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

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OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

Memorandum

Subject: 87-WI-04. Section 18 for Metolachlor (Dual® 8E, EPA Reg. No. 100-597) on Dry Bulb Onions.
No Acc. Number / No MRID Number
RCB #2132

From: Michael S. Metzger, Chemist
Residue Chemistry Branch
Hazard Evaluation Division (TS-769C)

Thru: Edward Zager, Section Head, SRS 2
Residue Chemistry Branch
Hazard Evaluation Division (TS-769C)

To: Emergency Response and Minor Use Section
Registration Division (TS-767C)

and

Toxicology Branch
Hazard Evaluation Division (TS-769C)

The Wisconsin Department of Agriculture, Trade and Consumer Protection requests a Section 18 Specific exemption authorizing applications of the herbicide metolachlor (Dual® 8E, 8.0 lbs.a.i./gallon emulsifiable concentrate) to onions (dry bulb) to control annual grass weeds. The total area to which the pesticide is to be applied is approximately 1500 acres.

Tolerances are established for combined residues of the herbicide metolachlor [2-chloro-N-(2-ethyl-6-methylphenyl)-N-(2-methoxy-1-methylethyl)acetamide] and its metabolites, determined as the derivatives, 2-[(2-ethyl-6-methylphenyl)amino]-1-propanol (CGA-37913) and 4-(2-ethyl-6-methylphenyl)-2-hydroxy-5-methyl-3-morpholinone (CGA-49751), each expressed as the parent compound, ranging from 0.02 ppm in on the meat, fat and meat by-products of cattle, goats, hogs, horses, poultry and sheep to 3.0 ppm on peanut forage and hay. Numerous indirect or inadvertent tolerances are established on grain commodities ranging from 0.1 to 0.5 ppm. A Registration Standard has been completed for metolachlor (Residue Chemistry Chapter, 6/11/86).

The proposed use calls for a maximum of 2 applications at 2 qts. (4 lbs.a.i.)/A/application. For seeded onions, applications

would be made after seeding but prior to onion emergence, and after the onions have developed 3 true leaves. For set or transplant onions, the first application would be made soon after planting, and the second application would be made after the onions have developed 3 true leaves. Applications made after the emergence of the onion plants would be made by directed sprays while pre-emergence (onion) applications would be made "as an overall treatment." All applications would be made in a minimum of 10 gallons of water per acre using ground equipment only. A 40-day PHI would be imposed.

The metabolism of metolachlor in root crops is not adequately understood (see Metolachlor Registration Standard, Residue Chemistry Chapter, p.2). The nature of the residue is adequately understood for corn and soybeans. For the purposes of this Section 18 only, we will consider the residue of concern in onions to consist of those compounds included in the tolerance expression.

The analytical method used to generate residue data on onions is PAM II, Method I. This method involves acid hydrolysis converting metolachlor and its metabolites to CGA-37913 and CGA-49751 (metabolites in tolerance expression), followed by clean-up using partitioning and column chromatography. Analysis is accomplished by GLC using either microcoulometric detection (specific for chloride) or electrolytic detection (specific for nitrogen). Recoveries ranged from 74 - 82.5% at fortifications of 0.02 ppm CGA-49751 and 0.02 ppm and 0.04 ppm CGA-37913. The reported limit of detection is 0.01 ppm.

In a personal communication with RD (M. Metzger, RCB with L. Pemberton, RD, 4/10/87), RCB was advised that a use pattern should be recommended by RCB for application of metolachlor to onions (dry bulb) which would ensure that combined residues of metolachlor and its metabolites would not exceed 1.0 ppm in or on the RAC. The available residue data were peviously reviewed by L. Propst (1/25/85).

IR-4 submitted residue data with a 1985 Section 18 request for application of metolachlor to onions in Michigan. Onions were treated one day after planting at either 2 or 4 lbs.a.i./A for a single application of metolachlor. Residues were non-detectable at a 122-day PHI, the only PHI utilized in this study. No other residue data are available for applications of metolachlor to onions.

Residue data are available for potatoes in which potatoes were treated with 1 application at either 3 or 6 lbs.a.i./A. These data are summarized on the next page.

Metolachlor Residues on Potatoes

Application Rate (lbs.a.i./A)	PHI Range (days)	Residue (ppm)
3.0	48-60	<0.08 - 0.12
	60-67	<0.08 - 0.09
6.0	71	<0.08
	48-58	<0.08 - 0.50
	>60	<0.08 - 0.11

Based on these data, we conclude that residues are not likely to exceed 1.0 ppm in or on dry bulb onions if a maximum of 4.0 lbs.a.i./A/season is applied. Split applications could be made at 2.0 lbs.a.i./A for 2 applications per season at the times specified in the proposed use, or a single application at 4.0 lbs.a.i./A could be made pre-emergence or after the onions have developed 3 true leaves as described in the proposed use. 2 applications at 4.0 lbs.a.i./A as described in the proposed use (total 8.0 lbs.a.i./A/season) could not be made while still maintaining a maximum likely residue of 1.0 ppm.

Meat, Milk, Poultry and Eggs

No feed items are included in the proposed use. Therefore, secondary residues are not likely to be found in eggs, milk or in the meat, fat and meat by-products of cattle, goats, hogs, horses, poultry and sheep as a result of the proposed use.

Conclusions

(1) For the purposes of this Section 18 only, the residue of concern will be considered to include those compounds in the tolerance expression [metolachlor and its metabolites, expressed as the derivatives, 2-[(2-ethyl-6-methylphenyl)amino]-1-propanol and 4-(2-ethyl-6-methylphenyl)-2-hydroxy-5-methyl-3-morpholinone].

(2) Combined residues of metolachlor and its metabolites in or on onions are not likely to exceed 1.0 ppm assuming that a maximum of 4.0 lbs.a.i./A/season is applied. A single application at 4.0 lbs.a.i./A could be made pre-emergence

or after the onions have developed 3 true leaves; or split applications at 2.0 lbs.a.i./A (total 2 applications/season) could be made at these same times. The limited data available for onions and the data translated from potatoes indicate that applications made as described in the proposed use (2 applications at 4.0 lbs.a.i./A/application = 8.0 lbs.a.i./A/season) may result in residues exceeding 1.0 ppm.

(3) No feed items are included in the proposed use. Therefore, secondary residues are not likely to be found in eggs, milk or in the meat, fat and meat by-products of cattle, goats, hogs, horses, poultry and sheep as a result of the proposed use.

(4) Analytical methods are available for enforcement (PAM II, Method I).

(5) Analytical reference standards are available from the Pesticides and Industrial Chemicals Repository.

Recommendations

TOX considerations permitting, RCB has no objections to this section 18 provided that the use direction described are utilized. An agreement should be made with the FDA regarding the legal status of the treated commodities in commerce.

cc: Metolachlor S.F., R.F., Section 18 S.F., Circu, M. Metzger, PMSD/ISB
RDI:E.Zager:EZ:4/14/87:RDS:4/14/87
TS-769:RCB:M.Metzger:MM:Rm803a:CM#2:4/14/87