

September, 2022

INFLATION PRESSURES CONTINUE

Over the past several decades, the farm economy has rarely been in sync with the general economy, and they have often moved in different directions. Lately, the farm economy has been in closer alignment with the general economy than usual, and both the farm and non-farm economies are affected by the same overall trends -- good demand but multiple supply problems. As we know by now, all businesses have been affected by part-time and full-time labor scarcities, parts shortages, high fuel costs, transportation problems, inventory issues, and increasing interest rates.

While both economies remain relatively strong at the present time, more concerns have been raised about the non-farm side of the economy. In particular, many people are worried that the official economic statistics show overall US economic output (gross domestic product or GDP) declined in the first half of 2022. Traditionally, a recession is defined as two quarters with declining GDP, but there are several factors that influence GDP changes. It is important to recognize that we are not operating in normal times, and the two biggest factors that led to these recent GDP declines were inventories and net trade. The inventory change is mostly due to the continued adjustments after COVID, and the growing trade deficit indicates that the US economy is stronger than many of our trading partners. The other parts of the economy are still growing, but the growth has slowed due to our supply problems.

To fight inflation, the Federal Reserve has raised interest rates to slow excess demand, which is the textbook treatment for inflation in a booming economy. They hope to create a “soft landing” so the economy slows without entering a recession. As we already noted, we are not operating in normal times, and the Fed may drive us into a recession by using the wrong medicine to cure the patient.

Of course, some of the inflation is due to external events like the war in Ukraine. However, some of our inflation and other economic challenges are due to limited supply, not excess demand. While some prices and shortages have eased this year, many farmers tell us they still have trouble getting some parts and farm inputs. We have also had trouble getting some things that we routinely use, and it seems that new problems arise just as others are resolved. For example, we had trouble getting plastic drums and wood pallets last year. While these items are now available, we have recently had trouble finding plastic jugs and packaging foam. As well, the prices for all of these items plus shipping costs continue to increase.

Chandler has faced the same pricing pressures, and they had to increase their product prices in August. Although we had hoped to maintain our prices through the fall season, we had to follow suit, and the new price list enclosed with this newsletter reflects our new retail and discount prices. Someday, the remaining supply problems in our economy will be resolved, and we can get back to stable product prices.

FERTILIZER PRICES DRIFT LOWER BUT NOT MUCH

Last fall, the fertilizer prices we used for our analysis of residue decay returns were sharply higher than 2020 prices, and they continued to rise through March and April of last spring. For example, the anhydrous ammonia price we reported last fall was roughly \$800 per ton. By the December farm shows, some of our customers joked that we were way behind the times, and their local prices were near \$1,200 per ton. By March, we heard individual reports of prices over \$1,500 per ton.

The latest reports of farm fertilizer costs indicate that most prices have drifted a bit lower since spring, but some potash sources are more expensive than in April. Also, all fertilizer prices are much higher than in August, 2021. In particular, most phosphorus products like DAP and MAP are about 40% higher, liquid nitrogen is about 65% higher, and anhydrous ammonia has nearly doubled in price. The latest input forecasts indicate that these prices are expected to remain high well into 2023.

REVISED VALUE OF RECYCLED NUTRIENTS

Our estimates of the value of additional nutrients recycled from residue are based on retail fertilizer prices for several different sources of NPK and S. We then derive the average cost, which is currently \$0.95 per pound for nitrogen, \$0.75 per pound of P₂O₅, \$0.85 per pound of K₂O, and \$0.20 per pound of S. The S price is based on the sulfur component of products like potassium sulfate or gypsum rather than elemental S, which typically costs much more. Finally, we multiply these values by the nutrient content in a ton of corn residue to get total value per ton.

Recent on-farm trials indicate that Biocat 1000 applied in the fall can decay an additional 1.5 to 2.5 tons of corn residue per acre (or more) before the next crop is planted. At this time, the NPK and sulfur recycled from corn residue are worth

\$49.50 per ton. At the full retail price of Biocat 1000, the product costs is \$14.75 per acre at the 16 ounce rate, and we deduct \$7 per acre for product application. After subtracting these per-acre costs, the expected net returns from accelerated corn residue decay are:

Corn	1.5 tons	2.0 tons	2.5 tons
Nitrogen	\$28.50	\$38.00	\$47.50
P ₂ O ₅	6.75	9.00	11.25
K ₂ O	38.25	51.00	63.75
Sulfur	0.75	1.00	1.25
Total value	\$74.25	\$99.00	\$123.75
Application	-\$21.75	-\$21.75	-\$21.75
Net return	\$52.50	\$77.25	\$102.00

Soybean residue has less lignin and a lower carbon-nitrogen ratio than corn residue, so it decays faster. Also, bean stalks generally cause less trouble with tillage and planting than corn stalks because there is less tonnage per acre. However, soybean residue has higher value per ton (\$71.70) than corn residue because it has more nitrogen and phosphorus and nearly as much potash. Biocat 1000 applied to bean residue is expect to decay an additional 0.75 tons of residue per acre (or more) in the fall. The expected net returns from accelerated soybean residue decay after deducting product cost (\$7.40 for 8 ounces of Biocat 1000 per acre) and application cost (\$7 per acre) are:

Beans	0.75 ton	1.0 ton	1.25 ton
Nitrogen	\$32.05	\$42.75	\$53.45
P ₂ O ₅	5.65	7.50	9.40
K ₂ O	15.95	21.25	26.60
Sulfur	0.15	0.20	0.25
Total value	\$53.80	\$71.70	\$89.70
Application	-\$14.40	-\$14.40	-\$14.40
Net return	\$39.40	\$57.30	\$75.30

For both corn and beans, we expect Biocat 1000 to net more than \$2.40 for each dollar invested in accelerating residue decay this fall. Also, the decay process will continue into the late spring and summer, and more nutrients will be recycled for the 2023 crop.

APPLICATION NOTES FOR BIOCAT 1000

Chandler Biocat 1000 contains amino acids, micronutrients, and other biological compounds that support and multiply soil fungus and other decay organisms. Unlike biological products that contain live microbes, Biocat 1000 is chemically stable and may be applied in a tank-mix with other materials like herbicides or liquid fertilizer. Also, Biocat 1000 has a relatively long shelf-life and should remain fully viable for four years or longer when properly stored.

We usually recommend you apply Biocat 1000 with at least 10 gallons of water per acre to get good coverage of the residue. Although most people spray Biocat 1000 on residue right after harvest and before tillage, you can apply the product after an initial tillage pass as long as most of the residue remains near the soil surface. Also, Biocat 1000 does not require tillage to enhance the decay process, and it can be successfully used in a no-till system.

SUMMER 2022 FIELD REPORT

For the second year in a row, we have been in a relatively dry pocket, and the areas around us had decent rains while our few rain events brought mist or sprinkles rather than good showers. We aren't complaining because our high temperatures have been moderate, and we have avoided the extreme heat that other parts of the country have seen.

We have been scouting and collecting soil samples in several parts of the Midwest this summer. While most corn has looked good all season, many bean fields had a slow start but put on better leaf growth in the late vegetative stages. This has also been a good summer for residue decay, especially in areas with regular rains. Many fields treated with Biocat 1000 had less weed pressure and volunteer corn. Also, some treated fields had nearly complete decay of surface residue by mid to late July.

RECENT ON-FARM RESIDUE DECAY RESULTS

One of our customers in northern Illinois applied Biocat 1000 to corn stalks in late March, and they used the recommended rate of 16 ounces per acre. In some fields, they left control or untreated plots, and we gathered soil samples from the treated and control plots in late July. The following table shows the soil health test results from both sets of samples:

	Treated	Control	Increase
CO2 Burst	67.5 ppm	54.1 ppm	+24.8%
Amino nitrogen	102.5 ppm	76.3 ppm	+34.3%
Active carbon	534.9 #/acre	354.9 #/acre	+50.7%

The Solvita CO2 Burst test measures the carbon dioxide released by the soil sample in 24 hours, and it is a direct measure of the amount of microbial activity in the soil. In this case, Biocat 1000 generated about 25% more microbial activity than the control sample. Also, the amount of activity in the treated sample translates to about 90 pounds of CO2 carbon per acre per day, which meets the CO2 needs of corn plants at peak photosynthesis.

The Solvita SLAN test measures amino nitrogen, which is highly correlated with the level of soil microbial activity. Amino-N is distinct from ammonium or nitrate N that is typically measured by standard soil tests, and part of this alternative nitrogen pool is available for plant needs. Here, the plot treated with Biocat 1000 had almost 35% more amino-N than the control sample.

The active carbon measurement is based on the potassium permanganate test, and it indicates the amount of carbon available as an energy source for soil microbes. Here, Biocat 1000 boosted the residue decay process and achieved earlier breakdown of the corn stalks. As a result, the treated soil had 50% more active carbon than the untreated samples.

FREE PUBLICATIONS AVAILABLE ON REQUEST

A few years ago, we co-sponsored two special reports assembled by the editors of No-Till Farmer magazine. Special Report #52 is "The Secrets of Soil Biology," and it covers the impact of crop rotations on soil biology, the role of earthworms and microbes in building soils, and the benefits of cover crops and manure applications in no-till cropping systems. Special Report #58 is "Managing Residue to Make No-Till More Effective," and the topics include no-till planter set-up strategies, stalk grazing in no-till fields, estimation of residue cover on the soil surface, and management of heavy continuous corn residue.

These reports were very popular with our customers and at the winter farm shows, and we quickly exhausted our supply of the publications. Lessiter Media recently sent us a new set of both reports, and we are happy to provide free copies upon request to readers of our newsletter. If you would like a copy of one or both special reports, let us know by calling our office telephone number (309-659-7773) or by sending us email (info@midwestbioman.com).

NEW SCHEDULE FOR COVER CROP SUMMIT

The National Cover Crop Summit has grown to be a prominent online conference that offers free presentations by cover crop experts. The last two summits drew over 4,000 participants from around the world. For the past few years, the summit was presented in both March and November. However, the conference organizers have changed the summit to a spring-only schedule for 2022 and 2023.

We have been a title sponsor of the National Cover Crop Summit for the past few years, and we will continue as a sponsor for the March, 2023 summit. For more information about the event, you can visit the Cover Crop Strategies website (covercropstrategies.com) or send email to info@covercropstrategies.com.

PRODUCT PRICES INCREASE FOR FALL

The newsletter includes our fall discount price list for all Chandler crop products. As we explain on page one of the newsletter, we had to follow Chandler and increase our product prices for the fall season. Relative to our spring prices, Dry Seed Treat went up by \$20 per bucket, and all liquid crop product prices increased by \$10 per gallon.

The fall discounts begin on September 1, and run through October 31. Regular retail prices go back in effect on November 1, 2022. You must pay for the product within the stated discount period to qualify for that discount. Also, we can hold your order for delivery later in the fall or next spring.

Although our UPS and commercial freight costs have continued to rise through the summer, we have not changed our shipping fees for customers. We have increased our minimum purchase for free shipping to \$1,000. This keeps our free-shipping level in line with our prices, and you can still save the shipping costs by ordering at least four 2.5 gallon jugs of liquid product or six or more buckets of Dry Seed Treat. Finally, we reduced the minimum quantity for the tote-quantity discount to 120 gallons.

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.

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, 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.

**2022 FALL 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	Oct 16-31	Oct 1-15	Sept 16-30	Sept 1-15
15# bucket of Dry Seed Treat	200.00	195.00	190.00	185.00	180.00
2 to 5 buckets (per bucket)	195.00	190.00	185.00	170.00	175.00
6 or more buckets (per bucket)	190.00	185.00	180.00	175.00	170.00
Single gallon of Liquid Seed Treat	162.00	158.00	154.00	150.00	146.00
2.5 gallon Liquid Seed Treat (per gal.)	156.00	152.00	148.00	144.00	140.00
(per 2.5 gal. jug)	390.00	380.00	370.00	360.00	350.00
30 gallon Liquid Seed Treat (per gal.)	146.00	142.00	138.00	134.00	130.00
Single gallon of Chandler Soil	125.00	122.00	119.00	116.00	113.00
2.5 gallon Soil (per gal.)	120.00	117.00	114.00	111.00	108.00
(per 2.5 gal. jug)	300.00	293.00	285.00	277.00	270.00
30 gallon Soil (per gal.)	112.00	109.00	106.00	103.00	100.00
Single gallon of Biocat 1000	123.00	120.00	117.00	114.00	111.00
2.5 gallon Biocat 1000 (per gal.)	118.00	115.00	112.00	109.00	106.00
(per 2.5 gal. jug)	295.00	288.00	280.00	272.00	265.00
30 gallon Biocat 1000 (per gal.)	110.00	107.00	104.00	101.00	98.00
Single gallon of Chandler Foliar	152.00	148.00	144.00	140.00	136.00
2.5 gallon Foliar (per gal.)	146.00	142.00	138.00	134.00	130.00
(per 2.5 gal. jug)	365.00	355.00	345.00	335.00	325.00
30 gallon Foliar (per gal.)	136.00	132.00	128.00	124.00	120.00
Single gallon of Chandler Organic	142.00	138.00	134.00	130.00	126.00
2.5 gallon Organic (per gal.)	136.00	132.00	128.00	124.00	120.00
(per 2.5 gal. jug)	340.00	330.00	320.00	310.00	300.00
30 gallon Organic (per gal.)	126.00	122.00	118.00	114.00	110.00

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

Qty	Products	Unit Price	Item Total
	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 \$1,000 will be shipped Freight Free.
For orders under \$1,000, add the following UPS fee:
\$18.00 for each single gallon of liquid
\$22.00 for each 15# bucket of Dry Seed
\$24.00 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.

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 120+ gallon totes.

- A – The early September and October discount periods end at midnight on September 15 and October 15, 2022
- 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 later delivery
- 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

RECOMMENDED APPLICATION RATES FOR CHANDLER CROP PRODUCTS

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

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:

Text message sent to:

Email message sent to:

THANK YOU FOR THIS BUSINESS!

Chandler Dry Seed Treat

4 ounces per bushel or unit for corn, beans, and small grains and 8 ounces per bushel for alfalfa, clover, vetch, or other small-seeded crops. The actual amount of Dry Seed Treat required depends on seed size and humidity, so you should adjust the rate if you need better seed coverage or have excess treatment in the seed hopper.

Chandler Liquid Seed Treat

2 ounces per bushel for corn, beans, and small grains and 4 ounces per bushel for alfalfa, clover, vetch, or other small-seeded crops.

Chandler Soil

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

Chandler Biocat 1000

Corn Residue – 12-16 ounces per acre. We recommend that you use the 16 ounce rate for heavy residue in corn fields that yielded 200 BPA or more.

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 – band 6-8 ounces per acre over the row or broadcast 10 ounces per acre. The best times to apply Foliar to soybeans are at the second to third trifoliolate leaf stage or 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.