



THE GRASS ROOTS



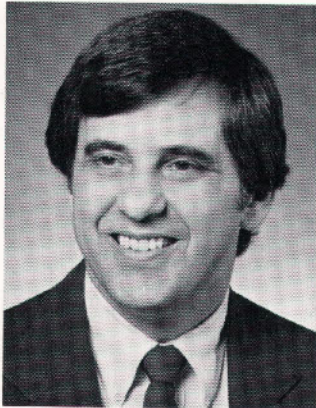
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EXCITING NEW DEVELOPMENTS IN TURFGRASS GROWTH MODIFICATION

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During the last several years, a renewed excitement in controlling the growth of turfgrasses has developed. This excitement has been triggered by the appearance of a number of experimental pesticides with unique modes of biological activity. In the simplest of terms, this mode of activity deals with the pesticides ability to interfere with or reduce the biosynthesis of gibberellic acid (G.A.) by turfgrass plants. Gibberellic acid is a plant growth hormone which when produced by the plant in normal quantities results in stem (internodal) elongation. If the quantity of GA is reduced, the amount of

stem elongation that occurs is reduced. This results in a more compact plant growing at a slower rate.

In order to appreciate the reasons for this excitement, one must recount past developments in this area and understand the difference between modifying plant growth and stopping it. Initial pesticide development efforts in this arena led to the commercialization of maleic hydrazide (MH) in the late 1940's and early 1950's by Uniroyal. MH used as a growth regulator on turfgrasses results in a stoppage of plant growth. The duration of this stoppage is dependent on the sensitivity of the turfgrass species treated and the rate of application. At certain rates MH is herbicidal on turfgrasses and can result in complete kill. Even at recommended rates, MH results in a phytotoxic response, discoloration and a possible thinning of the turfgrass stand. When the treated plants recover from this injury, they typically grow more rapidly than untreated areas.

Similar turfgrass response has occurred with later generation plant growth regulators. The most

prominent of these have been chlorflurenol and mefluidide. Both compounds result in a stoppage of turfgrass growth and a phytotoxic response similar to that described for MH.

As a result of these properties, the use of these compounds has been limited to low maintenance utility type turfgrass areas such as

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