

Request for Information on Endosulfan Use on Pineapples in Hawaii -- Hawaii Response

From: [Cathy Tarutani](#)
Sent: Friday, October 30, 2009 7:26 PM
To: Rienzo-Stack.Kaitlin@epamail.epa.gov
Cc: wyatt.tj@epa.gov; mike@hpirs.stjohn.hawaii.edu; Rick Melnicoe
Subject: Re: Hawaii pineapple questions

Dear Kaitlin,

[Attached](#) (PDF* 285K) is our response to your inquiry about endosulfan use on pineapple and some questions posed by T. J. Wyatt about endosulfan use on macadamia nuts.

Thank you both for providing an opportunity for Hawaii's growers to provide input on this issue.

If you have any further questions, please don't hesitate to contact me.

Mahalo,
Cathy

[Cathy Tarutani](#)
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October 30, 2009

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Biological & Economic Analysis Division
Office of Pesticide Programs
U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N. W.
Mail Code: 7503P
Washington, DC 20460

Subject: Endosulfan Assessments--Hawai'i Pineapple and Macadamia Nut Questions

The following comments are being submitted in response to email messages of October 21 and 27, 2009 regarding EPA's assessment of the importance of the production of various crops. These comments are being submitted on behalf of the Western Integrated Pest Management Center and provide input on the use of endosulfan to **pineapple** and **macadamia nut** production in Hawai'i.

Attached are the responses to questions posed by you and a letter from the Pineapple Growers' Association of Hawai'i addressing the use of endosulfan on pineapples. Also attached are the responses to T. J. Wyatt regarding the use endosulfan in macadamia nut production.

This information has been provided by representatives of Hawai'i's pineapple and macadamia nut industries.

Comments compiled and submitted by:

Handwritten signature of Mike Kawate in black ink.

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October 30, 2009

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Dear Ms. Rienzo-Stack:

The purpose of this letter is to provide input and support to the Endosulfan Task Force for the re-registration of Endosulfan in pineapple.

Endosulfan is widely accepted in pineapple cultivation as one of the best products to combat fruit mites. Fruit mites serve as vectors for several bacterial fruit diseases including pink disease and leathery pocket which, if not controlled, can have devastating effects to both the fresh and processed sides of the business. The economic reduction in fruit diseases in Hawaii allows for efficient use of labor and resources, market stability and the ability to compete with low cost foreign producers.

There are few, if any chemical alternatives to Endosulfan in Hawaii. Diazinon is the only broad-spectrum insecticide available to the industry and its usage is largely limited to mealy bug control. Comparative studies by the Pineapple Research Institute of Hawaii and private industry indicate that Endosulfan is the most effective miticide available.

It is important to note that Endosulfan usage in Hawaii has declined in recent years due to reduced acres under cultivation, improved disease management and the development of Integrated Pest Management (IPM) Programs. This use pattern is likely to remain constant or increase due to the

introduction of new low-acid hybrids that are more susceptible to disease than traditional Smooth Cayenne clones. New pineapple varieties are crucial to the survival of the Hawaiian pineapple industry.

Application patterns and rates for Endosulfan in Hawaii have also changed over time. IPM programs target disruption of the pest life cycle at five months before harvest and mitigate reliance on scheduled prophylactic applications with less effective chemicals. In many cases one application of Endosulfan at 1 to 1.5 lbs active ingredient per acre resulted in more than 80% disease control. *The Pineapple Growers' Association of Hawaii is requesting EPA grant a maximum two applications of Endosulfan at a rate of 1 to 1.5 lbs. a.i. in each of the first two years of a typical three-year crop cycle.*

Loss of registration of products containing Endosulfan will severely limit the Hawaiian pineapple industry's ability to compete in the global market. The Pineapple Growers Association of Hawaii strongly supports renewal of registration. We urge the EPA to take into account the above mentioned factors in the RED process.

Sincerely,

Michael J. Conway
Chair, Agriculture Committee
Pineapple Growers Assn. of Hawaii

Use of Endosulfan in Pineapple Production in Hawai'i

1. *Is endosulfan commonly used to manage pineapple pests in Hawaii?*

Yes.

1a. *If so, which pests?*

In general, endosulfan is important to Hawai'i's pineapple industry to control parasitic fruit diseases vectored a variety of insects and mites and damage caused directly by mite and insect feeding.

Specifically:

Pineapple fruit mite (*Steneotarsonemus ananas*) and pineapple red mite (*Dolichotetranychus Floridanus*) to control pink disease (*Acetomonas* spp.) and leathery pocket (*Penicillium funiculosum*).

Although endosulfan is not labeled for these pests on pineapple, applications of endosulfan also control: 1) the sugarcane budmoth (*Opogona sacchari*) larvae, which causes gummosis; and 2) mealybugs (*Dysmicoccus brevipes*, *D. neobrevipes*) which are vectors of viral Pineapple Mealybug Wilt.

1b. *Are these pests major factors in yield and/or fruit quality loss?*

Yes. If they are not controlled, these diseases can have devastating effects on fruits produced for fresh consumption as well as for canning. Mealybug wilt can cause plant death. The presence of mealybugs is also grounds for quarantine intervention (refusal of shipment) in California.

In recent years, the Hawaiian Pineapple Industry has transitioned from traditional cannery fruit (Smooth Cayenne) clones to new, low-acid "Gold" hybrid clones for fresh consumption. The Gold hybrid clones are more susceptible to mite- and insect-vectored parasitic fruit diseases, damage caused by feeding of pineapple mites on the trichomes, and damage (gummosis) due to feeding of budmoth larvae on the bracts.

The Gold hybrid clones are susceptible to mite damage when grown in cool, wet growing environments. Mite damage to fruit is characterized by lack of trichomes sometimes resulting in severe deformities of the fruit.

The Gold hybrid clones, especially MD-2, are susceptible to gummosis caused by the sugarcane budmoth. Gummosis causes discoloration to the fruit, which, when severe, renders the fruit un-marketable

All of these problems can cause severe economic losses. During the early years of conversion to MD-2 on O'ahu, (before the implementation of adequate controls) 60 to 80% of some fields were impacted by gummosis. Recently, O'ahu's fields have

experienced less incidence and severity of gummosis. On Maui, problems with mite damage occasionally occur. (Pineapple is primarily grown on the islands of Maui and O'ahu.)

2. *How many applications of endosulfan are put out each year?*

The typical crop cycle for pineapple production in Hawai'i is approximately three years. The first harvest or "plant crop" is harvested approximately 16 to 20 months after planting. The second crop (the "1-ratoon" crop) is harvested about 13 to 16 months after the plant crop harvest. Thus, normally, two crops are harvested from each planting.

In general, two applications are made per crop, i.e., four applications per crop cycle.

2a. *When is it applied during the growing season?*

Endosulfan is applied at time of flowering to control pineapple mite populations.

At the time of first ("plant crop") flowering, 1.0 to 1.5 lbs a.i./acre is applied as a foliar broadcast spray. A second application of 1.0 to 1.5 lbs. a.i./acre may be applied one to two weeks after the first application. A final application is made at least 60 days prior to the anticipated harvest date.

Endosulfan may be applied once during the summer when populations of pineapple red mite are higher. This application is made when more controls are needed for the red mites.

3. *What percent of the pineapple crop in Hawaii is treated with endosulfan?*

Endosulfan is applied as needed to achieve adequate pest control. A range of 25 to 80% of the conventionally-produced pineapples may be treated.

4. *If the REI (restricted entry interval) for endosulfan were to increase from 2 days to 9 days, what conditions, if any, would make continued use of the product feasible?*

Increasing the REI to 9 days would not present a severe hardship to Hawai'i's pineapple growers. Postapplication activities include crop logging and inspection of drip irrigation systems for leaks. These activities can be scheduled to be completed after the expiration of the extended REI.

5. *In the absence of endosulfan, what alternative pesticides would pineapple growers use?*

Endosulfan (Thionex 3EC, EPA Reg. No. 66222-63 and SLN HI-030002) is the only effective and appropriate chemical labeled for mite control.

Malathion and diazinon are insecticides that are labeled for mealybug control in pineapple, but also have some efficacy against the other above mentioned pests. Because of its strong odor, use of malathion is limited to secluded areas away from residences. The

diazinon label for use on pineapples (EPA reg. no. 66222-10) does not include mite or sugarcane budmoth control on pineapples, but some control of these pests may be achieved when diazinon is applied for mealybug control. Diazinon use is now limited to two (2) applications per year. Two annual applications of diazinon are not sufficient to control mealybugs. Therefore, it is extremely unlikely that diazinon will be used for the purpose of mite or sugarcane budmoth control the near future. (If no alternatives to diazinon are registered in the future, it will be very difficult to continue production in Hawaii.)

Use of Endosulfan in Macadamia Nut Production in Hawai'i

1. *Is endosulfan commonly used to manage macadamia nut pests in Hawaii?*

No. Endosulfan is used infrequently on an as-needed basis.

- 1a. *Which pests are endosulfan used to control?*

Southern green stinkbug (SGSB), *Nezara viridula*

- 1b. *Are these pests major factors in yield and/or fruit quality loss?*

Southern green stinkbug (SGSB) is a major economic insect pest that causes yield reduction and loss of income via rejection of damaged macadamia kernels by processors

2. *How many applications of endosulfan are put out each year?*

None. Endosulfan is needed only when and if there is a serious increase in SGSB populations and resulting damage to the macadamia kernels. Most of the time, growers rely on beneficials to keep SGSB in check. With the biocontrol provided by these natural enemies, losses due to kernel damage caused by SGSB are normally below 3%, a level which is not high enough to require pesticide application.

3. *When is it applied during the growing season?*

When needed, application should be allowed prior to and during the harvest season.

4. *What formulation of endosulfan is used by macadamia nut growers?*

Wettable powder (EPA SLN Number: HI-030001).

5. *What is the application rate that is used?*

Dilution of 2 lbs. of product per 100 gallons of water at 100-300 gallons per acre

6. *What percent of the macadamia nut crop in Hawaii is treated with endosulfan?*

N/A

- 6a. *How many acres are treated per day?*

N/A

7. *If the REI for endosulfan were to increase from 2 days to 16, what conditions, if any, would make continued use of the product feasible*

None.

- 7a. *What worker activities would be affected?*

Weed control, harvesting, and fertilizer application

8. *In the absence of endosulfan, what alternative pesticides would macadamia nut pineapple growers use?*

- Malathion;
- Pyrethroids (cyfluthrin, lambda cyhalothrin, gamma-cyhalothrin, zeta-cypermethrin, and deltamethrin); or
- Piperonyl butoxide + pyrethrins

These “alternative” insecticides, if used in a macadamia orchard would not only provide control of the SGSB but, would also more severely reduce populations of its natural enemies compared to using endosulfan. Thus, use of any of these alternatives, would have more negative impacts on the balance of populations of SGSB and beneficial insects. For this reason—even though its use is very infrequent in Hawai‘i, macadamia nut growers prefer to continue the SLN registration of endosulfan for use—when necessary—on macadamia in Hawai‘i.

9. *Are there application methods other than airblast that macadamia nut growers can use?*

Applications with orchard guns and boom sprayers are also appropriate when a grower wishes to apply endosulfan on preferred alternate host plants for the bugs within and outside of the orchards. The literature indicates that macadamia nuts are not the preferred host of SGSB and that pod bearing weeds in and outside the orchards are preferred.

(The preference of SGSB for weed hosts resulted in attempts to use weedy areas as locations for trap crops and pesticide treatment; these areas are where SGSB breed and where many of the beneficials are located. This approach has not been very successful because some of the better host weeds are annuals whose populations fluctuate with seasonal rains. These characteristics made timing of pesticide applications difficult and, therefore, the applications, at times, were ineffective.)