



Independent coverage of composting, wood recycling and organics management

# Composting News

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Market Intelligence

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## A look at electric horizontal grinders

By Ken McEntee

*This look at electric horizontal grinders is not intended to endorse or promote any particular product or manufacturer. Attempts were made to include input from all known North American manufacturers of horizontal grinders. Because of the length of this report, it is being published in two installments in Composting News. The complete article is available for viewing at [www.compostingnews.com](http://www.compostingnews.com).*

**I**ncreasing government regulations – particularly federal emission standards – and a lower operating cost compared to diesel powered machines, are driving demand for electric horizontal grinders, manufacturers say.

“We are definitely seeing an increase in the popularity in electric machines, and most of that is driven by cost of operation and cost of ownership,” said Jay Van Roekel, strategic business unit manager at Vermeer Corp., of Pella, Iowa.

Jason Morey, sales and marketing manager for Bandit Industries Inc., Remus, Mich., said he has seen a consistent demand for electric grinders in recent years.

*(See Electric Grinders, page 4)*

## SWANA publishes safety tips for composting operations

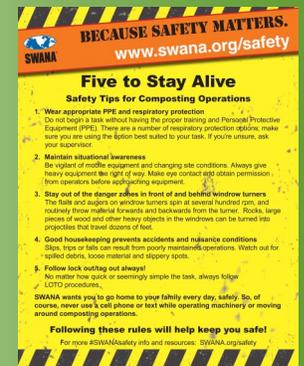
**L**ike many aspects of solid waste management, composting operations involve physical labor, the use of heavy machinery and a dynamic work environment. These factors offer the potential for serious injury or fatality if proper safety precautions are not followed, the Solid Waste Association of North America (SWANA) said.

That’s why SWANA last month released a new installment of its *Five to Stay Alive* series that features safety tips for composting operations employees.

The new composting safety tips developed for the *Five to Stay Alive* campaign provide flyers and posters that address some of the most common dangers found in this work environment. These resources are now available on a new web landing page developed to accommodate this rapidly growing safety campaign.

In brief, the safety tips for composting operations are:

- Wear appropriate PPE and respiratory protection.



accommodate this rapidly growing safety campaign.

*(See Safety, page 16)*

## Compost may green lawn at Iowa Capitol

**I**n a partnership with the Iowa Department of Natural Resources (DNR) and other state agencies, crews this month blew compost into the terrace lawns of the state Capitol. The soil quality restoration project is a demonstration of how compost can improve soil quality and reduce stormwater runoff.

DNR said the project will help rainwater better soak into the Capitol lawns, reducing the runoff that can carry pollutants into storm sewers that empty into the Des Moines River. In addition, the lawn should green up

better than before in just a few weeks, the agency said. DNR expected it to take about two weeks for the compost to break down into the soil and become less noticeable. The process also increases soil health in lawn areas with highly compacted soil or thin topsoil.

*(See Iowa, page 16)*

### Highlights

- n **Organix gets patent for organics collection method**
- n **National compost prices**

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**Food waste**

# Organix gets patent for organics co-collection method

**O**rganix Solutions, an organics recovery and municipal solid waste company based in Minnesota, recently received a full patent for its organics co-collection program. The utility patent - US 9,669,431 B2 - encompasses the compostable organic waste collection method and materials, establishing its patent portfolio that includes a proprietary product line of compostable bags. The first of its kind program, the patent covers the method of collecting and processing of

compostable organic waste material, Organix said.

Now, Organix said, a single waste collection vehicle can collect both organic waste and municipal solid waste (MSW) in a single trip. Eliminating the need for multiple trucks, on even a relatively small scale, has a significant environmental impact.

The Minnesota Pollution Control Agency (MPCA) evaluated the co-collection method as a separate waste stream and the independent third-party laboratory Aspen Research Corporation conducted its own research on the performance characteristics of the compostable bag as it traveled through the waste stream. Both confirmed that the compostable bags were strong enough to withstand compaction in a waste collection vehicle while preserving the organic waste for further processing.

“The absence of a compostable bag

(See Organix, page 4)



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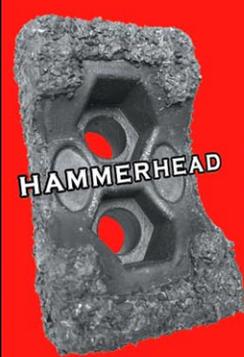
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## Food waste

### Organix

From page 3

that could withstand compaction forces in a solid waste truck spurred our efforts to develop our own compostable bags,” said Jim Wollschlager, Organix’ CEO. “In 2010 we introduced our co-collection program in Minnesota with our own Biodegradable Products Institute (BPI) certified bags which have been absolutely integral to the overall success of our organic waste collection and composting program.”

## Equipment focus

### Electric grinders

From page 1

“There hasn’t necessarily been a large increase, but that may change a little with this being the last year that we can do Tier 2 diesel engines above 750 horsepower,” Morey said. “Once

the Tier 4 Final rules go into effect, I think electric is an option that more people are going to consider.”

Machines that are not Tier 4 Final must be in production by December 31 in order to be sold in the U.S.

Manufacturers say electric horizontal grinders provide myriad benefits in stationary applications, but most see no potential for making the machines mobile for off-site work using portable generators in the near future. Hauling an electric generator that can power a grinder, they say, defeats the purpose of eliminating a diesel engine on the machine.

Electric grinding equipment, according to Art de St. Aubin, president and CEO of Rotochopper Inc., of St. Martin, Minn., is one of the most dramatic and under-utilized means of minimizing costs of mulch production.

“Electric grinders have many advantages over diesel grinders, some of them obvious – such as cost of electricity vs. diesel fuel and some of

them subtle and more complex – such as uptime vs. downtime,” de St. Aubin said. “Costs for operating and electric grinder for 2,000 hours in a year can be as much as \$50,000 less than operating a diesel processing the same product due to less expensive energy costs and lower maintenance costs.”

According to Paul Clark, electric systems engineer at Peterson Pacific Corp., Eugene, Ore., the relative consistent cost of electricity, compared to fluctuating diesel fuel prices, is a main reason why operators consider electric grinders.

“In some cases overseas, where diesel costs are really high, they will only consider electric,” Clark said.

Grinder manufacturers generally agree that an electric horizontal is likely to provide a lower production cost per ton than a diesel powered machine if you process material in a fixed location and have access to a three-phase power supply.

“It’s important for people to know

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that this technology has existed for some time,” said Pat Crawford, vice president of products at Diamond Z Manufacturing, Caldwell, Idaho. “It’s not some mysterious application. We did our first electric tub grinder back in 1990. It has been around and proven for a long time.”

Either electric or diesel grinders and shredders will do the same job on the material, said Todd Dunderdale, senior area sales manager for Komptech Americas, Westminster, Colo.

“The real question is customer requirements, such as space, permit needs or energy costs,” Dunderdale said. “Typically if a customer plans on running inside a building they go with an electric unit. For customers who desire to be mobile, then a track diesel unit is the best.”

Following is a look at what manufacturers of horizontal grinders for organic materials processing are saying about the electric option.

### Ideal for stationary siting

Tim Wenger, vice president of CW Mill Equipment Co. (Hogzilla), Sabetha, Kan., said electric grinders are ideal for stationery grinding operations.

“Municipal operations, for example, are typically more centrally located in that wood waste is dropped off at a certain location,” Wenger said. “An electric machine is a big pro in that aspect.”

“If your work requires you to move the grinder to the product, a diesel is the correct choice,” said de St. Aubin. “Electrics are often chosen for facilities that wish to place a grinder in line with a conveyor that handles wood waste. You will often see them at the end of sorting lines in construction and demolition waste applications or in consumer waste applications. They are popular for processing green waste for compost, pallets for mulch, waste wood for animal bedding, among many other uses.”

Electric powered grinders, Van Roekel said, “will do all the same things that our diesel powered machines will do. It is basically the same machine. It is used for pre-processing and product sizing, it can be initial grind or a regrind or even a final grind. They can be inside or outside, at a plant or a regional yard where material like green waste comes in. We see electrics used for more of a 24/7 type of an operation where they are working the same job and the same material day after day as opposed to a diesel that is going to go to a site for four to five hours for a day or two and then move to the next site.”

Originally, Van Roekel said, the market for electric machines was driven by efficiency of operation compared to diesel engines.

“Over time, we’re seeing regulations pushing more people toward electric power,” he said.

Operating a stationery electric

*(See Electric Grinders, page 8)*

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# National Compost Prices

The prices listed below are intended to indicate the value of mature compost products sold by compost producers and retailers in noted regions. Prices listed are based on surveys and publicly posted prices.

Your input on published prices is encouraged. Contact Ken McEntee, editor, at (440) 238-6603. Fax: (440) 238-6712. EMail: ken@recycle.cc. Address: 9815 Hazelwood Avenue, Cleveland, OH 44149. Notes on listings.

- Each listing includes a high price obtained, a low price obtained and an average of all prices obtained within a particular market.

- Market areas: Thirteen market areas have been targeted to provide a cross section of compost product markets in

the U.S. Where regions are not identified by a specific city, "Chesapeake" refers to the region stretching between Norfolk, Va. to Baltimore, Md. "Texas" incorporates several major cities in the state. "Northwest" represents the Seattle and Portland, Ore areas. "SF-Bay" refers to the San Francisco Bay area. SoCal is Southern California, including the Los Angeles and San Diego areas. Denver includes Colorado, Wyoming and Montana.

- "Food waste" compost: This category refers to compost products that include food waste, regional specialties and other feedstocks not specifically covered in other categories.

- Manures: Chicken manures may include other poultry

manures, such as turkey and duck manure. Cow manures may include manures marketed as steer and dairy manure. Horse manure is included in this category as well.

- Absence of a regional listing within a given category indicates not enough information for a valid listing.

Additional data will be added as more information is obtained.

- Bulk retail prices do not include municipal operations that give compost away for free.

## Bulk Retail (yard)

Yard waste compost	Average	High	Low
NE	\$ 32.55	\$ 77.00	\$ 17.50
Chesapeake	\$ 24.50	\$ 30.00	\$ 17.00
SE	\$ 21.88	\$ 29.95	\$ 16.00
Florida	\$ 16.42	\$ 26.00	\$ 10.50
Cleveland	\$ 19.90	\$ 28.00	\$ 12.50
Iowa	\$ 21.57	\$ 53.00	\$ 7.50
Minneapolis	\$ 17.09	\$ 28.00	\$ 8.00
Texas	\$ 29.71	\$ 40.00	\$ 15.00
Denver	\$ 20.31	\$ 31.00	\$ 12.00
Northwest	\$ 24.05	\$ 55.00	\$ 10.00
SF-Bay	\$ 21.92	\$ 30.00	\$ 10.00
SoCal	\$ 14.75	\$ 24.00	\$ 8.00

Food waste compost	Average	High	Low
NE	\$ 39.12	\$ 64.00	\$ 17.50
Chesapeake	\$ 23.00	\$ 30.00	\$ 15.00
SE	\$ 28.11	\$ 35.00	\$ 24.00
Florida	\$ 17.50	\$ 22.00	\$ 13.00
Iowa	\$ 25.00	\$ 65.00	\$ 15.00
Minneapolis	\$ 12.33	\$ 16.00	\$ 9.00
Texas	\$ 30.21	\$ 48.95	\$ 15.00
Denver	\$ 15.00	\$ 15.00	\$ 15.00
Northwest	\$ 20.55	\$ 30.00	\$ 15.00
SF-Bay	\$ 23.61	\$ 38.00	\$ 14.00
SoCal	\$ 30.50	\$ 45.00	\$ 16.00

Leaf humus	Average	High	Low
NE	\$ 24.98	\$ 30.00	\$ 19.95
Chesapeake	\$ 27.49	\$ 30.00	\$ 23.95
Cleveland	\$ 19.27	\$ 26.00	\$ 8.00

Composted biosolids	Average	High	Low
NE	\$ 30.00	\$ 40.00	\$ 20.00
Chesapeake	\$ 24.98	\$ 35.00	\$ 12.00
SE	\$ 12.14	\$ 28.00	\$ 4.00
Florida	\$ 13.14	\$ 22.00	\$ 8.00
Cleveland	\$ 24.77	\$ 30.00	\$ 19.50
Iowa	\$ 12.67	\$ 21.00	\$ 8.00
Texas	\$ 21.28	\$ 30.00	\$ 10.00
Denver	\$ 9.00	\$ 10.00	\$ 7.00
Northwest	\$ 17.91	\$ 26.00	\$ 7.00
SoCal	\$ 13.36	\$ 22.00	\$ 3.50

Composted chicken manure	Average	High	Low
NE	\$ 45.00	\$ 50.00	\$ 40.00
Chesapeake	\$ 25.00	\$ 25.00	\$ 25.00
SE	\$ 42.00	\$ 42.00	\$ 42.00
Minneapolis	\$ 17.00	\$ 17.00	\$ 17.00
Texas	\$ 37.23	\$ 47.50	\$ 26.95
Denver	\$ 25.65	\$ 28.00	\$ 24.00
SF-Bay	\$ 16.00	\$ 16.00	\$ 16.00
SoCal	\$ 44.00	\$ 75.00	\$ 27.00

Composted cow manure	Average	High	Low
NE	\$ 45.50	\$ 46.00	\$ 45.00
SE	\$ 31.33	\$ 45.00	\$ 12.00
Cleveland	\$ 24.00	\$ 24.00	\$ 24.00
Iowa	\$ 42.00	\$ 60.00	\$ 16.00
Minneapolis	\$ 29.33	\$ 32.00	\$ 26.00
Texas	\$ 29.33	\$ 47.50	\$ 15.00
Denver	\$ 21.71	\$ 30.00	\$ 12.00
Phoenix	\$ 20.00	\$ 20.00	\$ 20.00
Northwest	\$ 23.85	\$ 33.75	\$ 17.45

SF-Bay	\$ 26.00	\$ 26.00	\$ 26.00
SoCal	\$ 17.25	\$ 24.00	\$ 12.00

Wood waste mulch	Average	High	Low
NE	\$ 21.35	\$ 38.00	\$ 12.50
Chesapeake	\$ 21.13	\$ 28.00	\$ 12.00
SE	\$ 18.78	\$ 34.95	\$ 12.00
Florida	\$ 17.50	\$ 18.00	\$ 17.00
Cleveland	\$ 25.56	\$ 36.25	\$ 14.00
Iowa	\$ 32.50	\$ 40.00	\$ 25.00
Minneapolis	\$ 26.00	\$ 35.00	\$ 20.00
Texas	\$ 16.19	\$ 27.00	\$ 9.00
Denver	\$ 18.74	\$ 25.00	\$ 12.48
Phoenix	\$ 17.61	\$ 22.95	\$ 10.00
Northwest	\$ 19.00	\$ 35.00	\$ 7.50
SF-Bay	\$ 18.14	\$ 30.00	\$ 8.00
SoCal	\$ 20.50	\$ 50.00	\$ 6.00

Colored wood mulch	Average	High	Low
NE	\$ 28.00	\$ 28.00	\$ 28.00
Chesapeake	\$ 28.67	\$ 33.00	\$ 25.00
SE	\$ 27.13	\$ 42.00	\$ 15.00
Florida	\$ 20.33	\$ 22.00	\$ 19.00
Cleveland	\$ 24.87	\$ 28.99	\$ 21.95
Iowa	\$ 30.00	\$ 30.00	\$ 30.00
Minneapolis	\$ 36.80	\$ 49.00	\$ 30.00
Texas	\$ 26.08	\$ 32.50	\$ 18.00
Denver	\$ 33.28	\$ 33.28	\$ 33.28
Northwest	\$ 35.00	\$ 35.00	\$ 35.00
SF-Bay	\$ 34.00	\$ 36.00	\$ 28.00
SoCal	\$ 32.50	\$ 35.00	\$ 30.00

## Bulk wholesale (yard)

Yard waste compost	Average	High	Low
NE	\$ 21.50	\$ 48.00	\$ 11.00
Chesapeake	\$ 13.39	\$ 16.00	\$ 8.00
SE	\$ 16.66	\$ 25.00	\$ 8.65
Florida	\$ 9.75	\$ 13.00	\$ 8.00
Cleveland	\$ 12.50	\$ 15.00	\$ 10.00
Iowa	\$ 14.00	\$ 19.00	\$ 8.00
Minneapolis	\$ 12.00	\$ 17.00	\$ 7.00
Texas	\$ 17.25	\$ 24.00	\$ 9.00
Denver	\$ 13.05	\$ 14.10	\$ 12.00
Northwest	\$ 14.79	\$ 35.00	\$ 7.50
SF-Bay	\$ 13.71	\$ 22.00	\$ 7.00
SoCal	\$ 7.33	\$ 10.00	\$ 6.00

Food waste compost	Average	High	Low
NE	\$ 25.79	\$ 48.00	\$ 11.00
Chesapeake	\$ 10.50	\$ 15.00	\$ 8.00
SE	\$ 20.65	\$ 30.00	\$ 15.00
Florida	\$ 10.50	\$ 13.00	\$ 8.00
Iowa	\$ 13.40	\$ 20.00	\$ 10.00
Minneapolis	\$ 12.00	\$ 12.00	\$ 12.00
Texas	\$ 17.50	\$ 24.00	\$ 8.50
Denver	\$ 11.33	\$ 15.00	\$ 7.00
Northwest	\$ 17.25	\$ 20.00	\$ 15.00
SF-Bay	\$ 12.67	\$ 26.00	\$ 5.00

Composted biosolids	Average	High	Low
NE	\$ 15.33	\$ 20.00	\$ 10.00
Chesapeake	\$ 9.31	\$ 15.00	\$ 5.00
SE	\$ 10.93	\$ 15.00	\$ 5.00
Florida	\$ 10.50	\$ 13.00	\$ 8.00
Texas	\$ 15.99	\$ 20.00	\$ 9.00

Denver	\$ 13.00	\$ 13.00	\$ 13.00
Northwest	\$ 16.75	\$ 21.00	\$ 12.00
SoCal	\$ 10.50	\$ 17.00	\$ 3.00

Composted cow manure	Average	High	Low
NE	\$ 36.00	\$ 36.00	\$ 36.00
SE	\$ 21.38	\$ 31.50	\$ 7.00
Iowa	\$ 35.00	\$ 35.00	\$ 35.00
Texas	\$ 25.00	\$ 25.00	\$ 25.00
Denver	\$ 12.05	\$ 14.10	\$ 10.00
Northwest	\$ 22.00	\$ 22.00	\$ 22.00
SF-Bay	\$ 34.25	\$ 34.50	\$ 34.00
SoCal	\$ 5.00	\$ 6.00	\$ 4.00

Wood waste mulch	Average	High	Low
NE	\$ 15.75	\$ 33.00	\$ 8.00
Chesapeake	\$ 15.80	\$ 17.00	\$ 13.00
SE	\$ 14.60	\$ 24.95	\$ 5.00
Florida	\$ 14.00	\$ 15.00	\$ 13.00
Iowa	\$ 30.00	\$ 40.00	\$ 20.00
Minneapolis	\$ 18.50	\$ 20.00	\$ 17.00
Texas	\$ 10.83	\$ 14.00	\$ 8.00
Denver	\$ 7.66	\$ 8.32	\$ 7.00
Northwest	\$ 15.00	\$ 15.00	\$ 15.00
SF-Bay	\$ 12.33	\$ 14.00	\$ 9.00
SoCal	\$ 9.25	\$ 15.00	\$ 5.00

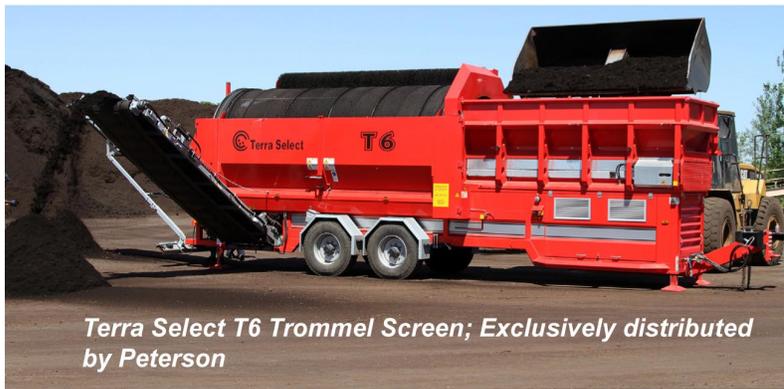
Colored wood mulch	Average	High	Low
NE	\$ 22.00	\$ 22.00	\$ 22.00
Chesapeake	\$ 20.50	\$ 22.00	\$ 19.00
SE	\$ 19.00	\$ 25.00	\$ 15.00
Florida	\$ 16.00	\$ 16.00	\$ 16.00
Iowa	\$ 25.00	\$ 25.00	\$ 25.00
Minneapolis	\$ 27.00	\$ 35.00	\$ 19.00
Texas	\$ 20.67	\$ 24.00	\$ 18.00
Denver	\$ 17.66	\$ 21.32	\$ 14.00
Northwest	\$ 22.00	\$ 22.00	\$ 22.00
SF-Bay	\$ 21.00	\$ 22.00	\$ 19.00
SoCal	\$ 22.50	\$ 25.00	\$ 20.00

## Bag Retail

Compost (40# bag)	Average	High	Low
NE	\$ 6.87	\$ 8.00	\$ 4.50
Chesapeake	\$ 3.73	\$ 5.49	\$ 2.15
SE	\$ 4.00	\$ 4.00	\$ 4.00
Iowa	\$ 1.99	\$ 1.99	\$ 1.99
Cleveland	\$ 2.45	\$ 2.99	\$ 2.10
Iowa	\$ 3.12	\$ 7.99	\$ 1.50
Texas	\$ 4.25	\$ 6.99	\$ 1.99
Denver	\$ 3.59	\$ 4.75	\$ 1.73
Phoenix	\$ 4.71	\$ 5.99	\$ 2.77
Northwest	\$ 4.29	\$ 5.99	\$ 2.99
SoCal	\$ 5.39	\$ 6.25	\$ 3.90

Composted cow manure(40#bag)	Average	High	Low
NE	\$ 6.53	\$ 9.87	\$ 3.85
Chesapeake	\$ 5.97	\$ 7.95	\$ 3.99
SE	\$ 5.16	\$ 6.97	\$ 3.34
Florida	\$ 1.98	\$ 1.99	\$ 1.97
Cleveland	\$ 3.27	\$ 3.99	\$ 2.49
Iowa	\$ 2.18	\$ 2.49	\$ 1.75
Minneapolis	\$ 3.70	\$ 7.00	\$ 1.99
Texas	\$ 4.59	\$ 6.99	\$ 1.99
Phoenix	\$ 2.99	\$ 3.99	\$ 2.49
Northwest	\$ 3.99	\$ 3.99	\$ 3.99
SF-Bay	\$ 7.00	\$ 7.00	\$ 7.00

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## Equipment focus

### Electric grinders

From page 5

grinder offers convenience and efficiency of maintenance, said John Snodgrass, who is in technical sales at West Salem Machinery, Salem, Ore.

“All of your parts and tools are centralized on site,” Snodgrass said. “That’s one of the big advantages of having the stationery horizontal grinder.”

According to Morey, “If you don’t need to move around, electric makes a lot of sense as long as you have the infrastructure to support it. Bandit is known for making mobile equipment, but our horizontal grinders can be put into a stationery electric application at any time.”

#### Cost savings

“Even at today’s diesel prices, an electric machine can be about \$30 an

hour cheaper to run,” said Clark, citing in part a recent analysis done by one of Peterson’s customers. “You have to take into account that there is an initial up-front capital cost because you’re adding more controllers and you may have to get more power capacity installed to your site. At today’s lower diesel prices, the electric machines will, in a reasonable time, break even, then you will start to see a gain in payback.”

Clark said the additional up-front costs to power a new site could range between \$150,000 and \$200,000, including costs from the local power utility and an electrical contractor.

“If you already have power, it’s relatively inexpensive,” Clark said.

Van Roekel said depending on hours of operation and maintenance practices, the operating costs of an electric grinder can be about half the costs of running a diesel machine.

“The machines themselves are comparably priced,” he said. “The extra

costs come with your drive panel that controls the electric power to the motor. It could be a soft start panel or a variable frequency drive (VFD) panel with which the motor acts more like a diesel engine. Then you have the electric power lines that go to the grinder and the panel, so those are the additional install costs, but that it is soon made up for in the lower operating costs.”

Electric grinders offer cost savings associated with routine maintenance as well, de St. Aubin said.

“Besides savings on diesel fuel, electric grinders eliminate the costs and downtime associated with maintaining a diesel engine, radiator and clutch, including oil and filter replacement, coolant exchange, air filter replacement and clutch fluid and filter replacement where applicable,” he said.

Wenger agreed.

*(See Electric Grinders, page 13)*

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# Product/Equipment and Services Guide

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**Equipment focus**

**Electric grinders**

From page 8

“The nice thing about an electric motor is not having to maintain the diesel engine,” he said. “You don’t have gas tanks and turbos and air filters and radiators and head gaskets. That’s one of the biggest reasons most of our customers have gone electric initially, and then years ago we had the fluctuating diesel prices.”

According to Snodgrass, the absence of road hauling equipment also reduces the cost of an electric machine.

“You need to have the brakes, the chassis and all of that other stuff to move a mobile unit,” he said. “You don’t have that on a grinder that is staying in one place.”

“As long as the (electrical) power is at a decent rate, then the electric machines are definitely cheaper to run,” Morey said. “You’re eliminating

filters and diesel fuel and you’re going to have all the Tier Four emission components on these (diesel) engines, so there is going to be an even greater savings when it comes to the Tier Four compared to electric.”

Kollin Moore, electrical engineer with Morbark LLC, Winn, Mich., cautions, however, that the resale market for electric horizontals could be limited compared to diesel machines.

Another possible disadvantage of an electric machine, Dunderdale said, is the need to have a mechanic who is proficient on electrics, “which is often hard to find.”

**Longer life**

“Far and away the biggest difference between diesel customers and electric customers is the quantity of hours that they put on the machine in a year,” Van Roekel said. “The electric powered machines run way more hours than diesel powered machines. It comes

down to maintenance, but electric motor will last longer. We see an excess of 30,000 hours on many electric machines. We don’t assume that diesel will go more than 10,000 hours.”

de St. Aubin agreed.

“Besides reduced routine maintenance and downtime, electric grinders offer considerable savings on long-term maintenance and operation,” he said. “Electric motors also tend to have a longer life span. Electrics provide constant dependable performance with reliable uptime. They are extremely reliable machines with some still in service with more than 30,000 hours on them.”

Moore said electric motors typically last up to two or three times longer than diesel engines.

“If somebody has had a diesel machine for years and then they go electric one of the things they radically notice is that there are no longer any

*(See Electric Grinders, page 14)*

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## Equipment focus

### Electric grinders

From page 13

oil changes to do, you don't have to change filters," Clark said. "There is a lot of mechanical maintenance involved with diesel. With electric, once you get them set up right, you're not touching those motors for maintenance for 10,000 to 15,000 hours depending on how much you're grinding, so there is a tremendous reduction in overall maintenance cost when you go with an electric machine. I think the life span of an electric machine is longer, as the diesel has clutches and things that wear out pretty quick. With the electric machine, belts and consumables will wear out, but the drive train itself is fairly robust and maintenance free."

### Better performance?

Moore cited the following advantages of an electric horizontal grinder compared to a diesel powered machine: Cleaner, more efficient power source with no emission regulations to meet, quieter operation, less maintenance, less expensive to operate, lower capital cost and less chance of catastrophic fire.

"A more consistent end product is the result of the more consistent RPMs the unit runs at," Moore said. "Diesel powered machines have a bigger variance in engine RPMs."

Comparing the relative grinding power of comparably sized diesel and electric motors is one area where some manufacturers disagree. Some sources interviewed suggested that electric motors can provide more power directly to the rotor than a comparably sized diesel. Crawford disagreed.

"I disagree 110 percent," he said. "Electric grinders do not perform exactly the same way as combustion engines with the horsepower and torque curves. A lot of people think that if you run a 1,000 horsepower diesel you can get away with 700 horsepower electric, but we go the other way. The reason is the fixed RPM with an electric motor. If you run a variable frequency drive (VFD), that would help the situation a little bit, but you still wouldn't have the range of RPM utilization that you would have on diesel."

Clark, however, said electric motors can deliver more power than their diesel counterparts.

"In some applications we can provide more grinding power with electric motors compared to our largest diesel motors," Clark said. "An

*(See Electric Grinders, page 16)*



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## Equipment focus

### Electric grinders

From page 14

electric motor puts more direct horsepower on the rotor instead of losing efficiency through the clutch. Sometimes you need that extra power directed directly to the rotor. The other piece of it depends on the type of motor controller you have. You can, for short bursts of time, can deliver up to another 50 percent of the power of that motor. For example, you can turn a 600 horsepower electric motor into a 900 horsepower motor for short bursts of time if the rotor demands it without compromising the integrity of the motor.”

Morey agreed.

“With electric you can run a lower horsepower and get high horsepower capabilities,” he said. “In our experience it’s almost two to one from the feedback we get.”

According to Snodgrass, “With a 1,000 horsepower diesel, that is not 1,000 horsepower available to grind with compared to an electric where you get the full 1,000 horsepower.

Dunderdale said the available grinding power is the most important question to consider.

“Buyers should be aware that an electric high speed grinder requires the same amount of horsepower that its diesel counterpart has,” Dunderdale said. “Typically a 1,000 horsepower grinder needs a 1,000 horsepower electric motor to run it since it is direct drive. However for our Crambo, for example, the 500 horsepower mobile unit is only 240 horsepower in the electric version because you don’t have the loss of power as you do with the diesel to run the hydraulics. There is far less electrical consumption from a 250 horsepower motor than from a 1,000 horsepower. Also when considering a 1,000 HP electric grinder, you must also have to purchase expensive soft starts in order to not overload the power supplier. This can be very expensive.”

*Read the conclusion of this article in the October issue of Composting News.*

the Iowa Department of Agriculture and Land Stewardship urban conservation program.

## Operations

### Safety

From page 1

- Maintain situational awareness.
- Stay out of the danger zones in front of and behind windrow turners.
- Good housekeeping prevents accidents and nuisance conditions.
- Follow lock out/tag out always.

“The release of these safety tips comes at an important time, as a growing number of state and local governments pursue food waste diversion programs, and yard waste diversion remains popular,” said David Biderman, SWANA’s executive director and CEO. “Composting is a leading disposal alternative for these materials, and it is essential for employers to provide useful safety training and information that ensure employees work safely.”

With solid waste and recycling collection as the fifth most deadly job in the United States, according to SWANA, and many serious injuries and accidents occurring in the processing and disposal of waste and recyclables, the need for practical safety information made available directly to workers is more important than ever, the organization said.

Scott Gamble, organic waste and composting specialist at CH2M, worked with SWANA to help develop the new *Five to Stay Alive* installment.

“In this industry, we focus a lot on training our compost operators and supervisors on the science of composting, process control and odor management, but safety is just as important, and is critical to running a sustainable facility,” Gamble said.

According to Frank Franciosi, executive director at the U.S. Composting Council, “We must all think about safety first no matter the task. Work smarter and don’t gamble with

*(See Safety, page 18)*

## Compost applications

### Iowa

From page 1

“Soil quality restoration is something that people can do in their own backyards as well to improve the water quality in their neighborhood creek or other local waterbody,” said Steve Konrady, of DNR’s Watershed Improvement Program. “It also makes their yard look great, too. Some communities in Iowa offer assistance to homeowners for this practice, and this Capitol Terrace project is a great opportunity to demonstrate the practice to Iowans, and to work to improve state lands and waters, and cleaner water downstream.”

The project is a partnership effort between DNR, the Iowa Department of Administrative Services and the U.S. EPA, with technical assistance from

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## Operations

### Safety

From page

safety. Your family and loved ones are counting on you.”

*Five to Stay Alive* tips for composting operations, including posters, are available for download at <http://tinyurl.com/yar6n8v6>.

Founded by Seattle-based designer Katrina Spade, the Urban Death Project is a registered nonprofit organization that seeks to create an ecological alternative for the care of the deceased by returning their bodies to the earth through a process she calls “recomposition.”

The WSU Compost Facility has received modifications to its air quality permit from the Washington State Department of Ecology that would allow it to conduct a pilot study of composting human remains in part of the university’s existing 66-foot-long, in-vessel composter.

The WSU facility already converts animal mortalities into compost.

You can read more about the Urban Death Project in the November 2016 issue of *Composting News*.

- *The Spokesman Review*, [www.spokesman.com](http://www.spokesman.com)

• In **Corvallis, Oregon**, Republic Services is no longer accepting plant-based plastic silverware and cups as compostable, saying that the items don’t break down fast enough

Several businesses in the Corvallis area use the products, including Oregon State University. Republic recently sent a letter to customers, informing them of the change.

Republic said that if the plant-based plastic utensils and cups were in composting bins, the bins would be dumped as trash and charged as such.

The corn-based utensils were developed by EcNow Tech LLC, a Corvallis company.

Oregon State will comply with Republic’s policy, but remains committed to sustainability measures and will continue to identify products that can be accepted into composting systems. - *Corvallis Gazette-Times*, [www.gazettetimes.com](http://www.gazettetimes.com)



## Compost Digest

Read these complete stories at [www.facebook.com/CompostingNews](http://www.facebook.com/CompostingNews).

• **Washington State University** is acquiring the necessary approvals to test equipment to compost human remains at one of its facilities in what is being called the Urban Death Project.



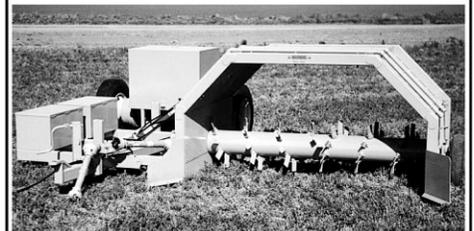
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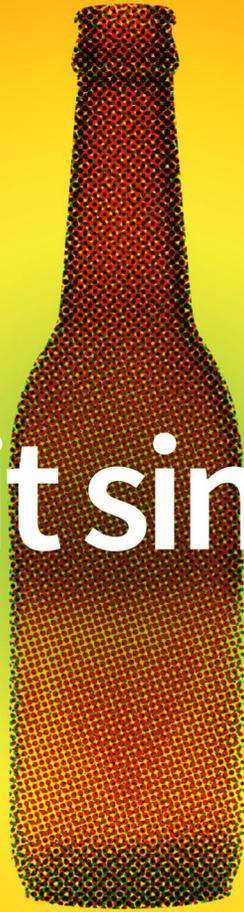
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