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## Zika Fight Not Dire If We Look Beyond Insecticides

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Timothy Lemmer  
Letters Editor  
*The Wall Street Journal*

Dear Mr. Lemmer:

Please allow us to assure your readers that we have not reached a “dead end” in battling mosquito-borne disease, as characterized in the January 5 edition of *The Wall Street Journal* (“[In the Fight Against Zika, Insecticides Hit a ‘Dead End’](#),” by Jacob Bunge and Betsy McKay). Every day, insect scientists and mosquito-management experts are studying and deploying new solutions to meet this challenge head-on.

Bunge and McKay’s article gets the science right: Resistance to insecticides in mosquito populations has long been a challenge. But it is a problem at least partly resulting from a longstanding over-reliance on insecticides. Left out is that we in fact have an array of mosquito-management tools at our disposal, and a multi-pronged approach carries the dual benefit of being more potent and extending the effectiveness of insecticides for when they’re truly needed. Integrated pest management applies our knowledge of an insect’s ecology to manage it in multiple ways: with human cultural practices, biological control and—when necessary—chemical controls.

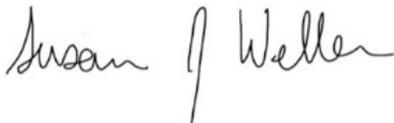
Ongoing research into biological control of the mosquito that transmits Zika, *Aedes aegypti*, offers potential. Recent studies have confirmed that a bacterium called *Wolbachia pipientis*, while benign to humans, can completely block transmission of Zika in *Ae. aegypti* and that it also interferes with the mosquito’s fertility, meaning the release of *Wolbachia*-infected, Zika-free mosquitoes into wild populations can thereby reduce mosquito numbers. Meanwhile, studies and field trials have continued to show the success of precision-bred mosquitoes to similarly reduce wild mosquito populations.

Mosquito management is also a matter of educating the public and improving living conditions. Communities must be engaged at the ground level on simple cultural control measures like reducing standing water (where *Ae. aegypti* larvae hatch and

develop), and affected communities need support in raising housing standards to increase the prevalence of screened windows, air-conditioning, and running water (all of which reduce human exposure to mosquitoes).

Our government leaders must minimize regulatory bottlenecks to promote the timely development of new, more environmentally sustainable insecticides, and enhanced funding is needed now more than ever for research on all forms of mosquito management and for deploying those findings into the real world. *Ae. aegypti* was virtually eradicated in the Americas in the 1960s, but collectively we let down our guard, and now we face the same challenge once again. It is, however, a fight we can win. We must simply recognize that there is no single, magic, insecticide bullet to stop *Ae. aegypti*.

Now is not the time to throw our hands up in despair. To suggest that the fight against Zika is at a “dead-end” isn’t acceptable. Entomologists and mosquito-management professionals around the world are dedicated to finding new ways to prevent the transmission of mosquito-borne diseases, and we are confident that the combined effort of government, industry, and the global scientific community, coupled with enhanced public education and cooperation, will conquer public-health challenges like Zika and continue to improve the human condition.



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