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OFFICE OF
PESTICIDES AND TOXIC
SUBSTANCES

MEMORANDUM

SUBJECT: 91-TX-0030. Section 18 Emergency Exemption for the use
of Triadimefon on Cotton.

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The Texas Department of Agriculture requests a Section 18 crisis
exemption for the use of the fungicide Bayleton 50% dry formulation
(EPA Reg. No. 3125-320) on cotton to control Southwestern cotton

rust on American pima and Upland cotton in the Trans-Pecos area of Texas. The active ingredient in Bayleton is triadimefon [1-(4-chlorophenoxy)-3,3-dimethyl-1(1H-1,2,4-triazol-1-yl)-2-butanone].

Tolerances are established (40 CFR 180.410) for the combined residues of triadimefon and its metabolites containing chlorophenoxy and triazole moieties in/on raw agricultural commodities in the range of 0.04 ppm to 145.0 ppm, including residues in/on: meat, mby and fat of cattle, goats, sheep and horses (1.0 ppm); meat, mby and fat of hogs (0.04 ppm); poultry meat, mby and fat (0.04 ppm); milk (0.04 ppm) and eggs (0.04 ppm). No tolerances are established for residues of triadimefon in/on the RAC cotton.

Tolerances are (40 CFR 180.450) also established for the triadimefon metabolite, triadimenol (KWG-0519) and its butanediol metabolite, tridimefondiol (KWG-1342), expressed as triadimenol. Tolerances in 40 CFR 180.450(a) are established at 0.05 ppm for residues in/on grains (barley, corn, oats, rye, sorghum and wheat) and range from 0.05 ppm to 2.5 ppm for residues in/on forage, straw and fodder of barley, corn, oat, rye, sorghum and wheat crops. Tolerances in 40 CFR 180.450(b) are established at: 0.1 ppm for fat, meat and mby of cattle, goats, hogs, horses and sheep; 0.01 ppm for poultry fat, meat and mby; and at 0.01 ppm for milk and eggs. Triadimenol is the major metabolite of triadimefon. Triadimefon is a list B chemical. The Phase 4 Review of triadimefon was completed 1/24/91 (S. Funk).

Tolerances were proposed for combined residues resulting from the use of triadimefon on the RAC cotton: 0.5 ppm in/on cotton forage (7/86); 0.02 ppm in/on cottonseed (7/86); 0.05 ppm FA in/on cottonseed cake, meal and oil (7/84). The tolerance proposals for combined triadimefon residues in/on cottonseed were determined to be inadequate due to insufficient supporting data for an evaluation of residues in/on related processed products (PP#3F2938, R. Cook, 8/17/84). Tolerance proposals for combined residues of triadimefon in/on cottonseed were withdrawn (PP#3E2938, R. Cook, 11/2/88).

The proposed use in this Sec. 18 crisis exemption is the ground or aerial application of Bayleton 50% DF at a rate of 8 oz/A (4 oz. ai/A) at 10-14 day intervals in four applications, for a total application of 16 oz. ai/A per growing season. A PHI= 61 days is specified in the submission. Label restrictions include: Do not apply product where run-off from treated areas is likely to occur to aquatic habitats. Approximately 13,000 acres of cotton are to be treated in five counties (Pecos, Reeves, Ward, El Paso and Hudspeth) in the Trans-Pecos area of Texas.

The metabolism of triadimefon in plants and animals is adequately understood for the purposes of this Sec. 18 crisis exemption. The residues of concern are triadimefon and its metabolites, containing the chlorophenoxy and triazole moieties, expressed as triadimefon.

Analytical methodology for residue determinations of triadimefon

and its regulated metabolites in commodities is available in PAM II. The method has a limit of detection of 0.01 ppm for all commodities except cottonseed and cotton foliage, for which the limit of detection is 0.02 ppm. The method was validated and forwarded to FDA for inclusion in PAM II (4/86).

No triadimefon data for residue studies conducted on the RAC cotton were included with this Sec. 18 submittal. Data on file for the foliar application of Bayleton 25% WP (0.250 kg ai/ha) on cotton plants indicate combined residues of triadimefon and its metabolites were 0.03-0.09 ppm in cottonseed at PHI= 61 days (PP#3F2928, R. Cook, 1/27/84). Field trials conducted in four states (AZ, GA, MS, TX) with one broadcast application of Bayleton 50% WP (0.5 lb. ai/A) resulted in combined triadimefon residues of ND (<0.02 ppm) in/on cotton and 0.02-0.26 ppm in/on cotton foliage at PHI=132-175 days (PP6F3419, S. Malak, 7/17/87).

The processed commodities of concern in this Sec. 18 are cotton seed meal, hulls, soapstock, crude oil and refined oil. A processed products study conducted with cottonseed containing 0.06 ppm triadimefon and 0.05 ppm triadimenol, the major metabolite of triadimefon, resulted in combined residues of ND (<0.01 ppm) in all fractions (hulls, meal, refined oil, and soapstock) and 0.01 ppm in crude oil. It was concluded that residues which result from the use of triadimefon do not concentrate in processed commodities during processing and that a FA tolerance is not required (PP#3F2928, R. Cook, 1/27/84).

Meat, Milk, Poultry and Eggs

The maximum dietary contribution of all cotton feed items (processed and forage) to livestock feed could be up to: 80% for cattle; 15% for poultry and 20% for swine. However, oilseed cake and meal from cottonseed constitute approximately 6% of the total quantity of oilseed cake and meal used as livestock feed in the U. S. (Agricultural Statistics, 1988).

Based upon the finding of 0.09 ppm for combined residues of triadimefon and its metabolites in cottonseed after foliar application of Bayleton 25WP at a PHI of 61 days, the use of Bayleton 50 DF as proposed in this Sec. 18 could result in residues of 0.2 ppm or less in cottonseed under similar treatment conditions. In view of the previously mentioned conclusion that triadimefon combined residues do not concentrate in processed cottonseed commodities, the following livestock dietary exposure is estimated for the proposed use of triadimefon in this Sec. 18:

Estimated Livestock Dietary Exposure

RAC	Cottonseed Commodity in Diet	Cottonseed Est. Max. Residue (ppm)	Total Residue (ppm)
Cattle:			
Beef	60%	0.2	0.12
Dairy	50%	0.2	0.10
Poultry	15%	0.2	0.03
Swine	20%	0.2	0.04

In cattle feeding studies (PP#2F2665, A. Smith, 9/9/82) conducted with 25 ppm of a 1:1 mixture of triadimefon and triadimenol, the major metabolite of triadimefon, combined residues were: 0.09 ppm (liver); 0.41 ppm (kidney; <0.01ppm (muscle); 0.02 ppm (fat) and 0.01 ppm (milk). In poultry feeding studies with 10 ppm of a 1:1 mixture of triadimefon and triadimenol, combined residues were: 0.05 ppm (liver) and 0.03 ppm (eggs). Considering the estimated total maximum dietary exposure of livestock to combined triadimefon residues of: 0.12 ppm for cattle, 0.03 ppm for poultry and 0.04 ppm for swine, residues of triadimefon and its regulated metabolites are expected to be ND (<0.01 ppm) in meat, milk, poultry and eggs from the proposed use in this Sec. 18.

Conclusions

1. Nature of triadimefon metabolism in plants/animals is adequately understood. The residues of concern are triadimefon and its metabolites containing the chlorophenoxy and triazole moieties.
2. Combined residues of triadimefon and its regulated metabolites are not expected to exceed 0.2 ppm in/on treated cottonseed as a result of this proposed Section 18 use.
3. Combined residues of triadimefon and its regulated metabolites are not expected to exceed 0.2 ppm in processed food/feed items as a result of this proposed Section 18 use.
4. Combined residues of triadimefon and its regulated metabolites are not expected to exceed 0.5 ppm in/on cotton forage