

Study offers new insights on invasive fly threatening US fruit crops

March 15 2013

Humans aren't the only species with a sweet tooth. Research from North Carolina State University shows that the invasive spotted-wing vinegar fly (*Drosophila suzukii*) also prefers sweet, soft fruit – giving us new insight into a species that has spread across the United States over the past four years and threatens to cause hundreds of millions of dollars in damage to U.S. fruit crops.

"Because we know that *D. suzukii* prefers softer, sweeter fruit, we can focus our research efforts into which wild fruits may serve as reservoirs for this species and help identify new crops that might be at risk," says Dr. Hannah Burrack, an assistant professor of entomology at NC State and lead author of a paper on the research. "These findings may also be a starting point for plant breeders interested in developing new fruit varieties that are more resistant to *D. suzukii*."

Originally from east Asia, *D. suzukii* were first detected in California in 2008. They have since spread to states from Wisconsin to North Carolina to Florida. The female flies use serrated blades on the tip of their abdomens to cut through the skin of ripe fruit and lay their eggs. The eggs hatch into [larvae](#) that feed on the flesh of the fruit until they reach maturity – ruining the fruit in the process.

Sellers go to great pains to remove infested fruit before it reaches the marketplace, so consumers won't notice a difference in [fruit quality](#). But infestations can cause significant [economic problems](#) for fruit growers. For example, researchers estimate that *D. suzukii* has the potential to

destroy 40 percent of blackberry and raspberry crops in the eastern U.S., which would affect berry prices and availability.

D. suzukii already causes tens of millions of dollars in [crop damage](#) annually to cherries, raspberries, blackberries, [blueberries](#) and strawberries. But researchers estimate that losses could climb into the hundreds of millions of dollars per year if the pest can't be controlled.

While ongoing studies explore pesticide-based approaches to control *D. suzukii*, the new research from NC State should help scientists and farmers with other control options.

For example, the study found that *D. suzukii* are more likely to infest certain varieties of raspberries and blackberries. This means growers may be able to limit crop damage by planting more of the varieties that *D. suzukii* tend to avoid. Similarly, this information allows farmers to focus pesticide treatment on varieties that are most susceptible to infestation.

The three-year study evaluated *D. suzukii* impacts in commercial blackberry and raspberry crops in North Carolina, and also encompassed laboratory experiments to help researchers determine which characteristics made fruits more likely to be infested. The work was supported by the Southern Region Small [Fruit](#) Consortium, North Carolina Tobacco Trust Fund Commission, North Carolina Department of Food and Agriculture, U.S. Department of Agriculture and North Carolina Blueberry Council.

More information: The paper, "Variation in selection and utilization of host crops in the field and laboratory by *Drosophila suzukii* Matsumara (Diptera: Drosophilidae), an invasive frugivore," was published online March 14 in *Pest Management Science*.

Provided by North Carolina State University

Citation: Study offers new insights on invasive fly threatening US fruit crops (2013, March 15)
retrieved 28 April 2024 from

<https://phys.org/news/2013-03-insights-invasive-threatening-fruit-crops.html>

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