

March, 2020

## **THIS YEAR, WE ARE JUST LIKE JACK BENNY**

Some of our younger readers may not recognize this name, but those of you with more years of experience will recall Jack Benny, who was a top star in early radio and television. Jack Benny's character on radio and TV was a very thrifty and slightly vain person. For example, one of the running gags on the old Jack Benny shows was his age, which he always reported as 39 and kept this up for years and years. Based on interviews with people who actually knew him, the real Jack Benny was just the opposite of his stage persona, and he was a very humble guy and was always generous with money.

Last fall, we started our 39<sup>th</sup> year of business since founding Midwest Bio-Tech, so we share that number in common with the old Jack Benny radio and TV character. However, unlike Jack Benny's character, we will keep counting and plan to celebrate our 40<sup>th</sup> anniversary next year.

Our business has changed a lot since 1981, and especially in the past 10 years. We now offer more shipping options and more package sizes, and you can now place online orders through our website. Most recently, we started our new soil health lab to provide more information about what is going on below the soil surface. We are also considering additional complements for the Chandler crop and livestock products, other informative soil test procedures, and new online purchase options. We will roll out these new offerings as soon as they are ready.

## **SOME BENEFITS ARE HARD TO VALUE**

As we have done in the past few March newsletters, we estimate the net returns to using the spring-applied Chandler products (Dry Seed Treat, Liquid Seed Treat, Soil, and Biocat 1000) on corn and soybeans. People tell us these estimates are very helpful for planning purposes, especially since corn and bean margins have been tight for the past few years. Based on the current price outlook, the net margins may be a bit higher this year due to improved crop prices (\$0.30 per bushel for corn and \$0.50 per bushel for beans).

These net return estimates are based on conservative yield increases for all of the products and on average nutrient release values for Biocat 1000. However, there are additional product benefits that are not included in these net returns because they are difficult to fairly value. For example, Chandler Soil improves soil structure and water infiltration, and we reported in the December newsletter that several people were able to plant their treated fields earlier last year. How much would a few more growing days be worth to you? Also, we have consistently seen higher plant sugar readings in crops treated with Dry Seed Treat or Liquid Seed Treat. Plant sugar levels above 10% deter insect infestations, so our users have been able to reduce or eliminate pesticide applications. How much money would this save for you?

As you plan for 2020, let us know if you have questions about how the Chandler products can help boost your net returns.

## 2020 NET RETURNS FROM CHANDLER PRODUCTS

As we did last year, we estimate the net returns from using Chandler Biocat 1000, Dry Seed Treat, and Soil for the 2020 crop season. The revenue values are based on the latest projected farm prices for corn (\$3.90) and soybeans (\$9.10). Please note that the net returns are based on the full retail price of the Chandler products, and the net returns will be higher if you buy under our volume or seasonal discounts.

### Chandler Dry Seed Treat

Each 15# bucket will cover about 60 units of corn or bean seed at 4 ounces per unit, so the product cost is \$2.67 per unit. To compute the product cost per acre, we figure the planted population is 32,000 for corn and 140,000 for soybeans. Also, we try to be conservative in the calculations, and we use expected yield increases that are about half of our long-term averages:

	Corn	Soybeans
<b>Yield gain</b>	+4 BPA	+2 BPA
<b>Revenue gain</b>	\$15.60 / A	\$18.20 / A
<b>Cost per acre</b>	\$1.07	\$2.67
<b>Net return</b>	\$14.53 / A	\$15.53 / A

Also, Dry Seed Treat may be used in place of talc in your planter, and most of our customers report that they use less graphite on seed treated with Dry Seed Treat. For these reasons, many of our customers tell us that Dry Seed Treat is a “no-brainer” because they get the biological benefits of the product as a bonus.

Finally, you can use Liquid Seed Treat if you are applying other liquid treatments like inoculants or fungicides. At the full retail price, Liquid Seed Treat costs about \$0.80 per acre on corn and \$2 per acre on beans, and the expected yield gains are identical to Dry Seed Treat. In fact, one of our on-farm trials from 2019 generated a 5-10 bushel increase in soybeans treated with Liquid Seed Treat compared to untreated beans.

### Chandler Soil

Our recent on-farm test results showed 5 to 12 BPA more corn and 2 to 15 BPA more beans with 8 ounces per acre of Chandler Soil applied in-furrow or near the row. Our tests also showed the same results when Soil is broadcast at 16 ounces per acre.

The estimated net returns are based on the lower end of the typical yield increases for corn (+5 BPA) and soybeans (+2 BPA). The expected net returns for 2020 are:

Corn	Banded	Broadcast
<b>Yield gain</b>	+5 BPA	+5 BPA
<b>Revenue gain</b>	\$19.50 / A	\$19.50 / A
<b>Cost per acre</b>	\$5.63	\$11.25
<b>Net return</b>	\$13.87 / A	\$8.25 / A
Soybeans	Banded	Broadcast
<b>Yield gain</b>	+2 BPA	+2 BPA
<b>Revenue gain</b>	\$18.20 / A	\$18.20 / A
<b>Cost per acre</b>	\$5.63	\$11.25
<b>Net return</b>	\$12.57 / A	\$6.95 / A

Please note that these results only reflect the yield benefits from a first-year treatment and do not reflect the long-term advantages from higher organic matter, better water infiltration, and improved soil health.

### Chandler Biocat 1000

Last year, we conducted an on-farm test of Biocat 1000 applied to corn stalks in April, and the plots were planted to soybeans. Last fall, the average yield increase across the replicated plots was 2 bushels per acre. To estimate the net returns to Biocat 1000, we include the yield increase and the average fertilizer value of additional NPK recycled from the corn stalks:

Soybeans after corn	Value
<b>Yield gain</b>	\$18.20 / A
<b>Increased available NPK</b>	\$50.80 / A
<b>Biocat 1000 cost</b>	\$10.50 / A
<b>Net return</b>	\$58.50 / A

## CONGRADULATIONS TO PHILLIP FRIEDRICH!

Once again, Phil Friedrich of Green Valley, IL, won the Illinois Irrigated class of the National Corn Growers Association (NCGA) Yield Contest. His winning contest yield for 2019 was 314.9936 bushels per acre, which was the second highest yield among all Corn Belt finalists in the irrigated class. The corn plot was planted with Dekalb DKC64-34 seed, and Phil also used Chandler crop products to produce his winning yield. Phil is a long-term veteran with the NCGA Yield Contest and has won his class or ranked near the top for several years. We are proud to be part of his winning program.

## THE FUTURE OF CORN?

One of our long-term customers recently brought us an article that appeared in a national farm magazine. The author of the article described some of the latest corn breeding research on a variety of Mexican corn that fixes N from the atmosphere. Unlike legumes that fix nitrogen through microbial nodules on their roots, these corn plants exude a sticky substance at their nodes that serves as a host location for nitrogen-fixing microbes. If the research succeeds, these corn plants may generate higher yields with less applied nitrogen.

## POWER PLANTERS

For the past several years, we have been a dealer for Power Planter augers. These steel augers were originally developed to help gardeners plant bulbs in soil, but our customers like to use these augers as a convenient way to mix Dry Seed Treat in their planter hoppers and bulk boxes.

The augers are 3 inches wide by 9 inches long, and they can be operated with a battery-powered drill. The steel is smooth, so they quickly mix Dry Seed Treat with seed but do not damage the seed coats when used at low speed. If you are interested, we now list the augers on our online store at [midwestbioman.com](http://midwestbioman.com).

## ACTIVE CARBON AND SOIL ORGANIC MATTER

The ag press has paid a lot of attention to soil organic matter (SOM) in recent years, and we have contributed to this discussion through our webinars and newsletter articles. There are several advantages to increasing SOM, including better water holding capacity and infiltration rates, more nutrient bonding capacity, and higher nitrogen mineralization to feed crops.

One of the keys to managing soil health and building organic matter is to understand the different components of organic matter. In general, organic matter is the set of all organic compounds in the soil, including:

- Dissolved residue compounds like root exudates and sugars
- Small bits of fresh crop residue
- Partially decomposed residue
- Microbes and earthworms
- Heavily decomposed residue (humus)

The carbon-based fraction of organic matter is known as soil organic carbon (SOC), and it is usually about 60% of all organic matter. Depending on where you farm in the US, your soil lab may report SOM or SOC on their soil test reports.

Active carbon is the portion of SOC that is readily available to microbes as a food and energy source. For soil health purposes, active carbon is one the most important soil components. First, it can take decades to breakdown humates and other highly decomposed materials, but active carbon is readily available to soil microbes. Second, active carbon quickly responds to how we manage soils, and it is positively correlated with soil health outcomes like stable soil aggregates and higher microbial CO<sub>2</sub> respiration. Finally, organic matter is hard to build in some parts of the US (especially on lighter soil types or in regions that are warmer or more arid), but we can manage soils to increase active carbon in order to feed the microbial populations and improve soil health.

## **MARCH CUSTOMER APPRECIATION DINNERS**

We will host our Customer Appreciation dinners in March at several locations in Illinois and Iowa. The dinners are open to all past and present customers as well as anyone who wants to learn about using biological additives to increase yields and reduce costs. Given that most people have busy schedules, we will not have a formal presentation, and the schedule is open so you can feel free to arrive and leave at your convenience. We will be happy to answer questions about the products, and please let us know in advance if you want to pick up product at the dinner.

Invitations to the dinners will be sent to everyone on our mail list near the meeting locations. The time and location details will be included in the invitation letters, and the locations for the meetings this year are:

- Rantoul, Illinois
- Goose Lake, Iowa
- Davenport, Iowa
- Independence, Iowa
- Morrison, Illinois
- Dyersville, Iowa

If you are not on our list but would like to attend a meeting, please let us know. Also, if you receive an invitation to one meeting but would prefer to attend another dinner, please call (309) 659-7773 or send email to [info@midwestbioman.com](mailto:info@midwestbioman.com) to find out the specific time and location.

## **SPRING DISCOUNT PRICE LIST ENCLOSED**

Our discount and retail prices remain the same for the spring season, and they have not changed since April 1, 2016. The price list and shipping fees are enclosed with this newsletter. Please note that the 4% March discount on all crop products expires on April 1, 2020. As always, we cover the shipping costs on all orders over \$800, and you can save shipping costs by picking up product at one of our March meetings.

## **NEW SOIL TEST FOR UREA LOSS**

We have known for a long time that urea applied as commercial fertilizer or as manure can be lost under certain field conditions. The process is known as volatilization and begins when the urea is dissolved and converted to ammonium (NH<sub>4</sub>). At this stage, the nitrogen is still fairly stable in the soil, but it can be lost if the ammonium is converted to ammonia (NH<sub>3</sub>) and the soil conditions allow the nitrogen to escape as gaseous ammonia. The volatilization loss is larger if the urea is in the top 2 inches of the soil profile, the soil temperature is over 70 degrees, the soil is drier, or the soil is alkaline (pH is over 8).

To measure this potential loss, Woods End Lab has developed a Solvita test that captures the amount of ammonia gas released from a soil sample. We can run this test in our soil health lab, and we only need a fresh sample gathered from the top 4 inches of the soil profile. To estimate the share of urea lost from volatilization, we also need to know the amount of urea fertilizer or manure applied per acre.

### **The Midwest Bio-Tech News**

The newsletter is published quarterly in March, June, September, and December, and the first newsletter was published in March, 1993. An electronic archive of the newsletters published during the past 5 years is posted at our website, [www.midwestbioman.com](http://www.midwestbioman.com).

We only send the quarterly newsletters to past and present customers of Midwest Bio-Tech and to people who have requested additional information about our products. We do not purchase external mailing lists or gather names for the mailing list from other sources. To have your name and address added to or deleted from the newsletter mailing list, please send email to [info@midwestbioman.com](mailto:info@midwestbioman.com), call 309-659-7773, or send a letter to Midwest Bio-Tech, Inc., PO Box 156, Erie, IL 61250. Also, if you prefer to receive the newsletter in electronic form, please send us your email address.

In accordance with our privacy policy, we do not provide our mailing list or any other identifying information about our past, present, and prospective customers to any other party without obtaining their express permission in advance.

**2019-2020 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

<b>Chandler Products</b>	<b>Retail</b>	<b>March</b>	<b>Feb</b>	<b>Jan</b>	<b>Dec</b>
15# bucket of Dry Seed Treat	160.00	154.00	149.00	144.00	140.00
2 to 5 buckets (per bucket)	155.00	149.00	144.00	140.00	136.00
6 or more buckets (per bucket)	150.00	144.00	140.00	136.00	132.00
Single gallon of Liquid Seed Treat	134.00	129.00	125.00	121.00	118.00
2.5 gallon Liquid Seed Treat (per gal.) (per 2.5 gal. jug)	128.00 320.00	123.00 307.00	119.00 298.00	115.00 288.00	113.00 282.00
30 gallon Liquid Seed Treat (per gal.)	120.00	115.00	112.00	108.00	106.00
Single gallon of Chandler Soil	102.00	98.00	95.00	92.00	90.00
2.5 gallon Soil (per gal.) (per 2.5 gal. jug)	98.00 245.00	94.00 235.00	91.00 228.00	88.00 220.00	86.00 215.00
30 gallon Soil (per gal.)	90.00	86.00	84.00	81.00	79.00
Single gallon of Biocat 1000	100.00	96.00	93.00	90.00	88.00
2.5 gallon Biocat 1000 (per gal.) (per 2.5 gal. jug)	96.00 240.00	92.00 230.00	89.00 223.00	86.00 215.00	84.00 210.00
30 gallon Biocat 1000 (per gal.)	88.00	84.00	82.00	79.00	77.00
Single gallon of Chandler Foliar	124.00	119.00	115.00	112.00	109.00
2.5 gallon Foliar (per gal.) (per 2.5 gal. jug)	118.00 295.00	113.00 283.00	110.00 275.00	106.00 266.00	104.00 260.00
30 gallon Foliar (per gal.)	110.00	106.00	102.00	99.00	97.00
Single gallon of Chandler Organic	116.00	111.00	108.00	104.00	102.00
2.5 gallon Organic (per gal.) (per 2.5 gal. jug)	110.00 275.00	106.00 265.00	102.00 255.00	99.00 248.00	97.00 242.00
30 gallon Organic (per gal.)	100.00	96.00	93.00	90.00	88.00

Dry Seed Treat is priced per bucket. We offer quantity discounts for pallets of 48 buckets.  
All other products are priced per gallon. We offer quantity discounts for 180-270 gal. totes.

- A – The 12% December discount period ends at midnight on January 6, 2020
- B – The January, February, and March discount periods end at midnight on the last calendar day of the month
- 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 until spring
- 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 Price</b>	<b>Item Total</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** Product Total \_\_\_\_\_  
**TO CHANGE**  
**WITHOUT NOTUCE** UPS Shipping \_\_\_\_\_

TOTAL AMOUNT ENCLOSED \_\_\_\_\_

All orders over \$800.00 will be shipped Freight Free.  
For orders under \$800, add the following UPS fee:  
\$17.00 for each 15# bucket of Dry Seed  
\$16.00 for each single gallon of liquid  
\$18.00 for each 2.5 gallon jug of liquid

Enclose check payable to Midwest Bio-Tech, Inc.

Please provide your shipping instructions for this order on the back of this form.

## RECOMMENDED APPLICATION RATES FOR CHANDLER CROP PRODUCTS

When would you like to receive the product that you have ordered?

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What is the best way for us to contact you about the shipping details for this order? Please note that we will only use this information as needed to complete this order, and we never provide your name or other personal information to any other party without your prior permission.

Telephone call to:

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Text message sent to:

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Email message sent to:

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**THANK YOU FOR THIS BUSINESS!**

### Chandler Dry Seed Treat

4-5 oz. per bushel for corn, beans, and small grains and 4-8 oz. per bushel for alfalfa.

### Chandler Liquid Seed Treat

2 oz. per bushel for corn, beans, and small grains and 4 oz. per bushel for alfalfa.

### Chandler Soil

Broadcast 12-16 ounces per acre in the fall or spring, or apply 8-10 ounces per acre in the seed row at planting. Use the higher rate in these ranges if you are applying Chandler Soil for the first time or if your soil is heavy, compacted, or poorly drained.

### Chandler Biocat 1000

**Corn Residue** – depends on the harvested yield

Up to 180 BPA 12 ounces per acre

180-200 BPA 14 ounces per acre

Over 200 BPA 16 ounces per acre

**Soybean and Small Grain Residue** – 8 to 10 ounces per acre

### Chandler Foliar

**Alfalfa** – for new seedings, apply 10 ounces per acre. For established crops, apply 10 ounces per acre after the first spring growth. Later, apply 10 ounces per acre 10-14 days after each cutting. For seed production, apply 10 ounces per acre before flowering.

**Oats** – apply 10 ounces per acre at the second to third leaf stage.

**Soybeans** – for beans planted in rows, spray 8 ounces per acre in a band over the row at the second to third trifoliolate leaf stage. For drilled soybeans, broadcast 10 ounces per acre at the second to third trifoliolate leaf stage. Many users get an added yield boost from a second treatment (8 oz. per acre) applied between flowering and pod set.

**Wheat** – apply 8 ounces per acre at the second to third leaf stage. In the spring, apply 8 ounces per acre at the beginning of new plant growth or tillering.

**Pasture** – apply 8 to 10 ounces per acre when there is ample foliage to receive the spray.

### Chandler Organic

Use the application rates listed above for Chandler Soil when using Organic as a broadcast or in-row soil treatment, and use the same rates as Chandler Foliar for foliar treatments.