

Organic AG NEWSLETTER

NAVIGATING THE TURBULENT ORGANIC GRAIN MARKETS



The headline of this article can be daunting based on what organic grain producers are seeing and experiencing. However, we hope to lay out some of the factors influencing grain markets and some things you should consider navigating the year ahead.

For over a decade, organic producers have faced significant challenges including weather extremes, market and price volatility, inflation, market manipulation and what some producers perceive as just outright greed in profiteering. The 2023 crop year was no exception and 2024 doesn't look much better. Two driving factors are contributing to the market and price volatility for organic corn, soybeans, and more recently wheat.

First, domestic production does not meet the demand for organic grain. The U.S. only produces about 40% of the domestic demand for soybeans and 60% for corn. With the organic food sector continuing to grow, led by organic eggs, chicken and dairy, domestic production has not kept up. In order to meet demand, large companies that have moved into the organic sector have turned to global sourcing. These imports put downward pressure on organic prices sending the opposite price signal. Organic wheat prices have been pushed down \$1.50 to \$3 per bushel with some farmers having no market to sell into. Some recent quotes for organic corn dropped to as low as \$6.50 and soybeans at \$12 or less per bushel. Based on the short domestic supply, the market should be signaling more domestic production is needed with prices going up, not down. The resulting market volatility discourages producers from considering transitioning to organics and leaves current producers unsure about how to survive amidst the uncertainty.

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FSB LOCATIONS

301 W. Falcon, Flanagan
403 State, Benson
2401 E. Washington,
Bloomington
111 N. Fayette, El Paso
500 S. Persimmon, Le Roy
208 E. Gridley, Gridley
423 W. Madison, Pontiac

WHAT AM I DOING TO OFFSET LOWER GRAIN PRICES IN MY OPERATION TODAY?

Flanagan State Bank posed this question to some of the best producers in the Midwest to get their answers. Here are their responses.

Gary McDonald

I keep a focused effort to plan as far into the future as practical/possible to keep myself into a corner financially. My father always used to say to which I have never forgotten, "it's not the high cost of living that causes the problem, it is the cost of living high!" I take this to heart when making personal, as well as business decisions. We must survive the lean years if we plan to be here to thrive and cash in on the abundant years. It's not easy to sit tight while it seems everyone is spending on new shiny equipment and other toys; however, it is often wiser.

Will Glazik

We are going to plant deeper than normal after last years drought. I think this will help with pre-emergence weed control and help emergence in general.

Aaron Butler

In our operation, we are eliminating equipment purchases for the foreseeable future as we tighten our fiscal belt while dealing with lower organic prices. In my 25-year organic farming career, I have seen this before. Trying to keep a positive attitude helps.

Dave Bishop

Fluctuating grain prices in commodity crops – conventional and organic – are probably inevitable. But the effect of a drop in process on the bottom line of your farm operation depends, to a great extent, on the level of diversity you have, and how well the diverse enterprises you have work together. Growing up in the 1950's and 1960's in a world of small, diversified, and mostly organic farms, I remember the old-timers saying, "well it won't kill the cows." So, what started out as a grain crop suddenly became a forage crop. Either way, it produced an income. With a small grain in the rotation, grazing a frost seeded legume cover crop midsummer through fall creates additional income unrelated to grain prices and adds valuable fertilizer to the land. Another way could be to include a specialty crop that can be marketed to consumers. This can also provide some income stability, even if it represents only a small part of the total operation.

Kyle Klees

Wanting to add and improve grain storage and drying. This should improve efficiency in the operation, eliminate problems from late planting, allow crops with more moisture to be harvested, and improve grain condition and quality as a whole.

Jack Erisman

This may be the time to limit capital purchases, share machinery (sell the unused), use bin-run seed if viable, in-row amendments rather than broadcast, strengthen market relationships, limit tillage if possible. Take courage; pray! Have Faith! No one is alone. Plant a tree.

Dave Campbell

One farming practice I have been utilizing was double cropping. Red Clover was incorporated last year and then sown to winter wheat last Fall. I'm planning to harvest the wheat in July this year and then sow a crop of buckwheat as a second or double crop. I don't have much in the way of weed issues anymore although buckwheat will reduce the number of annual weeds in 2025 when I plan to plant soybeans in this field. The reasoning behind growing the buckwheat following my wheat is because it takes very little nutrients out of the soil and at the same time will extract phosphorus for the following crop/s. It will also help limit the number of broadleaf weeds for the next year and also attract beneficial insects. Buckwheat has also been known to help improve soil health in general.



2024 CROP INSURANCE PREVIEW

Livestock Risk Protection

Livestock Risk Protection (LRP) is an insurance plan that allow a producer to lock in a price floor to mitigate the risk of price decline. Currently available for Fed Cattle, Feeder Cattle, and Swine, LRP is able to be purchased daily and is subsidized up to 35% at the highest levels of coverage. The producer would elect the specific coverage endorsement they would like their livestock insured for (ranging from 13 weeks to 52 weeks) and is able to purchase the product anywhere from 70%-100% of the expected ending value.

Currently our customers who own 500 lbs. cattle are buying LRP and locking in a \$266 per hundred weight guarantee at 850 lbs., paying off the feeder cattle index. We have experience in backgrounding cattle and would love to help answer your questions. Our customers who finish cattle are locking in \$188 fat cattle guarantee. The guarantees are historically high and we have seen record participation in the LRP program because of this. If you are interested in learning more about Livestock Risk Protection, reach out to one of our agents at sfarmmarketing.com or give our office a call at (217) 356-0046.

ARC/PLC Election This Year

While a producer's ARC/PLC election has been more of an afterthought the last few crop years, this year, a producer's ARC/PLC election is certainly more important. Because of the price lagging nature of ARC & PLC, these programs are only now seeing the same price increases we had previously seen in the commodity markets the last couple of years. This year, for corn, the ARC price has risen from \$3.98 up to \$4.85 and the PLC price has risen from \$3.70 to \$4.01. For Soybeans, the ARC price has risen from \$9.57 up to \$11.12 and the PLC price has risen from \$8.40 to \$9.26.

However, that the price increases are only part of the story. The MPC equivalent to ARC-County coverage is SCO coverage (Supplemental Coverage Option). Both are county-based coverages that insure up to 86% and cannot be taken together - so which one would we recommend? First it's important to understand the difference between ARC and SCO. ARC (and PLC) pay a producer off of their base acres, whereas SCO pays a producer based on planted acres. SCO also uses the traditional base price used for insurance (December futures for Corn and November futures for Beans) while ARC uses a 5 year Olympic average of the marketing year average price (which runs from Sept 2024-Aug 2024). This year, the \$4.85 ARC price for corn is currently higher than our Spring Base Price - although the spring base price will not be final until March 1st. ARC uses a 5-year Olympic Average Yield, while SCO uses the RMA's expected County yield. If ARC were to pay, claim payments would be made in October 2025 vs SCO claim payments that would be made in June 2025. And finally, SCO allows the producer to use the harvest price in their revenue guarantee if the harvest price is higher than the spring price - ARC does not have this "harvest price option" calculation.

Ultimately, we are finding that in many counties - especially in counties where the 5-year Olympic average yield is higher than the expected county yield - that ARC seems to be more lucrative product. And, ARC coverage is free. However, if a producer does not feel their base acres are an accurate representation of what is being planted this year, if they are uncomfortable with waiting until October 2025 to receive their ARC payment, or they prefer a product with a harvest price option - SCO (paired with PLC) may be the better way to protect risk to your farm. Producers have until March 15th to make their ARC & PLC election - so connect with someone from Strategic Farm Marketing today to review examples specific to your county!

Ways to Secure Higher Coverage

In a tough market year like this one, having a high crop insurance guarantee is vital. Revenue protection (RP) offers both a yield guarantee and a revenue guarantee on the producer's individual farm - but did you know there are products out there that can give you an even better guarantee than 85% RP? This can be done in three types of ways.

One way you can increase your crop insurance guarantee is by purchasing Enhanced Coverage Option (ECO). ECO is a county-based product that allows you to insure the top portion of your crop above 85% RP. You can either purchase ECO from 86%-90% or 86%-95% and you can also toggle down the liability of the product, meaning that if a producer takes ECO at 50% of liability, the producer would pay 50% of the premium and would receive 50% of the claim. Because ECO is insuring based off of the county expected yield, ECO will not pay claims until all of the producer data has been compiled, usually in June of the following crop year. However, there are many "ECO offset" private products out there that allow the producer to also insure the same band of coverage for ECO on themselves and their own APH. Any individual claims are then offset by the county-based ECO claim payment - so the producer ultimately receives the better of the two payments in June of the following crop year. Some of these offset products offer this individual band of coverage for less than \$5/acre, so this is an affordable way to boost your crop insurance guarantee!

If you'd rather insure your own farm and not include County-based products in your crop insurance strategy, individual coverage band options are for you. Many insurance providers offer some version of an individual coverage band product that allows the producer to increase their individual guarantees above 85% RP. Some allow the producer to insure from 85%-95% or even 90%-95% - which would mean that the coverage band product would pay their entire respective claim before 85% RP would pay a dollar. One company is even offering a product that would insure a coverage band on the highest yield the producer has ever produced for that specific line. This means that if the producer's soybean APH was 65 and they had their highest ever yield in 2018, a yield of 75, the producer could insure up to 95% using their "new" APH of 75 for their individual coverage band product (raising their yield guarantee from a 62 to a 71 if insuring at 95%). While this product does have a 10% upward price cap above the Spring Average price that expires coverage and a 10% downward price cap that limits claim potential, it's an interesting product for producers to consider nonetheless. Ultimately, there are many variations of these type of products that are meant to help a producer secure a higher crop insurance guarantee.

Another option for those wanting to take advantage of summer rallies for their crop insurance guarantee are products that utilize pricing windows. These generally allow you to select the first half of a month, second half of a month, or full month that you would like to use as an additional averaging period. These can be strategically selected during seasonal highs (like within the months of May, June, or July) in attempt to capture a higher price for your crop insurance guarantee. These products vary in price depending on market movements, but a half month can generally be purchased for less than \$10/acre for corn and less than \$5/acre for beans.

There is a myriad of different ways to secure higher coverage above your traditional RP coverage, and the staff at Strategic Farm Marketing are committed to help you find the right strategy that fits your needs. For a one-on-one consultation with one of our informative agents visit us at sfarmmarketing.com or give our office a call at (217) 356-0046. Looking forward to connecting with you!

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NAVIGATING THE TURBULENT ORGANIC GRAIN MARKETS (CONT)

Second, cheap imports continue to call into question whether depressed domestic prices can be attributed to fraud. It's no secret that fraudulent organic grain imports were the primary impetus for regulatory changes and calls on the USDA to enforce the rules against fraudulent actors. After years of inaction and millions of dollars of losses suffered by ethical organic producers, the USDA's new rule, Strengthening Organic Enforcement (SOE), finally goes into effect in March 2024. While SOE addresses some of the loopholes in the current regulations, concerns remain that fraudulent grain imports continue to make their way into the country.

A review of recent trade data shows the largest percentage of imported "organic" soybeans arriving from Argentina, Turkey, Russia, India, and several African countries – Ghana, Togo, and Ethiopia. Organic corn imports are flowing in from Argentina, Canada, and Turkey. Because of the prevalence of transshipments – shipments that move through intermediary countries after leaving the country of origin – it's difficult to pinpoint where grain was actually grown. In theory, SOE should improve supply chain traceability and improve the USDA's fraud detection capabilities by requiring more handlers and brokers to be certified. But SOE won't solve everything.

That's why the Organic Farmers Association (OFA) is advocating for a bipartisan "marker bill" that would implement required testing to verify compliance on every bulk organic commodity maritime vessel. The corrective action for positive tests would be a "stop-sale" authority the USDA currently lacks. The marker bill targets maritime imports because, according to recent data, 1.3 million metric tons of organic feedstuff arrived on maritime vessels over the last 12 months, with 80% arriving from countries where corruption is rampant, or the agricultural sector is underdeveloped.

Even if the bill is successful, these proposals aren't a quick fix as the next Farm Bill probably won't be finalized until 2025. Here are some steps for you to consider to help weather the market conditions.

First, develop a marketing plan and budgeting for your farm. Some farmers thrive and do very well in marketing. Others want to spend their time on the production and harvesting of their crops and just keeping things going in the face of things like weather. To do a good job of marketing, many farmers will tell you it will take 20% of your time or one day a week. If your time is better spent elsewhere in your farming operation, consider hiring a professional grain marketer. What we are not suggesting here is simply calling up a "broker" to shop your production around. If you are paying that person, they should be working for you. There is no free lunch in marketing. Be sure when you market, that you will be paid on time and what kinds of discounts and deductions you might face if your grain doesn't meet the specifications. Who will arrange for the transportation and who will pay? You or the buyer?

As always take and keep good representative samples of your harvest. If you are asked to send a grain sample, be sure to keep half of the sample in case things don't go right or another test is needed.

Another step you can take is looking at your crop rotation in your certification plan. Look at what other crops might offer alternatives to corn, soybeans or wheat that might fit into your rotation, their potential profitability and market availability.

Most importantly, work with your banker or creditor in developing your budget and plan. Determine when you need cash flow to meet certain expenses such as planting and harvesting as well as inputs you might purchase. If things don't go according to plan, be sure to keep them apprised of how things are going.

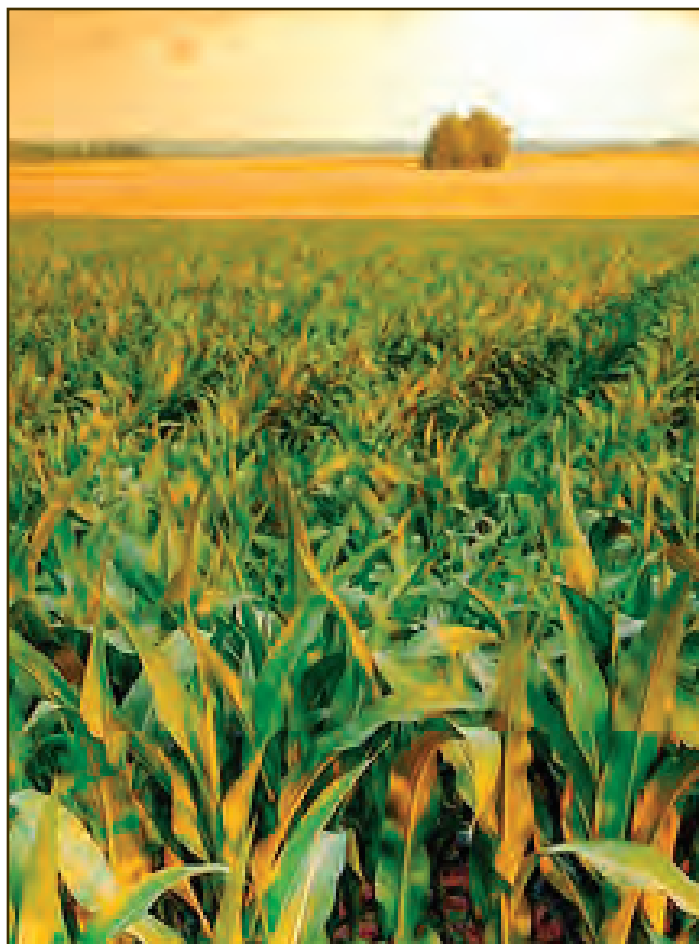
Finally, consider joining the Organic Farmers Association (OFA), follow the progress of the marker bill, and contact your legislators showing your support. You can find more information on OFA's website (www.organicfarmersassociation.org).

If you suspect organic grain fraud and want to share information anonymously, consider contacting The Cornucopia Institute, a leading organic watchdog that has previously exposed fraudulent grain traders. Send intel to tips@cornucopia.org.

The more you know, the better you can plan for not only success but navigating in these turbulent times.

John Bobbe is retired as the Organic Farmers' Agency for Relationship Marketing (OFARM). He serves as a Cornucopia Institute organic advisor. Anne Ross is Cornucopia's organic investigator and an attorney specializing in food policy and law.

John Bobbe
Anne Ross



TRAITS OF A SUCCESSFUL ORGANIC CROP PRODUCER & HOW TO BE MORE PROFITABLE

When I think of the last 29 years of my journey with farmers, I have certainly seen disasters in organic farming. In fact, we have just as many farmers that are financially in trouble throughout the organic space as in the conventional space.

To fight that issue, there is one trait that sticks out to me in organic farming in order to gain success: Take care of your details. Attention to detail can make or break your farm. I have personally seen this often.

So, what are the details and how can we exercise that trait? In our business, we have 2 in particular to really focus on with seed corn genetics:

- Does it flex for organic farming?
- Does it have a very strong cold germ? Not warm germ, but cold germ.

At Prairie Hybrids, your iPhone can access our seed bag tags and look up the cold germ. This can be, at minimum, a 50 bushel per acre benefit. This is an absolute must to be successful. When you have a 98% cold germ, you plant that first. When you have an 82% cold germ, you send the seed back. Additionally, you can save 30-40 dollars per acre in seed costs by planting and utilizing our untreated, coated seed line.

Next item in taking care of your details is your planter. Cover crops in front of a corn crop can bring significant heartache to Mr. Farmer, so planting cover crops in front of soybeans makes a lot of sense. In contrast, cover crops behind your weeds must be killed prior to emergence, and be diligent toward watching your weed pressure. It will inform you what is wrong with your soil. To help in that effort, use a Trefler harrow right behind the planter. This is your biggest and most effective tool for weed control for the whole year.

Of course, you use the rotary hoe later followed by the cultivator, and don't skip on manure. You should be able to raise 225-270 bushels per acre of organic corn yields.

Additional weed management information is on our website, Prairiehybrids.com. Or you can call my office at (815) 438-7815 and we can discuss it together to help you take care of your details and be more profitable!

Gilbert Hostetler



Prairie Hybrid Seeds
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New Email: gilbert@prairiehybrids.com

Selected & Produced with your family in mind

SILICON...THE FORGOTTEN NUTRIENT?

On December 28, 1918, over 105 years ago, an article was released detailing the ten major elements necessary for sugar beet growth and development. All of us in agricultural crop production today are very familiar with 9 out of the 10 major elements listed in 1918. But what about silicon?

Most of us think of silicon's many industrial uses or silicon dioxide, quartz or sand. Putting these on plants would never really occur to us. Silica is the second most abundant element on earth, so why do we need to provide silicon to plants at all if it is already abundant in the earth's crust? First, silicon is absolutely necessary for proper plant growth and development, known many years ago. No life on earth can exist without silicon, from single cell algae and bacteria to birds, mammals, and humans. Second, plants aren't able to extract all they could use from soil to protect themselves from the many environmental stresses and still maintain their full genetic potential.

Silicon's role in plants has been well documented and more is being discovered every year. One of the main functions is water use efficiency in the plant. According to Dr. Wendy Zellner, "Plants don't eat their food, they drink it." The flow of water through the plant (transpiration) accounts for 91-99% of the water used by the plant and is the major mechanism for nutrient movement. Silicon plays a crucial role in balancing water and nutrients along with maintaining a constant upward flow by means of turgor pressure. In turn, this supplies more fuel for cell division (mitosis) and cell expansion resulting in larger leaves, stronger stems, and increased photosynthesis. Because of this consistent turgor pressure, less water and nutrients are able to leak downward and back out into the soil through the roots. Silicon also mitigates stress responses to biotic (fungal, bacterial, or viral pathogens and insects) and abiotic (temperature, drought, salinity, heavy metal toxicity, nutrient deficiency) conditions. It also increases crop quality and post-harvest storability due to silicon's role in cellular health.

The widely accepted benefits of silicon in sugarcane and rice have been researched and documented for 60 years. In the past 20 years, research has been conducted on 50 various crop types and cultivars. These studies have clearly documented a repetitious phenomenon of performance in agricultural crops, flowers, turfgrass, and forages. The positive results from this research have established silicon as a macro nutrient on par with N, P, K, Ca, Mg, and S. With an element so prevalent in the soil, why are we seeing such positive responses? The main reason is silicon has many forms, all unavailable to the plant except one, silicic acid, $\text{Si}(\text{OH})_4$. It is also referred to as Monomeric Silicic Acid or Ortho Silicic Acid. This compound is not easily accessible to plants because of its instability in the soil solution, hence the deficiency commonly found in growing plants. Silicon is most unavailable in soils that are heavily weathered, intensively farmed, low in pH, or low CEC. Silicon fertilization has shown positive effects in all crops but especially grass crops like wheat and corn. Soybeans and tomatoes have also had documented increases in plant health and output.

So, how do we ensure good levels of silicon? The challenge has been stability. Silicic acid is very unstable and quickly bound to other elements making it unavailable for plant utilization. Huge strides have been made in formulation resulting in a stable product that can be taken up through the foliage and is immediately assimilated into the plant tissue, within minutes of application. There are many silicon products on the market but be very careful of the form and stability of the product before mixing it with anything. Please reach out to me if you would like more information on silicon fertilization or a recommended product.

Erik Wiegand, Earlybird Feed & Fertilizer

Credits:

Dr. Wendy Zellner, Zellner's Research Solutions

Greg Downing, Nuvia Technologies

ORGANIC CORN SYSTEMS

Two years ago, we saw some high organic grain prices. Prices have dropped dramatically. Let's explore some ideas to maximize our ROI with raising our organic corn crop this year.

Cover Crops/Fore Crops

Hopefully we have a good legume cover crop growing out there to fix a lot on nitrogen and build the soil, getting it ready for corn. If we don't have any cover growing currently, a spring planting (late Feb-March in west central Indiana) of a blend of oats, spring peas, and phacelia has worked well. Phacelia is one of the strongest hosts for mycorrhizae and spring peas fix nitrogen. My brother had his highest yielding organic corn crop (225-bushel field average) following this blend. He plowed the blend and planted the corn the same day.

Cover Crop Termination

Speed disks can work. If we have a massive amount of biomass, do one or two passes two weeks before planting to get the residue decay started. Working the cover crop in just a few days to a week before planting can damage the seedling vigor from all the heating and gases releasing from the decaying process.

We prefer mold board plowing. Plowing doesn't pulverize the soil like a disk does. If set right, the mold board plow is gentler on the soil structure. The more we pulverize the soil, the more weed pressure we'll have. Usually, we see less weed pressure when using a plow. Plow the cover crop two weeks before planting, or plow and plant the same day. Plow and plant the same day really works well. The seedling is up and growing before the decaying/heating really takes effect. This system is gaining traction in the organic world, and I think we'll see a lot more of this being done in the future. With this system, we see better picket fence stands of corn.

Starter Fertilizer and Manure

We've found it to be beneficial to use some starter fertilizer. Starter fertilizer helps give a smooth transition when the

seed's energy source is transitioning from the seed to what's in the soil. We can easily get over 200 units of nitrogen from the cover crop we have growing, but not all the 200 units will be available the first year. Manure is a great way to make sure we have enough nitrogen out there. After we've been organic for 5 or 6 years, we can usually start cutting back on the amount of manure. The cover crops break down faster and we have a reserve from previous years.

Correct Corn Hybrid Placement

We must be sure to match our corn hybrid with the right field, taking in account the stress conditions and soil type. Lower the plant population for high stress areas (don't waste seed).

Weed Control

Weed control is probably the #1 challenge for us organic farmers. Whatever you do on weed control, "being on time" is the most important factor. Being on time in controlling your weeds can make or break your cash crop.

Happy Harvest

And then hopefully, happy harvest and full bins! Organic is fun! If you want more information on the system of plowing and planting the same day or info on cover crop biomass testing, give me a call at 765-569-3557. Aaron Fisher grew up on an organic farm and works for Byron Seeds which involves consulting and learning from other farmers. Byron Seeds has a passion to help organic farmers maximize their cropping system with better cover crop strategies and corn and soybean varieties to fit every farm.

Aaron Fisher

Byron Seeds

Certified Forage Specialist

765-569-3557

*Cover Crop
Analysis Report
on page 8*



SOIL AND YIELD IMPACTS USING COMPOST

My family got into farming in 1968 when I was a boy. By 1980, interest rates were in excess of 21% and with too much debt, we nearly didn't survive.

Our traditional farming methods proved inadequate to meet our financial obligations. We toiled tirelessly from dawn until dusk, yet struggled to make ends meet. Our reliance on local fertilizer and chemical suppliers' recommendations proved detrimental, depleting our soil and hindering our profit potential.

In desperation, I pleaded for wisdom to break free from this cycle of struggle and to find a purposeful direction for my future. My fervent plea echoed: "God, if there is a way I can serve You and positively impact the lives of farmers, please lead me to it. Grant me the opportunity to help them thrive, not merely survive."

In January of 1984, in response to my earnest prayers, my wise father-in-law introduced me to a transformative concept: Renewable Farming System. Curious, I inquired, "What is that?" He explained that this innovative approach focused on soil renewal, resulting in reduced inputs while yielding higher outputs. It was a method that not only revitalized the soil but also increased yields over time, leading to improved profit margins. In stark contrast to conventional farming, which often leads to escalating costs and stagnant yields, this system offered a sustainable and profitable alternative.

I underwent a step-by-step training in Renewable Farming Systems, guided by four mentors. This immersive experience involved a blend of practical hands-on learning and a curated selection of academic resources. I applied the new knowledge to enhance soil fertility systems, proving my proficiency through successful implementation. Subsequently, I delved deeper into academic study, adding to my expertise and refining soil fertility methodologies. Soon, I began consulting with local farmers on soil fertility practices. By 1993, my consultancy extended to 22 states, prompting the establishment of Midwest Bio-Systems Inc. As our comprehension of photosynthesis deepened, we witnessed remarkable yields for our clients. We learned to harness this natural process and apply it to future crop cycles. Photosynthesis occurs within the leaf, fueled by a combination of sunlight, CO₂ emitted by aerobic microorganisms in the soil, atmospheric air, and water absorbed by the plant's sap. This intricate process results in the production of photosynthate, which becomes trapped in organic matter as the plant reaches maturity or ceases growth.

This photosynthate material, over five times lighter than atmospheric air, swiftly dissipates into the upper hemisphere upon organic matter decomposition. Understanding this, we've developed methods to capture and harness not just the current year's sunlight, but also that of the past five years through humus protein technology! I can't think of anything more exciting for the future of agriculture.

Why Efficient Composting is So Important

High-quality and efficient composting are crucial because it involves recycling plant material that once grew through photosynthesis, converting sunlight into kilocalories. This energy, derived from photosynthesis, is remarkably lightweight. For instance, a study conducted by a European scientist centuries ago exemplifies this. He planted a 5 lb. tree in 200 lbs. of soil, providing only water over five years. Upon extraction, the tree had gained 159 lbs., translating to 2,544 ounces of gain. Astonishingly, only 2 ounces originated from the soil, while 2,542 ounces were attributed to the sun's energy harnessed through photosynthesis. This underscores the significant role of sunlight, encapsulated within photosynthate, in plant material.

Here's what's truly exciting: Traditional composting methods often result in significant loss of solar energy due to oxidation and evaporation. However, we've pioneered a process that minimizes this loss, allowing us to retain 10-100 times more solar energy compared to conventional composting. With ongoing technological advancements, I'm confident this efficiency will only improve. In essence, we've mastered the art of harnessing this year's solar energy for next year's crop, and even up to five years into the future! This means that the sunlight shining on you today can nourish your family's table with delicious and nutritious meals next year. Our mission is clear: to empower farmers to thrive, not merely survive, and to address the global challenge of depleted soil, ultimately IMPROVING the food quality of OUR WORLD!

Edwin Blosser

Founder and Owner

Midwest Bio-Systems

815-438-7200

www.midwestbiosystems.com



COVER CROP ANALYSIS REPORT

COVER CROP ANALYSIS REPORT

Lab #

Type:

Stage:

Forage Yield, Ton/A @ 100 % Dry Matter

Wet Wt, g	548.2	
Tare Wt, g		Tons DM/A <input type="text" value="4.02"/>
% Dry Matter	15.3	
Area Sampled	1	C:N Ratio <input type="text" value="15.0"/>

Results on a Dry Basis

Nutrient	Value	Units
Carbon	45.41	% C
Nitrogen	3.023	% N
Phosphorus	0.29	% P
Potassium	3.45	% K
Calcium	1.61	% Ca
Magnesium	0.28	% Mg
Sulfur	0.17	% S
Zinc	85.50	ppm Zn
Iron	610.90	ppm Fe
Manganese	34.75	ppm Mn
Copper	10.07	ppm Cu
Boron	35.12	ppm B
Molybdenum	2.44	ppm Mo
Aluminum	295.28	ppm Al

lbs/A of Nutrient based on Tons DM/A

Nutrient	lbs/A	Units
Carbon	3650	C
Nitrogen	243	N
Phosphorus	54.3	P2O5
Potassium	332.8	K2O
Calcium	129.4	Ca
Magnesium	22.7	Mg
Sulfur	14.0	S
Zinc	0.687	Zn
Iron	4.911	Fe
Manganese	0.279	Mn
Copper	0.081	Cu
Boron	0.282	B
Molybdenum	0.020	Mo
Aluminum	2.374	Al

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