more. Insects cannot digest sugars, so they will tend to stay away from healthy plants and attack weaker plants with low sugar content. For example, one of our long-time users was mowing last summer (2006) and observed that the insects were eating the grass and weeds in the waterways but were not on the corn or bean plants. The treated corn and bean plants had higher sugar content and were not attractive to the insects.

## Application Rates and Per-Acre Costs for Midwest Field Crops

For convenient field application, Chandler Dry Seed Treat can be dusted on and thoroughly mixed with the seed in the planter box or seed hopper. The product is **non-toxic** and can be applied without special equipment or handling. The recommended application rate is 4 ounces per bag or bushel of seed (4-8 ounces for alfalfa seed), so the per-acre cost depends on the seeding rate for the crop. At the regular retail price of Chandler Dry Seed Treat, the per-acre cost of the product is:

- **Corn** --- \$0.68 per acre at a plant population rate of 32,000 plants per acre (2.5 acres per bag)
- **Soybeans** --- \$1.70 per acre
- **Alfalfa** --- \$0.60 to \$1.20 per acre
- **Wheat and small grains** --- \$2 to \$3 per acre

The per-acre cost is lower for product purchased during our Fall (September to October) and Pre-Season (December to March) Discount Programs. All prices are subject to change without prior notice.



## Product Benefits for Specific Crops Reported by Our Users:

- **Corn** --- treated fields average 2,000 more plants per acre than untreated fields planted at the same population rate, higher sugar content and fewer insect problems, average 2 pounds higher test weight, 3-5 points dryer at harvest, and average yield gains of 5-10 BPA
- **Soybeans** --- more healthy root nodules (for nitrogen fixation), higher test weights, better quality, and average yield increases of 3-5 BPA
- **Cereal grains** --- more stooling and thicker stand, more stems or stalks per crown, higher grain quality, better test weight, and average yield increase of 6-12 BPA
- **Alfalfa** --- reduce seeding rates 3-6 pounds per acre, more healthy root nodules, higher yields and better quality (higher protein and TDN), reduced winter kill

