

The world's most unwanted plants help trees make more fruit

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Kleiman in the field, preparing to count mangos. Credit: Florida International University

Keeping the spark alive is hard in any relationship. It's especially hard for fruit trees trying to attract pollinators.

Blaire Kleiman, an FIU Institute of Environment graduate teaching assistant and alumna, found an unexpected source that keeps this relationship fruitful.

Weeds.

These often unwanted, wild-growing plants might not be particularly attractive to humans, but they do put a spell on [important pollinators](#) like [bees](#) and butterflies. In fact, the presence of weeds benefits trees and [pollinators](#)—and also means more of one of South Florida's favorite fruits.

"Weeds actually do a lot of good," Kleiman said. "It might be helpful to think of them of wildflowers instead of these horrible, ugly things that need to be removed. I say, if they aren't hurting the trees, we should just leave them alone."

Call them needy, but [fruit trees](#) can't live without pollinators. Bees and other insects have been shown to increase the size and quality of yields from 70 percent of the leading economically important crops in the world, including mango.

But it's getting harder to bring the bees to the trees. Over the past three decades, pollinator numbers have drastically declined. This could mean a world with far fewer mangos (a world no one wants to imagine).

When [fruit](#) trees and pollinators do come together, though, the game of attraction really only just begins. Trees must keep the pollinators interested, so they stick around—and don't fly away to find another tree somewhere else.

Farmers sometimes rely on insectary plants. As the name suggests, these specific plants attract pollinators and encourage them to stick around on

the farm. Kleiman wanted to see if weeds could play a similar role since there are hundreds of different varieties of flowering weeds.

Under the guidance of FIU professors Suzanne Koptur and Krishnaswamy Jayachandran, Kleiman compared mango trees at a local farm in Homestead, Florida. One plot of trees had weeds growing around them. The other plot was maintained and [weed](#)-free.

The pollinators preferred the trees with the weeds. In turn, the trees benefitted and produced more mangos. In fact, there were between 100 to 236 mangos on the trees with weeds, compared to between 38 to 48 on the trees without weeds.

Kleiman points out findings apply to [mango](#) trees, but also to all of the roughly 80 percent of flowering plants of Earth, including fruit [trees](#) and all flowering vegetable plants like tomatoes, beans, eggplants and squash. She also hopes this information can help farmers save time and money, as well as reduce the use of chemical pesticides.

The research was recently published in *Insects*.

More information: Blaire M. Kleiman et al, Weeds Enhance Pollinator Diversity and Fruit Yield in Mango, *Insects* (2021). [DOI: 10.3390/insects12121114](#)

Provided by Florida International University

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