

Open-access article on Mexican bean beetles offers control tips

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Mexican bean beetle (*Epilachna varivestis*) adult with eggs. Credit: Entomological Society of America

The Mexican bean beetle (*Epilachna varivestis*) has flown under the research radar too long, despite the fact that it has been ravaging U.S. crops for almost a century, according to Louis Nottingham, lead author of a newly published article in the open-access [Journal of Integrated Pest Management](#). The article shines a light on the Mexican bean beetle and describes possible management strategies, including so-called "cultural methods" that can control this pest without insecticides.

"If you look through the literature on this pest, there are probably only 10 or so articles in the past 20 years, and nothing in terms of a profile-type article since the 1930s," said Nottingham, a PhD student and graduate research assistant in the lab of Professor Tom Kuhar at Virginia Tech. "It was time to bring more attention to this beetle that is so significant in our growers' lives."

A type of [lady beetle](#) originally known from high elevations of western Mexico and Central America, the Mexican bean beetle showed up in the western United States in the late 1800s in connection with the spreading cultivation of beans. The beetle favors wax beans and green snap beans in the genus *Phaseolus*. It will, however, eat all types of legumes, including alfalfa, and as settlers began transporting that forage plant to the East Coast as animal feed, they brought the beetles along.

After reviewing the available literature on the beetles, the researchers may have discovered a behavioral trait that can be used against them.

"If you look back in the literature, you'll see that if you shine a light on different sides of a bean plant, the beetles always abscond to the other side. That also explains why you find every life stage—eggs, larvae, pupae, and even the adults—almost always on the shaded side of the leaves," Nottingham said.

After some thought about how they could manipulate light conditions,

they decided to try metalized [plastic mulch](#), which looks much like a sheet of aluminum foil with black backing. When placed on the soil around the plants, the mulch reflects light onto the bottoms of bean-plant leaves.

They contrasted small outdoor bean plots using the reflective mulch, black plastic sheeting, or plain soil, and observed beetle numbers, plant damage, and plant growth. Farm-scale research on the effect of reflective mulch remains to be conducted, but it looks good so far.

"We found significantly less of every life stage on plants in our plots with reflective mulch vs. black plastic and bare ground," Nottingham said. "And the plants grew way better and had far less plant injury."

Other options include mechanical removal, row covers, and the use of parasitoids.

More information: L. B. Nottingham et al. Natural History, Ecology, and Management of the Mexican Bean Beetle (Coleoptera: Coccinellidae) in the United States, *Journal of Integrated Pest Management* (2016). [DOI: 10.1093/jipm/pm1023](https://doi.org/10.1093/jipm/pm1023)

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