Federal, state, university and industry experts work together

A Prescription Against Fruit Flies

By Dr. Eric B. Jang

Thought fruit fly control in Hawaii could never happen? Well, you were not alone. But as a result of a unique federally funded program, and the hard work of federal, state, university and industry professionals, environmentally friendly strategies for controlling fruit flies are being implemented on three Hawaiian Islands.

A True Team Effort

Enter Dr. Ronald F. L. Mau, entomologist and extension specialist with the Department of Plant and Environmental Protection Sciences at the University of Hawaii College of Tropical Agriculture and Human Resources. He was accompanied by Dr. Lyle Wong, administrator for the Division of Plant Industry at the State of Hawaii Department of Agriculture. They agreed to join the project with the ARS group in Hawaii. They did that despite some initial concerns about the likelihood for success, given the highly ambitious goals set for the program. Past attempts had demonstrated how remarkably difficult it is to control fruit flies in Hawaii.

What’s unique about the HAW-FLYPM program?

- First, the idea that pests such as fruit flies need to be managed over a larger area than just individual farms;
- Second, the concept that area-wide pest management is best accomplished by groups rather than individuals;
- Third, the premise that cooperative programs make the best use of available resources and expertise.

A Plan of Action

Through a science-based Integrated Pest Management Program, or HAW-FLYPM for short, targets the melon, oriental, Malaysian and Mediterranean fruit flies. HAW-FLYPM started a bit over two years ago with a grant from USDA’s Agricultural Research Service (ARS) to researchers at the U.S. Pacific Basin Agricultural Research Center, based in Hilo.

HAW-FLYPM is focused on demonstrating the use of technologies — developed by ARS, university, and industry researchers — to help solve the fruit fly problem in Hawaii. The research group, which includes Dr. Chiou Ling Chang, Dr. Ernest J. Harris, Dr. Donald O. McNinis, Dr. Grant T. McQuate, and Dr. Roger J. Vargas, has been working for many years on the troublesome fruit flies.

Private companies such as Dow AgroSciences — which was jointly developing a fruit fly bait with ARS researchers in Texas — and United Horticultural Supply (UHS), also agreed to participate “if it will help the growers,” according to UHS’s Hawaii District Manager, Reginald M. Hasagawa.

Armed with a carefully developed plan, relevant technologies and a “can-do” attitude, the ARS group set up fruit fly surveys on the islands of Kauai, Oahu, Maui, Molokai, and the Big Island. The surveys identified “demonstration sites” where the HAW-FLYPM strategies could be tested and shared with growers. From these initial studies, the scientists chose demonstration sites on Maui, Oahu and the Big Island.

Next, in order to identify the control areas, the researchers set up grids using geographical positioning systems (GPS) hardware and geographical information systems (GIS) software technology, similar to that used in mapping systems.

A Plan of Action

The overall plan for HAW-FLYPM consists of several major elements.

- First, a science-based Integrated Pest

Dr. Eric Jang explains to Betsy Sakata which fruit fly species is attacking her peaches and possible control tactics in Waimea on the Big Island.
Hiroshi Arisumi, a Kula persimmon farmer, shares with a group how the area-wide fruit fly IPM program has helped to control the pest.

Management (IPM) strategy designed by the ARS researchers to control one or more of the four pest fruit fly species found in Hawaii:

- Second, a comprehensive education program, headed by Dr. Mau and Jari S. Sugano;
- Third, a proactive approach to regulatory issues, spearheaded by Dr. Wong.

Sugano and her team of extension agents have helped sign up growers to participate. The ARS group has set out to demonstrate five key technologies, derived from decades of research in Hawaii and elsewhere. These technologies are:

1) In-field crop sanitation, to limit breeding of flies;
2) A newly developed protein-based bait spray – called GF-120 – which uses an environmentally acceptable toxicant called spinosad;
3) Fruit fly attractants to entice the insects to traps;
4) Release of sexually sterile flies that cause fly populations to crash;
5) Release of natural enemies of fruit flies called parasitoids.

**Success at Hand**

Now in its third year, the HAW-FLYPM program is starting to pay significant dividends. Dr. Vargas, the program’s current coordinator, has all five technologies up and running at the Big Island’s Waimea demonstration site. There, melon fly is the first target. As a result of the program, melon fly populations are at an all-time low.

At the Kula, Maui, and Central Oahu demonstration areas, teams coordinated by Dr. Mau are making important inroads to fruit fly suppression.

In particular, persimmon growers in Kula reported at the HAW-FLYPM 2002 annual meeting that the program has helped lower fruit fly infestation of their crop. And recent reductions in melon fly populations, observed by a melon and zucchini grower in Central Oahu, are further proof that the program objectives are being met. That’s a gratifying payoff to the more than two dozen staffers who are making HAW-FLYPM a success.

What’s more, the recent national (Section 3) registration by Dow AgroSciences of GF-120 now gives growers the ability to use this protein-based bait spray as a fruit fly control on more than 250 different crops.

**Gardeners Benefit, Too**

Of course, the fruit fly problem affects everyone who lives in or visits Hawaii – not just commercial growers. Sugano’s group is developing a community education program to educate residents on how area-wide pest management programs benefit their communities by reducing the need for pesticides, increasing worker safety, providing economic gains, and improving management of pests in backyard gardens.

Also on tap are economic analyses and cost-benefit surveys for commercial growers, and follow-up research to further improve existing technologies.

The program has demonstrated to the agricultural community that collaborative efforts such as this are a road map to future successes. That road map might be used to develop diversified agriculture in Hawaii to its fullest potential.

While it’s too soon to claim victory, the early successes of the program suggest that HAW-FLYPM efforts – if sustained – may be just what the doctors (in this case, Drs. Jang, Chang, Harris, Mau, McInnis, McQuate, Vargas, and Wong) ordered as the best prescription against fruit flies.