



Vermicomposting of Campus Food Residuals and Waste

Michigan State University

Student Organic Farm:

John Biernbaum, Laurie Thorp, Dan Fillius,
Brendan Sinclair, Kirk Green, Chris Lamkin,
James Manning, Kim Forte, Emily Mckay

Residential and Hospitality Services:

Venie Gore, Diane Barker, Carla Iansiti, Robbia
Pipper, Guy Procopio

University Office of Sustainability:

Jennifer Battle

Land Management:

Ben Darling

University Recycling Center:

Ruth Daoust

Mission

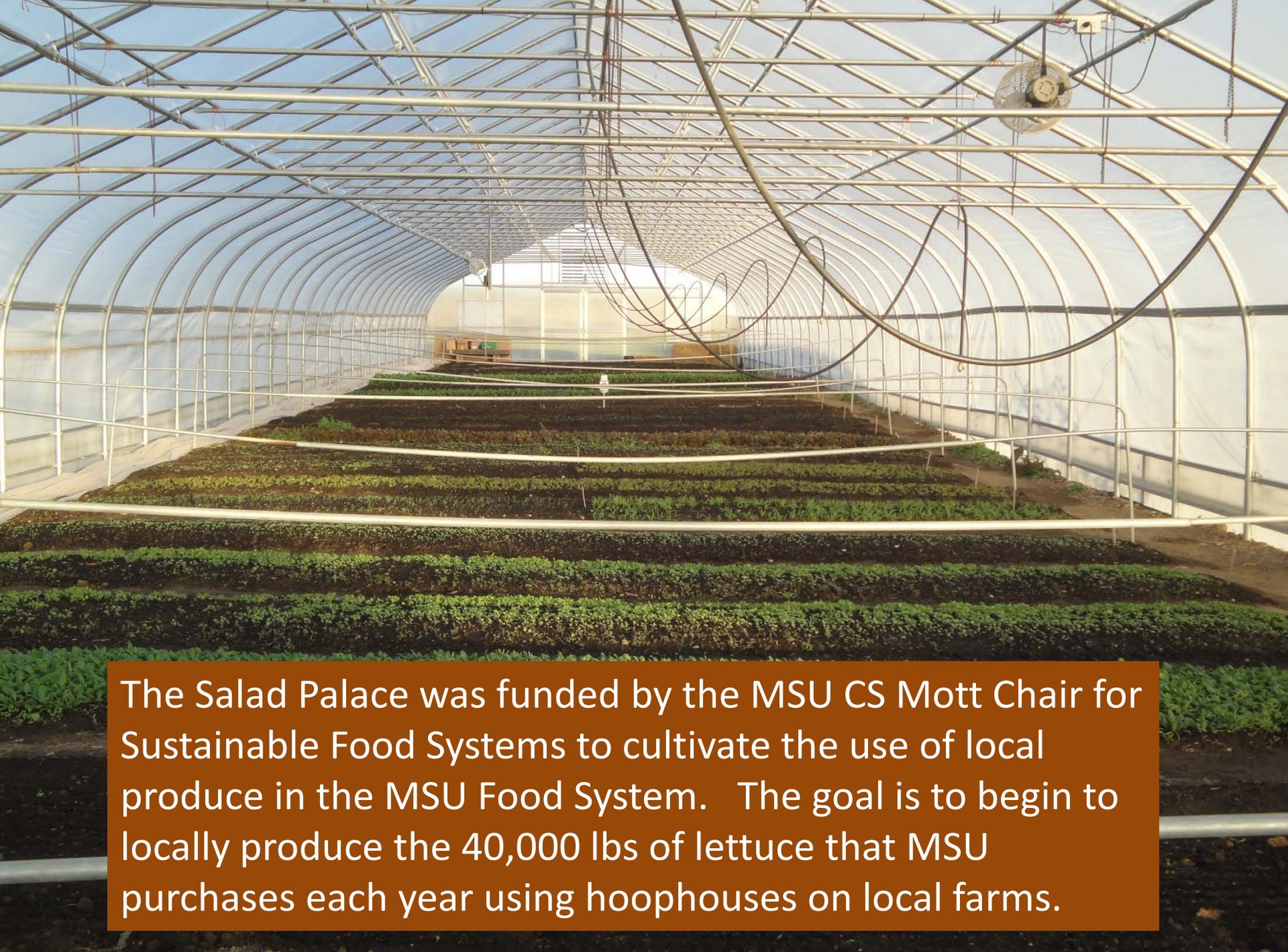
To cultivate knowledge and human capacity in organic and sustainable agriculture for students, farmers and educators.





Michigan State University SOF Activities

- Year-round teaching farm on a 10+ acre site at the Horticulture Farm
- Used by many classes (>15 MSU+LCC) as a laboratory and learning site
- Nine-month full time intensive organic farmer training program
- Hoophouse research and outreach program
- Five acres field and 20,000 sq ft hoophouse organic vegetable production
- Marketing through 48 week CSA, farm stand and University Dining
- Poultry for eggs in mobile hoophouse; bees for honey
- Swine husbandry integrated with vegetable production
- Outreach for organic and year-round urban agriculture
- Over 1500 visitors toured the site in 2010
- Vermicomposting of campus food waste



The Salad Palace was funded by the MSU CS Mott Chair for Sustainable Food Systems to cultivate the use of local produce in the MSU Food System. The goal is to begin to locally produce the 40,000 lbs of lettuce that MSU purchases each year using hoophouses on local farms.



Robbia Pippert at Yakely Dining Hall and later Chef Eric at Snyder Phillips worked with the SOF to develop the necessary methods for a successful relationship. Robbia is now at Brody and the efforts continue to grow.

Project Goals

- Recycle organic materials from the campus food system; divert materials from the current waste stream.
- Demonstrate the importance of bringing nutrients back to the farm to sustain long term soil quality and plant health.
- Make an organic resource for soil and nutrient management and plant health at the SOF.
- Develop a low tech, low cost system that can be replicated in many communities to connect institutional food preparation with farms.



Pear Tree Farm manure piles as the source of the worms. At least 40+ lbs at no direct cost. Isolated from composted manure using fresh manure as attractant.

Temporary shade and protection from rain using a mobile structure for easy access.



Protection from sun/heat, wind and rain was necessary as the amount of worms grew.

Site Preparation

August 24, 2010

Site was fill dirt and heavily compacted. A subsoiler was used to break up the soil prior to dragging and tilling to kill and remove grass and weeds and provide drainage.





Greenhouse Delivered

September 9, 2011

Atlas Greenhouse Company – Snow Arch

Greenhouse Construction

September 17 – October 7



The Compost Commons

30' x 72' structure
extended side walls
drop down sides
all metal – no wood
thermostatic ventilation
single layer cover



No More Parts

Long awaited worm move in
October 8, 2010

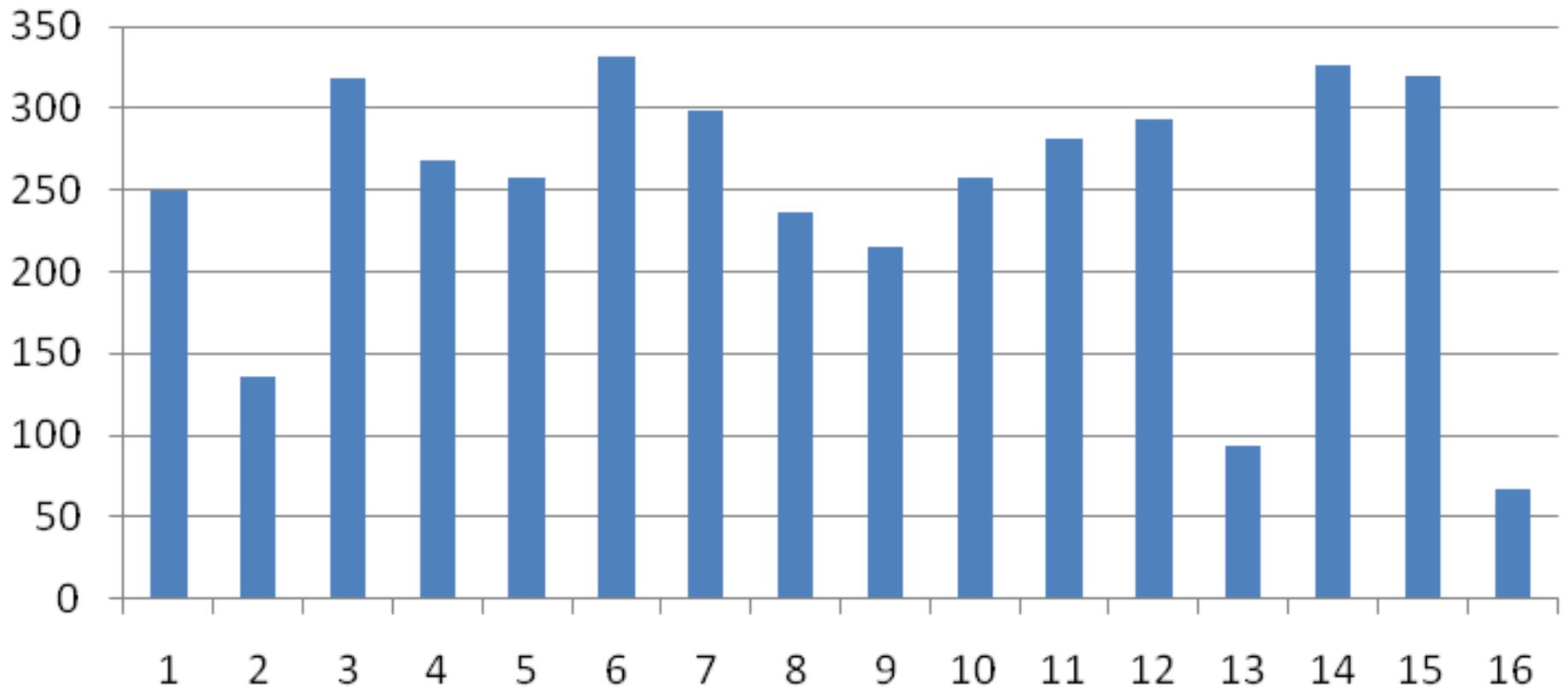




All the
containers
below were
used to move
worms from
Pear Tree Farm



Weekly Kitchen Scrap Weight in Pounds for Fall 2010 - Total ~4000 lbs



Yakely 250 lbs weekly average



Example of Kitchen Residue

Fresh Kitchen Residue and Straw to Worms





Pre-composting Kitchen Residue



Beds for
Containing Worms

Larger Bed for Heat Retention



Tunnel in a Tunnel “Technology”



Bed maintained 50°F through the winter.



Isolating worms



Feeding Trial



8 weeks later
re-isolate worms



Horse Manure 0.5 body weight/day



Horse Manure 1.0 body weight/day

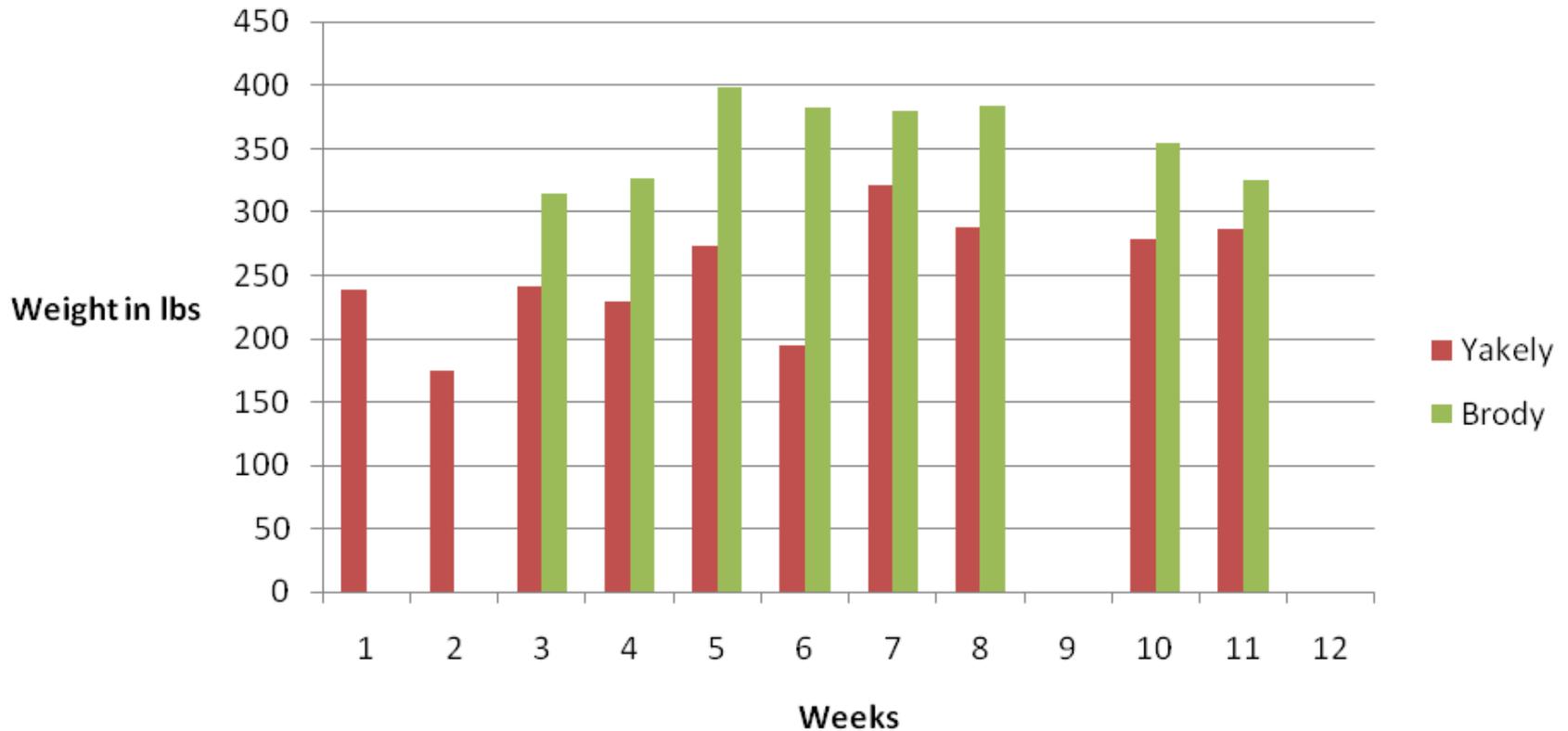


Plate Scrapings Pulper 0.5 body weight/day

Plate Scrapings Pulper 1.0 body weight/day

Starting weight 400 g Nov 13; finish ~600 g (1.5 x) to over 2000 g (5X) Jan 13 or ~ 8 weeks.

Spring 2011 Food Residue Collection



Yakely 250 lbs per week average

Brody 350 lbs per week average

Total 600 lbs per week average

Future Research:

Scaling up methods;

Vermicompost for growing plants;

Top dressing transplants;

Raised beds for urban agriculture;

Vermicompost for plant health and pest management.



Perspectives: Local Food System or Local Food Cycle?

***The Food Cycle** – The cycling of food from the soil, to you, to residue & “pooh” that recycle and renew.*

The path to partnership, passion, prosperity, peace and parity is the perennial progression from production, processing, preservation, protection, purchasing, preparing, partaking and passing pooh to begin anew. Promote positive personal, people and planetary perspectives and programs with your purchasing power. John Biernbaum



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