

CUTT

Summer 1997 • Volume Eight • Number Two • A Publication of Cornell Cooperative Extension

Ecological Aspects of Crabgrass Infestation in Cool-Season Turf

Crabgrass (*Digitaria spp.*), a seed propagated summer annual grass species, is considered one of the most important weeds in turf management systems. Many studies have been focused on herbicide control, however, research on the biology and ecology of crabgrass is conspicuously absent, especially information on the ecological aspects influencing the infestation in turf. Understanding these factors could lead to improved crabgrass management strategies.

The purpose of this study was to determine the effects of open space (gap size), thatch layer and soil temperature on crabgrass infestation in turf. ■

Materials and Methods

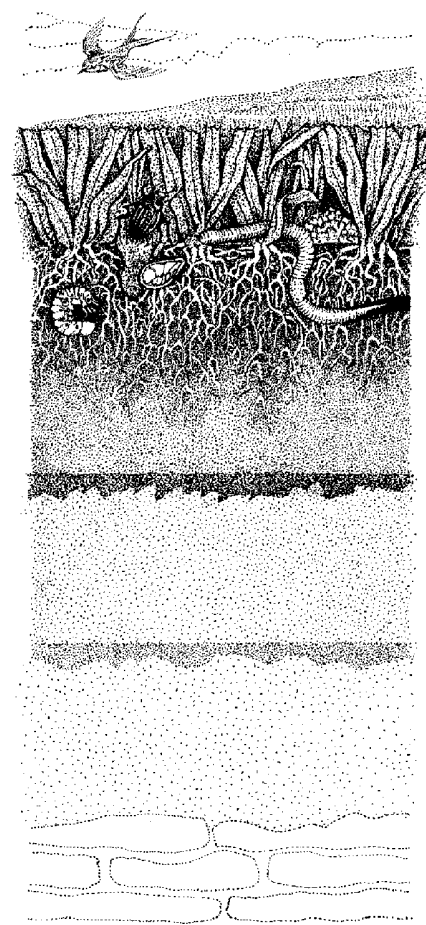
Field experiments were conducted in 1996 on a mature stand of turf-type tall fescue (*Festuca arundinacea*). Experiment A was on a site with a history of heavy smooth crabgrass infestation, and Experiment B was on a site without a history of infestation.

Four different sized gaps of 2.5 to 20.0 cm diameter were created on April 15 by spot treatment with 2.0% (v/v) Finale (glufosinate); and the closed gap (0.0 cm gap) was 10 x 10 cm area. After turf died in Experiment B, half the gaps were disturbed by removing dead grass and thatch and replacing the area with soil. Three grass weed species, smooth crabgrass (*D. ischaemum*), large crabgrass (*D. sanguinalis*)

and goosegrass (*Eleusine indica*) were overseeded on May 22 in each gap. All plots were arranged in randomized complete block design with 5 replications and mowed biweekly at 2.5 inch height with the clippings removed. Each gap size was maintained by clipping the encroaching leaf blades once a week.

Seedling emergence rate and tiller development were recorded weekly from May 1 to August 23. Seedheads of each species were counted weekly in August. Soil temperatures at 2.5 and 5.0 cm depth were continuously monitored from May 24 to July 19 at 30 minute intervals with in-ground thermocouples and a CR10X Measurement and Control Module (Campbell Scientific, Logan UT).

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