

Speaking of insects...

Given that *Aedes aegypti*, the main mosquito vector of Zika virus, has been an intense focus of public health attention in the Americas, most recently in Florida, it seems apt that next week, 7000 entomologists from around the world will converge on Orlando, Florida, for the 25th International Congress of Entomology (ICE), where, among other activities, 175 discipline thought-leaders will join policy-makers and other experts to address “Improving the Human Condition through Insect Science.” The ICE summit’s goals are to define the major global insect-related challenges—from arthropod-borne diseases to the protection of beneficial species—and plan collaborative efforts to meet these challenges through research and technology. These “grand challenges” aren’t new. What’s new, however, is an explicit effort to address one of the greatest challenges: effective engagement with the public about the value of insect science.

The public has long been generally unfamiliar and even unenamored with most insects. Notwithstanding, few entomologists communicate with the public about their work. This relationship is a major problem for two reasons. Finding new solutions to evolving insect-related challenges requires basic research, but fundamental insect science often appears arcane and irrelevant to the general public and policy-makers. Also, when basic knowledge produces new technology, that novelty can generate widespread public concern and even entrenched opposition to implementation.

One example, the sterile insect technique, is as mystifying to most people today as it was 80 years ago. In 1935, charged with controlling the screwworm fly, a devastating pest of livestock, entomologists Edward Knipping and Raymond Bushland commenced decades-long studies of its sexual behavior and population biology. Skepticism abounded when, in 1953, merging their findings with Hermann Muller’s Nobel Prize-winning discovery that irradiation sterilizes male fruit flies, they released thousands of irradiated male screwworm flies on Curaçao, where livestock losses to the pest were unmanageable. In just

7 months, the breeding cycle was fatally disrupted, and screwworms were eradicated from the island with no adverse consequences. By 1966, the sterile insect technique had eradicated screwworms from the United States, saving the cattle industry millions of dollars in annual losses. Yet despite its demonstrable utility, funding for screwworm eradication in Central America by the U.S. Department of Agriculture (to prevent incursions northward into the United States) in 2005 was described as “getting ‘screwed’ by the government” in *The Pig Book: How Government Wastes Your Money*. Today, mosquito biologists have modernized sterile insect release, creating transgenic males that pass lethal genes to offspring, decimating populations harboring Zika and other viruses. Still, public distrust of genetically modified organisms is so pervasive that a survey in February revealed that 35% of Americans believe (mistakenly) that such mosquitoes (“Franken-flies”) are responsible for Zika’s spread. As the U.S. Food and Drug Administration considers the use of such insects for Zika control, there is public concern that they could have

unintended effects on the environment. These two examples illustrate the continuing need for clearer communication with the public about how new science enhances pest management efforts.

Last March, the Entomological Society of America and the Sociedade Entomológica do Brasil held a summit in Brazil to discuss research and management strategies for *A. aegypti*, which transmits Zika, chikungunya, and dengue viruses. One outcome of this meeting was a consensus to improve communication with the public through strategies that are tailored for each country to best disseminate facts and dispel misinformation that hinders responses to disease outbreaks. The Leadership Summit at this year’s ICE meeting will build on this message most opportunely, at the largest gathering of entomologists in the discipline’s history. The world’s entomologists need to talk among themselves about how best to talk about insect science with the rest of the world.

—May R. Berenbaum



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