

Bee-pocalypse: What lessons did we learn from Zika spraying?

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- Honeybees and other pollinating insects easily killed by aerial pesticides for Zika
- Beekeepers should make their hives known to mosquito control districts

(CNN) [South Carolina beekeeper Juanita Stanley](#) has a message to mosquito control officials who she believes are overreacting to Zika: "Stop. This is crazy. It's like using a sledgehammer to crack a peanut. The devastation that it has already caused is beyond comprehension. We can't live without these honeybees."

Last weekend, Stanley lost more than 3 million bees -- all 46 of her hives and her entire livelihood -- when Summerville officials decided to aerially spray a small area of the town for Zika-carrying mosquitoes.

Usually, officials spray for mosquito control by truck and at night, when bees are in their hives and beekeepers can better protect them. But this time, the county decided to spray aerially, just after sunrise on Sunday.

"There are 'no spraying' signs all over my property," Stanley said. "But my bees were poisoned from the sky."

The spraying occurred, Dorchester County Administrator Jason Ward said, because four people in the county had developed Zika while traveling to areas of the world where the virus is actively circulating. Summerville residents then expressed concern about the virus.

But Zika is not actively circulating in South Carolina. All but one of the 46 cases in the state are [imported, travel-associated cases](#). The lone exception was transmitted sexually.

In fact, the only state with active mosquito transmission is Florida, and only in the Miami and St. Petersburg/Tampa areas.

So if no local mosquitoes in Summerville are carrying the Zika virus, why was it necessary to spray?

For one, *Aedes aegypti*, the main mosquito that carries and transmits the virus, has been found in small numbers in the nearby Charleston area, says Ward. And even though the [only news release](#) from South Carolina's Department of Health and Environmental Control in April says, "There is no risk to public health and no risk of transmission to people or mosquitoes in South Carolina at this time," Ward says the county's first responsibility is to its residents.



"We had historic rainfall, including a flood last October, where we've had standing water in areas where we have never had standing water," he explained. "Our winter this year was very mild, and we didn't have that

real hard freeze. So the health of our citizens is of primary concern."

Stanley said that rationale doesn't make sense.

"Someone has a virus that they didn't get here, but what if, someday, maybe, they might?" she asked, her voice rising in outrage. "Let's just go kill everything in case someone might get it? Where is the logic in that?"

What is the official stance? The National Institute of Food and Agriculture and the National Bee Laboratory said they would not be commenting on the issue. The Centers for Disease Control and Prevention was more forthcoming.

"We do recommend mosquito control to be done around travel-associated cases as well as locally transmitted cases if the mosquitoes that spread Zika are in the environment," said entomologist Janet McAllister of the CDC's Division of Vector-Borne Diseases. "We don't want the virus to take hold in the local mosquito population."

Although *Aedes aegypti* is the most effective at transmitting the Zika virus, another more common mosquito in the United States is also capable of spreading the disease. It's called *Aedes albopictus*, and it's widespread in South Carolina.

"Our recommendations take into account both species," McAllister said, "just in case the disease starts to spread."

Mosquito control and bees

The nation's bees have long been stressed by the public's need for pest control.

"I've seen it with West Nile virus and after hurricanes and major flooding," entomologist Jeffrey Harris said. "I always tell the beekeepers that human health is always going to trump bee health, and if there is a natural disaster that increases a dangerous mosquito population, they are going to spray."

Harris runs the Honey Bee Extension and Research Program for Mississippi State University and is active in research on bees and how to best protect them from pesticides.

"Aerial spraying is a tough one," he said. "The recommendations are difficult to follow. While maximum foraging for bees is between 10 a.m. and 2 p.m., in the summertime, the bees are already out at dawn, when aerial spraying is recommended. So spraying in the morning is the worst thing they can do for bees."

[What are mosquito-control workers spraying in Miami?](#)

Why not spray at night?

"That's not always possible," said Michael Doyle, who has run the Key West Mosquito Control District for five years. "Some districts can fly at night safely, but, for example, we cannot in Key West. We have to fly over water, and there isn't any light to guide the plane."

Doyle added that because the naled pesticide droplets are very small, there is really no way to avoid unprotected hives. The CDC's McAllister agrees.



"The mosquito control pesticides are targeted for tiny creatures," McAllister said. "They are very small droplets, about 15 to 25 microns in size, much less than the diameter of the human hair."

One of the best ways for beekeepers to help their hives during aerial spraying, Harris said, is to wet a breathable fabric and place it over the hive. It will also work when bees evacuate their hives in hot weather and form a "beard."

"Sometimes, a half of pound of bees will be hanging out together in a 'beard' outside their hives in the late afternoon, and they often stay there into the night," explained Harris. "We suggest getting wet burlap bags and hanging them over the hives so that the hive or the beard can't escape. The fabric picks up much of the pesticide and protects them."

But nothing will help if the beekeepers don't know that spraying is going to occur. That means all commercial and hobby beekeepers need to make sure they are registered with their local mosquito control districts.

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"The mosquito control district needs to be good citizens of the environment and have good dialogue with local beekeepers," McAllister said, "and that communication has to be a two-way street. If they aren't registered, they can't expect mosquito control to know where their bees are so they can work with the beekeepers to protect them."

Many beekeepers aren't good at doing that, preferring to keep the locations of their hives private.

"Even professional beekeepers are very secretive about where they place their hives," McAllister said. "I don't understand it. It must be a competition thing with other beekeepers for the best flowers to make the most honey."

"It's a Catch-22," agreed Doyle. "They don't tell us where they are, but then we get blamed for killing bees."

Stanley was on her local mosquito control registry. In her case, the district didn't call her about the spraying. Local officials have apologized, but for Stanley, it was too little, too late.

"I used all of my resources to start this business, and I've lost everything," Stanley said. "You can't insure bees, and I had no backup plan. These little baby bees that I've lost, it's devastating."