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DATE: DEC 4 1980 UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

SUBJECT: EPA Reg. No. 476-2028. Dyfonate on cole crops, sugarcane

FROM: Edward Zager, Chemist
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Stauffer Chemical Company requests an amended registration for its product Dyfonate 20G Granular insecticide, containing 20% O-ethyl S-phenyl ethylphosphonodithioate to permit applications to the following cole crops; broccoli, brussels sprouts, cabbage and cauliflower; and to 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 ethyl phosphonothiolate) in or on leafy vegetables and sugarcane (40 CFR 180.221).

Present Use

Cole Crops

Dyfonate 10-G, 4-E, 4-EC and 4-ED 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 10-G, 4-E, 4-EC and 4-ED is registered for control of wireworms at 4 lbs act/A (band incorporated applications).

Proposed Use

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

For control of cabbage maggot prior to and at time of seeding or transplanting, apply 20 lbs Dyf onate 20-G per acre, broadcast and incorporate into the soil by discing. Not recommended in the Northwestern U.S.

Present Use

Cole Crops

Dyfonate 10-G, 4-E, 4-EC and 4-ED 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 10-G, 4-E, 4-EC and 4-ED is registered for control of wireworms at 4 lbs act/A (band incorporated applications).

Proposed Use

Cole Crops (Broccoli, brussels sprouts, cabbage and cauliflower)

For control of cabbage maggot prior to and at time of seeding or transplanting, apply 20 lbs Dyfonate 20-G per acre, broadcast and incorporate into the soil by discing. Not recommended in the Northwestern U.S.

Sugarcane

For control of the white grub, Phyllophaga crinata, apply 20 to 30 lbs Dyfonate 20-G (4-6 lbs act) per acre in a 20 inch band on cane rows 60 inches apart (equivalent to 2.3-3.4 lbs of Dyfonate 20-G (0.46 - 0.68 lbs act) per 1000 linear feet of row). Apply over the top of the cane row and lightly incorporatel as close to the plants as possible. Applications should be timed according to the flight of the adult beetles at any time from the peak of the adult flight until two weeks after flight peak. Recommended in the Southwestern U.S. only.

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.

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 relfecting 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

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 4EC 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-G, 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 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#0F0960 reflect 7 studies from 6 sites in FL. Following applications of 4-12 lbs act/A, residues in the cane were <0.04 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 establishmed 0.1 ppm tolerance on sugarcane as a result of this amended use.

Conclusions

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

2. 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.

Recommendation

We have no objections to this amended registration.

cc: Edward Zager
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Reading file
PP#0F0960
Amended Use

TS-769:Reviewer:E.Zager:LDT:X77324:CM#2:RM:810:Date:12/2/80
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