

## **Turfgrass Species Display Garden 2013 Report**

Peter Purvis and Rob Witherspoon  
Guelph Turfgrass Institute, University of Guelph

### **Executive Summary**

Managed Turfgrass areas in Ontario are dominated by four primary species or species groups: Kentucky bluegrass, creeping bentgrass, perennial ryegrass and the fine fescues. There has been limited investigation into the suitability and use of alternative Turfgrass species for use by the Turfgrass industry. The Turfgrass Species Display Garden was created in 2009 at the Guelph Turfgrass Institute with the establishment of 23 different cool season grasses. Included is a putting green with five separate sections, each comprised of a different fine-turf species. Warm season grasses were planted in 2010 and in each subsequent year. This garden will provide a valuable resource for professional turf managers, researchers, students and others to examine the growth and survival characteristics of a wide range of Turfgrass species under Ontario conditions. An instructor in the Associate Diploma in Turf Management program has already collected samples from each turfgrass species for teaching purposes.

Kentucky bluegrass, creeping bentgrass, perennial ryegrass and the fine fescues are the four primary species or species groups of grasses used in Ontario. There has been limited investigation into the suitability and use of alternative Turfgrass species for use in golf courses, sports fields, sod production, parks, roadsides, landscape sites or other turf areas. There is a need for further investigation into Turfgrass species that can withstand drought or wet conditions, harsh winters, low fertility, disease pressures and many other extreme conditions yet retain good quality and recuperative potential. This work is especially critical given the challenges of climate change, watering and nutrient restrictions. Long-term observation of a variety of species has the potential to identify alternative species for a number of landscape applications.

New Turfgrass cultivars are constantly being developed and tested, but often an existing species may be all that a turf manager requires for a specific application. These species are available but not well known and a location where they are grown side by side in Ontario does not currently exist. The Turfgrass Species Display Garden will provide a valuable resource for professional turf managers, researchers, students and others to examine the growth and survival characteristics of a wide range of Turfgrass species under Ontario conditions.

The objective of the Turfgrass Species Display Garden was to establish a research/teaching site that would include representative plantings of a wide range of cool and warm season turf grasses.

The area will provide several benefits, including:

- A site where golf course superintendents, sports field, park and Turfgrass managers have access to a side by side comparison of a wide range of cool and warm season turf grasses, both in their natural and maintained forms;
- An educational resource for faculty, extension specialists, students, industry professionals and the general public;
- A source of mature and established plant material for greenhouse and student research projects;
- A means of informal annual evaluation of the short and long term performance of various common and uncommon Turfgrass species under southern Ontario growing conditions and identifying species that may warrant more in-depth examination for broader use.

In July 2009, a landscape architect was hired to design the Display Garden.

Construction of the garden began in August with much of the work being done by two interns hired from the University of Guelph's Turfgrass Management program. The installation of a new under-ground irrigation system dedicated to the garden was also completed in August.

Twenty three species of cool season grasses (Table 1) were planted in September. Grasses were planted in 1-m wide, side-by-side rows with a divider in-between each row to reduce spreading of the grasses. Half of each species was mowed and half left unmown so grasses could be viewed in their cultivated and natural forms. A series of paths were constructed throughout the garden for easy access to the grasses.

A putting green was also planted with five separate sections, each containing a different species of fine-type turf (Table 2).

A section of the garden was prepared for the warm season grasses which were planted in the spring of 2010 and each subsequent year.

The benefits of the Display Garden are already being realized. Dr. Ken Carey, an instructor in the Associate Diploma in Turf Management program, has collected samples from each turfgrass species for use in his turfgrass identification course at the University of Guelph. The official dedication of the Garden took place at the Guelph Turfgrass institute's Research Field Day in August, 2010.

The authors thank the Ontario Turfgrass Research Foundation, Landscape Ontario, the Georgian Bay Golf Superintends Association and Pickseed for their support of this project.

**Table 1.** Grass species planted in the Turfgrass Species Display Garden.

Annual bluegrass (*Poa annua*)  
Annual ryegrass (*Lolium multiflorum*)  
Canada bluegrass (*Poa compressa*)  
Chewings fescue (*Festuca rubra* var. *commutata*)  
Colonial bentgrass (*Agrostis tenuis*)  
Creeping Bentgrass (*Agrostis palustris*)  
Crested wheatgrass (*Agropyron desertorum*)  
Fairway wheatgrass (*Agropyron critsatum*)  
Hard fescue (*Festuca longifolia*)  
Kentucky bluegrass (*Poa pratensis*)  
Orchardgrass (*Dactylis glomerata*)  
Perennial ryegrass (*Lolium perenne*)  
Red fescue (*Festuca rubra*)  
Redtop (*Agrostis alba*)  
Rough bluegrass (*Poa trivialis*)  
Sheep fescue (*Festuca ovina*)  
Smooth brome grass (*Bromus inermis*)  
Tall fescue (*Festuca arundinacea*)  
Texas Bluegrass Hybrids (*Poa pratensis* × *Poa arachnifera*)  
Timothy (*Phleum pratense*)  
Velvet bentgrass (*Agrostis canina*)  
Weeping alkaligrass (*Puccinellia distans*)  
Western wheatgrass (*Agropyron smithii*)

**Table 2.** Grass species planted in the Turfgrass Species Display Garden putting green.

Annual bluegrass (*Poa annua*)  
Colonial bentgrass (*Agrostis tenuis*)  
Creeping Bentgrass (*Agrostis palustris*)  
Fine fescue mix (*Festuca longifolia*; *Festuca ovina*; *Festuca rubra* var. *commutate*)  
Velvet bentgrass (*Agrostis canina*)