



COMPOSTING PERSPECTIVES

TECHNOLOGY TECHNIQUES · HELPFUL TIPS OCTOBER 2008

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Tips for Equipment Storage: *Preparation for the Winter Months*

Some of Midwest Bio-Systems' customers are located in a climate that accommodates year-round composting. However, in other climates there may be a one to four month interval in which you stockpile feed stocks and/or store equipment until spring arrives.



Compost Turner

Ideally, a daily schedule includes scraping off any material that has stuck to the inside of the hood or on the tines and drum after the operator has finished the day's turning. Then the

water should be turned on full force to the nozzles while slowly rotating the drum.

Prior to storage, the compost turner should be thoroughly washed to remove all organic material and dried. All lubrication points should be greased.

Storing your turner inside prolongs life and protects appearance. A tarpaulin can be substituted if inside storage is not available. The turner should be stored with the drum in a horizontal position, especially if the turner is not kept under a shed.

In addition, the following items should be checked:

1. PTO Drivelines — Check for worn or rough u-joint bearings. Check that shields are intact, complete, and free to rotate. Note: This is a very important issue relating to the prevention of injury or death.

2. Tines — Worn tines are a major energy consumer. As the tine length gets shorter, the power requirement goes up dramatically because more power is required to turn the windrow. This may be due, in part, to more recycling of material as material passing under the drum is thrown back the second time.

3. Gearbox — Gearbox oil should be drained and refilled to proper level with good quality 80/90 gear oil. For severe operating conditions, Mobil 1 Syn Gear Lube 75/140 (or comparable oil) is recommended. Check the shaft seals for oozing or leaks. If maintenance is done prior to storage, the machine will be ready to roll when brought out in the spring.

4. Tires — Tires should be checked for wear and cuts. Tire pressure should be checked before going into storage and also just before putting your turner in service in the spring. Lowering the machine onto blocks for winter can prolong tire life.

5. Bearings — Bearings should be checked for roughness in turning and for wear (looseness). Looseness can be checked by applying upward pressure to each end of the drum.

6. Chain coupler — The chain and sprockets in the chain coupler can be

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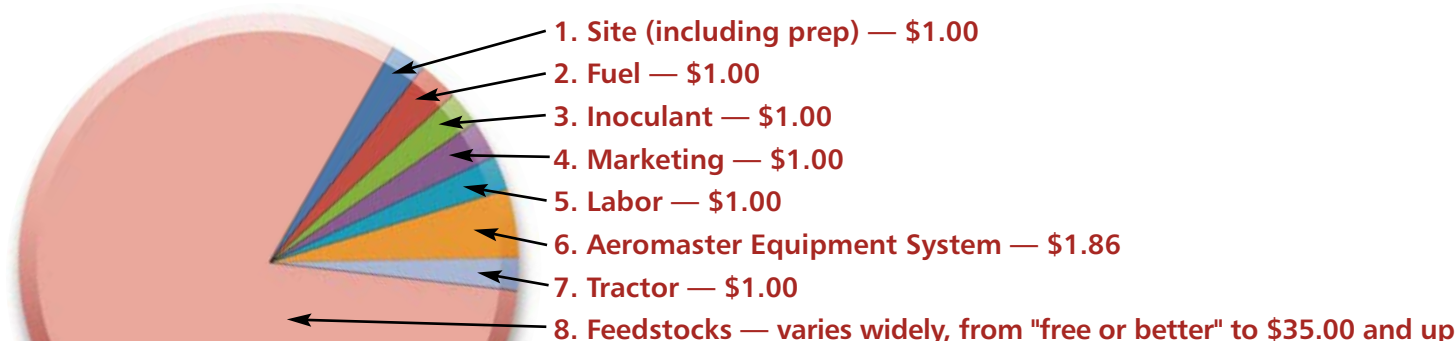
Cost of Operation

How can I make my composting operation more profitable?

There are many answers to that, but we have done some analyses that should help anyone grow their profits.

First, the quickest route to profitability is to enhance the value of the output product so you can obtain higher prices. If you are selling compost for \$35 per ton with a profit of \$4 per ton, increase value to double your profits by getting \$39 per ton. If you can double your price to \$70 (what a few of our customers charge), your profit goes up almost ONE THOUSAND PERCENT.

Another area for review is to reduce your costs. Look at the chart below. Our analysis shows a "rule of thumb" model for composting costs that look like the following, on a PER TON basis:



Proper **site selection** and careful planning for layout and preparation can reduce that number, but it starts out small so that is a really small area for improvement. **Fuel** prices are at the mercy of the market, but we have designed our systems to require less fuel per dollar of output compost. This is still, however, a small opportunity. **Inoculant** is important to the overall process and can reduce cost by speeding up the processing, as well as increase the value of output. **Marketing** can be made more effective through research, customer relationships, and good planning. A solid operating plan, reliable equipment, and speedy processing can all keep **labor** costs to a minimum.

The "**Aeromaster Equipment System**" figure shown is a total cost of ownership for an Aeromaster turner and water tank, well maintained. Enhance profitability by choosing equipment that lasts. We believe this is the lowest total cost of ownership on the market.

Choosing a reliable, inexpensive **tractor** is something you are probably familiar with. Reduce costs by utilizing one that has been preowned or is used for multiple purposes.

Creative planning and selection of **feedstocks** can make a huge difference in cost. Dependent on local situation, many of the following might be free or better in your area:

- Yard waste
- Tree trimmings
- Various animal manure
- Animal bedding from your local FFA chapter
- Sub-quality silage
- Discarded/unusable hay and straw
- Wood chips

Our recipe program can help you develop a cost-effective combination of feedstocks.

If you think we can help you enhance your value or improve your cost structure, we'd be happy to help you put together a plan to do so. Just call us to get started.



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!"

Next Workshop:

Nov. 11-13

Georgetown, KY

2009 Workshops:

Mar/April — Sonora, CA

Mar 17-19 — Manheim, PA

May — Deer Grove, IL

Summer — TBD

Sept — Deer Grove, IL

Nov — Georgetown, KY

TBD — Australia

TBD — Japan

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!

**Contact us today for
pricing information:**

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Brown: The New Green

Pfundstein Farms organically converts dung into dollars

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STERLING, IL – At the back of this beef farm, wisps of steam rise from rounded rows of compost as the age-old process of decay lays the groundwork for new life — soil.

But this isn't a typical backyard compost heap. Inside these mounds of straw and cattle manure is a carefully monitored and tightly controlled oven of sorts, that slow cooks a prolific topsoil with all organic ingredients.



Dale Pfundstein learned about the recycling program while taking a class from an area farmer who has used the same process.

Father-son beef farmers Dale and Cliff Pfundstein have hopped on the early wave of what many soil conservationists and farm economists predict will be the future of commercial agriculture – a shift away from industrial chemicals toward environmentally conscious and sustainable practices.

“What it comes down to is that you're taking raw manure that's not environmentally friendly, and turning it into an all-natural product that's better than any fertilizer,” Dale Pfundstein said.

The rows take about 10 to 12 weeks for the stinking mix to completely convert into a near-odorless loam loaded with nutrients, and the Pfundsteins's first compost harvest is just a few days from ready.

They plan to use it on their own fields and sell what they don't to farmers looking to escape skyrocketing input costs.

It started when the Pfundsteins more than doubled the number of livestock on their farm. The Illinois EPA swept in with word that runoff from the cattle house contained too many pollutants and could result in hefty fines if not mitigated. “We had a choice: Either pay for these fees and damage the water quality or set this up and start making money,” Dale Pfundstein said. “Not much of a choice.”

Spurred by government policies that limit environmental impact, the economics of farming have more producers embracing greener, sustainable growing techniques. Worldwide averages for fertilizer prices have more than tripled during this decade, and crop farmers are increasingly looking for alternatives, according to the International Center for Soil Fertility and Agricultural Development.

The Pfundsteins invested about \$90,000 for equipment and training on how to develop the value-added product, and interest in the compost has been so high they believe the loan will be paid in anywhere from 2 to 5 years.

Proponents of the manure-based compost say not only is the compost cheaper than commercial fertilizer, it's also better because toxic chemicals like herbicides and pesticides break down during the high-heat process. “What you're spreading on your field is just like organic fertilizer,” Cliff Pfundstein said.

While the interest in sustainable agriculture may be growing, government policy and business incentives have been slow to keep pace, experts said. Dave Dornbusch, coordinator of the Blackhawk Hills Resource Conservation and Development District, said state and federal budget cuts threaten to stymie sustainable programs and education for farmers looking to clean up the way they operate.

“Our biggest concern now is the cutbacks in staffing for all natural resource divisions. They are the ones that set

the conservation agenda for the county. The Soil and Water Conservation is facing 45-percent cuts," Dornbusch said. Mitigating the impact of livestock waste has become a national issue not only for water quality around the corner, but also to head off what could become an environmental disaster downstream.

For nearly 20 years, scientists have documented large-scale die-off of wildlife in the Gulf of Mexico around the mouth of the Mississippi River. Called hypoxia, all of the field runoff between the Rocky and Appalachian Mountains makes its way into the Mississippi River Watershed and eventually into the Gulf.

Dave Harrison, resource conservationist for the Whiteside County Soil and Water District, said the Gulf hypoxia falls among the most important environmental issues facing the United States, and contends it's one regional farmers can take hold of.



Cattle line up to feed at the Pfundstein Family Farms in north Sterling.

Commercial agriculture "is really at that crossroads of is it going to survive or not," Harrison said. "And you need conservation to keep the land healthy."

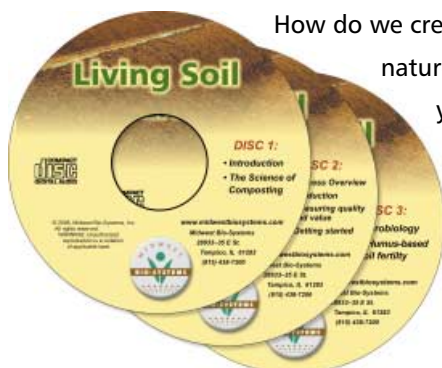
Government policy must crack down on water quality while encouraging alternatives like those sold by Midwest Bio-Systems in rural Tampico, Harrison said.

Founder and president of MBS, Edwin Blosser, 44, and his wife Karla Blosser, 43, started manufacturing equipment to cultivate the high-grade compost in 1993, and they've grown to 30 employees with more on the way. "Our whole mission is to have better conservation of soils and have better food as a result," Edwin Blosser said. "We're looking at rising medical concerns and terminal illness and we believe it's a result of food. We're in a tidal wave of consumers wanting this technology."

A former soil conservationist and farm consultant, Blosser said he noticed farmers adding more and more fertilizer every year to keep their land viable. "We had one mission: How to manage soils to avoid the situation of being farmed out," he said. "We want to stop that vicious cycle of having to add increasing amounts of fertilizer that gets into the water and costs farmers money."

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!**

Featured Dealer: Cedar Crest Equipment



CEDAR CREST EQUIPMENT

In business since 1989, Cedar Crest Equipment offers value by providing composting systems as well as materials handling equipment to go along with them.

In addition to offering Midwest Bio-Systems' Aeromaster equipment, parts, and accessories to growers in the Pennsylvania area, Cedar Crest also hosts an annual workshop in March to educate and assist composters and potential composters.

For more information, contact Anthony Good at (717) 866-1888 or visit Cedar Crest Equipment at 61 Elco Drive in Myerstown, PA.

EQUIPMENT FINANCING

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checked for wear by removing the chain cover and cleaning off the grease. Special long-term grease is available that is designed for this application. You may want to wear plastic gloves when applying this grease, as it does not just wipe off the hands.

7. Hydraulics — Pressure-washing the machine provides a good opportunity to inspect hoses and cylinders for leaks. Note: Never check for leaks with the bare hand. Oil under pressure can penetrate the skin, causing severe infection or even death.

8. Outrigger jack — If your model has an outrigger jack, it should be disassembled, the main threaded portion lubricated with good grease, and reassembled.

9. The drum shaft should be examined for wrapped twine or wire. If any is found, it should be removed. Foreign objects wrapped around the drum shaft can damage the seal on the drum shaft bearing. It may be necessary to remove one of the bolt-on side sheets at each end in order to clean the shaft.



10. Wheel bearings should be re-packed and seals examined.

Water trailer

1. **All tanks should be drained.** Valves should be left open.

2. If the pump is powered by a gasoline engine, **drain crankcase** and refill with good engine oil as recommended by the engine manufacturer. Drain engine gas tank. Do not allow any gasoline to remain in tank over winter. Run engine until gasoline in carburetor is consumed.

3. **Pump** should be drained of any water. Failure to do this is most likely

the #1 cause for pump damage.

4. Water trailer should be **blocked up**, removing weight from tires, for increased tire life. Tire pressure should be checked at the time of restarting service.

5. **Wheel bearings** should be re-packed and seals examined.

6. Water trailer should not be stored in **direct sunlight** if it has a polyethylene tank.

Compost Management — *Preparing for Winter*

Do you have windrows of material that are decomposing, either partially or completely finished? Winter is coming, so how should this be managed?

The longer the winter weather is mild, the longer the ACS process can continue on the partially completed materials. Keeping these windrows covered not only helps to manage moisture (which is very important) but may also conserve some heat, enabling you to process a little longer before allowing decomposition to go dormant. When enough temperature cannot be kept in the windrow, it is most likely an indicator to shut the operation down for the winter.

Finished windrows should also be covered to manage moisture and preserve quality until the product can be applied and/or sold. This is best accomplished by covering them with covers made of special fabric.

If some of the covered windrows are sold and/or soil-applied just before winter, fabric should be properly stored. There are many ways to store the fabric, but a preferred method is to fold the fabric in half and roll it up. If possible, the fabric should be stored out of the sun, as UV rays can eventually break down the polypropylene fibers. A pallet fork on a loader can be used to transport them under roof. A good rodent management plan is also essential. Mice think the fabric is an ideal nesting material!

Now is the time to review your fabric needs for winter and the coming year. MBS keeps an adequate supply of fabric on hand, but at times demand outpaces supply. Planning ahead can assure that adequate fabric is available when you need it.



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LITTLE ROCK,AR

The Aeromaster TE-500 *Compost Tea Extraction System*

The Aeromaster® Compost Tea Extraction System is a high production compost tea process. The basic principle of the extraction system is to use more high-quality compost, effectively extracting the soluble minerals, humus, and microbiology. No food sources are added immediately, allowing the inactive microbes to remain inactive, thus conserving oxygen. **This extends the useful life of the tea to two to four weeks.**

The extraction process along with the higher volume of high quality humus compost is also unique in its ability to extract a vital species of fungus which gives stress tolerance to plants. The TE-500 produces compost continuously as 500 gallons of water pass through the extraction system. Once a fresh charge of compost is put in the extractor, production of the next cycle can begin.

Each 30 minute cycle of the Aeromaster Compost Tea Extraction System produces up to 500 gallons of high quality extract, for a throughput of up to 1,000 gallons per hour.



Composting Perspectives

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