

BIOGEOGRAPHY OF BENTGRASSES (AGROSTIS) IN CONNECTICUT. Carol Auer, Associate Professor, Department of Plant Science, University of Connecticut, Storrs, CT 06269.

The biogeography of bentgrasses had no practical significance until the recent concerns about gene flow from genetically-modified (GM) herbicide-tolerant *Agrostis stolonifera* (creeping bentgrass). Therefore, it is not surprising that there is no comprehensive source of information about the distribution of these grasses in the United States.

A recent Federal Register notice asked for floristic assessments to understand the prevalence of *Agrostis* and its sexually compatible relatives. This study performed a rapid assessment of bentgrass species in Connecticut, a New England state with many urban/suburban areas and golf courses. The assessment of bentgrass species (*Agrostis* and related genera) used two approaches: 1) examination of approximately 600 herbarium specimens in the University of Connecticut Herbarium (Storrs, Connecticut) and the Yale Herbarium (New Haven, Connecticut), and 2) summer field studies in the northeastern region of Connecticut on public lands (e.g. roadsides, public golf courses, land trust conservation areas and town parks).

The study revealed that Connecticut has nine bentgrass species with three species considered to be native to the state. Of the nine species in the flora, six bentgrass species have the potential to hybridize with *A. stolonifera*. There is gap in knowledge about gene flow for three species, including two native bentgrasses (*A. perennans* and *A. hyemalis*). The study demonstrated that three native *Agrostis* species are widely distributed, with *A. perennans* (upland bentgrass) the most common native bentgrass based on herbarium accessions (present in 45% of the towns in the state) and frequent identification in roadside flora. If herbicide-tolerant creeping bentgrass is used in Connecticut, there is potential for gene flow into some populations of native and introduced bentgrasses at a frequency that cannot be accurately predicted.

A second important conclusion is that *A. gigantea* (redtop bentgrass) is a common introduced species and it can be found in some Connecticut wetlands. Gene flow is possible between *A. stolonifera* and *A. gigantea*, suggesting that herbicide-tolerant *A. gigantea* populations could develop in wetlands. Field studies in wetlands in the Connecticut River Valley revealed that *A. gigantea* and the invasive plant purple loosestrife can occur in the same site. In theory, if glyphosate herbicide were sprayed to kill the purple loosestrife, a population of herbicide-tolerant *A. gigantea* could survive and spread by rhizomes and seeds. Herbicide-tolerant *A. gigantea* could compete with desirable wetland plants and decrease future weed management options because there are very few herbicides labeled for wetlands. Therefore, it is possible that herbicide-tolerant bentgrass populations in Connecticut could impact land management in ways that are difficult to predict or quantify at this time.