



Independent coverage of composting, wood recycling and organics management

# Composting News

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## A faster way to measure inventory

By Ken McEntee

*This article, written by Composting News editor/publisher Ken McEntee, originally was published in Soil & Mulch Producer News.*

Taking inventory at Atlanta-based Oldcastle Lawn & Garden's 30-plus mulch and soil yards used to require hours of manual measuring with a walking wheel and yard stick, then counting and recounting the collected data.

After switching to an image-based measurement system, "They are now able to walk around a stockpile with an iPhone in two to three minutes, and entire sites can be measured in 10 to 15 minutes using a drone," said David Boardman, CEO of Stockpile Reports, of Redmond, Wash., which utilizes a patented digital platform for managing inventory and tracking production based on images

*(See Inventory, page 2)*

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## Manure overload threatens Minnesota water, report says

**M**anure from Minnesota's 23,000 animal feedlots threatens to overload nearby cropland with chemicals that can pollute lakes, streams and aquifers, including drinking water sources, according to a the Environmental Working Group (EWG).

Using innovative geospatial techniques, EWG said it mapped where the 49 million tons of manure produced each year by the state's cattle, hogs, turkeys and chickens are likely applied to cropland as fertilizer – which is frequently on the same acreage where commercial fertilizer is also used.

"For the first time, we can clearly see the extent to which farmers are overloading land in Minnesota's farm country with animal manure and fertilizer – and where the problem is the worst," said Sarah Porter, senior GIS analyst with EWG and co-author of the report. "This new tool illuminates why water quality across the state is declining at an alarming rate."



*(See Minnesota, page 15)*

## Food waste separation bill introduced in North Carolina

By Ken McEntee

**A** bill that requires entities that generate at least two tons of food waste per week to donate and recycle their food waste was introduced into the North Carolina General Assembly this month.

HB 1119, the Food Recovery and Recycling Act, was introduced by Rep. Zack Hawkins (D).

The bill would require "designated food scraps generators" to separate their excess edible food for donation for human consumption to the maximum

extent practicable. Following that, the generator would be required to separate their food waste for processing separately from other solid waste.

A designated food scraps generator is a person who generates at a single

*(See North Carolina, page 14)*

## Highlights

- **Vermont considers farm composting law**
- **National compost prices**

## Grants

# Grants available for community composting

The U.S. Department of Agriculture (USDA) is offering \$900,000 in grants for local governments to host a Community Compost and Food Waste Reduction (CCFWR) pilot project for fiscal year 2020.

The cooperative agreements will support projects that develop and test strategies for planning and implementing municipal compost plans and food waste reduction plans. The agreements are offered through USDA's Office of Urban Agriculture and Innovative Production.

"Food waste shouldn't end up in landfills when options like food recovery

and composting are available," said Bill Northey, under secretary for farm production and conservation. "Such options not only benefit communities and the environment, they can also provide farmers and urban gardeners with exceptional, nutrient dense planting material."

USDA will accept applications on Grants.gov until midnight June 26, 2020. Projects should span two years with a start date of October 1, 2020 and completion date of September 29, 2022.

Cooperative agreements support projects led by local governments that:

- Generate compost;
- Increase access to compost for agricultural producers;
- Reduce reliance on and limit the use of fertilizer;
- Improve soil quality;
- Encourage waste management and permaculture business development;
- Increase rainwater absorption;

- Reduce municipal food waste; and
- Divert food waste from landfills.

Priority will be given to projects that anticipate or demonstrate economic benefits, incorporate plans to make compost easily accessible to farmers, including community gardeners; integrate other food waste strategies, including food recovery efforts; and collaborate with multiple partners.

Comments can be sent to [UrbanAgriculture@usda.gov](mailto:UrbanAgriculture@usda.gov) within 90 days, with the subject line "Community Compost and Food Waste Reduction Project."

## Equipment news

### Inventory

From page 1

from the ground and air.

Labor and time spent to measure inventory was greatly reduced and the need for recounts was eliminated after

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Oldcastle, which does business as Jolly Gardener, implemented Stockpile Reports' system, Boardman said.

"Newlyfreed-uplaborresources allowed Oldcastle to focus on other inventory variables such as damages, vendor shortages or quality issues, weather, compaction and processing," he said. "For the first time, Oldcastle was able to quantify volume changes of their product as it moved through the life cycle of production. Losses in inventory were accounted for and explainable to the company's management and finance team."

Firmatek LLC, of San Antonio, primarily provides laser-based inventory measuring and mapping systems for landfills and for aggregate stockpiles at mines and quarries. Rob Wyssbrod, president and COO of the company, said the company also has sizable clients who sell soil, mulch and fertilizer.

"Every business has to manage its inventory," Wyssbrod said. "In a grocery store, or at Target, you can go and count the number of boxes or soup cans. But

for mines and landfills, how do you measure that? A pile is an abstract, three dimensional huge object. Using truck mounted lasers and/or drone photogrammetry, we have gotten very good at being able to scan and survey large objects like mulch piles and provide detailed reports on them."

The use of drones to fly over a mulch yard to take aerial photos has captured the attention of the curious. But capturing photos and laser images is just the beginning of the inventory management process. The real benefit of the process, Boardman and Wyssbrod agree, is derived from analyzing the data to get accurate pile volume measurements and other information.

Both Stockpile Reports and Firmatek use algorithms to convert the imagery into third-party reports and operational insights that clients can use to improve their operations.

"At our core, we're an image

*(See Inventory, page 4)*



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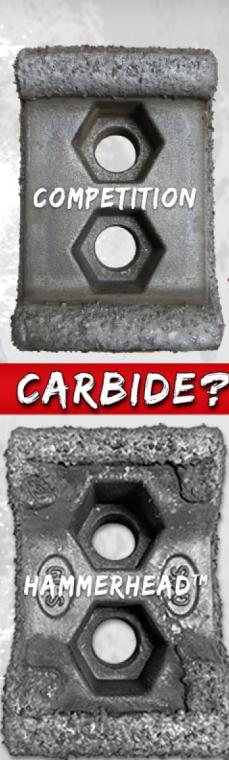
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## Equipment news

### Inventory

From page 3

processing company," Boardman said. "We have Ph.D. engineers on our team writing algorithms to look at every pixel of the pictures we collect and perform analytics. Once the

pictures are on our servers, algorithms process those images to do things like compute the quantity or the volume of a pile or identify risks in the pile, like if somebody left equipment on the pile, or if there's standing water around the pile. All those things can be identified by the computer automatically from those images to create a stockpile report."



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### Better data

Boardman said having more consistent, accurate and timely data is key to a successful operation.

"More frequent and accurate inventory measurements will expose variances in perpetual inventory before they become costly write-offs," he said.

He said frequent inventory measurement data also provides companies with actionable data to track against operational key performance indicators, such as:

- How much does the chipper really chip per hour?
- Is my vendor shorting me or sending me an inferior spec?
- How do my inventory compaction rates change through the production process due to actions such as driving over the product, moving it, coloring it, bagging it, etc.?

"Timely and accurate measurement data will provide answers to all of these questions," Boardman said. "Armed with



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the correct data, your production managers take steps to improving Key Performance Indicators and eliminating variances in the physical inventory."

### How it works

The process begins with the collection of images.

Stockpile Reports collects digital photographs using drones, pole-mounted cameras and iPhones.

Firmatek uses LiDAR (Light Detection and Ranging) and drone aerial data to measure piles and transform aerial data into 3D models. Ground scanning can be done using LiDAR scanners mounted onto a truck.

"An optical head spins hundreds of turns per second," Wyssbrod said. "It's like a laser version of radar and it's connected to GPS. The result is a very accurate, detailed image with dozens of points per square inch."

Laser equipment also can be mounted onto drones.

Once the images are collected, whether

by drone, stationery camera, iPhone or scanner, they are uploaded to the service provider for analysis. Stockpile Reports and Firmatek generate maps and reports for every pile at a yard. The client can access the information through its account on a computer.

One client's account that Boardman demonstrated revealed a property map and a listing of each of the company's 158 piles at multiple locations.

"Our system identifies the piles, their measurements and tags whether there is an issue with the pile that could impact product quality or that could impact your ability to get a good confident measurement," Boardman said. "For example, is there vegetation growing out of a pile? The photos will reveal that. You also will see a 3D image of the pile. So the person overseeing 180 stockpiles walking the yard and keeping his data on his whiteboard can now send a drone out every day and get fresh numbers on all those piles every day and have complete reports at his fingertips."

### State of the industry

The mulch and soil industry, Boardman said, is the most complicated and complex business Stockpile Reports is involved in.

"Landscape materials facilities tend to have many more stockpiles on hand at any given site than our other industries," he said. "Typically there's one person trying to figure out how to build all the right piles, how to age them for the right number of days, how to make sure they're the right dye colors, make sure they don't get contaminated and how they're all going to show up at this little processing facility and go into three bagging lines and making sure they end up on a truck on a certain date. The amount of planning is just phenomenal. The person who is doing all that, I view them almost as a chef. They've got their recipe, they've got everything written on whiteboards or maybe a spreadsheet, or maybe it's just

*(See Inventory, 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

### 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			
Phoenix			
Northwest			
SF-Bay			

### Composted cow manure

	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
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

### Composted cow manure(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
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	\$		

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## Equipment news

### Inventory

From page 5

in their head that they're keeping track of all this. In some cases, companies are using walking wheels and estimating the height of 150 different piles. It's just not good enough data when you can do something that is a lot easier and far more accurate."

Most landscape materials companies that are starting to use image-based inventory management today are just getting comfortable doing inventory counts to reduce financial fluctuations, Boardman said. But, he said, that is just scratching the surface of the data that is available.

"Traditional drone flights do a great job of replacing a manual walking wheel or tape measure with a digital one, but these measurements are just a snapshot of your business and thus, little data," Boardman said. "Big data tells a more

complete story and fills in the gaps. Oldcastle found that they weren't necessarily losing inventory, it was just being compacted or the load may not have been what was expected on the invoice. With big data, they can track how much is lost or gained due to processing, compaction rates, vendor deliveries, etc. 'What ifs' can also be researched, such as what's the optimum aging amount and what's the ideal storage procedure. User can track densities by plant, region or season, such as a wet winter vs. a dry summer."

The frequency of collecting data with digital imagery can vary from company to company, Boardman said. For example, a yard might fly a drone-mounted camera over its yard once a year to prepare for end-of-year inventory reporting. Or it may do monthly or weekly fly-overs to record current conditions.

In addition, some companies will use an iPhone to take photos whenever a



Photo: Stockpile Reports

delivery takes place," Boardman said. "Or maybe they just turned a pile and they're trying to understand what's the compaction impact of these processes. They might run out there with an iPhone and grab a quick measurement, or they might click a button and have a drone pilot show up and fly. The measurement activity really tends to increase the longer the customer subscribes to our service."

Wyssbrod said Firmatek offers several different drone-based collection programs to its clients:

(See Inventory, page 13)

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## Analytical Laboratory



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## Control Laboratories

[www.controllabs.com](http://www.controllabs.com)  
42 Hangar Way  
Watsonville, CA 95076  
Phone: 831.724.5422  
Twitter: Controllabs  
Contact: Assaf Sadeh  
[assadeh@controllabs.com](mailto:assadeh@controllabs.com)

## Anaerobic digestion



## Control Laboratories

[www.controllabs.com](http://www.controllabs.com)  
42 Hangar Way  
Watsonville, CA 95076  
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Twitter: Controllabs  
Contact: Assaf Sadeh  
[assadeh@controllabs.com](mailto:assadeh@controllabs.com)

## Bagging/Packaging Equipment



### Rotochopper

[www.rotochopper.com](http://www.rotochopper.com)  
217 West Street  
St. Martin, MN 56376  
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Fax: 320.548.3372  
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Twitter: [rotochopper](#)  
Facebook: Rotochopper  
Contact: Nicole Klein  
[info@ROTOCHOPPER.com](mailto:info@ROTOCHOPPER.com)

## In-Vessel Composting



## Ag-Bag Environmental

[www.ag-bagfs.com](http://www.ag-bagfs.com)  
92365 Riekkola Road  
Astoria, OR 97103-6656  
Phone: 503.325.2970  
Fax: 503.325.2985  
Facebook: ag-bag Forage Solutions  
Contact: Debbie Linder  
[dlinder@ag-bagfs.com](mailto:dlinder@ag-bagfs.com)

## Mulch Coloring Systems



## Bandit Industries, Inc.

[www.banditchippers.com](http://www.banditchippers.com)  
6750 Millbrook Road  
Remus, MI 49340  
Phone: 989.561.2270,  
Phone: 800.952.0178  
Fax: 989.561.2273  
YouTube: [banditchippers](#)  
Twitter: [banditchippers](#)  
Facebook: [banditiindustries](#)  
Contact: Regional Sales Manager  
[sales@banditchippers.com](mailto:sales@banditchippers.com)



## BASF/Colorbiotics

[www.colorbiotics.bASF.us](http://www.colorbiotics.bASF.us)  
1725 Dayton Avenue, PO Box 647  
Ames, IA 50010  
Phone: 888-663-6980  
YouTube: [colorbiotics](#)  
Twitter: Colorbiotics  
Contact: Nick Lincoln  
[nick.lincoln@BASF.com](mailto:nick.lincoln@BASF.com)



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Contact: Nicole Klein  
[info@ROTOCHOPPER.com](mailto:info@ROTOCHOPPER.com)



## Featuring the industry's leading vendors

This listing of the industry's leading vendors of products, equipment and services essential to the compost manufacturing, wood recycling and organics management business also is available online at [compostingnews.com](http://compostingnews.com).

Scan the QR code above with your mobile device to go there.

If your business is not listed, please contact [ken@compostingnews.com](mailto:ken@compostingnews.com)



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Phone: 503-537-1111  
Fax: 503-537-1117  
YouTube: Action Conveyors  
LinkedIn: Action-Equipment-Company-Inc.  
Contact: Andrew LaVeine  
sales@actionconveyors.com



### Bandit Industries, Inc.

www.banditchippers.com  
6750 Millbrook Road  
Remus, MI 49340  
Ph: 989.561.2270,  
800.952.0178  
Fax: 989.561.2273  
YouTube: banditchippers  
Twitter: banditchippers  
Facebook: banditiindustries  
Contact: Regional Sales Mgr.  
sales@banditchippers.com



### GrinderCrusherScreen Inc.

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1772 Corn Road  
Smyrna, GA 30080  
Phone: 770.433.2440  
Fax: 770.433.2669  
YouTube:  
GrinderCrusherScreen  
Twitter: GCS\_Equipment  
Facebook:GrinderCrusherScreen  
Contact: Rick Cohen  
rick@grindercrusherscreen.com



### Komptech Americas

www.komptechamericas.com  
6345 Downing Street  
Denver, CO 80216  
Ph: 720.890.9090  
Fax: 720.890.5907  
YouTube: Komptech Americas  
Twitter: komptechamericas  
Facebook:  
komptechamericasllc  
Contact: Brandon Lapsys  
b.lapsys@komptechamericas.com



### Screen USA Inc.

www.screenusa.net  
1772 Corn Road  
Smyrna, GA 30080  
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Fax: 770.433.2669  
Contact: Rick Cohen  
rick@screenusa.net



### West Salem Machinery

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665 Murlark Ave. NW  
Salem, OR 97304  
Phone: 800.722.3530  
Phone: 503.364.2213  
Fax: 503.364.1398  
YouTube: West Salem Machinery  
Facebook: West Salem  
Machinery  
Twitter: West Salem Machinery  
Contact: Scott Haynes  
info@westsalem.com

## Shredders



### GrinderCrusherScreen Inc.

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Fax: 770.433.2669  
YouTube:  
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Twitter: GCS\_Equipment  
Facebook:GrinderCrusherScreen  
Contact: Rick Cohen  
rick@grindercrusherscreen.com

## Thermometers & Monitoring Equipment



### REOTEMP Instruments

<https://reotempcompost.com>  
10656 Roselle Street  
San Diego, CA 92121  
Phone: 858.225.1889  
Fax: 858.784.0720  
YouTube: reotemp compost  
Twitter: reotempcompost  
Facebook: reotemp  
Contact: Nathan O'Connor  
compost@reotemp.com

## Replacement Parts



### Agrisolutions Corp.

Trinity Hardware  
Extended Life Solutions  
[www.agrisolutionscorp.com](http://www.agrisolutionscorp.com)  
2984 AAA Court  
Bettendorf, IA 52722  
Phone: 563-459-6341  
Contact: Dan Zehnder  
dzehnder@agrisolutionscorp.com



# Product/Equipment and Services Guide



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Phone: 800.743.3491  
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Fax: 785.284.2010  
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Facebook: HogZilla Monster  
Grinders  
Contact: Brian Bergman  
[sales@armorhog.com](mailto:sales@armorhog.com)



## DynaHog CW Mill Equipment -

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Phone: 800-743-3491,  
Phone: 785-284-3454  
Fax: 785-284-2010  
Contact: Jason Haug  
[sales@dynahog.com](mailto:sales@dynahog.com)



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Fax: 770.433.2669  
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GrinderCrusherScreen  
Twitter: GCS\_Equipment  
Facebook:GrinderCrusherScreen  
Contact: Rick Cohen  
[rick@grindercrusherscreen.com](mailto:rick@grindercrusherscreen.com)



## Hogzilla Grinders CW Mill Equipment -

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Sabetha, KS 66534  
Phone: 800.743.3491  
Phone: 785.284.3454  
Fax: 785.284.3601  
YouTube: CWMillHogZilla  
Facebook:  
HogZillaMonsterGrinders  
Contact: Tim Wenger, VP,  
Sales Mgr.  
[hogzilla@cwmill.com](mailto:hogzilla@cwmill.com)

## Windrow Turners



## Aeromaster Midwest Bio- Systems

[www.aeromasterequipment.com](http://www.aeromasterequipment.com)  
[www.midwestbiosystems.com](http://www.midwestbiosystems.com)  
28933 35 E Street  
Tampico, IL 61283  
Phone: 800.689.0714  
Fax: 815.438.7028  
YouTube:  
midwestbiosystems  
Twitter: compostingil  
Facebook:  
Contact: Cary Richardson  
[info@midwestbiosystems.com](mailto:info@midwestbiosystems.com)



## Brown Bear Corp.

[www.brownbearcorp.com](http://www.brownbearcorp.com)  
PO Box 29,  
2248 Avenue of Industry  
Corning, IA 50841  
Phone: 641.322.4220  
Fax: 641.322.3527  
YouTube: Brown Bear Corp  
Contact: Stan Brown  
[sales@brownbearcorp.com](mailto:sales@brownbearcorp.com)



## HCL Machine Works

[www.hclmachineworks.com](http://www.hclmachineworks.com)  
15142 Merrill Ave.  
Dos Palos, CA 93620  
Phone: 209.392.6103  
Fax: 209.392.3000  
Facebook: hclmachineworks  
Contact: Sherrill Campbell  
Contact: Casey Campbell  
[sales@hclmachineworks.com](mailto:sales@hclmachineworks.com)



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[www.komptechamericas.com](http://www.komptechamericas.com)  
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Americas  
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Facebook:  
komptechamericasllc  
Contact: Brandon Lapsys  
[b.lapsys@komptechamericas.com](mailto:b.lapsys@komptechamericas.com)



## SCARAB International LLP

[www.scarabmfg.com](http://www.scarabmfg.com)  
1475 County Road W  
White Deer, TX 79097  
Phone: 806.883.7621  
Fax: 806.883.6804  
YouTube: Scarab Manufacturing  
Twitter: Scarabmfg  
Facebook: Scarab International,  
LLP  
Contact: Richard Miller  
[info@scarabmfg.com](mailto:info@scarabmfg.com)



## Wood Grinders - Horizontal

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[www.banditchippers.com](http://www.banditchippers.com)  
6750 Millbrook Road  
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800.952.0178  
Fax: 989.561.2273  
YouTube: banditchippers  
Twitter: banditchippers  
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Contact: Regional Sales Mgr.  
[sales@banditchippers.com](mailto:sales@banditchippers.com)



### Diamond Z - A Division of Rule Steel

[www.diamondz.com](http://www.diamondz.com)  
11299 Bass Lane  
Caldwell, ID 83605  
Phone: 208.585.2929  
Fax: 208.585.2112  
YouTube: Diamond Z  
Contact: Kevin Mayhugh  
[kevin.mayhugh@rulesteel.com](mailto:kevin.mayhugh@rulesteel.com)



### DuraTech Industries

[www.duratechindustries.net](http://www.duratechindustries.net)  
Box 1940  
Jamestown, ND 58401  
Phone: 701.252.4601  
Fax: 701.252.0502  
YouTube: Duratechindustries  
Contact: Bob Strahm  
[ind.sales@duratechindustries.net](mailto:ind.sales@duratechindustries.net)

# Product/Equipment and Services Guide

## (More) Wood Grinders - Horizontal



### GrinderCrusherScreen Inc.

www.grindercrusherscreen.com  
1772 Corn Road  
Smyrna, GA 30080  
Phone: 770.433.2440  
Fax: 770.433.2669  
YouTube:  
GrinderCrusherScreen  
Twitter: GCS\_Equipment  
Facebook:GrinderCrusherScreen  
Contact: Rick Cohen  
rick@grindercrusherscreen.com



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Phone: 800.743.3491 or  
785.284.3454  
Fax: 785.284.3601  
YouTube: CWMillHogZilla  
Facebook:  
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Contact: Tim Wenger,  
Vice President & Sales  
Manager  
hogzilla@cwmill.com



### Komptech Americas LLC

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b.lapsys@komptechamericas.com



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Twitter:rotochopper  
Facebook: Rotochopper  
Contact: Nicole Klein  
info@rotochopper.com



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Phone: 800.722.3530  
Phone: 503.364.2213  
Fax: 503.364.1398  
YouTube: West Salem Machinery  
Facebook: West Salem Machinery  
Twitter: West Salem Machinery  
Contact: Scott Haynes  
info@westsalem.com

## Wood Grinders - Tub



### DuraTech Industries

www.duratechindustries.net  
Box 1940  
Jamestown, ND 58401  
Phone: 701.252.4601  
Fax: 701.252.0502  
YouTube: Duratechindustries  
Contact: Bob Strahm  
ind.sales@duratechindustries.net



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Facebook:GrinderCrusherScreen  
Contact: Rick Cohen  
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14 Commerce Drive  
Sabetha, KS 66534  
Phone: 800.743.3491  
Phone: 785.284.3454  
Fax: 785.284.3601  
YouTube: CWMillHogZilla  
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HogZillaMonsterGrinders  
Contact: Tim Wenger, VP,  
Sales Mgr.  
hogzilla@cwmill.com

## Wear Parts



### Agrisolutions Corp.

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Contact: Dan Zehnder  
dzehnder@agrisolutionscorp.com



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Fax: 770.433.2669  
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## Equipment news

### Inventory

From page 8

- The customer can fly its own drone and upload the data to the "Firmatek cloud."
- The customer can lease a drone from Firmatek to fly itself.
- Firmatek can fly the drone.

The advantage to the client flying the drone is flexibility.

"A drone is dependent upon weather and wind," Wyssbrod said. Being able to choose to fly or not fly depending on the weather is more convenient than having to cancel and reschedule a Firmatek flight when bad weather hits.

The advantage to Firmatek flying the drone and capturing the data is the expertise involved, which could result in better accuracy, Wyssbrod said.

"If you want to fly your own drone, then send your data to Firmatek, we've found that you really do need to have

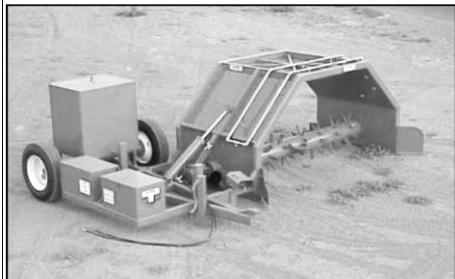
somebody dedicated - preferably at least two people - who are well trained and know how to fly the drone and collect the data properly," he said. "A main issue laying out control points that the drone can use as reference points in its images. If you buy your own drone it needs to have what's called RTK, or Real-Time Kinematics (a satellite navigation technique used to enhance the precision of position data derived from satellite-based positioning systems). Accuracy is important in data collection - you can imagine on that a 100 foot long pile, a six-inch error in height will make a difference of scores more or less cubic yards of material than you really have."

### A massive change

Boardman said subscriptions to Stockpile Reports are sold based on the number of piles a company is managing.

"This is a massive change for the industry," he said. "It's going from basically doing your best and flying blind to actually having data at your fingertips."

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## Legislation/regulation

### North Carolina

From page 1

location an annual average of two tons per week or more of food scraps based on a methodology established by the North Carolina Department of Environmental Quality (DEQ), including:

- Supermarkets;
- Large food service businesses;
- Higher educational institutions;
- Hotels;
- Food processors;
- Correctional facilities; and
- Sports or entertainment venues.

Following donation of food scraps for human consumption, specified generators who are within 25 miles of an organics recycler, to the extent that the recycler has capacity to accept all of the generator's food scraps, must:

- Ensure proper storage for food scraps on site to preclude such materials from becoming odorous or attracting vectors;
- Have information available and provide training for employees concerning the proper methods to separate and store food scraps;
- Obtain a transporter that will deliver food scraps to an organics recycler, self-haul its food scraps to an organics recycler or provide for organics recycling on-site via in-vessel composting, aerobic or anaerobic digestion or any other method of processing organic waste as DEQ may specify by rule.

Designated food scraps generators would be required to submit an annual report to DEQ on or before October 1, 2023 and annually thereafter.

A designated food scraps generator could petition DEQ for a temporary waiver from some or all of the requirements of this part. The petition would need to include evidence of undue hardship based on any of the following:

- The cost of processing organic waste is not reasonably competitive with the cost of disposing of waste by landfill;
- The organics recycler does not have sufficient capacity, despite DEQ's

calculation;

- Other unique circumstances of the designated food scraps generator.

Food scraps include inedible food, trimmings from the preparation of food and edible food that is not donated. Food scraps don't include used cooking oil, grease or food from residential sources or any food subject to a recall or seizure by any state agency, including due to the presence of pathogens.

An organics recycler is a facility, permitted by DEQ, that recycles food scraps through use as animal feed or a feed ingredient, rendering, land application, composting, aerobic digestion, anaerobic digestion, fermentation or ethanol production under the law applicable to each type of organics recycler.

As of this writing, the bill had 11 co-sponsors, all democrats.



farm for farming in Vermont.

For purposes of the bill, compost is defined as a stable humus-like material produced by the controlled biological decomposition of organic matter through active management, but shall not mean sewage, septage or materials derived from sewage or septage.

The bill calls for the state to regulate the importation of food residuals or food processing residuals onto a farm, including:

- The proper composting of food residuals or food processing residuals;
- Destruction of pathogens in food residuals, food processing residuals or compost;
- Prevention of public health threat from food residuals, food processing residuals, or compost;
- Protection of natural resources or the environment; and
- Prevention of objectionable odors, noise, vectors or other nuisance conditions.

Presently, a small scale composting facility may register with the state instead of obtaining a facility certification. Under S.265, a qualifying farm that produces compost would be exempt from registration.

The bill is sponsored by five state senators - three democrats and two republicans.

Local reports this month said Vermonters are producing too much food scraps for compost facilities to handle when the state's mandatory residential food scraps collections go into effect in July. For example, one report said, Green Mountain Compost, in Williston, was taking in 3,000 tons of food scraps six years ago and is now taking in 6,000 tons.

## Vermont considers food composting law for arms

**V**ermont's legislature is considering legislation that would establish a structure for the use of food residuals on farms in creating compost and foraging poultry. S.265 - "an act relating to the use of food residuals for farming" - also would place regulatory authority with the Agency of Agriculture instead of the Agency of Natural Resources.

The bill is currently being considered in the Senate Committee on Agriculture.

It would allow for the importation of up to 2,000 cubic yards per year or less of food residuals or food processing residuals onto a farm for the production of compost, provided that:

- The compost is principally used on the farm where it is produced; or
- The compost is produced on a small farm that raises or manages poultry.

S.265 would establish a program for the management of residual wastes generated, imported to or managed on a

## Compostables

# Composting is part of Campbell's sustainable packaging goals

**C**ampbell Soup Co. said it will transition all of its packaging to recyclable or industrially compostable design by 2030. That target is part of the company's newly announced packaging sustainability goals to reduce packaging waste by keeping materials in use and out of landfills.

The four goals are designed to address all phases of the packaging lifecycle, from sourcing to end-of-life, including recycling or composting. Campbell said the holistic approach aims to reduce packaging waste through investments in recyclability, use of recycled content and consumer education and infrastructure with the following four goals:

Transition 100 percent of packaging to recyclable or industrially compostable designs and materials by 2030;

- Increase the use of post-consumer recycled content and incorporate 25 percent post-consumer recycled content into polyethylene terephthalate (PET) bottles by 2030;
- Drive increases in recycling rates through standardized on-pack labeling by including the How2Recycle label on 100 percent of packaging by 2022;
- Expand access to recycling and advance the development of infrastructure to improve the collection and recycling of packaging by building and investing in partnerships with peers and industry groups.

"Our new packaging commitments provide a roadmap to further reduce the environmental impact of our packaging over time and build upon our history of sustainability," said Craig Slavtcheff, Campbell's executive vice president, global research and development.

To learn more about Campbell's

Corporate Responsibility efforts, visit [www.campbelcsr.com](http://www.campbelcsr.com).

## Manure Minnesota

From page 1

When nitrogen and phosphorus, found in both manure and fertilizer, are applied in excess of what plants can take in, the chemicals can run off cropland, polluting surface waters and groundwater aquifers. Most Minnesotans get their tap water from groundwater supplies, EWG said.

According to EWG, the Minnesota Pollution Control Agency (MPCA), estimates that 56 percent of all of the state's surface bodies of water do not meet basic water quality standards, and that so-called non-point source pollution, like runoff from cropland and animal operations, is responsible for about 85 percent of water pollution.

Many of Minnesota's animal operations are located in the central and southeast parts of the state, which also have the worst nitrate contamination of groundwater, EWG said.

Although medium-sized and large feedlots account for less than one-fourth of the total animal feeding operations in Minnesota, they produce almost three-fourths of the state's manure. Manure can be an effective fertilizer for crops but is expensive to transport, so it is usually applied to fields close to the feedlot where it is generated – leading to a glut in areas with higher concentrations of medium and large feedlots.

"Our simulation shows that, even if manure is the only fertilizer used, some areas are fully saturated," Porter said. "This leaves little room to adapt to natural variations in weather, crop needs or the chemical content of different types of manure. But we are still seeing high levels of commercial fertilizer sales in these same areas, so many acres may be getting as much as a double dose of nitrates and phosphorus, which simply can't be absorbed."

Minnesota now has three times as many large feedlots as in 1991, primarily due to new swine facilities. About three-

quarters of all the state's large feedlots house swine.

EWG's investigation found that in 69 of Minnesota's 72 agricultural counties, nitrogen from manure combined with nitrogen in fertilizer exceeded the recommendations of MPCA and the University of Minnesota.

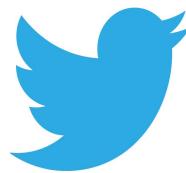
Minnesota's tap water supplies are showing the effects of these overapplications of nitrogen.

In January, EWG released a study revealing that an estimated 500,000 Minnesotans drink tap water contaminated with elevated levels of nitrate, a breakdown product of nitrogen. Nitrate in drinking water is associated with an increased risk of colorectal cancer, birth defects and other serious health problems.

In February, another EWG report showed that the problem has worsened in more than 60 percent of the Minnesota tap water systems with the highest levels of nitrate contamination – many of them in the same areas that have high concentrations of feedlots.

EWG's new simulation also found that on 57 percent of the fields likely to receive manure, phosphorus was applied in excess of crop needs. Phosphorus pollution is the primary driver of toxic algae outbreaks in lakes, rivers and other waterways, which can sicken both people and animals. EWG maintains a map illustrating that such outbreaks are increasingly common across the state.

EWG's new analysis reveals yet another troubling vulnerability: The relentless growth and concentration of livestock operations is overwhelming the capacity of the land to handle the 49 million tons of manure that goes on surrounding fields every year, threatening drinking water, Minnesota's iconic lakes and streams and the quality of life of residents.



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