#1501

PP# 4G1501. Trifluralin on asparagus. Extension of temporary tolerance.

DEC 1 1975

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Special Registrations Section
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In our review of the PP# 4G1501 (see memo of 7/31/74), we concluded that for a permanent tolerance, or for a significantly larger experimental program in connection with an extension of a temporary tolerance, we would need data reflecting the presence or absence (<0.01 ppm) of nitrosobenzene or nitrosoamine derivatives of trifluralin resulting from the biodegradation of the herbicide.

We have been informally told that the petitioner is now requesting a three-fold expansion in the number of acres involved in the original permit and that the temporary tolerance which expired August 9, 1975, be extended for one year.

As part of the 70-15 data submitted on July 16, 1975, to support the temporary permit, the petitioner has presented a study by Golab, T. and Althaus, W. A. (Eli Lilly & Company) which involved an attempt to isolate both C-nitroso and N-nitroso compounds in field soil treated with from 0.25 to 6.0 lb. trifluralin (^{14}C-labeled, 15% in the ring, 85% in the CF_3 group). The trifluralin was incorporated into the top 3" of soil and soybeans were planted following incorporation. Prior to incorporation, the plots had been fertilized with 6-24-24 fertilizer at an overall rate of 500 lbs./A. Samples of soil were taken at various intervals, extracted with methanol followed by a second extraction of methanol/water (1:1); this was followed by stripping off the methanol and partitioning residues into chloroform. The chloroform extract was subjected to two dimensional TLC, using synthesized N-nitroso and C-nitroso derivatives of the monodealkylated trifluralin (for the N-nitroso compound) and of the didealkylated trifluralin (for the C-nitroso compound) as reference standards on the TLC plates.

From soil samples originally treated with 1.5 lbs. ^{14}C-trifluralin, the following results were obtained for activities (calculated as the corresponding N-nitroso or C-nitroso compounds):

For the N-nitroso compound: 0.00008 ppm (this sample represented soil four months after treatment)

For the C-nitroso compound: 0.0002 ppm (same sample)

In addition, radiochemical extracts of soils treated with 3 lbs. ^{14}C trifluralin/A and sampled 7.5 months post treatment were analyzed for the N-nitroso derivative. Soils treated twice (once at 3 lbs a.i./A) were analyzed 24 months after first treatment and 4 months after second treatment for the C-nitroso compound. No detectable residues (less than 0.005 ppm) were found in either case.

Based on these studies, we can conclude that the formation of nitrosoamines or nitrosobenzenes is not a problem in connection with the use of trifluralin. This conclusion is in agreement with the findings for soil studies involving other closely related dinitroaniline-type herbicides (Paarlan and Surflan). Thus, our requirements with respect to the presence of these potential metabolites have been satisfied.

For a permanent tolerance for residues of trifluralin on asparagus, we will still require residue data reflecting repeated annual applications of the herbicide.

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cc: TOX, EEE, HFO-130(FDA), CHM(5)
WH-567:WSCox:ah:rm108WSME:X62610:11/28/75
RDI:RSQuick:11/20/75,JGCummings:11/26/75