



UNIVERSITY
of HAWAII®
MĀNOA

January 29, 2010

Ted Rogers
Biologist, Senior Policy Analyst
USDA Office of Pest Management Policy
1400 Independence Ave., SW
Washington, DC 20250

Subject: *Spirotetramat: Impact of Loss of Registration — Hawai'i*

The following comments are being submitted in response to email message of January 14, 2010 regarding the impact of the loss of this spirotetramat on production of commodities and agriculture in general. These comments are being submitted on behalf of the Western Integrated Pest Management Center and provide input on the use and importance of spirotetramat to the production of **macadamia nut, various vegetables and other commodities** in Hawai'i.

Spirotetramat is an effective insecticide against many insect pests in Hawai'i. It has a long term residual effect and is relatively safe for pesticide applicators and farm workers, many of whom are immigrants for whom English is a second language. These characteristics make spirotetramat ideal for our tropical climate and production environment. The loss of this product would greatly affect the sustainability and profitability of many small scale agricultural operations in Hawai'i. Testament to the efficacy of this expensive, new chemistry is that, growers buy it—grudgingly—because they lack options to produce marketable products.

Due to Hawaii's year-round tropical climate, many insects such as aphids and whiteflies are a serious economic concern for many diversified crop producers. Further, the loss of a registered crop protection chemical like spirotetramat can aggravate resistance issues in many of our minor crops for which only a few pesticides are registered. The availability of spirotetramat in Hawai'i will help prevent development of insect resistance to one chemical; will give growers more choices of effective pesticides; and will encourage extension agents and pesticide education specialists to help growers with sustainable pest management programs.

Perhaps **macadamia nuts** is the single largest commodity in Hawai'i for which spirotetramat is used. Spirotetramat is being used in macadamia nut to control macadamia felted coccid. Felted coccid can pose a threat to Hawai'i's entire macadamia crop and there are few tools to control this pest. Recently, these insects were infesting the upper branches of macadamia trees in one large

orchard. Because spirotetramat is systemic, it was able to move in the plant and very effectively control this pest. Spirotetramat is used in large macadamia trees. A possible alternative chemical, petroleum oil (Safe-T-Side) is effective in small trees. Buprofezin (Applaud) is effective, but has negative impacts on Coccinellidae.

Vegetable crops. Because of its systemic activity, spirotetramat is very good for controlling aphids, whiteflies and other sucking insects on **fruiting vegetables—eggplant, peppers, tomatoes and others; crucifers—broccoli, kai choy, gai lan and others; leafy greens—chard, lettuce, amaranth and others; and dasheen (dryland taro).** Spirotetramat is an excellent insecticide for these crops for resistance management; it is a very important product that is used in spray rotations with other mode of action insecticide classes to add to a pesticide resistance rotation.

Spirotetramat is very effective in controlling root aphids on crucifers. For crops with thick canopies, like eggplants, spirotetramat provides good control of mealybugs. Other contact/translaminar insecticides do not control these pests well because these insects are on the stems of the eggplant. This product is also important to the lettuce industry for the control of red aphids in lettuce hearts.

There are current reports of huge infestations of whiteflies on beans, eggplants and peppers on O'ahu. Populations of this insect pest vary a great deal; whiteflies baffle farmers when they appear again and again. There are other pesticides being used on this pest but recurring insect pests like whiteflies will most likely need new pesticides for effective control.

Tomato growers are likely to increase the use of spirotetramat because imidacloprid (Provado, Admire), a whitefly control product which is commonly applied, has been used for years and there have been reports of resistance. The sweetpotato whitefly (*Bemisia tabaci*) and the biotype B (or silver-leaf) whitefly (*Bemisia argentifolii*) are the primary vectors of the tomato yellow leaf curl virus (TYLCV). Tomato yellow leaf curl is a destructive viral disease of tomato. In tropical and subtropical regions, total losses of tomato crops have been reported. TYLCV is widespread and can be found in most places where tomato is grown. TYLCV was first discovered in Hawai'i on the islands of Maui and O'ahu, in November of 2009.

Research and uses in the pipeline. Because it is relatively safe for human handlers, but mostly its importance in the insect resistance management/control program and its effectiveness against various insect pests, spirotetramat has been a material selected for current and future research projects:

1. **Papaya.** Papaya Mealybug is a very important pest to Hawai'i's papaya production. Spirotetramat is very effective against this pest and papaya growers statewide were looking forward to having spirotetramat help meet the dire need for new pesticides for papaya pest management. Papaya growers would greatly benefit from this product to use in rotation with malathion, imidacloprid, buprofezin and a few others.

Mites are another serious pest of papayas. Spirotetramat is being tested on papaya with mite

infestations, and there is a chance that this systemic pesticide may also be a good chemical to manage papaya mite pests.

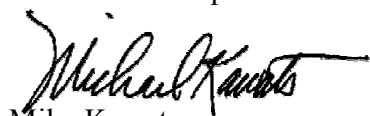
2. **Coffee.** Green scale is one of the most important economic pests of coffee production in Hawai'i. (A more serious problem dry environments, green scale, is becoming a major problem in the Ka'u District.) The ability to use spirotetramat will prove useful to the coffee growers. As for other commodities, spirotetramat will be useful in the resistance management program.
3. **Banana.** Banana bunchy top virus (BBTV) is one of the two most damaging diseases of bananas in Hawai'i. The banana aphid is a serious problem on banana because it is a vector of BBTV. Banana growers are anxiously waiting for spirotetramat as a tool to help control BBTV.
4. **Taro and sweet potato.** An extension agent has purchased spirotetramat in preparation for efficacy research for pests of taro and sweet potato. Taro, in particular, has few registered pesticides.
5. **Ornamentals.** Hawai'i ornamental crop extension agents were just introduced to the spirotetramat product, Kontos, in October 2009. Therefore, there are no critical uses identified. However, two of the agents reported that they were quite interested in researching the efficacy of this chemical for the nursery and landscape industry.

Hawai'i's agriculture producers in general and ornamental producers in particular have had problems with quarantine pests that have resulted in their products being refused by California. Spirotetramat is effective against aphids, mealybugs, and other soft bodied insects that are targeted as quarantine pests.

Recently, the discovery of reniform nematodes has led to a suspension of all *Dracaena* shipments from Hawaii. This represents a \$4-5 M industry and a significant portion of Hawai'i's diversified agriculture. Work is presently underway to investigate nematicidal effects of spirotetramat. Should there be positive results, this would certainly add to the limited arsenal available as a post plant treatment for this industry.

This information has been provided by extension agents and specialists of the College of Tropical Agriculture and Human Resources, one representative, each, of Hawai'i's macadamia nut industry, the Hawai'i Farm Bureau Federation, and agricultural chemical vendors.

Comments compiled and submitted by:



Mike Kawate
Pesticide Registration Specialist
Voice: 808-956-6008
mike@hpirs.stjohn.hawaii.edu



Cathy Tarutani
Educational Specialist
Voice: 808-956-2004
cathy@hpirs.stjohn.hawaii