

Western Michigan University

Post-Consumer Food Waste Management:

Black Soldier Fly Larvae

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For decades, people of Western Michigan University have carelessly tossed unwanted food into the trash and garbage disposals. Inevitably, this unwanted food will end up in a landfill or waste water treatment plant creating avoidable greenhouse gas (GHG) emissions in the atmosphere and wasting precious money. A major question that needs to be addressed is: How do we, as a university, efficiently and sustainably dispose of this excess post-consumer waste? This question brings us to the hypothesis of: If WMU implements black soldier fly larvae as a bio-composter for food waste, the post-consumer food waste will be managed in a much more sustainable, efficient manner.

In the spring of 2014, the project kicked off intensively analyzing the use of black soldier fly larvae as a bio-composter for food waste produced at WMU. In the fall of 2014 the project's pilot study began. Research was concentrated on designing a DIY bin for Michigan's year-round climate as well as purchasing and insulating three commercial Protapods. Hoop house #1 at the Gibbs House Permaculture Farm now has six active black soldier fly composting bins standing; three bins reserved for Bell's Brewery research and three bins for WMU research. Each bin can handle 25 pounds of post-consumer food waste per day. Spring 2015 will be focused on comparing and contrasting the DIY bins to the Protapods, designing a breeding structure, and obtaining a dependable post-consumer food waste source from WMU.



“Waste is just a resource out of place”

-Nancy Jack Todd

12/5/2014

BLACK SOLDIER FLY



- Scientific Name: *Hermetia illucens*
- Can digest ANY organic material
- Digests food before it begins to rot
- 1sq. ft.: 3lbs: 7,650 grubs
- Food to castings = 20:1
- Pre-pupae harvest themselves into 5-gallon buckets
- High in protein(~45%) and fat
- Life Cycle = 4weeks - 9months
- Imagoes (adults) live 1-3 days
- Do not bite or sting
- Not harmful or a nuisance to humans
- Native to the United States
- Not a disease vector
- Do not smell bad
- Controls other insect pests
- Effective pollinator, recycler and scavenger