SARE RESEARCH FINDINGS –

INVESTIGATING PRODUCTION CAPABILITIES AND USES OF BLACK SOLDIER FLY LARVAE (BSFL) FOR ORGANIC WASTE PROCESSING IN THE URBAN ENVIRONMENT

Future Acres
Urban Farming

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Owner

Research

1. Find management practices that maximize mixed urban food waste breakdown using BSFL
2. Assess the production capabilities and value of BSFL and frass production for livestock feed and soil amendments.

2 hour fan		
10,000	8,500	7,000
3 hour fan		
10,000	8,500	7,000
6 hour fan		
10,000	8,500	7,000

1. Measure the weight of BSFL produced.
2. Measure the percentage of FW converted to frass.
3. Pre- and post-experiment FW measurements.

[SSARE Research]

FW Exploration

Coffee Grounds	Bread Products	Mixed FW (post-consumer)
Retained the most moisture	Easy to obtain consistent moisture in trays	Fluctuating moisture content per tray
Longest time to convert	18-25 days for full growth	Standard 14 day growth stage
BSFL not fully grown (under 100 mg)	Consistent larval weights but lower than standard (0.150g)	Mixed larval weights, not consistent (120 mg - 230 mg)
Frass impossible to measure/ separate	About 50% bioconversion into BSFL/frass	Most frass produced, some trays at 90% bioconversion

Considerations

	Research	vs.	Practical Application
Infrastructure	Closed lid		Stacked trays
FW source	Small scale success with mixing		Large scale, large variations
Moisture	More controlled humidity		Temperature and humidity swings across container
Temperature	Not affected by other trays		Bottom to top of stack differences
Air changes	Circulate through ~8 sq.ft.		Circulate air through 1280 cu.ft.