

STOP 10

2,4-D USE AND RESIDUES IN TURF

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The use of 2,4-D is important in turf maintenance. Although the acute toxicity of 2,4-D is low (LD₅₀ for rats is 370 mg/kg of acid; 50-1200 mg/kg of ester; and 300-1200 mg/kg of amine), continual or long-term exposures to sub-acute dosages, metabolites and contaminants have not been fully evaluated. This study was designed to determine the maximum amount of dislodgable and total 2,4-D residues at several intervals after application to turf in order to assess the risk/benefit of 2,4-D use in the homeowners environment. Treatments included Ortho Weed-B-Gon Lawn Weed Killer (OWBG) containing 10.8% 2,4-D amine and 11.6% MCPP at 1 lb a.i. 2,4-D/A; Scott's Turf Builder plus 2 (STB) containing 32-4-4 and 1.0% 2,4-D and 1.1% MCPP at 1.5 lb a.i. 2,4-D/A; Ortho Weed and Feed (OWF) containing 25-3-7 and 1.06% 2,4-D ester and 1.13% MCPP applied at 1.5 lb a.i. 2,4-D/A; and a control.

Data were collected on the: 1) Amount of 2,4-D transferred on clothing, gloves, mask, caps and sneakers during application; 2) Transfer of 2,4-D on latex gloves swept over the treated turf; 3) Amount of dislodgable 2,4-D residue on foliage at several intervals after application; 4) Effectiveness of herbicide removal with mowing; and 5) 2,4-D residue present in the soil to 2.5 inch depth.

Table 1 shows that a large amount of herbicide was present in the clothing and gloves worn during preparation and treatment of the 2,4-D formulations with up to 80 ppm found on one glove and the trousers from the Ortho Weed-B-Gon treatment. The residue from Scott's Turf Builder plus 2 was much lower on the gloves and trousers than from the Weed-B-Gon. The 2,4-D residue found on gloves wiped over treated turf dissipated in 7 days from the Ortho Weed-B-Gon and in 3 days from the Scott's Turf Builder plus 2.

Turf clippings retained 2,4-D until 4 weeks after treatment at levels of 0.26 ppm for the Weed-B-Gon and 0.06 ppm for the Turf Builder plus 2. Mowing was effective in reducing herbicide found on the leaves of the grass.

Table 1. Residue of 2,4-D found in gloves and clothing worn during preparation and treatment.

<u>Sample</u>	<u>Formulation</u>	<u>Residue</u> ppm
Glove (left hand)	OWBG	80.4
Glove (right hand)	OWBG	22.6
Glove (left hand)	STB	11.3
Glove (right hand)	STB	7.1
Shirt Cloth (front pocket)	OWBG	0.35
Shirt Cloth (front pocket)	STB	1.7
Trousers (bottom)	OWBG	80.0
Trousers (bottom)	STB	24.4