

FINDING ALTERNATIVE WAYS TO CONTROL ALIEN PESTS

PART 1: Limitations of Classical Biological Control and Conventional Insecticides

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Hawaii's gorgeous landscapes and nurseries continue to battle new and old alien insect pests. The state suffers from accidental immigration of 10 to 28 insects per year. Among the 25 alien pests that cause economic damage to flower and nursery products and unsightly landscapes are the hibiscus erineum mite (hibiscus), green scale (gardenia, ixora) and coconut mealybug (palms).

In the past, classical biological control conducted by the Hawaii Department of Agriculture solved many serious floriculture and landscape pest problems.

However, in recent years, biological control has suffered a setback because of environmental concerns that parasites and predators purposely introduced to control alien pests will inadvertently affect the abundance of any closely related native insect populations. To address this problem, extensive host range tests are required to assure that the parasite or predator is specific to the alien pest species.

If classical biological control is unsuccessful or if natural enemies already present in Hawaii do not control new alien pest species, nurserymen and landscape professionals must rely heavily on broad spectrum organophosphate (OP) and carbamate insecticides, such as Malathion, Diazinon, Dursban, and Sevin.

However, the U.S. Environmental Agency (EPA) may cancel or limit registered uses of broad spectrum organophosphate and carbamate insecticides. All pyrethroids used outdoors will be considered "Restricted Use Pesticide" due to toxicity to fish and aquatic organisms. "Restricted Use Pesticides" are only available for sale to and use by Certified Applicators.

Alternatives to Control Alien Pests

It will require an integrated, multiple control approach minimizing the use of broad spectrum chemical insecticides and maximizing the use of biorational insecticides, cultural, mechanical, natural and physical controls to control these alien pests. A thorough understanding of the biology and behavior of these alien pests is required in order to develop effective integrated control practices. These practices must target the most vulnerable developmental stage of the pest and pinpoint the most susceptible time period for application.

Conventional Insecticides

Conventional insecticides include organophosphate, carbamate, chlornated hydrocarbon and pyrethroid classes of insecticides have been very effective but are

under close scrutiny by EPA's Food Quality and Protection Act (FQPA) of 1996.

For example, chlorpyrifos, also known as Dursban (Dow AgroSciences), has been consistently effective against foliar mealybugs in tests conducted by the University of Hawaii. Dursban is also effective against root mealybugs when applied as a drench treatment. Root mealybug is a serious quarantine pest of potted plants in Hawaii.

However, the recently completed preliminary risk assessment under the EPA's FQPA for chlorpyrifos dims its widespread use. EPA has concluded that chlorpyrifos has effects on the human nervous system. Therefore, chlorpyrifos will be regulated under a 10-fold safety factor to protect infant and children from exposure to this pesticide. The public has 60 days to comment on the preliminary risk assessment for chlorpyrifos. Comments must be received by Dec. 27, 1999. For more information, see <http://www.epa.gov/pesticides>.

Other organophosphate insecticides, including acephate (Orthene), diazinon, dimethoate, malathion, fenamiphos (Nemacur) do not appear to be as risky as Dursban.

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More... PART 2: New Insecticides Introduced to Fight Old Pests

PRODUCT INFORMATION

PRECAUTIONARY STATEMENT

Use pesticides safely. Follow the pesticide label. Consult with the Cooperative Extension Service or the Hawai'i State Department of Agriculture for authorized special local need registrations or additional information. The user is responsible for the proper use, application, storage, and disposal of pesticides.

DISCLAIMER

Reference to a company or product name does not imply approval or recommendation of the product by the College of Tropical Agriculture and Human Resources, Cooperative Extension Service University of Hawaii, or the United State Department of Agriculture and does not imply its approval to the exclusion of other products that may be suitable. All materials should be used in accordance with label instructions or manufacturer's directions.

Product Name: Dursban
Manufacturer's Name: Dow AgroSciences LLC
Address: Indianapolis, IN 46268
Composition: chlorpyrifos