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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

SEP 9 1982

MEMORANDUM

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

SUBJECT: 100-597. Metolachlor on corn and potatoes.

FROM: Edward Zager, Chemist
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Hazard Evaulation Division (TS-769)

THRU: Charles L. Trichilo, Chief
Residue Chemistry Branch
Hazard Evaluation Division (TS-769)

TO: Richard Mountfort, Product Manager #23
Herbicide-Fungicide Branch
Registration Division (TS-769)

Ciba-Geigy Corporation, Agricultural Division requests an amended registration for its product Dual 8E Herbicide (8 lbs metolachlor/gal, EPA Reg. No. 100-597) to permit higher application rates for corn and potatoes and layby applications to potatoes.

Tolerances for residues of the herbicide metolachlor [2-chloro-N-(2-ethyl-6-methylphenyl)-N-(2-methoxy-1-methylethyl)acetamide] and its metabolites determined as 2-[(2-ethyl-6-methylphenyl)amino]-1-propanoland 4-(2-ethyl-6-methylphenyl)-2-hydroxy-5-methyl-3-morpholine, expressed as the parent compound have been established at 0.1 ppm in or on fresh corn (inc sweet K+CWHR) and corn grain; 1 ppm in or on corn forage and fodder and 0.2 ppm in or on potatoes.

The currently registered uses are as follows:

Corn

Metolachlor alone: preplant or preemergence applications at rates of 1.5-3 lb act/A depending upon soil type.

Metolochlor tank mixtures: preplant, pre-emergence or early post-emergence applications at rates of 1-3 lbs act/A in combination with atrazine, dicamba, simazine, glyphosate, paraquat and cyanazine (field corn and silage corn only).

Potatoes

Pre-plant incorporated, post-plant incorporated, pre-emergence or after drag-off treatment at rate of 1-3 lb act/A when applied alone or 1.5-2.5 lb act/A when applied as a tank mix with metribuzin. The tank mix is not to be used on potatoes in Kern County, California. There is a 60-day PHI.

The proposed use would permit following applications:

Corn

A preplant incorporated or pre-emergence application of metolachlor at the rate of 4 lbs act/A alone or up to 3.5 lbs act/A in tank mix combination with 3 lbs atrazine/A on soils having an organic matter content between 6% and 20%.

Potatoes

Pre-emergence treatment at the rate of 4 lbs act/A when used alone or up to 3 lbs act/A in tank mix combination with up to 1 lb metribuzin per acre.

After hilling/layby treatment at the rate of 2.5 lbs act/A. This application may be made after a previous metolachlor application with the total dosage limited to 5.5 lbs act/A season.

The formulation is not to be used on sweet potatoes or yams and on potatoes in Kern County, California. There is a 40 day PHI for layby applications and a 60 day PHI for other applications.

The analytical method used to generate residue data submitted with this request is Method AG-338 which isa modification of Method AG-286 previously found acceptable for enforcement purposes. The method determines 2-[(2-ethyl-methylphenyl)amino] -propanol (CGA-37913) and 4-(2-ethyl-6-methylphenyl)-2-hydroxy-5-methyl-3-morpholinone (CGA-49751) and their conjugates.

Residue Data

Corn

Field corn tests were conducted in Indiana, Iowa and Nebraska. Sweet corn tests were conducted in North Carolina and Illinois.

Metolachlor was applied preemergence or pre-plant incorporated at the rate of 4-8 lbs act/A (up to 2X).

Residues were non-detectable (<0.03 ppm as CGA-37913, <0.05 ppm as CGA 49751) in mature field corn grain and sweet corn (K+ cob with husk removed) from all application rates. Following applications at the proposed 4 lb act/Arate residues ranged from 0.08-0.26 ppm in early field corn forage (52-77 days), 0.09-0.30 ppm in silage stage corn (80-125 days), 0.1-0.46 ppm in field corn fodder (156-166 day PHI), 0.1-0.33 ppm in sweet corn forage (66-98 day PHI) and 0.08-0.38 ppm in dry sweet corn silage (129 day PHI).

Following an application at the exaggerated rate of 8 lbs act/A (2X) residues were non-detectable in field corn grain and sweet corn (kernels + cob with husk removed), 0.21-0.22 ppm in early forage, 0.31-0.49 ppm in silage stage corn, 0.52-0.58 ppm in field corn fodder, 0.39-0.5 ppm in sweet corn forage and 0.18 ppm in dry sweet corn silage.

Additional residue data were submitted with PP#8F2081. Samples of corn (grain, forage and fodder) were obtained from plots in CA, IL, IN, IA, MS, MO, MD, FL, NE, NY, OH, WA, TX and WI. COrn was treated preplant incorporated or pre-emergence at the rate of 1.5-6.0 lbs act/A (up to 1.5X). Residues in forage were <0.03-0.43 ppm at intervals of 30-71 days after treatments. Residues in forage at 90-204 days were <0.03-0.73 ppm. The field corn grain had no detectable residues (<0.10 ppm) at harvest (107-204 days after treatment from all rates).

Based on the above data we conclude that residues of metolachlor and its metabolites determined as CGA-37913 and CGA-49751 and expressed as the parent compound will not exceed the established tolerances of 0.1 ppm in or on fresh corn (inc sweet K+CWHR) and corn grain and 1 ppm in or on corn forage and fodder as a result of the proposed use.

Atrazine is registered for use on corn at 4.0 lbs act/A. Preplant, preemergence or post emergence (3 weeks after emergence) applications are permitted. A tolerance of 0.25 ppm is established for fresh corn including sweet corn (kernels plus cobs with husks removed), corn grain and a tolerance of 15 ppm is established for forage and fodder. (§180.220).

Since the proposed rate for atrazine is within the registered rates, we do not expect residues of atrazine to exceed the established tolerances in corn.

Potatoes

Field tests were conducted in MD, MI, NY and WA.

Following a single application at the rate of 4 lbs act/A applied preemergence through drag-off or last hilling, residues in or on potatoes tubers ranged from non-detectable (<0.03 ppm for CGA-37913 and <0.05 ppm for CGA 49751) to 0.1

ppm at PHI's of 40-124 days. When a preemergence to last hilling application of 3-6 lbs act/A tank mixed with metribuzin was followed by a layby application of 2.5-5 lb act/A (up to 2X the proposed rate), residues of metolachlor in or on potato tubers ranged from non-detectable to 0.1 ppm.

Based on the above data we conclude that residues of metolachlor and its metabolites determined as CGA-37913 and CGA-49751 and expressed as parent compound in or on potatoes will not exceed the established tolerance of 0.2 ppm as a result of the proposed use.

Metribuzin is registered for pre-or post plant or preemergence application on potatoes at up to 1 lb act/A per season with a 60 day PHI. Since the proposed rate for metribuzin is equal to the registered we do not expect residues of metribuzin to exceed the established 0.6 ppm tolerance on potatoes.

Conclusions

1. Residues of metolachlor and its metabolites determined as CGA-49751 and expressed as the parent compound will not exceed the established tolerances of 0.1 ppm in or on fresh corn (inc. sweet K+CWHR) and corn grain, 1 ppm in or on corn forage and fodder and 0.2 ppm in or on potatoesas a result of the proposed use.

2. Residues of atrazine will not exceed the established corn tolerances as a result of the proposed tank mix use.

3. Residues of metribuzin will not exceed the established tolerance of 0.2 ppm on potatoes as a result of the proposed tank mix use.

Recommendation

We have no objections to this amended use.

cc: Metolachlor S.F.
Amended use file
PP#1F2521
PP#9F2203
R.F.
Circu
Reviewer

RDI:Section Head:RJH:Date:9/7/82:RDS:Date:9/7/82
TS-769:RCB:Reviewer:E.Zager:LDT:X77324:CM:#2:RM:810:Date:9/8/82