

Municipal Integrated Management Lawn Demonstration Project: Final Report

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Executive Summary

The purpose of the project was to determine if it was possible to reduce pesticide use on home lawns by implementing an integrated pest management (IPM) program. In addition, we were interested in documenting the effects of growing turf without pesticides. The project was conducted on passive parkland in two municipal settings (London and Brantford) and on a research plot at the Guelph Turfgrass Institute (GTI). These three sites represented areas with slightly different microclimates, pest pressure and soil types. At the GTI, two alternative weed control products (corn gluten meal for pre-emergence weed control and beet juice extract for post-emergence weed control) were evaluated. In addition, this project examined the influence of fertilizer, mowing height and irrigation on weed populations in turf. During two of the study years, there was adequate rain fall and we were not able to demonstrate the effect of irrigation on turf pests. The demonstration project was conducted over a three year period (2003, 2004 and 2005).

By implementing IPM on these turf demonstration areas instead of a conventional lawn care program (two broadleaf herbicide, one pre-emergence crabgrass herbicide, on preventative grub insecticide and one subsurface feeding insecticide), we were able to demonstrate a 50-66% reduction in the number of pesticide applications made each year and a 81-86% reduction in pesticide active ingredient, without any effect on turf quality. We were able to reduce the area of turf treated with pesticides by the final year to 98-99% by implementing IPM. This was all achieved by spending between 2-3 hours monitoring for pests per 100 m² per season. These dramatic pesticide reduction results were only possible because of a lack of insect pressure from any of the turf insect pests at the three sites and because spot treatments for weeds were implemented.

When examining the influence of fertility and mowing height, the most profound effect on weeds was turf fertility. Plots that received regular applications of fertilizer (2.0 kg/100m² of nitrogen per season) had much fewer weeds than the non-fertilized plots in almost all years and all locations. There was an interaction between mowing height and fertility on weeds. The plots that were mowed at 8 cm and were fertilized regularly had the fewest weeds. Mowing at 8 cm in the absence of fertilizer resulted in an increase in weeds. The lower mowing height combined with regular fertilization had slightly greater weed cover than the plots which received fertilizer and the higher mowing height. The alternative weed control products, when used together (corn gluten meal and beet juice extract) suppressed weeds to by 90% to approximately 10% weed cover by the end of the third year of the project. The higher mowing height plus the alternatives had 8% weed cover and the lower mowing height and the alternatives had 12% weed cover and a weed suppression rate of 88-92%. We were also able to demonstrate that fertilizing a home lawn with a total of 2.0 kg of nitrogen per 100m² applied as four applications of 0.5 kg over the season and mowing at 8 cm suppressed weeds by 90-99% to a 1-10% weed cover by the third year of the project depending on the location.