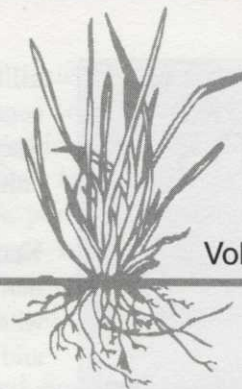


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Developing Turfgrasses With Enhanced Insect Resistance

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Great strides have been made in the development of improved turfgrasses. Turfgrass managers can now choose among many species and select an adapted cultivar with an attractive appearance, improved stress tolerance and resistance to some diseases. Improvements have also been made in resistance to insect pests, especially endophyte-enhanced resistance. This article will discuss how insect-resistant cultivars are developed and how turfgrass managers can use them.

How Insect-Resistant Cultivars are Developed

Turfgrass breeding is a young discipline with initial efforts focused primarily on improving quality. Now the emphasis has shifted towards stress tolerance, decreased maintenance needs, and improved disease and insect resistance. How does a plant breeder make these improvements to a grass cultivar? A number of methods are used, depending upon the grass species.

All breeding projects start with an extensive collection of plant material. If the goal is improving the summer stress tolerance of bentgrass, for example, then the breeder collects plants from old turfs that have been subjected to severe summer stress. This germplasm collection is then evaluated in turf plots and/or placed in crossing blocks. Seed is harvested from promising plants and the offspring are evaluated under summer stress. This cycle would be repeated for many generations until a population is developed which exhibits improved summer stress tolerance and good turf performance. This method,

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Terms to Know

Three Types of Insect Resistance

- 1) antixenosis (nonpreference)
- 2) antibiosis
- 3) tolerance