



## Research To Increase Productivity



*The USGA and the National Turfgrass Evaluation Program are using rainout shelters to conduct Kentucky bluegrass and tall fescue water use studies across the United States.*

One definition of productivity is the rate of output per unit of input. Consider the output on a golf course as the condition and playing quality of the turfgrass. Inputs are the labor, water, agrochemicals and energy to maintain the turfgrass. The goal is to have the same or improved output while reducing required inputs. In this effort, the USGA is supporting research that will increase the long-term productivity of golf courses. Here are a few examples to consider:

Water conservation is a focus of USGA research at universities around the country. Turfgrass that provides quality playing surfaces with less water is more productive. Kansas State University evaluated the water use of Kentucky bluegrass cultivars. Several cultivars provided high quality with less water. Further, a new national test on the water needs of cool-season grasses is underway. The USGA and the National Turfgrass Evaluation Program are supporting 10 university test locations to determine the water use and drought tolerance of Kentucky bluegrass and tall fescue cultivars.

Warm-season grasses such as bermudagrass or zoysiagrass use less water than cool-season grasses. However, warm-season grasses are dormant in the winter or damaged by extreme cold temperatures. University turfgrass breeders have developed cultivars of warm-season grasses with improved cold tolerance for transition climates - i.e., climates that are very cold in the winter and hot in the summer. Also, new research is underway to develop warm-season grasses with improved winter color retention. In both cases, the goal

of the research projects is to conserve water, as well as reduce the need for agrochemicals or overseeding.

Productivity also includes getting good results from the application of expensive fungicides. A project at Rutgers University is evaluating bentgrass cultivar resistance to dollar spot in combination with fungicide application timing and disease forecasting models. A dollar spot resistant cultivar such as 'Declaration' requires fewer fungicide applications to control disease during the year. While dollar spot forecasting models need more refinement, in some years they can help reduce fungicide applications.

There are many more examples of USGA-funded research projects at universities that aim to help increase the productivity of golf courses. Take a look at more than 60 research summaries available at [Turfgrass and Environmental Research Online](#) (TERO).

Source: Mike Kenna

Additional Information:

[Seasonal Water Applications on 30 Bluegrasses in the Transition Zone](#)

[Cold-hardy Bermudagrass For Practice Tees](#)

[Bermudagrass Cultivars with High Quality and Improved Cold Hardiness](#)

[Development of Large Patch Resistant and Cold Hardy Zoysiagrass Cultivars for the Transition Zone](#)

[Reducing Fungicide Application On Bentgrass Fairways](#)

[Turfgrass and Environmental Research Milestones](#)