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Section 24(c), Dimethoate on pasture grass and rangeland
to control grasshoppers Evaluation of Residue data

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No tolerances have been established for dimethoate on pasture grass and rangeland. Tolerances have been established (3185.204) for dimethoate [O, O-diethyl S-(4-methylcarbamoylmethyl)phosphorodithioate] including its oxygen analog [O, O-diethyl S-(4-methylcarbamoylmethyl)phosphorothioate] on various crops ranging from 0.002 ppm in milk and 0.02 ppm in meat, fat, and meat by-products of cattle, goats, hogs, horses, poultry, and sheep; to 2 ppm on alfalfa and wheat (green fodder and straw).

Section 24(c)s have been issued in the states of Nebraska, Oklahoma and apparently Kansas (no copy of 24(c) received, but letter to Kansas Board of Agriculture was received) for the emergency control of grasshoppers. On 7/21/78, RCB was first asked to comment on the use of dimethoate, carbafuran, chlorpyrifos, acephate and endrin on alfalfa, corn, soybeans, winter wheat, pasture grass and rangeland with respect to residues on crops and in meat and milk. (See R. J. Hummel note to the files, 8/9/78, under 24(c)Acephate) A chart was prepared to show tolerance levels and possible residue levels. The chart indicates that no data had been submitted for the use of dimethoate on rangeland or pasture grass. The proposed use level was 3-6 oz ai/A on pasture grass and 2-4 oz ai/A on rangeland, with one or two applications. By comparison to winter wheat, the most similar crop for which residue data were available, a 44-20 ppm residue on pasture grass was estimated at zero days, and a residue of 0.4 ppm was estimated for milk.

This greatly exceeds the established tolerance of 0.002 ppm in milk. Dimethoate was not recommended for use on pasture grass and rangeland. On 7/27/78, another chart was prepared, listing the official Agency position on the five chemicals considered for grasshopper control. It was indicated that dimethoate was not registered for use on pasture grass and rangeland and that no tolerances had been established. In order for this use to be considered, residue data must be submitted. The chart also placed dimethoate in Category I (Established tolerances, or established or proposed action levels should not be exceeded by the proposed use. Residue monitoring of meat, milk, or a restriction against grazing or feeding may be necessary.) and Category E (Residue data are not available to establish an action level. Data must be obtained prior to interstate shipment and sale of the treated rec. Meat and milk tolerances may be exceeded. Residue data monitoring of the rec and meat and milk will be necessary.) Placement in both Category I and Category E is a contradiction in itself.

According to the chart, available data indicate that the established tolerance for milk should not be exceeded, contradicting the earlier chart prepared by ECR and an earlier draft of the same chart (received by F. Ives on 7/26/76).

The product for which the 24(c) was issued was Defend E-267. This product contains 7.57 lb/gal (51.5%) dimethoate. All of the inerts in the formulation are cleared for use under E160.1601(j). The application rate allowed (letter of E. Johnson to Mr. H.E. Culbreth, Secretary, Kansas State Board of Agriculture, 1/28/76) was 2 to 4 oz ai/A. This is equivalent to 1/3 to 2/3 pt Defend E-267/A. The letter referred to a meeting between E. Johnson, S. Jellinek, Jr., Culbreth, and "other state officials" (from Kansas; or from other states) to discuss the possible means of mitigating the severe grasshopper infestation of crops and rangeland in Nebraska, Kansas, Colorado, and Oklahoma. The letter indicated that state registrations could be issued immediately for use in Category I and that modification of a Category I use will necessitate residue monitoring. Note that above we indicated that placement of dimethoate on pasture grass and rangeland in Category I was contradictory.

In the labels submitted for this review, one 24(c) label from Nebraska has the above recommended use rate. A pregrazing interval of 5 days was indicated. Another label was submitted from Nebraska with the use rate of 1 1/2 pt/A and a pregrazing interval of 28 days. This is a significant increase. This label was approved by the Nebraska Department of Agriculture with the following comment: "...If Thompson-Hayward Chemical Company desires to continue this special local needs registration of Defend E-267 for the control of grasshoppers ...past August 2, 1979, Thompson-Hayward Chemical Company must supply more complete data supporting the efficacy and safety of Defend E-267 on the aforementioned crops. The data should be submitted to the Bureau of Plant Industry no later than July 16, 1979. If the requested data is not supplied in the time frame indicated, we shall be left with no other alternative but to revoke Thompson-Hayward Chemical Company's special local needs registration...."

In regards to the pregrazing interval, no pregrazing interval is allowed on pasture grass and rangeland. It is impractical to keep the grazing animals off the rangeland for any period of time. A zero day pregrazing interval is used in setting tolerances on rangeland.

Following acceptance of the 24(c) in Nebraska at the recommended use rate, Thompson-Hayward submitted another 24(c) in Nebraska with the following comment (8/22/76 letter from Dasty Miller, Thompson-Hayward, to Mr. Roger Sandman, Director of Agriculture, State of Nebraska): "Since monitoring will be necessary on pastures and rangeland at any rate, and Thompson-Hayward has agreed to run at least three residue samples, we request the rate change on these sites to the 1 1/2 pints per acre. We would not anticipate any excess residues since the rate is already approved for alfalfa, another livestock forage crop."

The need for residue data was also mentioned in the approval for the 24(c) in the State of Oklahoma (letter from J. E. Cassaway, Supervisor, Pesticide Registration, Plant Industry Division, Oklahoma Department of Agriculture to J. Touhey, EPA/SRS with copy sent to Rusty Miller, Thompson Hayward 8/28/73): "It is our understanding that monitoring and residue studies planned by Thompson-Hayward Chemical Company to be conducted in Nebraska will satisfy monitoring and residue requirements when this product is used on rangeland grasses and pasture grasses and that this Nebraska monitoring will suffice for not only that State but Oklahoma as well. It is with this understanding that we approve this 24(c) registration."

This submission contains data on dieldrin on rangeland. A part of the letter accompanying the data submission is quoted as follows: "In lieu of the opportunity to monitor residue decline under actual use conditions in 1973, a like study was initiated in Texas for this purpose. It is our intention to supplement this study with additional supporting data gathered this spring in Kansas and Nebraska."

One residue study was submitted instead of three. This one study was done in Kleberg County, Texas, which is in the east southern portion of the state. Range grass was treated once with Defend E-247 at the rate of 1.5 pt/A. Samples were taken at intervals of 1 hr., 1, 3, 7, 14, 21, 28, and 35 days after treatment. The samples were analyzed for dieldrin and dieldrin. No residue method is specified. In the recovery test submitted, recoveries ranged from 70% to 111% and averaged 91.5%. The detection limit reported is 0.1 ppm for both dieldrin and dieldrin. The reported residues were 31.60 ppm, 8.73 ppm, 4.53 ppm, 2.20 ppm, 2.11 ppm, 0.10 ppm, and 0.24 ppm, at 1 hr., 1, 3, 7, 14, 21, 28, and 35 days respectively. The data shows that the level of residues declines rapidly in the southern part of Texas. We do not feel that this study can be extended to discern residue levels in Nebraska. The difference in climate between these two locations is quite substantial. We would expect residue levels to be higher in Nebraska than in Southern Texas. We can, therefore, make no determination of the anticipated residue levels in rangeland in Nebraska or the adequacy of the tolerances for meat and milk without data from Nebraska.

Conclusions and Recommendations

1. We can make no conclusion about the estimated residue levels in range grass in Nebraska or the adequacy of meat and milk tolerances without data from Nebraska.
2. A pregrazing interval is not allowed on rangeland. The anticipated residue level, like a tolerance level, must be determined based on the residue at 0 days.

3. Thompson-Hayward was required to submit three residue studies from Nebraska. So far, none have been submitted. The study from Texas is definitely inadequate due the large climatic difference between the two locations.

We recommend that the 24(c) not be continued for the reasons cited above. We also point out that the three required residue studies were not submitted in the time frame indicated. This alone should be sufficient grounds to deny continuation of the 24(c)s.

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cc: Sec 24(c), SF, RF, circ., S. Hurrell

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