041701

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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SUBJECT EPA Reg. No. 476-2056. Dyfonate on cole crops, sugarcane and onions.

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Stauffer Chemical Company requests an amended registration for its product Dyfonate 4-E insecticide - Emulsifiable Liquid, containing 4 lbs O-ethyl S-phenyl ethylphosphonodithioate per gallon, to permit the removal of the restriction of not rotating carrots after onions which were grown using Dyfonate and to permit increased application rates on the following cole crops: broccoli, brussels sprouts, cabbage and cauliflower; and on sugarcane.

Tolerances are established at 0.1 ppm for residues of the insecticide O-ethyl S-phenyl ethylphosphonodithioate and its oxygen analog (S-ethyl S-phenyl ethylphosphonothiolate) in or on leafy vegetables and sugarcane (40 CFR 180.221).

Present Use

Cole Crops (Broccoli, Brussels Sprouts, Cabbage, Cauliflower):

Dyfonate is currently registered for use on broccoli, brussels sprouts, cabbage and cauliflower at 2 lbs act/A, applied prior to and at the time of seeding and transplanting. In Northeastern U.S. it may be applied immediately after transplanting.

Sugarcane

Dyfonate is registered for control of wireworms at 4 lbs act/A (band incorporated applications).

Proposed Use

Cole Crops (Broccoli, Brussels Sprouts, Cabbage, Cauliflower)

Broadcast application for control of garden symphalans and cabbage maggot. Apply at 2-4 lbs act/A, prior to or at time of seeding or transplanting and incorporate into the soil by discing. Not recommended for control of cabbage maggot in the Northwestern U.S.

Drench application for control of cabbage maggot (Northeastern U.S. only. Apply 1-2 quarts Dyfonate 4E (1-2 lb s act) in 200-400 gallons of water per acre.

Sugarcane

Band application at planting time for control of wireworms: Apply 4 quarts DYFONATE 4-E (4 lbs act) over the top of sugarcane seed pieces immediately ahead of covering discs.

Over the row application for control of the white, grub, Phyllophaga crinata: Apply 4 - 6 quarts DYFONATE 4-E (4-6 lbs act) per acre in a 20 inch band on cane rows 60 inches apart. Apply to the soil surface and lightly incorporate as close to the plants as possible. Application should be timed according to the flight of the adult beetles. Apply at any time from the peak ofthe adult flight until two weeks after flight peak. Since applications would be made sometime in May and sugarcane would not be harvested until November there is a built in PHI of at least 5 months. Recommended in the Southwestern U.S. only.

Analytical Method

Residue Data were obtained by the method "Determination of Residues of Dyfonate and Dyfonate Oxygen Analog." The sensitivity of the method is 0.05 ppm for dyfonate and 0.03 ppm for its oxygen analog. The method has been found adequate for enforcement purposes (PP#3F1379 F. Gee 9/28/73).

Residue Data

Cole Crops

Broccoli

Residue data reflecting applications to broccoli have been submitted from 7 locations in CA, FL, MS and OR. Dyfonate (as Dyfonate 8-E, 4-E, 4-S or 10G) was applied broadcast, pre-plant incorporated at 2-4 lbs act/A. At one site, Dyfonate 4-EC was also applied as a drench at transplanting at 2 lbs act/A. PHI's ranged from 75-109 days, Residues of dyfonate and its oxygen analog were non-detectable (<0.05 ppm and <0.03 ppm respectively in all samples).

Brussels Sprouts

Residue data from 3 locations in CA and OR have been submitted with this request. Dyfonate (as Dyfonate 8E, 10G and 10GK) was applied broadcast, pre-plant incorporated, at 2-4 lbs act/A. An application of Dyfonate 4 EC at transplant, at the rate of 2 lbs act/A was also made at one location. PHI's ranged from 97-123 days. Heads and wrapper leaves were analyzed.

No detectable residues of dyfonate and its oxygen analog, < 0.05 ppm and <0.03 ppm respectively were found in any of the samples.

Cabbage

Residue trials were conducted at 15 locations in CA, FL, OR, PA and WI. Dyfonate (as Dyfonate 10-G, 4-E, 4EC, 4E or 20G) was applied broadcast pre-plant or pre-transplant incorporated at 2-4 lbs act/A. In addition in one study roots of transplants were dipped in solution containing 1.0 or 2.0 lbs act/20 gals of water and in another study Dyfonate 4-EC was applied as a drench at transplanting at 2 lbs act/A. No detectable residues of dyfonate or its oxygen analog (0.05 ppm and 0.03 ppm, respectively) were found in any, of the analyzed cabbage heads at PHI's ranging from 82-169 days.

Cauliflower

Residue data submitted with this request reflect 5 studies conducted in CA, FL and OR. Dyfonate (as Dyfonate 4-E, 10-GH, 8-E 10GH, 4S, 4-E and 10G) was applied broadcast pre-plant incorporated at 2-4 lbs act/A. In one trial in FL a second application of 2 lbs act/A (Dyfonate 4S) was made at transplant. No detectable residues of dyfonate and its O-analog (<0.05 ppm and <0.03 ppm, respectively) were found in any cauliflower samples at PHI's of 54-116 days.

Residue data for cole crops that were submitted previously in connection with PP#0F0960 reflect studies conducted in FL and OR. There were four studies each on broccoli and cabbage and one study each on brussels sprouts and cauliflower. Application rates ranged from 1-4 lbs act/A and PHI's ranged from 43-133 days. Reported residues were all <0.05 ppm for dyfonate and <0.03 for the O-analog.

Based on the available data we conclude that combined residues of dyfonate and its O-analog resulting from this amended use will not exceed the established 0.1 ppm tolerance leafy vegetables.

Sugarcane

Dyfonate (as Dyfonate 10G and 15G) was applied broadcast, post emergence incorporated, at 6 lbs act/A (1X). PHI's ranged from 158-206 days. Residues of dyfonate and its O-analog were not detectable (<0.05 ppm and <0.03 ppm, respectively) in the stalks. No residue data for sugarcane byproducts; bagasse, molasses or sugar are available but in the absence of detectable residues in the cane we would not expect residues in those byproducts to exceed the existing 0.1 ppm tolerance.

Residue data submitted previously in connection with PP#0960 relfect 7 studies from 6 sites in FL. Following applications of 4-12 lbs act/A residues in the cane were <0.05 ppm for dyfonate and <0.03 ppm for its O-analog, at PHI's from 147-319 days.

We thus conclude that combined residues of dyfonate and its O-analog will not exceed the established 0.1 ppm tolerance on sugarcane as a result of this amended use.

Conclusions

1. We defer to the Environmental Fate Branch regarding the removal of the restriction of not rotating carrots after onions which were grown using Dyfonate.

2. Residues of O-ethyl S-phenyl ethylphosphonodithioate and its oxygen analog (S-ethyl S-phenyl ethylphosphonodithioate) in or on broccoli, brussels sprouts cabbage and cauliflower will not exceed the established tolerance of 0.1 ppm for leafy vegetables a result of this amended use.

3. Residues of O-ethyl S-phenyl ethylphosphonodithioate and its oxygen analog (S-ethyl S-phenyl ethylphosphonothiolate) in or on sugarcane will not exceed the established tolerance of 0.1 ppm as a result of this amended use.

Recommendations

EFB considerations permitting (See Conclusion 1) we have no objections to this amended use.

cc: Edward Zager
Reading file
Circu
PP#0F0960
Amended Use File
EFB
TS-769:Reviewer:E.Zager:LDT:X77324:CM#2:RM:810:Date:12/2/80
RDI:Section Head:RJH:Date:12/1/80