



Vermicomposting

Made Easy

**Brian Rosa, NC Division of Pollution Prevention &
Environmental Assistance**

Vermicomposting



- Utilizing earth worms and microorganisms to convert organic waste into a nutrient-rich humus like material known as vermicompost (worm castings)
- *Eisenia fetida*, commonly called ‘Red Wiggler’, ‘Manure Worm’, ‘Tiger Worm’

Vermicomposting

Characteristics of garden variety worm.

Knightcrawler or dew worm.

(*Lumbricus terrestris*).

- ~ **Not a composter.**
 - ~ **Garden variety worm are soil- dwelling species that tunnel & borrow.**
 - ~ **Do not consume large volumes of organic material.**
 - ~ **Will not reproduce well while being confined.**
 - ~ **Live several feet below surface.**
 - ~ **Feed on the surface at night.**
 - ~ **Require cool (45 F) temperature.**

Vermicomposting

Characteristics of the Red Wiggler
(*Eisenia fetida*)

- ~ Can consume half it's weight of food per day
- ~ Requires 70% moisture – to breath
- ~ Temperature – 60 - 85 Degree F
- ~ Acidity – pH 6 – pH 8
- ~ Aeration – Good ventilation and drainage
- ~ Bedding and Food
- ~ Surface area
- ~ Darkness

Vermi Reproduction



~ **Cocoons** ~



Vermicomposting

Worm Bin Types

Small Scale

Vermicomposting Home Made



Can-O-Worms



Worm Friendly Bin



The Worm Factory



Vermicomposting Mid-Scale



Vermicomposting Mid-Scale



Vermicomposting Mid-Scale





Vermicomposting Large Scale

- ~ Large Scale vermi systems are being utilized to:**
 - ~ On-Site composting of food and/or manure**
 - ~ Housing/containing the worms**
 - ~ Control and maintain the temperature and moisture**
 - ~ Mechanically harvest the castings**

Vermicomposting

Large Scale

Benefits

- **On-site, no transportation**
- **Staff available to operate**
- **Recycling- collection, processing & utilizing**
- **Creating a product from a waste**
- **Utilizing the castings to reduce fertilizers**
- **Reduces disposal costs**

Disadvantages

- **Floor space**
- **Staff time**
- **Permitting**
- **Expensive**
- **Long Term Commitment**

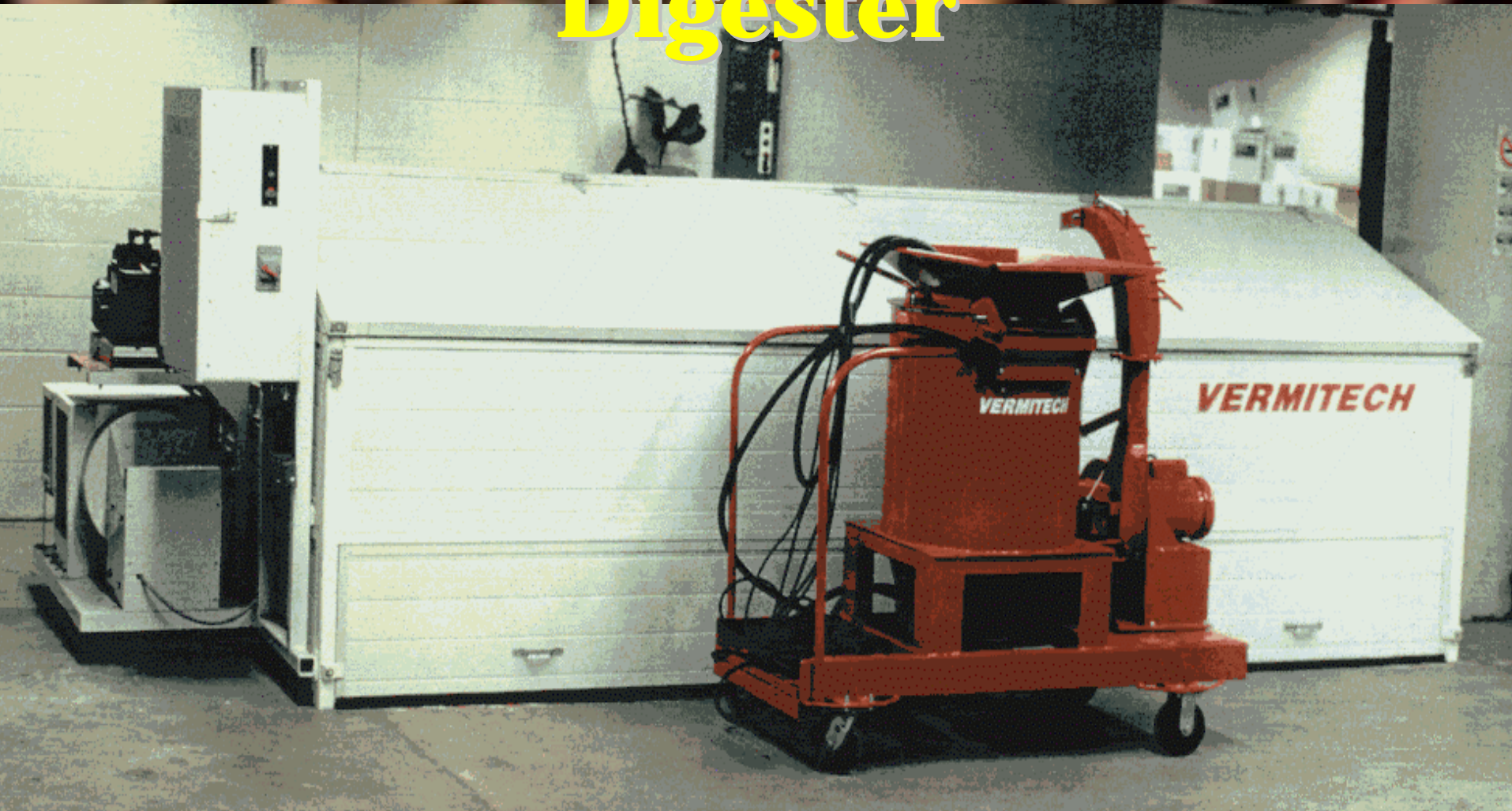
EPM Worm Wigwam



EPM Flow Through System



Vermitech Food/paper Digester

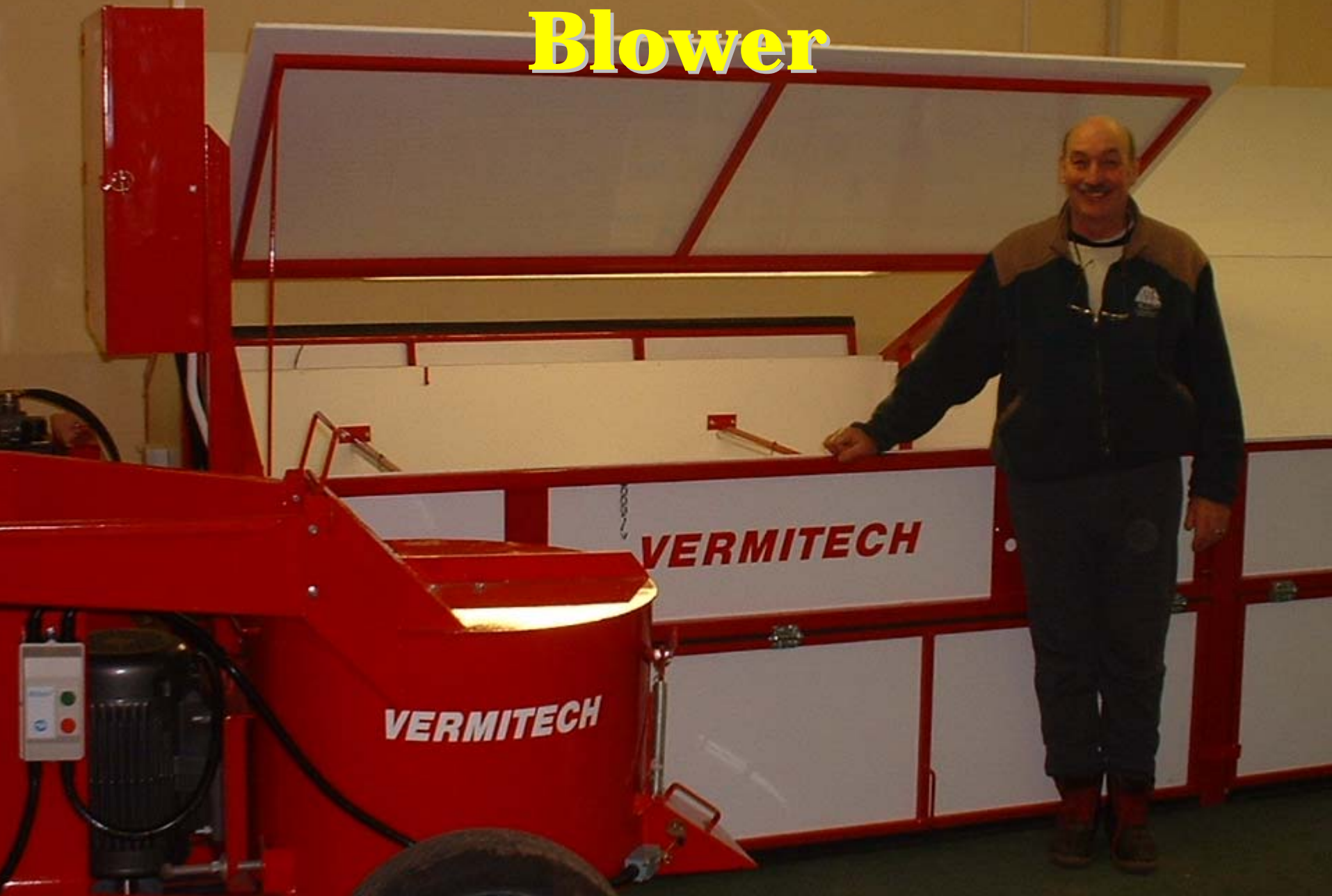


Vermitech Project in Scotland



VERMITECH

Vermitech Grinder/Mixer Blower



Worm Composting Windrows



Worm Composting Windrows



Large Worm Screen



Small worm Screen & Diverter



Vermicomposting

Castings (worm poop)

- ~ Rich in plant nutrients**
- ~ Contain a high percentage of humus**
- ~ Biologically active containing thousands of bacteria, and enzymes**
- ~ 5 times the available nitrogen, 7 times the available potash, and 1 ½ times more calcium than found in good top soil**

Good stuff !!

Vermicomposting Castings

- **Used in potting soil blend (10% max.)**
- **Used to inoculate soils with beneficial microbes**
- **Excellent source of beneficial bacteria, fungi, nematodes for compost tea brewing**
- **Sales potential - \$ 16 per pound (2 oz pouch)
– \$ 320 – 800 Pound tote**

Vermicomposting Resources

**NC DENR, Div Of Pollution Prevention and
Environmental Assistance**

<http://www.p2pays.org/compost/>

**Rhonda Sherman, Extension Specialist
NC State University**

<http://www.bae.ncsu.edu/people/faculty/sherman/>

Adventures of Vermi the Worm

<http://www.ciwmb.ca.gov/Kidstuff/>

**Worm Woman – Mary Applehoff – Worms Eat My
Garbage**

<http://www.wormwoman.com/acatalog/index.html>