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Corrections to Pollinator Protection

Please delete the first paragraph of page 118. It is essentially incorrect as stated.

Clarification

Delete the last two sentences of the first paragraph on page 83 and insert the following:

However, drifts of insecticides over several miles have resulted in adult honey bee losses. Documented cases have occurred in southern California in mosquito abatement trials. Aerosols with less than 50 μ (microns) volume median diameter (vmd) droplets are released when the air is highly stable with a warm layer overhead and only a light air movement (1-2 mph). The aerosol will be confined under the inversion and can be displaced a considerable distance downwind, while maintaining a lethal concentration to flying mosquitoes. E. L. Atkins has reported measurable kill of caged honey bees by ULV Dursban (in a non-volatile formulation) up to 2 1/2 miles downwind under such conditions. An example involving the alfalfa leafcutting bee occurred north of Pasco, WA in 1988. ULV malathion was applied to a cherry orchard in early evening when the wind was 1 mph. The material was applied by helicopter as a fine spray with 100-120 μ vmd droplets. Malathion was detected in a nearby alfalfa seed field at up to 0.75 mile from the orchard. It caused an estimated 50% reduction in leafcutting bee numbers in the portion of the field closest to the cherries. Apparent leafcutting bee kills by insecticide drift sometimes prove to be caused by collection of leaf pieces from the treated area. Since alfalfa is not a preferred leaf source, the bees will fly up to 0.25 mile to cut leaf pieces from crops like peach and potato or weeds like lambsquarters and knotweed.

Droplet size is a major factor in drift with droplets 100 μ or less being most susceptible to becoming airborne. Whether the spray is water-based or oil-based is also important, since standard agricultural sprays typically contain at least 75-95% water. When small droplets are emitted into warm air, the water evaporates in 14 seconds or less, and the spray is likely to become airborne. Current federal grasshopper control programs utilize oil-based sprays with an average droplet size of 250 μ vmd and only about 5% of the spray is in droplets of 100 μ or less. Although these sprays are applied at 60-190 ft elevation, the relatively large oily droplets are mostly confined to the target area and usually are not detectable beyond 200-500 ft off the target with light winds. The trend with water-based agricultural sprays applied at 5-10 ft elevation is to utilize droplets of 300 μ or more vmd. If the wind is above 5 mph, special stickers which minimize drift are often added.