FORUM

Local Research, But Everyone's Watching

The Mediterranean fruit fly *(Ceratitis capitata),* commonly called the medfly, is one of the world's most destructive agricultural pests.

Also with the potential to cause a large amount of damage to agricultural crops are the melon fly, oriental fruit fly, and Malaysian fruit fly, all foreign to the United States. These four species can turn more than 400 different fruits and vegetables into maggot-infested inedible mush, including citrus, eggplant, guava, loquat, mango, melon, papaya, passion fruit, peach, pepper, persimmon, plum, star fruit, tomato, and zucchini.

The only place these four fruit flies have become established in the United States are the islands of Hawaii, where the flies have devastated local farms, large and small, and necessitated heavy use of chemical pesticides on many crops.

Many fruit fly control techniques being used around the world have their genesis in research that the Agricultural Research Service (ARS) has carried out in the Pacific since the 1950s. Hawaii has been infested by exotic fruit flies since the late 1800s, and it has been an ideal test location for development of control methods because there is no chance of further spread.

Techniques such as more effective species-specific lures and baits, improved ways of producing sterile male fruit flies released to short-circuit the breeding cycle, new biocontrols such as augmentative releases of parasitic wasps, and more effective crop management techniques have all come from ARS's U.S. Pacific Basin Agricultural Research Center in Hilo, Hawaii. But until recently the techniques developed there had not been put to work in a systematic package to deal with Hawaii's own fruit fly problem.

Now, use of these techniques has come home to Hawaii in an ARS-led program called the Hawaii Area Wide Fruit Fly Integrated Pest Management (HAW-FLYPM) program. ARS teamed up with the Hawaii Department of Agriculture and the University of Hawaii to put together a program of techniques to control medfly, melon fly, Malaysian fruit fly, and oriental fruit fly and to help Hawaiian farmers implement it.

Just 4 years under way, the HAW-FLYPM program is already having tremendous success. Hawaiian farmers who have adopted the integrated pest management plan are finding they can cut chemical pesticide use by 75 to 95 percent and grow crops they had once given up on because of fruit fly damage.

Hawaiian growers couldn't be more pleased, but they aren't the only ones who may benefit from this success. Many people are keeping an eye on the work. California, Florida, and Texas, in particular, have a keen interest in the program's ability to control fruit flies.

California is especially attentive. Keeping medfly out of California has cost nearly $500 million during the past 25 years. And that figure is a drop in the bucket compared to the more than $1.4 billion annual loss estimated for California if medfly were to become established there. These losses would come from lost markets, export sanctions, treatment costs, and reduced crop yields.

By keeping abreast of the Hawaii fruit fly program, California could gain valuable information about how to make control measures more effective to deal with their periodic outbreaks. The state could also gain access to new technology, such as better baits and traps.

Just as important to California is whether or not Hawaii will seek to export more fruits and vegetables as its fruit fly infestation comes under control. Hawaii is the only state under quarantine for fruit and vegetable export because of exotic fruit flies. California will want to ensure new Hawaiian exports don't pose additional danger.

Just as other states are interested in how well the HAW-FLYPM program is doing, so are other countries. Researchers and officials from Australia, the Commonwealth of the Northern Mariana Islands, Fiji, French Polynesia, Guam, South Africa, Taiwan, and Vanuatu are checking out the ARS-led program. They are watching the HAW-FLYPM program as a model for fruit fly suppression.

Countries, especially along the Pacific Rim, are adopting areawide pest management to suppress fruit flies by closely interacting with program scientists in Hawaii.

Fruit flies often spread through imports of produce. With increasingly global trade, all countries are seeking the most effective tools to deal with these pests—whether it is controlling them at home or keeping them out in the first place.

Eradicating fruit flies, especially invasive species, in one country won't completely solve its problem if it is just going to get fruit flies right back from another source.

Of course, it is also to Hawaii's and the rest of the United States' benefit if other countries control fruit flies at home. A decreased chance of fruit fly invasion can only provide better protection for U.S. agriculture. This makes the exchange of expertise and research essential to a fruit fly-free future.

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