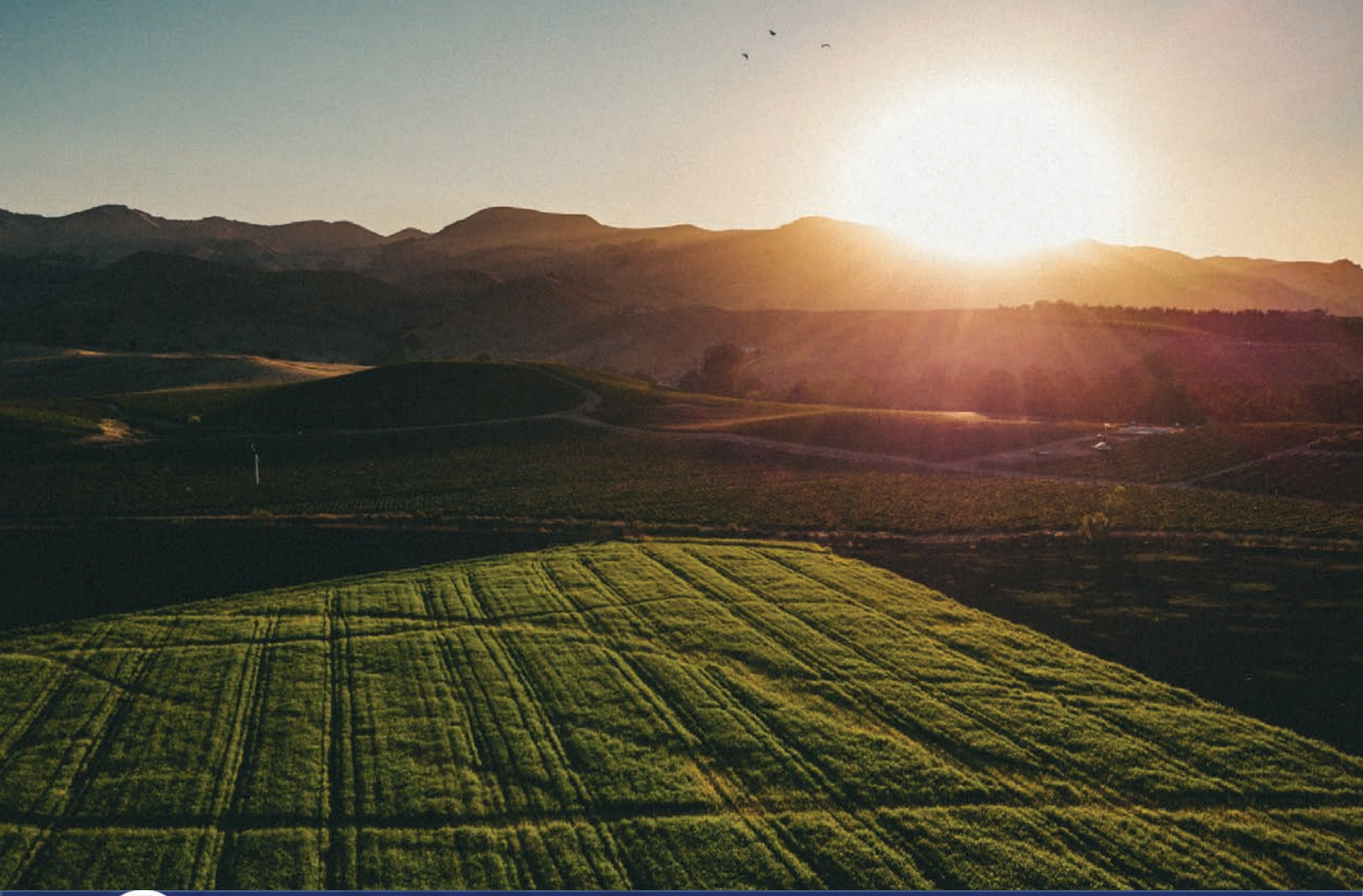
ATLAS
ORGANICS

www.atlasorganics.net

FLORIDA NORTH CAROLINA SOUTH CAROLINA TENNESSEE TEXAS



ATLAS ORGANICS

Who Are We

Atlas Organics is a growing composting company headquartered in Spartanburg, SC. Since 2015, Atlas Organics provides residential homes, corporations, local businesses and municipalities with both pickup of composting materials and delivery of the highest quality grade of finished compost for use in agricultural, landscaping, and gardens across the eastern United States. Serving more than 1600 homes and more than 100 organizations in nine cities, Atlas Organics is using science to disrupt the composting industry and revolutionize the process of returning soil to the earth. Grab a bucket and be a part of the solution at atlasorganics.net.

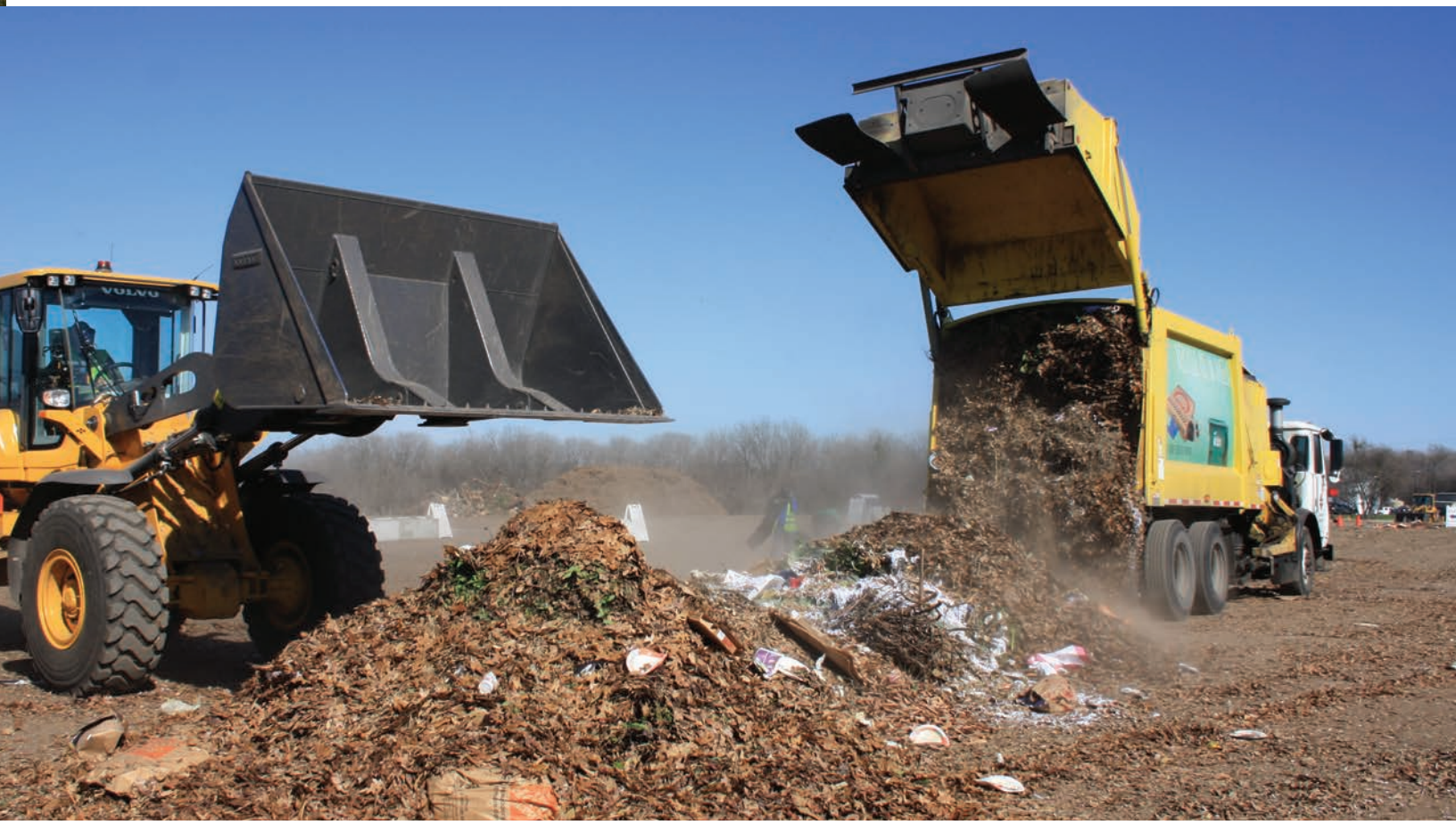
In 2015, our founders formed Atlas Organics to develop a company that provides access to composting for homes, companies and municipalities through a comprehensive organics recycling platform that includes collection, processing and consulting services.

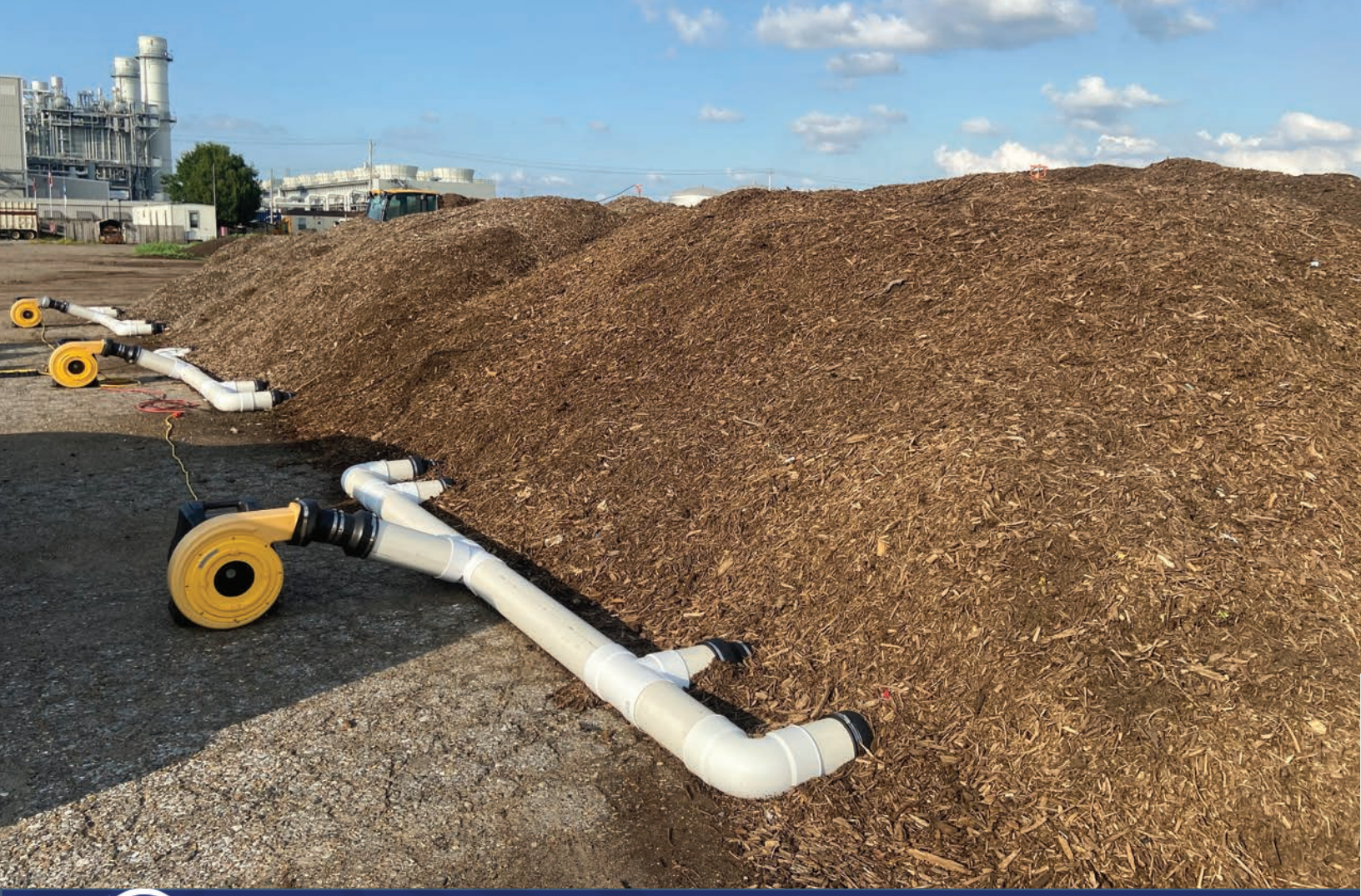
Atlas Organics is a growing company that is reducing methane emissions and landfill waste while improving soil and the environment.

ATLAS ORGANICS

Public/Private Partnerships

Atlas Organics is a developer and operator of compost facilities in the continental United States. These facilities are operated through public-private partnerships with municipalities. Atlas Organics also offers a stand-alone solar powered fully remote EASP Modular Unit. Currently, Atlas Organics has partnerships in place with Greenville County, SC, the City of Durham, NC, Indian River County, FL, City of Memphis, TN, and City of San Antonio, TX. These facilities operate by accepting feedstocks that are controlled by the municipality in exchange for a per ton tipping fee. These feedstocks are in long-term agreements with the municipalities and accept a variety of feedstocks including yard waste, food waste, and biosolids. Atlas Organics also accepts food waste from our internal hauling division into our facilities. Atlas Organics hauling division operates collections for commercial and residential customers in South Carolina, North Carolina, and Tennessee and also offers product delivery service in all markets a compost facility is present. After a 45-day extended aerated static pile composting process Atlas is left with a valuable soil amendment, compost, that is sold back into the agricultural, landscaping, and home gardening markets. In addition to these services Atlas Organics also provides development, operational, and technical services to municipalities as well as our internal composting facilities.





ATLAS ORGANICS

The Compost Process

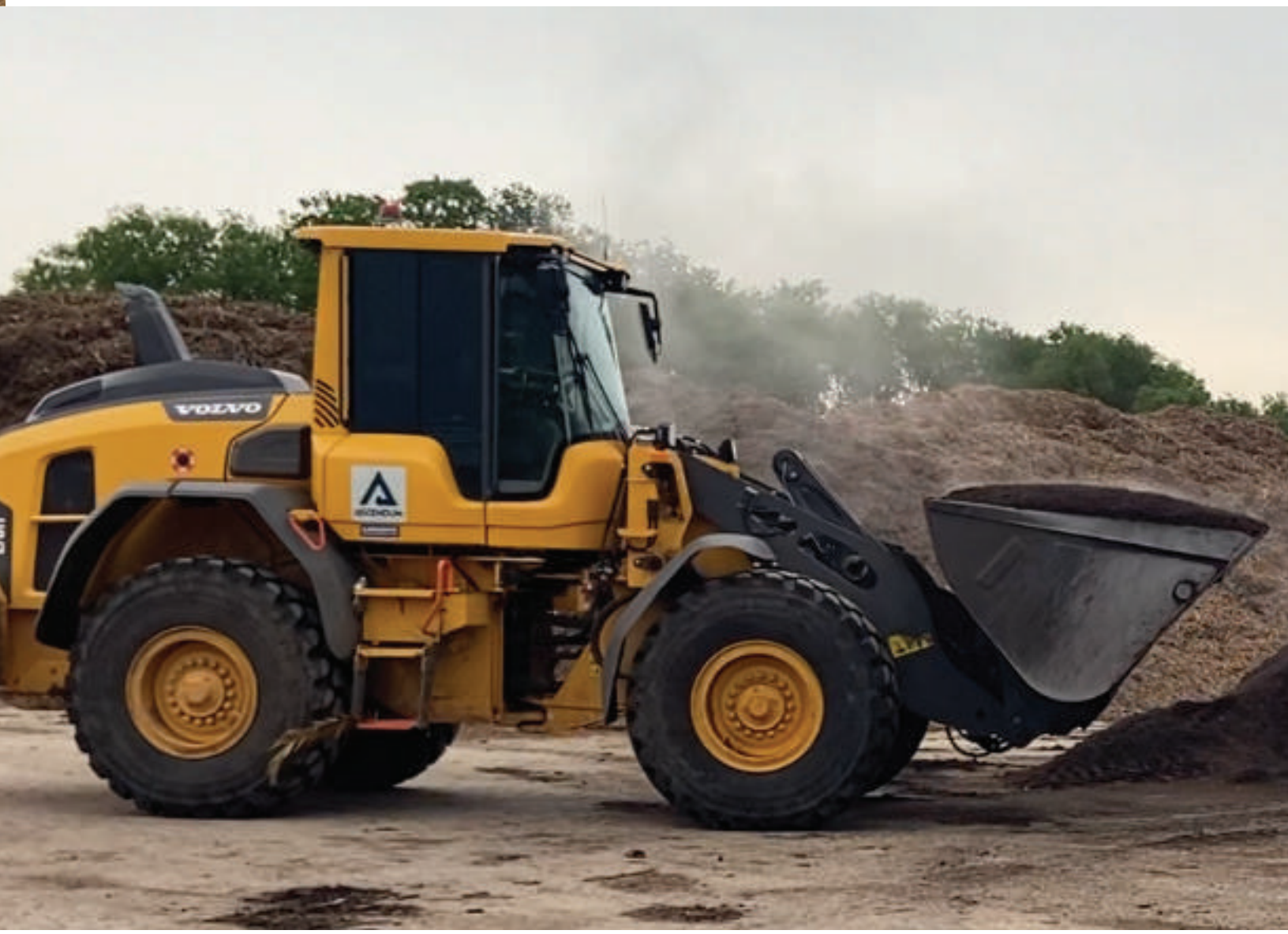
Atlas Organics manages and processes a variety of organic waste products including yard waste, food waste, and biosolids at various facilities. Our process begins with the acceptance and grinding of yard waste utilizing Rotochopper B66 horizontal grinders fed by Volvo EC220e excavators. These machines take loose unground municipally-collected yard waste and reduce it to a 4 to 6 inch minus single ground mulch. This material acts as a carbon source for the composting process. After the yard waste is processed, it is either added directly to the composting process or mixed with a nitrogen source such as food waste or biosolids at a ratio of approximately 50:50 by weight. This material is then added to the composting system which is comprised of a system of air blowers and an aeration floor/piping system. All material movement on site is done through the utilization of Volvo L70 wheel loaders.

Atlas Organics utilizes Extended Aerated Static Pile (EASP) composting systems engineered by O2 Compost. With EASP composting, fresh air (i.e., oxygen) is blown into the pile under positive pressure to maintain aerobic conditions throughout the pile, eliminate the need for pile turning, accelerate the decomposition of the organic waste material, achieve pathogen reduction requirements, and prevent generation of offensive odors.

The Compost Process

Compared to typical windrow composting operations, Atlas avoids using a diesel-powered windrow turner and avoids generating dust by avoiding pile turning, all while keeping optimal operating composting conditions to process material faster. Throughout the process the material is monitored through various quality control methods including Solvita, bulk density test, temperature monitoring, and moisture monitoring through a batching protocol..

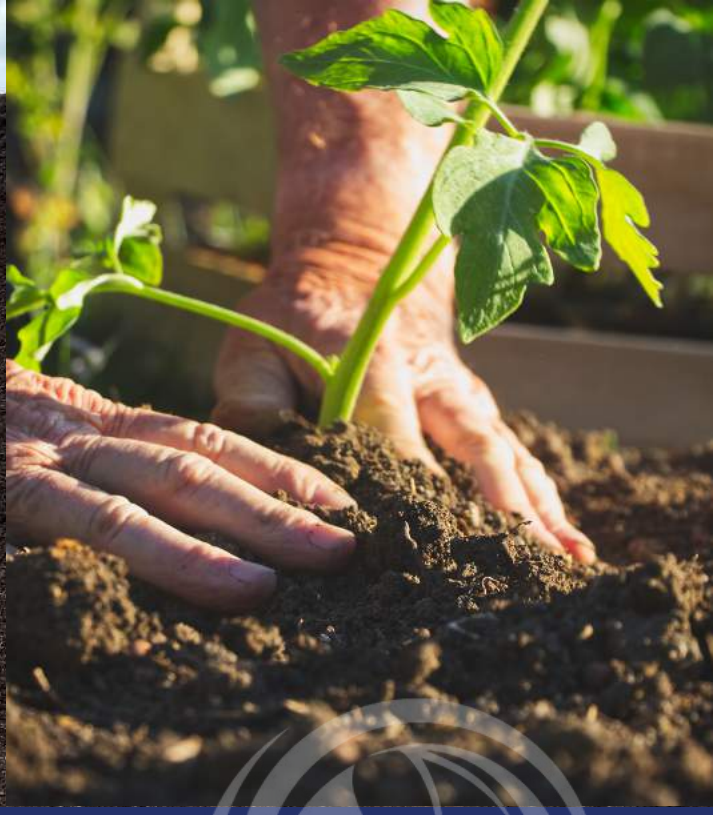
Once the material is fully composted, it is removed from the composting system and screened to a or ¼ inch minus utilizing a Powerscreen Phoenix 2100 trommel screen. This material is then lab tested by Soil Control Labs and is part of the US Compost Council STA Certification. After results are analyzed to confirm national and state limits are met, the material is sold into the marketplace.



What is Compost?

COMPOST – is the product manufactured through the controlled aerobic, biological decomposition of biodegradable materials. The product has undergone mesophilic (ambient temperature) and thermophilic (above 104-150 deg F) temperatures, which significantly reduces the viability of pathogens and weed seeds, and stabilizes the carbon such that it is **beneficial to plant growth**. Compost is typically used as a soil amendment, but may also contribute plant nutrients.

- Definition by AAFPCO (American Association of Plant and Food Control Officials)



ATLAS ORGANICS

Benefits of Using Compost

- Improves the soil structure, porosity, and density, thus creating a better plant root environment.
- Increases infiltration and permeability of heavy soils, thus reducing erosion and runoff.
- Improves water holding capacity, thus reducing water loss and leaching in sandy soils.
- Supplies a variety of macro and micronutrients.
- May control or suppress certain soil-borne plant pathogens.
- Supplies significant quantities of organic matter.
- Improves cation exchange capacity (CEC) of soils and growing media, thus improving their ability to hold nutrients for plant use.
- Supplies beneficial microorganisms to soils and growing media.
- Improves and stabilizes soil pH.
- Can bind and degrade specific pollutants.

Source: United States Composting Council

Compost is the product resulting from the controlled biological decomposition of organic material that has been sanitized through the generation of heat and stabilized to the point that it is beneficial to plant growth. Compost bears little physical resemblance to the raw material from which it originated. **Compost** is an organic matter resource that has the unique ability to improve the chemical, physical, and biological characteristics of soils or growing media. It contains plant nutrients but is typically not characterized as a fertilizer.

Understanding what compost is, how its produced, and what it is made of is important in successfully using it in your own applications. Atlas Organics maintains the highest of standards when producing compost. We are a member of the US Composting Council and participate in the STA Certified Composting Program. Since 2000, the STA Certified Compost Program is founded on highly researched compost testing methods, and careful lab oversight to give you confidence the test results are accurate for the product you purchase. We also participate in OMRI (Organic Materials Review Institute).

Certified Compost® STA | Seal of Testing Assurance US Composting Council

OMRI

COMPOST FOR LANDSCAPE & NURSERIES

Made from **100% recycled materials**, our STA certified premium compost not only promotes the health of your gardens and lawn, but also helps **improve the environment overall**.

> *The effects of using Atlas compost in both establishing new sod installation and raised bed gardens have been nothing short of outstanding. I'm impressed.*
>
> **TC Stone Landscaping**

PERFECT FOR

1— Flower/garden bed establishment.

2— Planter mix component (raised beds, rooftop mix).

3— Turf/sod establishment and renovation.

4— Tree and shrub backfill mix component.

5— Manufactured topsoil component.

6— Decorative plant mulch (coarser products).

7— Turf topdressing/ maintenance.

atlasorganics.net

BENEFITS

1— Can "fix" poor soils nutritionally, physically and biologically.

2— Weed-free source of organic matter.

3— Less plant loss in new planting projects.

4— Rich in plant nutrients (micro and macro)-reduces fertilizer needs.

5— Helps soils retain nutrients.

6— Allows for faster growth and healthier plants.

7— Increases moisture infiltration and oxygen exchange in heavy soils.

8— Improves moisture retention.

9— Promotes deep rooting for hearty plants.

COMPOST APPLICATION GUIDE

TURF PREP/VEGETABLE GARDENS/FLOWER BEDS

Blend compost with existing soil. Use between 3 cubic yards per 1000 square feet (1'' thick) to a maximum of 6 cubic yards per 1,000 square feet (2'' thick). Roto-till soil, disc, or manually blend the layer of compost with 6'' of existing soil. It is best to turnover/breakup the soil first, then apply compost, then mix the compost and loosened soil together.

TURF TOPDRESSING

Up to 1/2" compost can be spread over turf area.
Aeration prior to application will help results.

RAISED BED GARDENS

50% soil mix with 50% compost. (Soil mix may contain native topsoil, mulch fines, potting soil, peat moss, vermiculite, coco noir, etc.)

SEED BED PREP

Blend compost with existing soil. Use between 1 cubic yards per 1000 square feet (1/2'' thick) to a maximum of 3 cubic yards per 1,000 square feet (1'' thick). Roto-till soil, disc, or manually blend the layer of compost with 6'' of existing soil. It is best to turnover/breakup the soil first, then apply compost, then mix the compost and loosened soil together.

BACKFILLING TREES

Mix one part compost with 3 parts of native soil and backfill around root ball.

REPURPOSE WASTE BUILD SOIL

Certified Compost STA Seal of Testing Assurance US Composting Council

OUR COMPOST IS APPROVED FOR ORGANIC GROWING.

ATLAS ORGANICS

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Consumer Compost Use Program - **Flower & Vegetable Garden Class**
Establishment & Maintenance

Description

The US Composting Council has developed the Consumer Compost Use Program to provide the consumer with an easy to use guide for compost application in the home garden and landscape. Use of this product meets the acceptable parameter range for home garden use (flowers, vegetables and fruit). Look for the Consumer Compost Use Program icons for other applications of compost use. For more information please go to **www.compostingcouncil.org**

Soil Analysis: A soil analysis should be completed by a reputable laboratory to determine any nutritional requirements, pH, and organic matter adjustments that may be necessary. Once these are determined, the soil can be appropriately amended to a range suitable for the particular plants being established. A list of state agricultural cooperative extension labs can be found at: **http://www.csrees.usda.gov/Extension/index.html**

Compost Parameters for Flower & Vegetable Garden Use

Parameter	Unit	Range		Notes
		Preferred	Acceptable	
Stability	mg CO_2-C per g OM per day	<2	<4	The lower the number, the more completely composted the product.
Maturity	% seed emergence & vigor	90 -100	80-100	The higher the percentage, the more versatile the product.
Moisture Content	% wet weight basis	40-50%	35-65%	Products with higher moisture contents may be used. They may simply be more difficult to apply.
Organic Matter Content	% dry weight basis	35-60%	25-65%	Creating a soil containing 5% - 10% organic matter is desirable in typical, well drained soils.
Particle Size	Screen size to pass through	3/8"	½"	Planting compost should be finely (3/8" – ½") screened, whereas coarsely screened compost (1"-2") should be used in mulching.
pH	pH units	6.0-7.5	5.5 – 8.5	Modify soil pH with lime, etc., if necessary, based on soil testing results.
Soluble Salts (Electrical Conductivity)	dS/m (mmhos/cm) dry weight basis	Maximum of 5	Maximum of 15	Keep in mind that most soluble salts are also plant nutrients. Compost containing a higher soluble salt content should be applied at lower application rates, and 'watered in' well.
Physical Contaminants*	% dry weight basis	<0.5%	<1%	Small stones may be deemed more acceptable than man-made inerts (e.g., plastic).

*All federal and state standards related to biological and chemical contamination must also be met.

Applications

Establishment: Compost should be uniformly applied over the entire area at an average depth of 1-2 inches and then incorporated to a depth of 6-8 inches using a rotary tiller or other similar equipment. Higher application rates of compost may be used if the compost is incorporated to a greater depth. Rake the soil surface smooth prior to seeding or planting. The soil surface should be free of large clods, roots, stones, and other material that will interfere with planting. The amended area should be watered thoroughly after planting.

Lower compost application rates may be necessary for salt sensitive crops (e.g., strawberries), or where composts possessing higher salt and nutrient levels are used, while higher application rates may be used for plants that require greater amounts of fertility (e.g., tomatoes).

Maintenance: Apply a coarser compost mulch (1" – 2" screened) over the garden bed to conserve moisture, for weed suppression and/or for aesthetic purposes. ***Note:*** *The nutrients contained in compost should be considered when applying fertilization. They will typically offset plant nutrient requirements, thereby potentially reducing fertilizer application rates.*

US COMPOSTING COUNCIL

Seal of Testing Assurance

Atlas Organics
Jim Davis
P.O. Box 5065
Spartanburg
SC 29304

Date Sampled/Received: 15 Dec. 21 / 16 Dec. 21

Product Identification
Atlas Compost

COMPOST TECHNICAL DATA SHEET

LABORATORY: Soil Control Lab; 42 Hangar Way; Watsonville, CA 95076 *tel:* 831.724.5422 *fax:* 831.724.3188

Compost Parameters	***Reported as (units of measure)***	***Test Results***	***Test Results***
Plant Nutrients:	%, weight basis	Not reported	Not reported
Moisture Content	%, wet weight basis	25.2	
Organic Matter Content	%, dry weight basis	60.1	
pH	units	8.69	
Soluble Salts *(electrical conductivity EC_5)*	dS/m (mmhos/cm)	1.9	
Particle Size or Sieve Size	maxium aggregate size, inches	0.38	
Stability Indicator *(respirometry)*			*Stability Rating:*
CO_2 Evolution	mg CO_2-C/g OM/day	3.1	Stable
	mg CO_2-C/g TS/day	1.9	
Maturity Indicator (bioassay)			
Percent Emergence	average % of control	100.0	
Relative Seedling Vigor	average % of control	100.0	
Select Pathogens	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.32(a)	Pass	*Fecal coliform*
		Pass	*Salmonella*
Trace Metals	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.13, Tables 1 and 3.	Pass	*As,Cd,Cr,Cu,Pb,Hg*
			Mo,Ni,Se,Zn

Participants in the US Composting Council's Seal of Testing Assurance Program have shown the commitment to test their compost products on a prescribed basis and provide this data, along with compost end use instructions, as a means to better serve the needs of their compost customers.

Laboratory Group: Dec21C Laboratory Number: 1120408-1/1

Analyst: Assaf Sadeh

www.controllabs.com

US COMPOSTING COUNCIL

Seal of Testing Assurance

Atlas Organics
Jim Davis
P.O. Box 5065
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LABORATORY: Soil Control Lab; 42 Hangar Way; Watsonville, CA 95076 *tel:* 831.724.5422 *fax:* 831.724.3188

Compost Parameters	***Reported as*** *(units of measure)*	***Test Results***	***Test Results***
Plant Nutrients:	%, weight basis	%, wet weight basis	%, dry weight basis
Nitrogen	Total N	1.1	1.4
Phosphorus	P_2O_5	0.27	0.36
Potassium	K_2O	0.64	0.84
Calcium	Ca	3.7	5.0
Magnesium	Mg	0.23	0.31
Moisture Content	%, wet weight basis	25.2	
Organic Matter Content	%, dry weight basis	60.1	
pH	units	8.69	
Soluble Salts *(electrical conductivity EC_5)*	dS/m (mmhos/cm)	1.9	
Particle Size or Sieve Size	% under 9.5 mm, dw basis	100.0	
Stability Indicator *(respirometry)*			*Stability Rating:*
CO_2 Evolution	mg CO_2-C/g OM/day	3.1	Stable
	mg CO_2-C/g TS/day	1.9	
Maturity Indicator (bioassay)			
Percent Emergence	average % of control	100.0	
Relative Seedling Vigor	average % of control	100.0	
Select Pathogens	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.32(a)	Pass	*Fecal coliform*
		Pass	*Salmonella*
Trace Metals	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.13, Tables 1 and 3.	Pass	*As,Cd,Cr,Cu,Pb,Hg*
			Mo,Ni,Se,Zn

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Laboratory Group: Dec21C Laboratory Number: 1120408-1/1

Analyst: Assaf Sadeh

www.controllabs.com

ANALYTICAL CHEMISTS
and
BACTERIOLOGISTS
Approved by State of California

SOIL CONTROL LAB

42 HANGAR WAY
WATSONVILLE
CALIFORNIA
95076
USA

TEL: 831-724-5422
FAX: 831-724-3188
www.controllabs.com

Account #: 1120408-1/1-9457
Group: Dec21C #37
Reporting Date: January 3, 2022

Atlas Organics
P.O. Box 5065
Spartanburg, SC 29304
Attn: Jim Davis

Date Received: 16 Dec. 21
Sample Identification: CU05-1221-COM
Sample ID #: 1120408 - 1/1

Nutrients	Dry wt.	As Rcvd.	units
Total Nitrogen:	1.4	1.1	%
Ammonia (NH_4-N):	< 10	< 7.5	mg/kg
Nitrate (NO_3-N):	6.6	4.9	mg/kg
Org. Nitrogen (Org.-N):	1.4	1.0	%
Phosphorus (as P_2O_5):	0.37	0.27	%
Phosphorus (P):	1600	1200	mg/kg
Potassium (as K_2O):	0.85	0.63	%
Potassium (K):	7000	5300	mg/kg
Calcium (Ca):	5.0	3.7	%
Magnesium (Mg):	0.31	0.23	%
Sulfate (SO_4-S):	130	94	mg/kg
Boron (Total B):	44	33	mg/kg
Moisture:	0	25.2	%
Sodium (Na):	0.043	0.032	%
Chloride (Cl):	0.082	0.061	%
pH Value:	NA	8.69	unit
Bulk Density :	19	26	lb/cu ft
Carbonates ($CaCO_3$):	100	75	lb/ton
Conductivity (EC5):	1.9	NA	mmhos/cm
Organic Matter:	60.1	45.0	%
Organic Carbon:	33.0	25.0	%
Ash:	39.9	29.9	%
C/N Ratio	23	23	ratio
AgIndex	> 10	> 10	ratio

Stability Indicator:

CO2 Evolution	Respirometery
mg CO_2-C/g OM/day	3.1
mg CO_2-C/g TS/day	1.9
Stability Rating	*stable*

Maturity Indicator: Cucumber Bioassay

Compost:Vermiculite (v:v)	1:2
Emergence (%)	100
Seedling Vigor (%)	100
Description of Plants	*healthy*

Pathogens	Results	Units	Rating
Fecal Coliform	< 7.5	MPN/g	*pass*
Salmonella	< 3	MPN/4g	*pass*

Date Tested: 16 Dec. 21

Physical Contaminants**	% by dry wt
Total Plastic	< 0.1
Film Plastic	< 0.1
Glass	< 0.1
Metal	< 0.1
Sharps	ND
Total	< 0.5

Metals	Dry wt.	EPA Limit	units
Aluminum (Al):	4700	-	mg/kg
Arsenic (As):	1.8	41	mg/kg
Cadmium (Cd):	< 1.0	39	mg/kg
Chromium (Cr):	9.8	-	mg/kg
Cobalt (Co)	1.5	-	mg/kg
Copper (Cu):	29	1500	mg/kg
Iron (Fe):	4200	-	mg/kg
Lead (Pb):	18	300	mg/kg
Manganese (Mn):	120	-	mg/kg
Mercury (Hg):	< 1.0	17	mg/kg
Molybdenum (Mo):	< 1.0	75	mg/kg
Nickel (Ni):	5.1	420	mg/kg
Selenium (Se):	< 1.0	100	mg/kg
Zinc (Zn):	100	2800	mg/kg

Size Distribution

MM	% by weight
> 50	0.0
25 to 50	0.0
16 to 25	0.0
9.5 to 16	0.0
6.3 to 9.5	1.1
4.0 to 6.3	7.7
2.0 to 4.0	17.6
< 2.0	73.7

**Greater than 4mm in size (Sharps greater than 2mm)

Analyst: Assaf Sadeh

*Sample was received and handled in accordance with TMECC procedures.

Account No.:		Date Received	16 Dec. 21
1120408 - 1/1 - 9457		Sample i.d.	CU05-1221-COM
Group:	Dec21C No. 37	Sample I.d. No.	1/1 1120408

INTERPRETATION: Page one of three

Is Your Compost Stable?

Respiration Rate

3.1 mg CO2-C/ g OM/day

```
++++++++++++
< Stable >|<Moderately Unstable>|< Unstable >|< High For Mulch
```

Is Your Compost Mature?

AmmoniaN/NitrateN ratio

NA Ratio

```
Ratio does not apply due to low concentrations of both Ammonia N and Nitrate N.
VeryMature>|< Mature >|< Immature
```

Ammonia N ppm

<10 mg/kg dry wt.

```
+
VeryMature>|< Mature >|< Immature
```

Nitrate N ppm

6.6 mg/kg dry wt.

```
+++++
< Immature >|< Mature
```

Cucumber Emergence

100.0 percent

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
< Immature >|< Mature
```

Is Your Compost Safe Regarding Health?

Fecal Coliform

< 1000 MPN/g dry wt.

```
+++++++
< Safe >|< High Fecal Coliform
```

Salmonella

Less than 3 /4g dry wt.

```
+++++++
<Safe (none detected) >|< High Salmonella Count(> 3 per 4 grams)
```

Metals US EPA 503

Pass dry wt.

```
+++++++++
<All Metals Pass >|< One or more Metals Fail
```

Does Your Compost Provide Nutrients or Organic Matter?

Nutrients (N+P2O5+K2O)

2.6 Percent dry wt.

```
++++++++++++++++++++
<Low >|< Average >|< High Nutrient Content
```

AgIndex (Nutrients / Sodium and Chloride Salts) ((N+P2O5+K2O) / (Na + Cl))

15 Ratio

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Na & Cl >|< Nutrient and Sodium and Chloride Provider >|< Nutrient Provider
```

Plant Available Nitrogen (PAN) Estimated release for first season

4 lbs/ton wet wt.

```
++++++++++++++++++
Low Nitrogen Provider>|< Average Nitrogen Provider >|<High Nitrogen Provider
```

C/N Ratio

23 Ratio

```
++++++++++++++++++++++++++++++++++++++++++++++
< Nitrogen Release >|< N-Neutral >|< N-Demand>|< High Nitrogen Demand
```

Soluble Available Nutrients & Salts (EC5 w/w dw)

1.9 mmhos/cm dry wt.

```
++++++++++
SloRelease>|< Average Nutrient Release Rate >|<High Available Nutrients
```

Lime Content (CaCO3)

100 Lbs/ton dry wt.

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
< Low >|< Average >|< High Lime Content (as CaCO3)
```

What are the physical properties of your compost?

Percent Ash

39.9 Percent dry wt.

```
++++++++++++++++++++++++++++++++
< High Organic Matter >|< Average >|< High Ash Content
```

Sieve Size % > 6.3 MM (0.25")

1.1 Percent dry wt.

```
++++++++
All Uses >|< Size May Restrict Uses for Potting mix and Golf Courses
```

INTERPRETATION:

Is Your Compost Stable?

Respiration Rate

3.1 Low: Good for all uses mg CO2-C/g OM/day

The respiration rate is a measurement of the biodegradation rate of the organic matter in the sample (as received). The respiration rate is determined by measuring the rate at which CO2 is released under optimized moisture and temperature conditions.

Is Your Compost Mature?

AmmoniaN:NitrateN ratio	
NA	NA*
Ammonia N ppm	
<10	NA
Nitrate N ppm	
6.6	immature

Composting to stabilize carbon can occur at such a rapid rate that sometimes phytotoxins remain in the compost and must be neutralized before using in high concentrations or in high-end uses. This step is called curing. Typically ammonia is in excess with the break-down of organic materials resulting in an increase in pH. This combination results in a loss of volatile ammonia (it smells). Once this toxic ammonia has been reduced and the pH drops, the microbes convert the ammonia to nitrates. A low ammonia + high nitrate score is indicative of a mature compost, however there are many exceptions. For example, a compost with a low pH (<7) will retain ammonia, while a compost with high lime content can lose ammonia before the organic fraction becomes stable. Composts must first be stable before curing indicators apply.

*Ratio does not apply due to low concentrations of both Ammonia N and Nitrate N.

Cucumber Bioassay

100.0 Percent

Cucumbers are chosen for this test because they are salt tolerant and very sensitive to ammonia and organic acid toxicity. Therefore, we can germinate seeds in high concentrations of compost to measure phytotoxic effects without soluble salts being the limiting factor. Values above 80% for both percent emergence and vigor are indicative of a well-cured compost. Exceptions include very high salts that affect the cucumbers, excessive concentrations of nitrates and other nutrients that will be in range when formulated to make a growing media.

Is Your Compost Safe Regarding Health?

Fecal Coliform

< 1000 / g dry wt.

Fecal coliforms can survive in both aerobic and anaerobic conditions and is common in all initial compost piles. Most human pathogens occur from fecal matter and all fecal matter is loaded in fecal coliforms. Therefore fecal coliforms are used as an indicator to determine if the chosen method for pathogen reduction (heat for compost) has met the requirements of sufficient temperature, time and mixing. If the fecal coliforms are reduced to below 1000 per gram dry wt. it is assumed all others pathogens are eliminated. Potential problems are that fecal coliform can regrow during the curing phase or during shipping. This is because the conditions are now more favorable for growth than during the composting process.

Salmonella Bacteria

Less than 3 3 / 4g dry wt.

Salmonella is not only another indicator organism but also a toxic microbe. It has been used in the case of biosolids industry to determine adequate pathogen reduction.

Metals

Pass

The ten heavy metals listed in the EPA 503 regulations are chosen to determine if compost can be applied to ag land and handled without toxic effects. Most high concentrations of heavy metals are derived from woodwaste feedstock such as chrome-arsenic treated or lead painted demolition wood. Biosolids are rarely a problem.

Does Your Compost Provide Nutrients or Organic Matter?

Nutrients (N+P2O5+K2O)

2.6 Average nutrient content

This value is the sum of the primary nutrients Nitrogen, Phosphorus and Potassium. Reported units are consistent with those found on fertilizer formulations. A sum greater than 5 is indicative of a compost with high nutrient content, and best used to supply nutrients to a receiving soil. A sum below 2 indicates low nutrient content, and is best-used to improve soil structure via the addition of organic matter. Most compost falls between 2 and 5.

Account No.:		Date Received	16 Dec. 21
1120408 - 1/1 - 9457		Sample i.d.	CU05-1221-COM
Group:	Dec21C No. 37	Sample I.d. No.	1/1 1120408

INTERPRETATION:

AgIndex (Nutrients/Na+Cl)

15 High nutrient ratio Composts with low AgIndex values have high concentrations of sodium and/or chloride compared to nutrients. Repeated use of a compost with a low AgIndex (< 2) may result in sodium and/or chloride acting as the limiting factor compared to nutrients, governing application rates. These composts may be used on well-draining soils and/or with salt-tolerant plants. Additional nutrients form another source may be needed if the application rate is limited by sodium or chloride. If the AgIndex is above 10, nutrients optimal for plant growth will be available without concern of sodium and/or chloride toxicity. Composts with an AgIndex of above 10 are good for increasing nutrient levels for all soils. Most composts score between 2 and 10. Concentrations of nutrients, sodium, and chloride in the receiving soil should be considered when determining compost application rates. The AgIndex is a product of feedstock quality. Feedstock from dairy manure, marine waste, industrial wastes, and halophytic plants are likely to produce a finished compost with a low AgIndex.

Plant Available Nitrogen (lbs/ton)

4 Low N Provider Plant Available Nitrogen (PAN) is calculated by estimating the release rate of Nitrogen from the organic fraction of the compost. This estimate is based on the respiration rate, ammonia, and nitrate values. Despite the PAN value of the compost, additional sources of Nitrogen may be needed during the growing season to offset the Nitrogen demand of the microbes present in the compost. With ample nutrients these microbes can further breakdown organic matter in the compost and release bound Nitrogen. Nitrogen demand based on a high C/N ratio is not considered in the PAN calculation because additional Nitrogen should always be supplemented to the receiving soil when composts with a high C/N ratio are applied.

C/N Ratio

23 Indicates immaturity As a guiding principal, a C/N ratio below 14 indicates maturity and above 14 indicates immaturity, however, there are many exceptions. Large woodchips (>6.3mm), bark, and redwood are slow to breakdown and therefore can result in a relatively stable product while the C/N ratio value is high. Additionally, some composts with chicken manure and/or green grass feedstocks can start with a C/N ratio below 15 and are very unstable. A C/N ratio below 10 supplies Nitrogen, while a ratio above 20 can deplete Nitrogen from the soil. The rate at which Nitrogen will be released or used by the microbes is indicated by the respiration rate. If the respiration rate is too high the transfer of Nitrogen will not be controlable.

Soluble Nutrients & Salts (EC5 w/w dw - mmhos/cm)

1.9 Average salts This value refers to all soluble ions including nutrients, sodium, chloride and some soluble organic compounds. The concentration of salts will change due to the release of salts from the organic matter as it degrades, volatilization of ammonia, decomposition of soluble organics, and conversion of molecular structure. High salts + high AgIndex is indicative of a compost high in readily available nutrients. The application rate of these composts should be limited by the optimum nutrient value based on soil analysis of the receiving soil. High Salts + low AgIndex is indicative of a compost low in nutrients with high concentrations of sodium and/or chloride. Limit the application rate according to the toxicity level of thesodium and/or chloride. Low salts indicates that the compost can be applied without risking salt toxicity, is likely a good source of organic matter, and that nutrients will release slowly over time.

Lime Content (lbs. per ton)

100 High lime content Compost high in lime or carbonates are often those produced from chicken manure (layers) ash materials, and lime products. These are excellent products to use on a receiving soil where lime has been recommended by soil analysis to raise the pH. Composts with a high lime content should be closely considered for pH requirements when formulating potting mixes.

Physical Properties

Percent Ash

39.9 Average ash content Ash is the non-organic fraction of a compost. Most composts contain approximately 50% ash (dry weight basis). Compost can be high in ash content for many reasons including: excess minerilzation(old compost), contamination with soil base material during turning, poor quality feedstock, and soil or mineral products added. Finding the source and reducing high ash content is often the fastest means to increasing nutrient quality of a compost.

Particle Size % > 6.3 MM (0.25")

1.1 May restrict use Large particles may restrict use for potting soils, golf course topdressings, seed-starter mixes, and where a fine size distribution is required. Composts with large particles can still be used as excellent additions to field soils, shrub mixes and mulches.

Appendix:		
Plant Available Nitrogen (PAN) calculations:	Estimated available nutrients for use when calculating application rates	
PAN = (X * (organic N)) + ((NH4-N) + (NO3-N))		lbs/ton (As Rcvd.)
X value = If RR < 2 then X = 0.1		
If RR =2.1 to 5 then X = 0.2	Plant Available Nitrogen (PAN)	4.4
If RR =5.1 to 10 then X = 0.3	Ammonia (NH4-N)	0.01
If RR > 10 then X = 0.4	Nitrate (NO3-N)	0.01
Note: If C/N ratio > 15 additional N should be applied.	Available Phosphorus (P2O5*0.64)	3.5
RR = Respiration rate	Available Potassium (K2O)	12.8