

IPM Fact Sheet Series

*UMass Extension Fruit Team
Fact Sheet #*

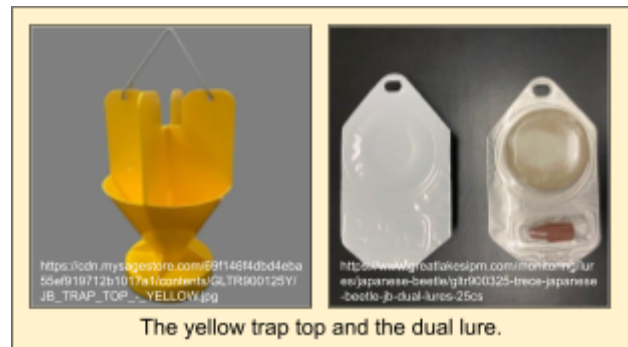
Mass Trapping Japanese Beetles with a Dual Lure Sock Trap



The dual-lure sock trap is a mass trapping pest management device that aims to reduce or even eliminate the need for pesticide use to mitigate the populations and predatory behavior of Japanese beetles (*Popillia japonica*) in orchard fruit production. Mass trapping refers to pest reduction modeled after a particular pest's behavior by using attractants, usually kairomones and sex pheromones, to lure them en masse to be exterminated via toxicants or a mechanism that

prevents the pest from exiting the trap. Kairomones are chemical substances emitted by an organism and detected by another organism of a different species which gains advantage from this, and pheromones are chemical substances produced and released into the environment by an animal affecting the behavior or physiology of others of its species. Research performed to contribute to the development and determine the efficacy of the sock traps in Missouri from 2012 to 2017 asserts that the traps are highly effective in their function, and indeed substantially reduce the need for chemical pesticide application; furthermore, the sock trap system is more cost-effective and diminishes the ecological fallout caused by repeated long-term pesticide use.

The trap is structured as a yellow trap top with a four-foot aluminum sock attached at the bottom (32 gallon trash barrels instead of a sock have also been successfully employed in conditions that warranted a larger sequestration unit). The trap top has four panels intersecting with each other at a 90° angle atop a funnel, which leads to the sock. Enticed by a dual lure of kairomones, plant volatiles in this case (airborne communication compounds), and Japanese beetle sex pheromones, the beetles collide with the panels and fall through the funnel and into the collection device. The plant volatiles imitate the compounds found in fruit that Japanese beetles eat that are found to be the most attractive; this combined with the additional component of the scent of a breedable mate results in an especially compelling luring agent. The yellow tops and lures are manufactured by Trécé and can be purchased from Great Lakes IPM.



References

<https://www.trece.com/wp-content/uploads/PHEROCON-JB-Bag-Trap-Product-sheet-1785.pdf>

<https://www.greatlakesipm.com/monitoring/lures/japanese-beetle/gltr900325-trece-japanese-beetle-jb-dua-l-lures-25cs>

Date: August 2023

Author(s): Meara Swinson, Mateo Rull-Garza, Jaime C. Piñero

Visit our website: <http://ag.umass.edu/fruit>

Note: This information is for educational purposes only and is reviewed regularly for accuracy. References to commercial products or trade names are for the reader's information. No endorsement is implied, nor is discrimination intended against similar products. For pesticide products please consult product labels for rates, application instructions and safety precautions. The label is the law. Users of these products assume all associated risks.

This work was supported in part by a grant from the USDA-NIFA-AFRI Research and Extension Experiences for Undergraduates Program, Award No. 2022-67037-36619 and the USDA NIFA Extension Implementation Program, Award No. 2017-70006-27137.