UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OFFICE OF CHEMICAL SAFETY AND
POLLUTION PREVENTION

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Memorandum

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Subject: Clothianidin (Arena 50 WDG Insecticide): increase in application rate to vegetables and addition of basal bark application to trees

This memorandum addresses two separate requests by Valent U.S.A. Corporation regarding the clothianidin product Arena 50 WDG Insecticide (Reg. No. 59639-152). It relies on the latest assessment of the fate and effects of clothianidin (DP barcodes D378994 and D377955, Oct., 2010) performed by EFED, ERB5.

The first request is to increase the single application rate on vegetables to 0.1 lb/acre from 0.067 lb/A, with the seasonal maximum remaining 0.2 lb/acre (letter of Feb. 12, 2010). The second is to add a new application method for ornamentals, specifically basal bark trunk application to trees (letter of Sept. 14, 2010). The relevant new section is page 56 of the proposed label.

Terrestrial Risks

Vegetable Rate Increase. The rate increase for spray application to vegetables brings it up to the rate already registered for grapes (two applications of 0.1 lb/acre), which is discussed in the risk assessment under DP Barcode D313414 (Sept. 28, 2005). The anticipated terrestrial risks for the proposed vegetable rate increase are qualitatively and quantitatively the same as described for grapes. The principal risk is to insects including beneficial and pollinators such as honeybees.

Tree Trunk Spray. The new basal bark trunk application method (page 56 of the proposed label) appears in the ornamentals section, which begins on page 52. Here, the maximum seasonal use rate for ornamentals is stated to be 0.4 lb/acre. Thus, the new application method does not represent an increase in application rate over that which is already registered for ornamentals and turf. The comparative risk to beneficial insects between the application methods for ornamentals (foliar, soil drench/injection, and basal trunk spray) remains an uncertainty, since it is not known which method is most efficient is transferring clothianidin throughout the plant to edible foliage and nectar.

Aquatic Risks

Vegetable Rate Increase. Aquatic exposure modeling for foliar application to vegetable crops in the risk assessment for DP barcodes D378994 and D377955 (Oct. 2010, page 99) indicates that exposures from use on vegetable crops will exceed those from already-registered uses. The highest peak exposure (10.8 ppb) in the Oct. 2010 assessment (DP barcodes D378994 and D377955) is from the Florida cucumber scenario. Foliar application to grapes at the rate proposed for vegetables (two applications of 0.1 lb/acre) results in a peak exposure of only 1.07 ppb (DP barcode 313414, Sept. 28, 2005, page 15). The acute exposure of 10.8 ppb triggers concern for direct risk to aquatic invertebrates (RQ = 0.49 based on LC50 of 22 ppb for *Chironomus riparius*). The direct risk to fish does not exceed the Level of Concern, however there may be indirect risks to fish via prey base effects due to the mortality of invertebrates. These risks are qualitatively the same as already described for clothianidin, but of a greater magnitude.

Tree Trunk Spray. Aquatic exposures (20 ppb peak) and risks from the tree trunk spray will be similar to those for the highest use rates (turf and ornamentals at 0.4 lb/acre) already registered (DP barcode 296177, Nov. 4, 2004, Table V.c.).