

# TURFGRASS DEVELOPMENT & MANAGEMENT



*John Seaton Anderson Turfgrass Research Center at the Eastern Nebraska Research and Extension Center near Mead, NE*

The John Seaton Anderson (JSA) Turfgrass and Ornamental Research facility houses the University of Nebraska-Lincoln turfgrass research program. The JSA research facility has served the turfgrass industry for decades. It houses 50 acres of irrigated turfgrass plots ranging from golf fairway and putting green turf, to high mowed turf, to plots of weeds for herbicide evaluations and more than one thousand accessions of buffalograss for the breeding program.

The JSA research area is utilized primarily by the University's Department of Agriculture and Horticulture, but the Departments of Plant Pathology and Entomology also conduct research at the area.

The turfgrass program is made up of experts in the areas of turfgrass breeding, weed science, plant physiology, entomology, and soil and water management. Our mission is to provide turfgrass research and education and to maintain high quality turfgrass while reducing water and other inputs. The goal is to provide pertinent research based information to turfgrass managers throughout the year and address agronomic issues as they come up across Nebraska, the Great Plains region, and the country.

The research program strives to bring the best and most relevant turfgrass research, education and outreach opportunities to Nebraska and surrounding states.

A primary focus of the University's turf program is to reduce inputs, lower management costs and conserve resources. One approach to achieve input reduction is through careful turfgrass species selection. The turfgrass breeding program has been developing improved turf-type buffalograsses for more than 30 years. Buffalograss is broadly adapted to the Central Great Plains region and thrives with minimal fertility, supplemental irrigation, and pesticides when compared to traditionally grown turfgrass species. Buffalograss is also a dioecious species so it has separate male and female plants, which is rare among flowering plants. The dioecious nature of buffalograss makes it difficult to apply modern advanced

breeding methods towards its improvement. Amundsen assumed leadership of the turfgrass breeding program in 2011. His two primary research objectives are to develop the next generation of turf-type buffalograss cultivars and apply modern techniques to improve the efficiency of the breeding program. Amundsen coins himself a "computer nerd" but brings a unique expertise to buffalograss breeding as a computational biologist. He applies modern DNA sequencing methods to understand genome complexity of buffalograss. He is also implementing DNA-based techniques to complement his breeding activities and has identified genes that confer pest resistance and improved buffalograss quality that can be used to identify plants with these traits faster than field-based observations. Amundsen's research group, led by Carol Caha (lab manager), Katie Kreuser (breeding coordinator), and Jeff Witkowski (germplasm manager), is working to increase seed yields, apply experimental dioecious breeding methods, improve turf quality and sod characteristics, and further increase buffalograss pest and abiotic stress tolerance.

The University's turf program also owes its success to the support it receives from national, regional and local stakeholder groups, the University of Nebraska, and ENREC. The support received by the program gives it the flexibility to quickly prioritize new lines of research and disseminate results to turfgrass managers. Turfgrass management advice is accessible to turf managers at every skill level, ranging from homeowners to professional turfgrass managers, through the turfgrass program's website (<http://turf.unl.edu>), Backyard Farmer, and Turf info.



**EASTERN NEBRASKA  
RESEARCH AND EXTENSION CENTER**

1071 County Road G \* Ithaca, NE 68033  
402-624-8000 \* [enrec@unl.edu](mailto:enrec@unl.edu)



**[enrec.unl.edu](http://enrec.unl.edu)**



**University of Nebraska-Lincoln Institute of Agriculture and Natural Resources**

Extension is a Division of the Institute of Agriculture and Natural Resources at the University of Nebraska-Lincoln cooperating with the Counties and the United States Department of Agriculture. University of Nebraska-Lincoln Extension educational programs abide with the nondiscrimination policies of the University of Nebraska-Lincoln and the United States Department of Agriculture.