

Pesticide Exposure and Risk

There is always widespread concern about the exposure of humans to pesticides right after an application whether it is to a lawn, sports field or golf course. We have been operating under the assumption that if the spray dries or the dust settles the risk is reduced, based on some studies conducted in the 1990's investigating dislodgeable residues. However, what about exposure to wet material and prolonged exposure following an application?

Researchers at University of Massachusetts, led by John Clark, investigated golfer exposure to two insecticides. The golfers were fitted with absorptive clothing to simulate skin exposure, air sampling pumps for inhalation and urinary testing to determine oral ingestion (like if a golfer put their golf ball in their mouth). This was all conducted on a golf course with study subjects actually playing golf.

Individual golfer exposure was determined in 76 rounds of golf following eight applications of chlorpyrifos and two applications of carbaryl. Estimated exposures to golfers following full course and full rate applications of chlorpyrifos and carbaryl were 19-68 times below current U.S. EPA acute reference dose (Rfd) values, indicating safe exposures under U.S. EPA hazard quotient criteria.

Skin exposures were considered the dominant means of exposing the golfers to these insecticides in worst-case scenarios (golfing within 1 hour of application). While this study should not encourage irresponsible applications and few would argue the benefit of reducing golfer exposure, it does put the risk in proper perspective.

Overseeding and Weed Control

Concern over pesticides for perceived "cosmetic purposes" may lead to reduced use of herbicides. Therefore, municipal turfgrass managers need a cultural method of weed control to provide a safe playing surface for athletes.

A field study was conducted by Guelph Turfgrass Researcher led by Eric Lyons, Ph.D. to determine if overseeding provides enough competition to decrease weed populations in Kentucky bluegrass athletic turf typically used in municipal parks for recreation. Perennial ryegrass was overseeded at 2, 4, and 8 lbs/1000 in May, July, or September, and all permutations of these timings in nonirrigated and irrigated trials at the Guelph Turfgrass Institute (GTI) field station in Guelph, and on in-use soccer fields at the University of Guelph campus and in the town of Oakville, Ontario, Canada over 2 years.

Weed populations were not affected by overseeding in 2005, a dry growing season. However, when weed populations were high and normal growing conditions existed in 2006, overseeding applications in May/July/September at 4 and 8 lb rates decreased perennial weed cover, specifically white clover in the irrigated trial and dandelion in the nonirrigated trial. An increase in perennial ryegrass was observed in all plots that received an overseeding treatment.

Treatments applied on the in-use soccer fields in Oakville and Guelph, which included May/September and May only overseedings, had no effect on weed populations or perennial ryegrass populations compared to the weedy control. Over the short term, high-rate and frequent overseeding with perennial ryegrass appears to provide competition against perennial weeds when weed cover is high and should be considered an important part of a weed management program for municipal turfgrass managers.

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