

**Table 2:** The volume of material required to topdress 1000 ft.<sup>2</sup> area to various depths.

Depth of Topdressing	Volume of Soil
(inches)	(cubic yards)
1/8	0.40
1/4	0.77
3/8	1.14
1/2	1.54
5/8	1.91
3/4	2.31

ume of material required per 1000 ft.<sup>2</sup>. Light topdressing at a rate of 1/8 inch every two weeks may be necessary if a new bowling green is being levelled. Most sports fields, however, may only require a topdressing at 1/4 inch twice each season to control thatch. The operation should be coordinated with periods of rapid tiller development and with the time of overseeding.

Topdressing may be used as a means of disposal of composted organic wastes from other parts of a grounds maintenance program (see Bladon, Sports Turf Newsletter Vol. 6, No. 1, pp 4). Bladon has found his program of topdressing with a soil:compost mix has reduced his thatch problems to near zero. He no longer uses any form of verticutting or coring for thatch. High capacity topdressing equipment has made the procedure rapid and economical. Furthermore his tipping costs at the local landfill site have been greatly reduced.

A factor which should be considered in the selection of topdressing materials is freedom from weeds. Obvious contaminants such as quack grass rhizomes should be ample reason to reject a supplier. Freedom from other weeds may be checked by a simple germination test. Freedom from herbicides used on the field where the topsoil was obtained should also be considered.

A final consideration should be freedom of the material from stones and other debris, such as broken glass, which might cause injury to the athlete.

## Environmental Persistence of 2,4,-D and Other Pesticides used in Turfgrass

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Pesticide use can be an important component in well designed programs to maintain turfgrass in high use areas. However, it is important to examine the persistence of any pesticides used if we are to understand and to minimize the chance for human exposure to these pesticides, particularly in public areas such as parks, school yards or sports turf situations.

Despite all the facts to the contrary, the general public continues to be fearful of 2,4-D. The logical and correct reaction is that most people prefer to avoid exposure to 2,4-D, or to any pesticide. Some municipal and school jurisdictions have banned the use of 2,4-D in public areas. The Ontario government has developed regulations that some areas must be posted with signs when treated with pesticides so that people can choose to avoid the area and minimize any chance for exposure. These concerns and questions led to a series of studies at the Univ. of Guelph on the environmental persistence of 2,4-D and other pesticides used on turfgrass.

The following is a summary of the main results of these studies.

When turfgrass is treated with pesticides for weed or insect control, only very low percentages (1 - 6%) can be physically dislodged by vigorous scuffling with cloth-covered boots immediately after treatment. Dislodgeable residues decline rapidly to well below 1% of applied material within one day for the insecticides diazinon, chlorpyrifos or isofenphos and within four to five days for 2,4-D or related herbicides.

Mowing the turfgrass does not markedly influence the disappearance of dislodgeable residues.

At equivalent rates of active ingredient, granular herbicides or insecticides are less dislodgeable than liquid formulations of the same chemicals applied as sprays. However, at the high rates usually recommended for 2,4-D applied as a fertilizer formulation, the dislodgeable residues were not lower.

Irrigation or rainfall immediately after application reduced dislodgeable pesticide residues to negligible levels (less than 0.01%) even on the day of application. A light irrigation may even enhance the effectiveness of insecticides, particularly when they are applied as granular formulations.

*[Editor's Note: A summary of an address presented by Prof. Stephenson at the First Annual Ontario Turfgrass Symposium, Guelph, Jan. 7 -9, 1992]*

