
**Comments in Response to Metam Sodium Risk Assessment; Notice of Availability:
Vegetable Crops, Ginger, and Anthurium in Hawaii**

Date: September 12, 2005

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Subject: Docket ID Number OPP-2005-0125

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Vegetable Crops

Information provided by Cooperative Extension Service, College of Tropical Agriculture and Human Resources

Metam sodium (Sectagon) is used by a growers of a wide variety of vegetable crops in Hawai'i. *Fusarium* spp. is the main target pest, but metam sodium is used against other soil borne fungi. Weed control is a secondary benefit of applying metam sodium to vegetable. crops

1,3-Dichloropropene (Telone) is not a viable alternative to metam sodium because many farms are very small and the required buffer zones preclude telone use.

GINGER

Information provided by:

College of Tropical Agriculture and Human Resources, Cooperative Extension Service:
Plant Pathologist and Agricultural Extension Agent; and
an Agricultural Chemical Distributor Representative

1. Crop. **Ginger (*Zingiber officinale* Roscoe).**
2. Fumigant use. **Metam Sodium (Vapam).**
3. Average acres grown per enterprise. **Estimated 3 acres per enterprise for years 2003-2004.**
4. Maximum acres fumigated per day. **30 acres.**
5. Percent of the acres grown that are fumigated. **20%.**
6. Typical application rate (lb a.i./acre). **160-320 lbs/acre.**
7. Minimum application rate used (lb a.i./acre) (for high pest pressure situations). **256 lbs/acre.**
8. Time of year that soil is fumigated. **March – June.**
9. Fumigation cycle (every crop cycle, 1 time/year, 1 time/2 years). **Once per year.**
10. Target pests (by category or specific pests). **Root Knot Nematodes, Weeds, Soil diseases, Fusarium, Pink Rot.**

11. Method of application (e.g., chemigation, soil injection, specific equipment used, etc.). **Till and Roll.**
12. Methods or actions taken to reduce emissions (polyethylene tarps or soil cap). **Soil cap.**
13. Could high-density polyethylene (HDPE) or high barrier tarps be used on this crop? **Yes.**
14. Time between treatment and next production activity (e.g., time until planting). **4 weeks.**
15. Typical crops following the fumigated crop (only if they benefit from the fumigation). **Taro.**
16. Regulatory restrictions in your area on this fumigant or an alternative fumigant (such as weather restrictions). **“Do not contaminate water ... Do not apply when conditions favor drift ... Do not use in a greenhouse or any other enclosed structure or confined area.”**
17. Soil restrictions on this fumigant or an alternative fumigant. **50-80% moisture capacity, soil temperature 40-90°F, loam or clay loam soil.**
18. Any restrictions or concerns about minimum soil temperature, hilly terrain, etc. **No.**
19. Best available alternative (another fumigant or strategy such as leaving land fallow, etc.). **Fallow, crop rotation, move to new field.**
20. Could the use of different soil fumigants be alternated (e.g., metam sodium followed by 1,3-D)? Specify how. **Yes, alternate products are being evaluated. Farmers move fields every year.**
21. Yield or quality impacts that are likely to result from moving to the best available alternative (i.e., change in commodity price or grade). **Up to 40% short term loss, long-term could lead to death of the industry.**
22. Would moving to the next best alternative impact key market windows? How? **Yes, harvest early, quality would be lower, price would be lower so buyers will go to foreign markets.**
23. Cost per acre of active ingredient. **\$540/acre.**
24. Cost per acre of other fumigation inputs (e.g., tarps and equipment). **\$200/acre – machinery cost.**
25. Is there a crop budget available for your area and crop? ? **Yes, see “Economics of Ginger Root Production in Hawaii” at <http://www.ctahr.hawaii.edu/oc/freepubs/pdf/AB-12.pdf>**
26. Do you know of any other contacts or other sources of information for this crop that could provide information on acreage, prices, pests, etc.? **DOA statistics, Cooperative Extension**

Service, UH CTAHR Research & Extension publications on diseases and pests.

27. Are there non-chemical alternatives that can be used in place of fumigants? Describe use.

Yes: bag culture for seed production, crop rotation, fallow.

ANTHURIUM

Information provided by:

Hawai'i Florists and Shippers Association;
College of Tropical Agriculture and Human Resources, Cooperative Extension Service:
Plant Pathologist and Agricultural Extension Agent; and
an Agricultural Chemical Distributor Representative

1. Crop. **Anthurium (*Anthurium andraeanum*)**
2. Fumigant use. **Metam Sodium (Vapam)**
3. Average acres grown per enterprise. **There are 61 farms with about 250 acres = 4 acres/farm.**
4. Maximum acres fumigated per day. **0.5 acres/farm fumigated per day. However, this is done only once per 5-year crop cycle.**
5. Percent of the acres grown that are fumigated. **10-15%.**
6. Typical application rate (lb a.i./acre). **@50 gal/acre x 4.26 lbs metam sodium/gal = 213 lbs. a.i./acre.**
7. Minimum application rate used (lb a.i./acre) (for high pest pressure situations). **@50 gal/acre x 4.26 lbs metam sodium/gal = 213 lbs. a.i./acre.**
8. Time of year that soil is fumigated. **Any time of the year (i.e., that time of year which coincides with the start of a given cropping cycle, which could be any date). The usual crop cycle is 5 years.**
9. Fumigation cycle (every crop cycle, 1 time/year, 1 time/2 years). **1 time/5 years (i.e., once per cropping cycle).**
10. Target pests (by category or specific pests). **Primary Pest are Root Knot Nematodes and Burrowing Nematodes. Metam sodium has been found to be very effective in the control of burrowing nematodes, a critical pest of roots in field-planted Anthurium. Metam sodium is also used to control soil-borne insects and fungi and weeds.**
11. Method of application (e.g., chemigation, soil injection, specific equipment used, etc.). **Drench (Spray, water in, and then cover with tarp). This has been found to be effective in control of many pests found in old media, allowing commercial nurseries to retain and re-use media for planting areas for many years.**
12. Methods or actions taken to reduce emissions (polyethylene tarps or soil cap). **Tarp.**

13. Could high-density polyethylene (HDPE) or high barrier tarps be used on this crop? **Yes.**
14. Time between treatment and next production activity (e.g., time until planting). **Planting takes place 3-4 weeks after treatment. Approximately 3-7 days after application the tarp is removed. The ground is left 10-14 days. Beds are then prepared. Planting occurs 7 days after bed preparation (which is now 3-4 weeks after treatment).**
15. Typical crops following the fumigated crop (only if they benefit from the fumigation). **None.**
16. Regulatory restrictions in your area on this fumigant or an alternative fumigant (such as weather restrictions). **“Do not contaminate water ... Do not apply when conditions favor drift ... Do not use in a greenhouse or any other enclosed structure or confined area.”**
17. Soil restrictions on this fumigant or an alternative fumigant. **None.**
18. Any restrictions or concerns about minimum soil temperature, hilly terrain, etc. **No.**
19. Best available alternative (another fumigant or strategy such as leaving land fallow, etc.). **The most effective and best alternative is Namacur (fenamiphos). However, Namacur will be discontinued in 2007 (with sales to end users to end in May, 2008) and there are no other effective alternatives to date. Clean planting stock can be used. Fresh cinder media are becoming less available, necessitating re-use of old cinder. Other alternatives are to leave land fallow and to remove all organic matter, however these are not really viable alternatives for continued profitability of operations.**
20. Could the use of different soil fumigants be alternated (e.g., metam sodium followed by 1,3-D)? Specify how. **No.**
21. Yield or quality impacts that are likely to result from moving to the best available alternative (i.e., change in commodity price or grade). **Greater than 50% yield loss. Due to burrowing nematode the long-term results would be complete loss of farm as well as possibly the Hawaii Anthurium Industry. Namacur is the best currently available alternative, but its use will be cancelled. No other viable alternatives are known, so the impacts of lack of availability of metam sodium would be devastating to individual operations and possibly the industry as a whole.**
22. Would moving to the next best alternative impact key market windows? How? **Yes, shipments can be rejected, export market lost. Quality and productivity per plant are essential for sustainability and continued success of this industry. Fenamiphos, next best alternative, will be cancelled, so it is not an alternative at all. Therefore, yields will be lower and some of the products will not be acceptable to the**

market.

23. Cost per acre of active ingredient. $\$276/30 \text{ gal drum} = \$9.20/\text{gal} \times 50 \text{ gal/acre} = \$460/\text{acre}$
a.i.

24. Cost per acre of other fumigation inputs (e.g., tarps and equipment). **\$1,000/acre (materials, labor, equipment, supplies).**

25. Is there a crop budget available for your area and crop? **No, there is nothing published in the public domain for Hawaii at this time.**

26. Do you know of any other contacts or other sources of information for this crop that could provide information on acreage, prices, pests, etc.? **UH Manoa College of Tropical Agriculture and Human Resources and Hawai'i State Department of Agriculture.**

27. Are there non-chemical alternatives that can be used in place of fumigants? Describe use.
Not quite.

For field planted anthurium, using tissue cultured plants plated in clean media would help.

However, the new cinders are becoming scarcer.

This means increased costs to growers. The imperative is for growers to conserve cinder and be able to clean and use ground media. Using clean planting materials and good greenhouse environments will only partly offset the lack of good media

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Testimony made on or before

September 12, 2005

Regarding, **Docket ID number OPP-2005-0125**

given to

Environmental Protection Agency

Washington, DC

regarding

Metam Sodium Risk assessment

notice of availability

by

Hawaii Florists and Shippers Association

Hilo, HI

Hawaii Florists and Shippers Association (HFSA), Hilo, HI, requests the opportunity to submit comments regarding Metam Sodium Human Health Risk assessment notice of availability; Re-registration Eligibility Decisions (RED), tolerance reassessment decisions, risk management decisions, in hope to ensure that EPA approves current health and safety standards for continued use and distribution of Metam Sodium (Vapam) for use by Hawaii's agriculture.

Hawaii Florists and Shippers association, (HFSA) is a statewide association founded in 1948. It has approximately 400 members on all Islands. Our membership is composed of breeders, propagators, growers, shippers, retailers, wholesalers, and all aspects of allied business, which support agriculture/ornamentals here in Hawaii.

In 2004, the Hawaii agricultural statistics service summarizes that Floriculture/ornamentals reported approximately 96 million for the state. The major commodities were:

- cut flowers - Anthurium, tropicals, and Protea
- orchids - cuts and potted
- lei products
- potted plants and flowers
- potted foliage - interior and landscape foliage
- all other nursery products - example: bedding plants, plant rentals.

Hawaii's sub-tropical climate conditions are conducive to a wide range of insect, fungi, nematode, and weed pests. Furthermore, production in Hawaii may range from sea level up to mountainous terrain. We need a pre-plant treatment, which has ease of application, and effectiveness. Ironically, our location has a history of introductions of over 800 times the invasive species that other states are experiencing. We require the ability to sterilize and be able to begin our crop cycles close to initial or virgin conditions so that we may be successful in production and leading to exports of our commodities. The value of Hawaii's tropical flower and foliage products is in its unique exotic look and form and therefore requires a perfect plant performance.

Here are a few following comments we would like to share with you regarding Metam Sodium (Vapam) use with *Anthurium andraeanum* production in Hawaii.

Comment #1: Metam Sodium (Vapam) widely used fumigant

Metam Sodium (Vapam) is the most commonly used fumigant for insect, fungi, nematode, and weed pests on *Anthurium andraeanum* cultivation. It offers control of a broad range of pests in cinder (volcanic media) media and allows commercial nurseries to retain and re-use media for many years. Treatments of Metam Sodium can be applied by large and small producers to application sites of varying sizes.

Comment #2: Metam Sodium conveniently used fumigant

Many nurseries apply Metam Sodium on a Friday so they can achieve 48 hours of time for worker protection standard or entry time. This also reduces the exposure time to nursery workers and allows for fumigant to dry and settle. The normal turn-around time from application to re-planting is approximately 3-4 weeks.

Comment #3: Metam Sodium has been found to be effective

Metam Sodium is used as a spray drench, which is watered into the cinder media. This has been found to be effective in control of many pests found in old media, which must be re-used for planting area. The University of Hawaii, College of Tropical Agriculture and Human Resources (CTAHR) has found that using Metam Sodium (Vapam) has been very effective in the control of burrowing nematodes which are a number one pest for roots in ground-planted Anthurium.

Comment #4: Metam Sodium will be difficult to replace

Metam Sodium will be difficult to replace because it is an effective product. Finding a replacement for this use of product should be done before canceling Metam Sodium.

Comment #5: Metam Sodium has not been reported as a threat to worker safety.

Metam Sodium has not been classified as a Restricted use pesticide (RUP). The benefits associated with Metam Sodium is that it is cost effective, accepted as the industry standard for fumigant protection, and has a broad range of efficacy. Metam Sodium has provided an effective pest control fumigant program with no reported resistance problems even after more than 20 years of usage.

Comment #6: Metam Sodium is necessary in the current times due to loss of a widely used nematicide called nemacur

Metam Sodium will be critically needed if we lose nemacur (fenamiphos), which is the most widely used nematicide in Anthurium cultivation. Nemacur is scheduled to stop being manufactured in 2007.

It is extremely important that re-registration be done, as stated above, and not limited to our comments we would like to submit, requesting that Environmental Protection Agency (EPA) seriously review and consider re-registration of Metam Sodium for the ornamental industry use. We feel that until there is a practical alternative, which is as good or better than Metam Sodium, we need to have access to this pesticide fumigant.

We thank you for the opportunity to submit our comments and if you have questions please contact us at

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