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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

1/27/2004

Memorandum

Subject: ID # 000100-00656; **Cyromazine**. Removal of Restriction Against Using Treated Mushroom Compost as Fertilizer. **Review of Field Accumulation in Rotational Crops Study.**

DP Barcode:	280056	Chemical No.:	121301
Chemical No.:	121301	Class:	Insecticide
40 CFR:	§180.414	EPA Reg No.:	100-656
MRID Nos.:	455643-00		
	455643-01		

To: George Larocca/Linda Deluise, PM Team 13
RD (7505C)

From: William D. Wassell, Chemist
RAB3/HED (7509C)

Thru: Stephen C. Dapson, Branch Senior Scientist
RAB3/HED (7509C)

Background:

John L. Hott, Ph.D., Regulatory Product Manager, Syngenta Crop Protection, Inc. has submitted a limited field accumulation study in which residues of cyromazine were determined in rotational crops. Syngenta has previously submitted an application for amended registration of Armor Insect Growth Regulator (EPA Reg. No. 100-656) and a study protocol for the submitted study. In this amended registration request, Syngenta had proposed to remove a restriction from the label against the use of spent mushroom compost (SMC) as fertilizer (Memo, 9/17/99, W.D. Wassell, D249379). The study protocol was the subject of our review of 7/21/2000 (Memo, W.D. Wassell, D264485).

Tolerances are established (40 CFR §180.414) for residues of cyromazine (N-cyclopropyl-1,3,5-triazine-2,4,6-triamine) in or on a variety of commodities ranging from 0.05 ppm (various livestock commodities) to 7.0 ppm (leafy vegetables, except *Brassica*, crop group). HED has recently recommended for establishment of the tolerances for residues of cyromazine in or on bulb vegetables (Group 3), leafy

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Brassica vegetables (Group 5), and turnip greens (Memo, 7/16/03, W.D. Wassell, *et. Al.*, DP barcode: 284528).

DETAILED CONSIDERATIONS:

Syngenta had previously submitted an application for an amended registration for Armor Insect Growth Regulator (EPA Reg. No. 100-656). In this amended registration request, Syngenta had proposed to remove a restriction from the label against the use of spent mushroom compost (SMC) as fertilizer for food and/or feed crops (Memo, 9/17/99, W.D. Wassell, D249379). In our review of this application, RAB3 had concluded that the potential exists for uptake of cyromazine residues into crops following application of SMC treated with cyromazine to fields in which food or feed crops may be grown. Syngenta had previously submitted a protocol for conducting field accumulation studies in rotational crops (Memo, 7/21/2000, W.D. Wassell, D264485).

Syngenta has now submitted a study (citation below) concerning the field accumulation of residues of cyromazine in rotational crops after the application and incorporation of cyromazine to bareground.

MRID No. 45564301, Oakes, T, *et. Al.*, 11/9/2001; Cyromazine- Field Accumulation in Rotational Crops, Syngenta Number 874-00, unpublished study, 87 pages.

In the submitted study, field trials were conducted in NY and CA. At each location, cyromazine was applied to bareground at the rate of 0.03 pounds active ingredient per acre (lb ai/A) or 14 grams ai/A in a minimum of 5 gallons per acre. The application rate of 0.03 lb ai/A was determined based upon the assumption that approximately 280,000 pounds of SMC containing 0.11 ppm of cyromazine would be spread on an acre of land (Memo, 9/17/99, W.D. Wassell, D242379). The plots were tilled immediately following the application. Mustard greens, turnips, and oats were planted seven days following the treatment of the fields. An untreated control plot was also maintained. Samples of turnips (roots and tops), mustard greens, and oats (forage, hay, straw, and grain) were harvested at intervals of 43 to 98 days or 58 to 125 days following planting at the NY and CA trial, respectively. Samples were transferred to frozen storage the same day as harvest and maintained frozen (<-20°C) when not actively in use.

Samples were homogenized and analyzed by Syngenta at their facility in Greensboro, NC. The following method was used for sample analysis: Syngenta Method AG-621 "Analytical Method for the Determination of Cyromazine and Its Metabolite Melamine Residues in Crops by Gas Chromatography with a Nitrogen/Phosphorus Detector in the Nitrogen Specific Mode" (MRID No. 44828002). With this method, samples are extracted by reflux with methanol/water. The extracts are partitioned with solvents and cleaned via ion exchange chromatography. Samples are analyzed by HPLC with a UV detector. The method was validated concurrent with the analysis of treated samples. Average recoveries of cyromazine were as follows: mustard greens (91.6%), turnip tops (78.4%), turnip roots (78.2%), oat forage (93.4%), oat hay (71.5%), oat straw (69.3%), and oat grain (75.9%). Note: recoveries are the average of two fortifications at 0.05 ppm, except for oat straw which included four fortifications (three at 0.05 ppm and one at 0.5 ppm). The maximum storage interval from harvest to analysis for the treated samples was 4.8 months. Residues of cyromazine in all treated and untreated samples were less than the method limit of quantitation (0.05 ppm).

Storage Stability: Storage stability data were not submitted in conjunction with label amendment. Storage stability data have been previously submitted and reviewed (Memo, 1/28/87, A. Smith, PP# 6F3329). In summary, data are available to show that residues of cyromazine are stable when stored frozen in or on head lettuce, leaf lettuce, and celery for up to 24 months (Memo, 1/28/87, A. Smith, PP# 6F3329); in or on green and dry bulb onions for 678 and 646 days, respectively (Memo, 2/5/03, W.D. Wassell, D285751); and in or on dry beans (navy beans) for 414 days (Memo, 7/25/02, W.D. Wassell, D271622). Samples in the submitted study were stored for a maximum of 4.8 months from harvest to analysis. The previously submitted data are adequate to support the storage intervals for the submitted study.

Conclusions/Recommendations:

HED concludes the submitted study was conducted as per the previously submitted protocol which was approved by HED (Memo, 7/21/2000, W.D. Wassell, D264485). Additionally, the study is adequate to show that residues of cyromazine will not be taken up in crops that are planted following the use of cyromazine treated mushroom compost as fertilizer. HED has no objections to removal of the restriction against using cyromazine treated mushroom compost as fertilizer on the label for Armor Insect Growth Regulator (EPA Reg. No. 100-656).

cc: W.D. Wassell, RAB3 Reading File.
RDI: L. Cheng: 1/20/2004; S. Dapson: 02/27/2004.



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