



Composting and Vermicomposting

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With waste, you can make **MONEY!**





How? Turn organics into **COMPOST or VERMICOMPOST**

Compost & VC Can Be \$old

- Potential buyers: home gardeners, landscapers, vegetable farmers, turf growers, golf courses, ornamental crop growers, construction industry, DOT, parks, vineyards, silvaculture industry
- ***A disposal problem has been converted into a revenue stream!***

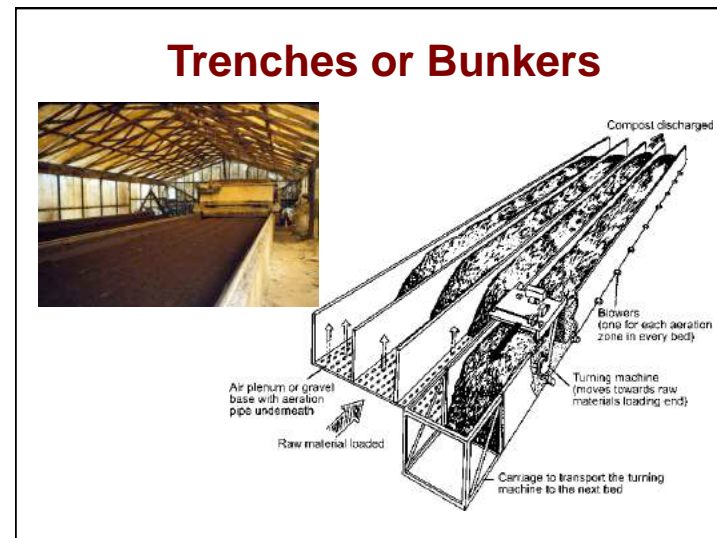
Composting

- Controlled, biological stabilization of organics through generation of **heat**
- Finished compost looks like soil--dark brown, crumbly and smells like forest floor



What Can Be Composted?

- Leaves, lawn trimmings
- Animal manure, litter
- Rice hulls, straw, hay
- Sawdust, wood shavings, bark
- Paper & paperboard
- Vegetables & fruits
- Coffee grounds, hulls, pulp
- Organic byproducts from industries
- Agricultural crop waste
- Food residuals
- Brewery residuals
- Spoiled liquids
- Fish, seafood, meat
- Nut shells
- Hair, fur, nail clippings
- Dryer lint
- Cotton, wool, silk
- Agricultural crop residues
- Sludge



Bins and Boxes

This collage features three images of composting equipment. On the left, a blue bin is labeled 'NatureTech'. In the top right, a long row of green bins is labeled 'Hot Rot System'. In the bottom right, a green bin is labeled 'GMT Earth Tub'.

More Boxes: Batch Systems

This collage shows two images of batch systems. The top image shows several large, green, rectangular batch systems. The bottom image shows a row of smaller green batch systems, with the label 'ECS' in the bottom left corner.

Rotating Drums

This block contains two images of rotating drums. The top image shows a large white rotating drum. The bottom image shows a large green rotating drum with a hopper and conveyor system.

In-Vessel

This image shows an industrial in-vessel composting system, featuring a large cylindrical vessel and associated piping within a warehouse-like structure.

What Plants Benefit From Compost?

Seedlings
Potted plants
Garden crops
Field crops
Lawns
Shrubs
Trees



Compost Benefits

- **Provides nutrients & minerals**
- **Reduces compaction** (makes soil spring back)
- **Increases water retention** (like a sponge)
- **Holds onto nutrients** (so plants can use them)
- **Reduces chemicals needed** (makes healthy plants)
- **Reduces erosion** (disperses force of raindrops)

More Compost Benefits

- **Increases infiltration** (spongy nature of compost keeps small channels open for water to move into it)
- **Increases water holding capacity** (compost “sponge” swells with water and holds it)
- **Reduces some diseases** (beneficial microbes outcompete bad diseases)

Compost Suppresses Soil Borne Diseases

such as brown patch, pythium, dollar spot, red thread, etc.

Shown: Root rot, no compost on left

(Cornell, OSU research)





USCC/NCCC Compost Operator Training Course Sept. 14-18, 2015

- NC State University, Raleigh, NC
- 40-hour, 5-day course
- Lectures, hands-on activities, field trip
- Knowledge & skills to run composting facility
- Taught by leading composting professionals and educators

Vermicomposting

A process that relies on **earthworms** and **microorganisms** to help stabilize active organic materials and convert them to a valuable soil amendment and source of plant nutrients



Vermicomposting should **not** heat up



Windrows



Vermicomposting



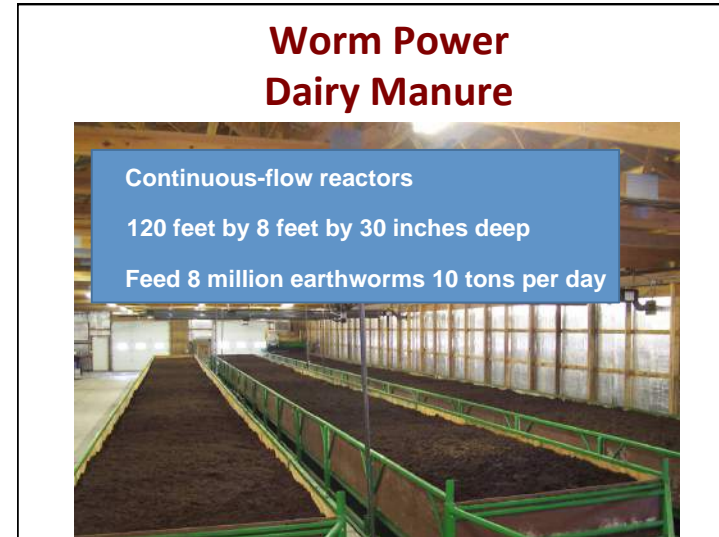
10-12 feet high

Composting




Worm Beds At a Prison





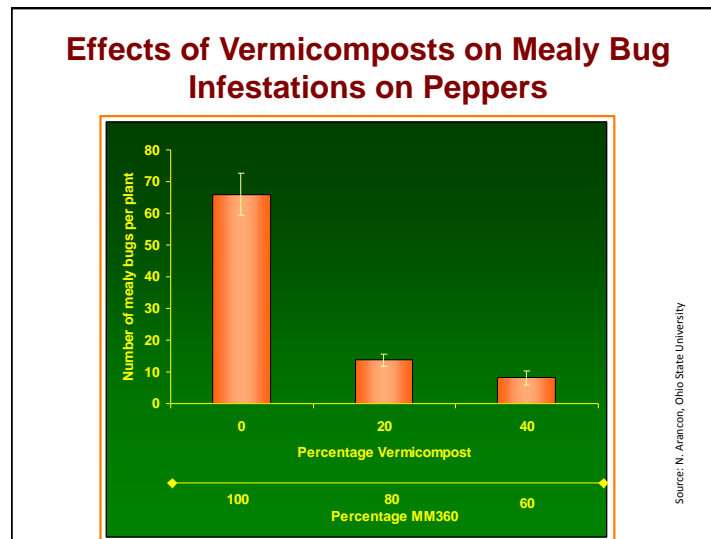
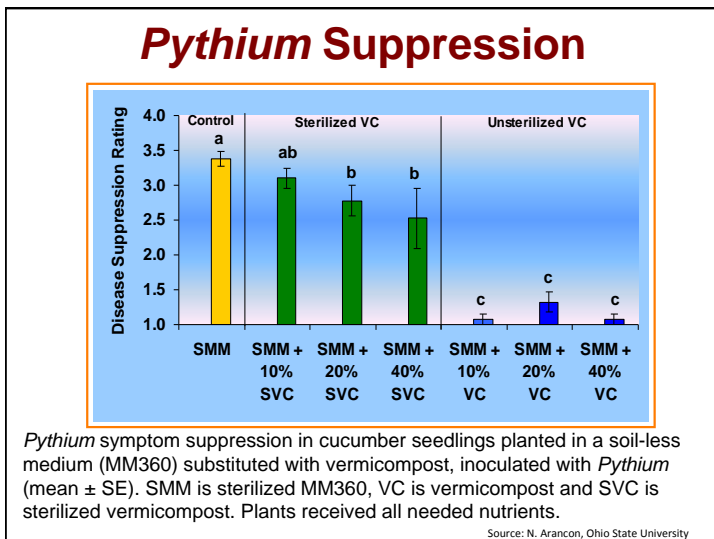
Effects of Vermicompost On Plants

- Regulates availability of essential plant nutrients and enhances fertilizers
- Improves plant health and appearance
- Promotes activity of enzymes and plant growth regulators
- Enhances germination and early growth of seedlings and cuttings
- Stimulates flowering and improves fruit set and quality



Fast release initially since nutrients are in available forms (nitrates, NH4+, etc.) when applied, then slow like compost after (takes some time to mineralize these nutrients from the organic pool). ~ Dr. Norman Arancon








Some producers sell vermicompost for \$1,200 per cubic yard

Compost sells for ~\$30 per cubic yard



NCSU's 16th Vermiculture Conference 2015

- Benefits & uses of vermicompost
- Vermicomposting technologies
- Vermicompost research studies
- Marketing products
- Testing vermicompost, soil and feedstocks
- Brewing and using vermicompost tea



<http://www.bae.ncsu.edu/workshops/worm-conference/>

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