R7

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

AUG 29 1989

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: 89-MN-10. Section 18 Exemption for the use of Esfenvalerate (ASANA XL insecticide, EPA No. 352-515) on small grains, corn, soybeans and Conservation Reserve Program (CRP) land forage and hay to control grasshoppers. NO MRID. DEB #5581

FROM: Arliene M. Aikens, Chemist
Special Registration Section II
Dietary Exposure Branch
Health Effects Division (H7509C)

THROUGH: Leung Cheng, Acting Section Head
Special Registration Section II
Dietary Exposure Branch
Health Effects Division (H7509C)

TO: Donald Stubbs/L. Pemberton PM 41
Emergency Response Section
Registration Support Branch
Registration Division (H7505C)

and

Toxicology Branch
Health Effects Division (H7509C)

The Minnesota Department of Agriculture requests a Section 18 exemption for use of ASANA XL 0.66EC (Esfenvalerate) to control grasshoppers. ASANA XL is to be applied statewide with principal application in the westernmost two tier counties. Approximately 4 million acres are to be treated by both aerial and ground application.

Since this Section 18 request was received, the Minnesota Department of Agriculture requested an Emergency Exemption, which was approved (Personal Communication, Jim Tompkins PM 41, 8/4/89).

Asana XL 0.66 EC, EPA Registration No. 352-515 is a registered trademark of E. I. Dupont de Nemours Co. Inc. The insecticide contains 0.66 lbs. active ingredient per gallon. The active ingredient is (S)-cyano(3-phenoxyphenyl)methyl-(S)-4-chloro-alpha-(1-methylethyl)benzeneacetate, a stereoisomer of fenvalerate. For

the purposes of this Section 18 exemption, Asana XL will be considered to be the same as fenvalerate.

TOLERANCES

Tolerances are established at 40 CFR 180.379 for residues of fenvalerate in or on a variety of raw commodities including; corn grain (.02 ppm), corn fodder and forage (50 ppm), soybeans (.05 ppm), meat, meat byproducts and fat (1.5 ppm), milk (0.3 ppm) and milk fat (7.0 ppm). Pending tolerances include; alfalfa (30 ppm), alfalfa hay (25 ppm), barley grain (5 ppm), barley forage and straw (40 ppm), grass hay, pasture and rangeland (50 ppm) and wheat hay, forage and straw (25 ppm).

A registration standard has not been issued for fenvalerate.

PROPOSED USE

ASANA XL 0.66 EC is to be applied by aerial and ground applications (.015-.03 lbs ai/A; 2.9-5.6 fl. oz./A) to approximately 4 million acres. The total amount of product to be used in this Section 18 request is between 90,625 and 181,250 gallons. The quantities of ASANA XL to be applied are consistent with the label specifications. ASANA is to be applied statewide which includes Conservation Reserve Program (CRP) land and many bodies of water. The crops to be treated include small grains (wheat, barley, oats and rye), corn and soybeans. The U.S. Department of Agriculture approved grazing and harvesting on CRP land in 19 Minnesota counties this year, due to extreme drought conditions (Tel. communication, D. Butz, USDA, Soil Conservation Service 8/9/89). Ordinarily, grazing and harvesting are not allowed on CRP land.

RESIDUE CONSIDERATIONS

The metabolism of fenvalerate in small grains is adequately understood (PP #4F3021, E. Haeberer 5/3/85). Fenvalerate residues are known to accumulate in animal fat with maximum residue levels reached at 7 days after dermal, oral or premise exposure (PP #5F3222, N. Dodd 6/12/86 and 11/18/87). Fenvalerate as SS Pydrin 1.9EC was evaluated as a new Pydrin formulation (L. Cheng, 201-URI, 11/26/84). This action included sponsor residue data from comparative studies of Pydrin and SS Pydrin use on soybeans and corn, as well as comparative studies of radiolabelled Pydrin and SS Pydrin metabolism in rats. Since ASANA XL .66 EC is to be applied to crops which are potential feed sources (small grains, corn and soybeans) secondary residues in food animals are a consideration in this Sec.18 exemption.

Fenvalerate is the residue of concern in the application of ASANA, Pydrin and SS Pydrin. In residue studies, with Pydrin 2.4 EC applied at 0.4 lb ai/A to wheat and barley, residue findings ranged from <.01 to 3.39 ppm at PHI=21 days (L. Cheng, 88-MT-01, 3/16/88).

In residue studies conducted in California, treatment of soybeans with 4 applications of SS Pydrin .64EC (0.052 ai/A, PHI=28 days) resulted in residues of 0.04 ppm and 2.2 ppm on soybeans and soybean fodder respectively. When corn plants were treated with six applications of 0.052 lb. ai/A SS Pydrin .64 EC and analyzed 21 days after the last treatment, residues were non-detectable: <0.01 ppm parent. (L. Cheng, 201-URI 11/26/84; 88-MT-01 3/16/88). This data is summarized below.

Commodity	Pydrin 2.4 EC Total applied (lb.ai/A)	PHI (days)	Residue (ppm)
Wheat grain	0.4	21	0.65
Wheat straw	0.4	21	44
Barley grain	0.4	21	3.39
Barley straw	0.4	21	33
Corn grain	1.2	21	ND(<0.01)
Corn stover	1.2	21	6.3
Soybeans	0.8	28	0.07
Soybean fodder	0.8	28	3.6
SS Pydrin .64 EC			
Corn grain	0.31	21	ND
Corn stover	0.31	21	2.4
Soybeans	0.21	28	0.04
Soybean fodder	0.21	28	2.2

The total amount of ASANA XL 0.66 EC (0.03 lb ai/A) to be applied in this Section 18 is 0.03 lb ai/A. Extrapolating the fenvalerate residue data, comparing the application rates of either Pydrin or SS Pydrin use to the ASANA application rate expected in this Section 18, results in the following maximum expected fenvalerate residues from this use of ASANA, after a 21 day pre harvest interval (PHI);

RAC	Estimated Maximum Residue (ppm)
Wheat grain	0.5
Wheat straw	5.0
Barley grain	0.5
Barley straw	5.0
Corn grain	0.01
Corn Stover	0.4
Soybeans	0.01
Soybean fodder	0.5

Grass or hay (CRP) 5.0

Meat, Milk, Poultry and Eggs

The dietary burden for cattle (beef and dairy) could consist of approximately 5.0 ppm of fenvalerate from the use of ASANA in this Section 18, based on wheat/barley straw (80%, 4.0 ppm), wheat/barley grain (10%, 0.05 ppm), soybean fodder (10%, 0.05 ppm). The dietary burden for poultry could consist of approximately 0.5 ppm of fenvalerate from this application of ASANA, based on wheat/barley grain (70%, 0.35 ppm) and soybean fodder (30%, 0.15). The consumption of hay from CRP land is considered to be equivalent to the consumption of wheat or barley straw for these estimates of residues and dietary burden.

Extrapolating from cattle metabolism studies of Pydrin (86-MT-08, M. Metzger 4/23/86) in which C-14 labelled fenvalerate was used at a level of approximately 80 ppm for 21 days, maximum residues of ASANA are expected to be: muscle 0.01 ppm, kidney 0.10 ppm, liver 0.14 ppm, fat 0.01 and milk 0.03 ppm). From the poultry metabolism studies using C-14 fenvalerate the data extrapolation would result in maximum residues in poultry and poultry products at the following levels: liver 0.02 ppm, fat 0.01 ppm, meat 0.01 ppm and egg yolk 0.01 ppm.

The restrictions imposed this year by the U. S. Department of Agriculture (USDA), Soil Conservation Service (SCS) on CRP land in Minnesota, should not significantly impact livestock exposure to potential ASANA residues. This year only 19 out of 87 counties in Minnesota received approval for grazing and harvesting on CRP land. Last year more counties received this type of approval (D. Butz, USDA, SCS 8/7/89). Further, CRP land is primarily pasture land where the RAC would be grass or hay, with expected residue levels similar to barley or wheat straw.

Analytical methods are available for enforcement (Method # MMS-R-478-1 IN PP 4F3021 and PAM II, Method II). Reference standards are available from the Pesticides and Industrial Chemicals Repository, RTP, NC. (L. Cheng, 88-MT-01 3/16/88).

DEB expects fenvalerate residue levels resulting from this use of ASANA XL .66 EC to be no higher than fenvalerate residue levels from the registered product, Pydrin 2.4 EC.

CONCLUSIONS

1. For the purposes of this Section 18 request, the residue of concern is fenvalerate in both plants and animals.

2. Adequate analytical methodology exists for enforcement (Method # MMS-R-478-1 in PP4f3021 and PAM II, Method II).

3. For this Section 18, residues of fenvalerate are not

likely to exceed; 0.5 ppm for wheat or barley grain, 5.0 ppm for wheat straw, barley straw or CRP land grass or hay, 0.5 ppm for corn stover or soybean fodder and 0.01 ppm for corn grain or soybeans. Secondary residues of fenvalerate are not likely to exceed 0.2 ppm in meat, 0.1 ppm in milk, 0.1 ppm in poultry and 0.05 ppm in eggs.

4. The Minnesota Department of Agriculture expressed the intent to use adequate monitoring for enforcement purposes.

5. Reference standards are available from the Pesticides and Industrial Chemicals Repository, RTP, NC.

RECOMMENDATION

Provided a restriction is imposed to ensure a PHI of 21 days for harvesting and grazing on CRP land, DEB has no objections to this Section 18 request for the use of ASANA XL .66 EC on small grains, corn, soybeans or CRP land in Minnesota, when ASANA is applied according to label specifications, TOX considerations permitting.

CC: Fenvalerate S.F., R.F., Section 18, Circ., TAS R. Tomerlin, A. Aikens, PMSD/ISB
RDI: L. Cheng, Acting Section Head (8/25/89): E. Zager, Deputy Branch Chief
H7509C:DEB:A.AIKENS:aa:RM 802:CM#2:8/28/89