UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460
October 4, 2005

OFFICE OF PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Assessment of tau-fluvalinate use on outdoor ornamentals, carrots grown for seed in California, and consideration of the benefits as proposed by the registrant of tau-fluvalinate. DP Barcode 300218.

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PRODUCT REVIEW PANEL: September 28, 2005

SUMMARY AND BACKGROUND:

This document addresses potential exposure of aquatic organisms to tau-fluvalinate from its outdoor use in nurseries (EPA Reg. No. 2724-478) and from its use in carrots grown for seed in California (Special Local Needs label #CA 960010). It also briefly considers the benefits of tau-fluvalinate use on these sites as identified by the registrant. BEAD was asked to consider how application method and containers potentially limit exposure from tau-fluvalinate to aquatic organisms via reduced drift and runoff in outdoor nursery production. We also provide a listing of the counties where seed carrots are grown in California and a description of the climatic conditions in these counties in order to give

insight into potential tau-fluvalinate exposure to aquatic organisms resulting from use on seed carrots. Lastly, we provide a cursory review of the registrant's description of the benefits of tau-fluvalinate.

Tau-fluvalinate (Mavrik ®) is registered for use on perimeters and outside surfaces of residential, non-commercial, and commercial buildings; containerized nursery stock and outdoor woody and herbaceous ornamentals; eugenia and pepper tree; ant mound treatment; greenhouses, indoor ornamentals, and interior plantscapes; and flower and foliage cuttings. A multiplicity of insect pests and mites are either controlled or suppressed by tau-fluvalinate.

CARROTS GROWN FOR SEEDS:

Tau-fluvalinate is used under a California Special Local Needs registration for carrot seed production to control lygus bugs. These insects suck the sap from the plant tissue, including the developing seeds. Lygus bugs can severely damage the carrot seed crop by reducing seed yield and germination (Butler et al, 1992). According to the registrant, potential alternative chemicals that can be used to control lygus bugs are carbaryl, pyrellin, and pyrethrins. However, none of these alternatives has a quick knockdown effect equal to tau-fluvalinate (Wellmark, 2005).

The minimum rate of application of tau-fluvalinate to seed carrots is 0.05 lb ai/acre and the maximum rate is 0.15 lb ai/acre. The typical interval between applications is 1 to 3 weeks unless heavy infestations of lygus are present, which would necessitate a 5 to 7 day treatment interval (Simon, 2005). Carrots grown for seed are produced in the California counties of Siskiyou, Madera, Lassen, Shasta, Tehama, Butte, Sutter, Sacramento, Yolo, San Joaquin, Stanislaus, Fresno, Merced, Kings, Kern, Tulare, and Imperial counties (Davis, 2005). There are approximately 1,100 acres of carrots produced for seeds between these 11 California counties. Seed producing carrots are usually grown in semi-arid areas where rain fall and humidity is low. The reason for this is to avoid pathogens that normally would flourish in warm, humid climates (Davis, 2005).

CONTAINERIZED OUTDOOR NURSERY STOCK:

California is the leading U.S. state in nursery production, with the majority being grown in the southern part of the state (Carman, 2003 and California Agricultural Statistics Service, September 2004). The label use rate of tau-fluvalinate in containerized outdoor nursery stock is 0.004 to 0.006 lb ai/acre. California accounts for more than half of the total pounds of tau-fluvalinate applied in U.S. horticulture, although it is used in all program states surveyed by NASS (California Department of Pesticide Regulation, 2003 and USDA/NASS 2004). The label prohibits application through any type of irrigation system, or by air or broadcast. Further, label instructions require that tau-fluvalinate be applied as a coarse spray to ornamental plants. BEAD believes that the application of this chemical as a coarse spray, and the label restrictions on permitted application methods, would minimize the potential for spray drift and run-off.

REVIEW OF TAU-FLUVALINATE REGISTRANT'S BENEFITS SUBMISSION:

The tau-fluvalinate registrant provided the EPA with a summary of the benefits of tau-fluvalinate (Wellmark, 2005). The registrant states that, in order of importance, tau-fluvalinate's benefits to growers are miticidal activity, low bee toxicity, low phytotoxicity to nursery stock, and fast knockdown effect. No specific data were supplied to support the registrant's summary of benefits.

In order of importance, as determined by the registrant, these points are considered individually below. Text in quotations was taken from the portion of the registrant's 29 August 2005 submission that addresses benefits.

> "1. Miticidal activity. The activity of tau-fluvalinate for suppressing mites is better than all other competitive products except bifenthrin. Many of these products can flair mite populations quickly, causing excessive damage to nursery stock."

BEAD did not evaluate any data or other information to verify this claim. However, suppression of mites is a desirable characteristic.

> "2. Low bee toxicity. Tau-fluvalinate residues on the plant are not toxic to bees after the spray has dried. Toxicity to bees is a significant disadvantage in the nursery markets when using bifenthrin as well as malathion, lambda cyhalothrin, carbaryl, acephate, cyfluthrin or deltamethrin. The only competitive products that provide this benefit are pyrethrins and spinosad and neither of these has miticidal activity or provide the same level of residual control as tau-fluvalinate. Spinosad also does not provide as quick of knock down control or as broad of spectrum control of pests. Low bee toxicity is the main reason tau-fluvalinate is the product of choice for the CA 24(c) for crops grown for seed but it is also a very important consideration when selecting a pest control product for nursery and floriculture applications."

BEAD defers to EFED concerning the toxicity of tau-fluvalinate to bees. However, pollination of seed producing carrot is best performed by introducing bees or flies (Simon, 2005).

> "3. Not phytotoxic to nursery stock. Malathion, lambda cyhalothrin, acephate, cyfluthrin and deltamethrin sprays can all damage nursery stock but tau-fluvalinate is non-phytotoxic to nursery stock. This has a very significant effect on the salability of treated plants."

BEAD has no additional specific information on the phytotoxicity of tau-fluvalinate or its alternatives.

> "4. Quick knock down of pests. Tau-fluvalinate has quicker knock down of damaging pests than malathion, carbaryl, acephatae, or spinosad. This advantage ensures that treated plants will be ready for sales as quickly as possible. Sales of plants treated with slower acting products will be delayed until control is achieved."

Quick knockdown of pests by tau-fluvalinate could have benefits to ornamental crop producers because the presence of pest populations could limit the timely salability of

product. However, BEAD does not possess data on the knockdown characteristics of tau-fluvalinate.

> "5. Other benefits of tau-fluvalinate include no visible chemical residues on treated plants, economical to use, long residual control, broad spectrum of pests controlled and easy to tank mix with other products."

BEAD does not have the information to conduct an analysis of these characteristics of tau-fluvalinate.

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