PMSD / FSB 103

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

JUL 28 1986

Memorandum

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

Subject: 86-LA-13. Proposed Section 18 for the Use of Sethoxydim (Poast®, EPA Reg. No. 7969-58) on Sweet Potatoes.
RCB #1232

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and

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The Louisiana Department of Agriculture recently declared a section 18 crisis exemption and now requests a specific exemption for the use of the herbicide sethoxydim (Poast®, 20% emulsifiable concentrate, 1.5 lbs.a.i./gallon) on 12,000 acres of sweet potatoes. Poast® will be used to control Johnsongrass, Bermudagrass and/or annual grasses.

Tolerances are established for residues of sethoxydim [2-[1-(ethoxyimino)butyl]-5-[2-(ethylthio)propyl]-3-hydroxy-2-cyclohexene-1-one] and its metabolites containing the 2-cyclohexene-1-one moiety (calculated as the herbicide) in or on various raw agricultural commodities ranging from 0.05 (N) ppm for milk to 15 ppm for cottonseed soapstock; and include 0.2 ppm for the meat, fat and meat by-products of cattle, goats, hogs, horses, poultry and sheep; and 0.5 ppm for eggs. Numerous tolerances are pending (40 CFR 180.412). A Registration Standard has not been completed for sethoxydim.

The proposed use calls for a maximum of one application at a rate of 1-1.5 pts. product (0.125-0.1875 lbs.a.i.)/A/application. The pesticide could be applied by either ground or aerial equipment, and a PHI of 30 days would be imposed.

The metabolism of sethoxydim in plants is adequately understood for the purposes of this section 18 (see K. Arne, 6/26/86). The residue of concern consists of parent plus metabolites containing the 2-cyclohexene-1-one moiety.

Residue data for potatoes and other root crops were submitted in conjunction with several previous section 18 requests (see R. Loranger, 6/27/83 and 7/1/83). Residues were determined using BWC Agricultural Method No. 30 which was successfully tried out for soybeans, milk and liver (M. Nelson, 4/22/83). This method involves initial extraction with methanol followed by precipitation with calcium hydroxide, oxidation with hydrogen peroxide to form substituted pentanedioic acids, methylation, several clean-up steps using dichloromethane partitioning and silica gel columns, and analysis by GLC using a flame photometric detector operating in the sulfur-specific mode.

Residue data are not available for applications of sethoxydim to sweet potatoes. Available BASF data for other root crops were summarized previously (M.L. Loftus, 6/11/84). This summary is reproduced below.

Crop	Lbs.a.i./A	PHI	Residue (ppm)
Shallots	0.5	19, 22	0.35, 0.09
Garlic	0.5	28-87	0.08-0.79
	1.0	28-87	0.12-0.68
Potatoes	0.5	11, 65	0.13, 0.06
Bulb onions	0.25 - 0.5	36, 87	$\leq$ 0.05
Carrots	0.2 - 0.5	28-76	$\leq$ 0.05

Based on these data, and for the purposes of this section 18 only, we estimate that it is unlikely that total sethoxydim residues in or on sweet potatoes will exceed 2 ppm as a result of the proposed use.

Meat, Milk, Poultry and Eggs

Sweet potatoes are not a major animal feed item. Therefore, secondary residues are not expected in milk, eggs, 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) The metabolism of sethoxydim in plants and animals is adequately understood for the purposes of this section 18. The residue of concern consists of parent plus metabolites containing the 2-cyclohexene-1-one moiety.

(2) Analytical Methods are available for enforcement (BWC Agricultural Chemicals Method No. 30, PP#2F2670, K. Kissler, 4/1/83).

(3) Total residues of sethoxydim and its metabolites are not likely to exceed 2 ppm in sweet potatoes as a result of the proposed use. Sweet potatoes are not a major animal feed item. Therefore, secondary residues are not expected in milk, eggs, 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 reference standards for sethoxydim and 5-OH sethoxydim are available from the Pesticides and Industrial Chemicals Repository.

Recommendations

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

cc:sethoxydim (Poast®) S.F., R.F., Section 18 S.F., Circu, M. Metzger, PMSD/ISB
RDI:E.Zager:EZ:7/28/86:RDS:7/28/86
TS-769:RCB:M.Metzger:MM:Rm814a:CM#2:7/28/86