



COMPOSTING PERSPECTIVES

TECHNOLOGY · TECHNIQUES · HELPFUL TIPS

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Turning Compost into Cash

One Farmer's Experience in Saving Big and Gaining Bushels with Compost

For many, the value of compost is in what it does for the soil — building fertility and creating a diverse soil ecosystem without the use of synthetic chemicals. But what about the cost savings of compost? Does humified compost actually result in a savings while still delivering strong yields? Alan Dale believed that compost would improve his bottom line, so as he began to use humified compost while tracking his numbers carefully.

How did his yields and cost compare when he looked at his current numbers using humified compost and the average numbers for the five previous years while he was still using mostly conventional synthetic fertilizers? To make his comparison accurate, Dale based all of the prices in his comparison on December 2007 U.S. fertilizer and grain prices. The results were big benefits on the bottom line with significant insulation from fluctuating fertilizer prices.

Revenue Increased

According to Dale, he was able to increase his yield by 19 bushels per acre when using humified compost, as opposed to conventional synthetic N-P-K inputs. At the corn prices of December 2007, that means that Dale was able to increase his revenue per acre by \$71.25.

Fertility Costs Eliminated

With humified compost Dale was able to eliminate the need for synthetic phosphorus (\$45/acre) and potassium (\$34.50/acre) altogether. This gave him a total savings of \$79.50.

Humified compost also enabled Dale to limit his use of synthetic nitrogen for his nitrogen-intensive corn, reducing the amount needed by 50 lb. per acre for a total of
(continued on next page)

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Turning Compost Into Cash *(continued from Page 1)*

just 80 lb. per acre, saving him a total of \$19.11 per acre. The result is that his costs for fertility were reduced by \$98.61 an acre. For a 2,000-acre farm that is nearly \$200,000 in savings.

Of course, Dale had to add the cost of humified compost on an ongoing basis. He applies 2,000 lb. per acre every 2 years in order to save on application costs and prevent soil compaction. The cost for this every-other-year compost is \$75 per ton. If we divide that over the two years it covers, the added cost of compost is \$37.50 per acre per year. Subtracting that from the \$98.61, the compost allowed Dale to save a total of \$61.11 in fertility costs.

The Final Tally

So what was the overall net revenue improvement for Dale? We take the \$98.61 he saved in fertility costs and add that to the \$71.25 in additional revenue per acre from the corn, and then subtract the \$37.50 annual cost of the compost. The result is a \$132.36/acre improvement of revenue for Dale's no-till corn operation. For a 2,000-acre corn farm that comes out to an additional \$264,720.00 on the bottom line. A lot of money for a small initial investment in humified compost production.

Dale's numbers are based on the price of fertilizer and corn in the U.S. as of December, 2007. With the cost of all petroleum-based products, including synthetic fertilizers, expected to increase, the costs of fertility will likely go up every year for the foreseeable future. At the same time corn prices are also expected to rise, putting more money in the pockets of the farmer who can cut costs without cutting yield. Given that composting costs will increase at a much lower rate, the gains from humified compost should only increase over the coming years. Dale's study demonstrates how a no-till corn farmer — watching costs and using compost to its full advantage — can stand out from the crowd with significant revenue gains for years to come.



Results After 5 Years of Compost Usage in No-Till

Yield results based on 2006 versus previous 5 year average

Compost Application Rates

- First year 2002, 1 Ton per acre
- Ongoing application 1 Ton applied every 2 years or the equivalent of ½ Ton per year

No-till Corn Details (Based of December 2007 USA fertilizer and grain prices)

- | | |
|---|----------------------|
| ■ Reduce Applied N to 80 lb./acre from 135 lb./acre | \$ 19.11 acre |
| ■ Eliminate applied P | \$ 45.00 acre |
| ■ <u>Eliminate applied K</u> | <u>\$ 34.50 acre</u> |
| ■ Fertility Costs Eliminated | \$ 98.61 acre |

- Add Cost for Compost on an Ongoing Basis
- 1 Ton every 2 years @ \$75.00 / Ton
- Cost of Compost is \$37.50 / acre / year

- Increased yield of 19 bu./acre
- Additional \$71.25/acre in revenue

- Net financial gain = \$98.61 + \$71.25 - \$37.50 = \$132.36 /acre

- The benefit received from 1 Ton of compost = \$98.61 X 2 + \$71.25 X 2 = \$339.72

Maximizing Your Fertility Dollars

Tips from Ernest Blosser, Vice President, Midwest Bio-Systems

In the current situation of high grain prices and high input costs, management decisions become more crucial on both sides of the ledger.



On the income side, nothing contributes to the bottom line as greatly as volume and quality. And with record high grain prices, each increment of yield has more impact. So the higher the yield, the greater the contribution toward gross return.

On the cost side, we want to spend our money wisely. However, just withdrawing a dollar spent on fertility does not assure us of another dollar of net profit. If the dollar we withdraw is performing its duty, then our gross income will drop by more than one dollar. Thus, our net profit will decrease by more than one dollar as well.

So what are the most profitable fertility options?

Compost with humus is becoming very popular. Alan Dale (*see article, page 1*) has replaced all of the phosphorous and potassium and one half of the nitrogen on his corn crop with compost that contains humus. His 2007 yields were 19 bushels per acre above his previous five-year average. He attributes a good portion of this increase to the humified compost which was applied at a rate of one ton every other year. This application provided him with the value of \$339.72 for every ton of compost applied.

Act N, Act Phos, and Act Foliar are new additions to Midwest Bio-Systems' toolbox to help manage fertility needs.

- **Act N and Act Foliar** stimulate nitrogen-capturing bacteria in non-leguminous crops, which tends to make a grass crop perform similarly to a legume.
- **Act Phos** helps to make phosphorus available that would normally be tied up in the soil and not available to the crop.

COMPOST TEA...

Brewing vs. Extraction

Compost tea is a water-based solution containing the same microbes, enzymes, and organic matter found in compost. It can have a variety of uses and applications, but there are basically two ways to create it: brewing and extracting.

Compost Tea Brewing

Compost Tea Brewing is a process that aims to expand or multiply the existing microbe population in the compost by bubbling air through water to increase the amount of oxygen and by adding microbial food

sources. When microbes multiply in this turbulent water environment, the stronger microbes take over and expand their population, crowding out or slowing the reproduction of the microbe species that are less adept at reproducing in this turbulent water environment. As the crowding out continues, it soon reduces the number of viable microbe species to a relatively small number. As a result, it often reduces the potential soil fertility benefits the grower could experience.

Key Characteristics of Brewing

- The tea is made from a small quantity of compost, thus limiting available enzymes and organic matter.



- The microbial population encouraged to expand by adding microbial food sources and air.

- The brewing cycle is typically 24 hours.

- The turbulent water environment tends to skew the microbial population toward bacterial domination.
- The active microbes will consume the available oxygen in the water, quickly limiting shelf life to 24 hours.

Compost Tea Extraction

Compost Tea Extraction is a process that removes the valuable microbial and non-microbial contents from high-quality compost and places it into a water suspension. An activator and microbial food sources are added to the extracted tea just prior to field application, stimulating the microbial population and starting rapid microbial reproduction. With the extraction process, the rapid microbial reproduction takes place on the leaves of the plant and in the soil. These natural environments allow all of the extracted microbe species to rapidly reproduce. When extracted compost tea is used, most growers are amazed by the actual results that they experience.

(continued on next page)

Key Characteristics of Extraction:

- Extracted tea contains three times the natural enzymes, organic matter, and micro-organisms as brewed tea.
- The microbial population is encouraged to remain dormant.
- The extraction cycle is typically 30 minutes for 500 gallons.
- The calm water environment preserves the microbial diversity profile of the compost.
- The microbes are not given food sources until just prior to application, extending shelf-life to 2-3 weeks.

Comparing the two, the difference is clear. That is the reason Midwest Bio-Systems has chosen to build only compost tea extractors.

As noted, extracted tea needs to be activated just before it is applied. We have designed the ActPak compost tea activator for that purpose. This specially designed blend awakens the microbes in extracted tea and stimulates them to grow and multiply once you apply the tea to the soil. The result is plants that are lush with solid stems and soil that is properly balanced with life-giving microbes.

NOTHING CAN REPLACE BEING AT A MIDWEST BIO-SYSTEMS ACS WORKSHOP..

But if you just can't be there, why not give our new instructional CDs a try?



How do we create and restore natural balance to the soil? How do we do it while working with nature rather than against it?

Midwest Bio-Systems answers these and many other of your questions in *Living Soil*, the new instructional 3 CD set from MBS. Recorded in Australia, *Living Soil* guides the listener through the science, philosophy, and business of composting. And at only \$149.95 per set, you get the workshop-quality information at a fraction of the price! If you just can't get to a workshop (or even if you've been and would like a refresher) this could be just the thing for you.

Contact us today to order!

Fertilizer Costs and Benefits

In view of rising fertilizer prices, what should our fertilizer program look like?

It is an accepted fact that fertilizer can help grow better crops. Many studies have been conducted to determine the point of diminishing returns. However, with escalating fertilizer prices, paradigms change. So how much should we apply? Are there products other than high analysis NPK blends that we should consider, such as manure or compost?



We have observed that crops grow better in fertile soil. But what does fertile soil consist of? The late David Larson, founder of AgriEnergy Resources, took soil samples from high-yield areas and low-yield areas following a global positioning system. Surprisingly, there was very little difference in the NPK analysis. There was, however, a great difference in the population of some micro-organisms. In fact, the high-yield areas typically contained approximately 10,000 times more of certain species of micro-organisms than the low yield areas.

In conventional farming, if soil has had a large amount of chemical nitrogen applied, it will not work well to stop applying chemical nitrogen all at once. Growing crops successfully without applying chemical nitrogen will not happen by neglect. Instead, the transition from using chemical nitrogen to using humified compost should be gradual, because the indigenous nitrogen-fixing bacteria in the soil will have gotten lazy and will need time to build up numbers and grow strong.

If we look at the wonderful system designed by our Creator, we see the sustainability of The System. One of our local organic farmers has had corn yields in excess of 200 bushels per acre under a Certified Organic program. Getting the soil in balance and teeming with micro-life by using compost helps increase grain quality, while reducing insect infestation, disease, and weed pressure. Humified compost also helps to retain moisture during drought.

Not everyone may fit into or even desire a Certified Organic operation. However, conventional agricultural operations can benefit greatly by cutting back on chemical fertilizers and applying some of that fertilizer budget to compost mineral blends.

This is not the year to spend less on fertility. In fact, as fertilizer prices continue to rise, fertility management is more important now than ever. Making the most of your fertilizer budget by utilizing compost will result in better quality and higher yield — and will help you spend your fertility dollars wisely.

“The greater the quality and variety of micro-life living in and on the soil, the greater the fertility.”
— Dave Larson



What our workshop attendees have been saying:

"I have attended five other composting workshops and seminars. The Midwest Bio-Systems seminar has given me the most answers to my technical questions. The folks at MBS use a systematic approach to composting that I found both essential to making high quality compost and making it on a consistent basis."

"I was very impressed. My trip paid for itself in the first half-day."

"This is a system that works! I came away knowing how to do it!"

Upcoming Workshops

April 2-4 — Bogota, Colombia

May 20-22 — Tampico, IL

July — Canada



Sept. 16-18 — Tampico, IL

Nov. 11-13 — Georgetown, KY

ACS Compost Workshops provide training in the best methods for converting agricultural waste and organic matter into highly effective organic fertilizer.

ACS Compost Workshops are located near compost production facilities that practice the Advanced Composting System principles. During visits to the compost site, we will demonstrate what was taught in the classroom in a **real work environment**. Our updated curriculum expands the **hands-on** time at the compost site to increase the confidence level of participants so that they can go home and produce highly effective organic compost. Compost **site demonstrations** include windrow building, compost turning, watering and microbial inoculation techniques, and the use of compost process monitoring instruments. The sessions also include production **troubleshooting** as well as the tips on increasing compost quality **without increasing the cost**.

It is the combination of classroom instruction and compost site work that make the ACS Compost Workshops an effective way for you to get started or improve your existing operations.

Seating is limited — Register today!

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pricing information:

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A LIVING SOLUTION...

The Act Line of Fertility Products

- **Act N** — Introduces strong nitrogen fixing bacteria that work to make the soil's natural nitrogen available to plants so that synthetic nitrogen does not need to be added.
- **Act Phos** — Releases nitrogen fixing, phosphorus solubilizing bacteria that break down the soil's phosphorus for plants to use.



- **Act Foliar** — Releases yet another kind of robust nitrogen fixing bacteria to stimulate photosynthesis, when sprayed directly on plants' leaves.

- **ActPak** — ActPak Compost Tea Activator catalyzes a diverse mixture of microbes and sustains them while the tea is being applied to plants and to the soil.

Inquire today!

Win a Prize!

Help us develop a compost-related ***Slogan***

for our new T-Shirts!

The winner will be awarded a Prize!

Watch the MBS Web site for rules and details.

Composting Perspectives

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