

RESEARCH ON HERBICIDE PROVES IT EFFECTIVE FOR BENTGRASS REMOVAL FROM KENTUCKY BLUEGRASS

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Selective removal of bentgrass from Kentucky bluegrass is a common challenge for many superintendents. Though many products through the years have shown various levels of effectiveness in controlling bentgrass, recent research indicates that one of the newest herbicides on the market can deliver up to 95% control to affected bluegrass.

Tenacity® (mesotrione) is a herbicide registered in 2008 for golf courses and sod farms and federally registered for commercial applicator residential use in 2009. State registrations for residential use are pending. Tenacity was discovered by a Syngenta scientist who observed fewer weeds growing under his bottlebrush plant (*Callistemon citrinus*). Its active ingredient mimics the natural herbicidal compounds in root exudates of the bottlebrush plant. It is a pigment inhibitor resulting in a “bleaching” of the new growth of target weeds. In practice the susceptible species turn white which, while a great indicator of efficacy can be a bit startling the first time an applicator uses the product (Figure 1). It is safe on all cool season grasses except creeping bentgrass, when used as directed.



Figure 1

Evaluation at multiple locations have shown good to excellent control of creeping bentgrass, nimblewill and windmillgrass in Kentucky bluegrass and other cool season grasses and good to excellent control of a laundry list of broadleaf weeds and crabgrass and foxtail. The herbicide offers both pre and post activity, depending on species.

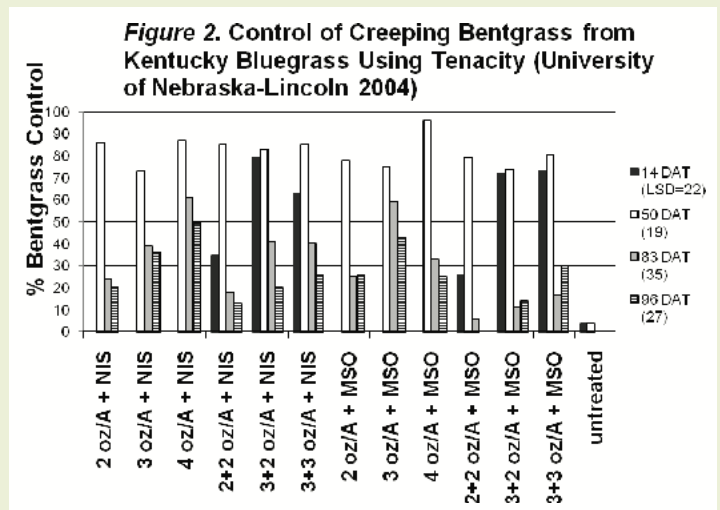
Another unique property of Tenacity is safety at seeding. Applications at planting for safety on Kentucky bluegrass, perennial ryegrass and tall fescue have shown excellent results in research trials. Work at other Universities has shown control, albeit inconsistent depending on application timing, for annual bluegrass. Following is a brief summary of work conducted in Nebraska for removal of creeping bentgrass from Kentucky bluegrass and suggestions for rates and timing for optimal control.

A research experiment was conducted in 2004 at the John Seaton Anderson Turf and Ornamental Research Center near Mead, NE to evaluate Tenacity for creeping bentgrass removal from a Kentucky bluegrass stand and to evaluate the use of methylated seed oil (MSO) and non-ionic surfactant (NIS) for improved herbicide efficacy. A mixed stand of creeping bentgrass and Kentucky bluegrass surrounding a creeping bentgrass putting green was used to determine the efficacy and potential creeping bentgrass injury from Tenacity appli-

cations. The 3' x 6' plots were sprayed with a CO₂ driven backpack sprayer equipped with an 8002V flat-fan nozzle on 13 May and 3 June for split applications and 3 June for single applications.

No visible injury to the Kentucky bluegrass was observed throughout the experiment. Within 10 days of each application, plots treated with Tenacity had white new growth developing from creeping bentgrass plants. The bleaching symptomology remained for approximately 3-4 weeks following application. During the summer months there was increased Kentucky bluegrass cover in the plots due to the spreading of Kentucky bluegrass into the previous creeping bentgrass occupied patches. However, creeping bentgrass did return to the experimental area during the cooler autumn climate forming a dense turfgrass stand composed of a mixture Kentucky bluegrass and creeping bentgrass. Although, the creeping bentgrass was not completely controlled, the stand was comprised of more Kentucky bluegrass than found at the beginning of the experiment.

It should also be noted that no Kentucky bluegrass overseeding was done during the trial. In general, higher rates of Tenacity provided greater control of creeping bentgrass regardless of adjuvant (Figure 2). Using NIS or MSO both appeared to respond similarly. A trend of greater long-term control with the use of a NIS compared to MSO did appear to be present, but the trend was not significant.



A severe infestation on a greens surround was identified in 2005 to further refine recommendations for successful use of Tenacity for selective removal of creeping bentgrass from Kentucky bluegrass. The area was comprised of approximately 65 percent creeping bentgrass mixed with an unknown blend of Kentucky bluegrass cultivars. The greatest control was seen from fall applications in various split and rate configurations, including rates higher than used in 2004 (4-6 oz/Acre). All treatments were applied with an NIS. Initial applications were applied on September 7 and sequential applications every 14 days thereafter.

Data on bluegrass phytotoxicity and bentgrass control were taken every two weeks after the initial application and the following spring when the results were the most dramatic (Table 1; Figure 3). All Tenacity treatments resulted in 95% control (or greater), and produced no visible phytotoxicity to the Kentucky bluegrass. As with the work

described previously the plots were not overseeded with Kentucky bluegrass which, in all likelihood, would have resulted in even greater reduction in creeping bentgrass.

For many superintendents, Tenacity could be an exceptional tool for the selective removal of creeping bentgrass from Kentucky bluegrass. Fall applications are recommended for greater efficacy and overseeding should be done if bentgrass infestations are high and the loss of the bentgrass would result in significant stand loss.

Table 1. Fall applications of Tenacity for selective removal of creeping bentgrass from Kentucky bluegrass. Treatments applied in 2005 and data shown from September 2006. All Tenacity treatments were significantly different from the untreated control but not from each other. University of Nebraska-Lincoln

Rate oz/acre	Applications	Timing	Creeping Bentgrass
Untreated	-----	-----	65 percent
4	2X	9/7;9/14	3 percent
4	3X	9/7;9/14;9/21	0 percent
6	2X	9/7;9/14	3 percent
6/4	2X/1X	9/7;9/14;9/21	3 percent
4	4X	9/7;.....;9/28	5 percent

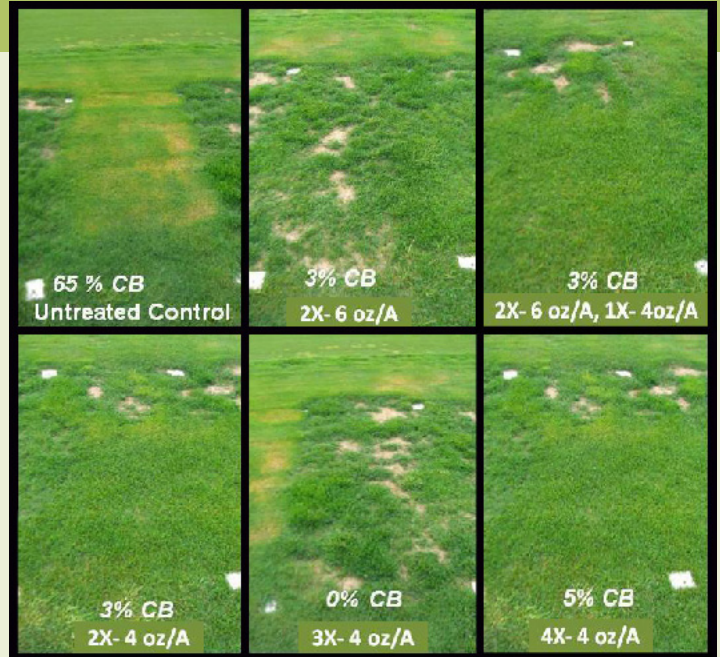


Figure 3. Fall applications of Tenacity for selective removal of creeping bentgrass from Kentucky bluegrass. Photographs taken in the spring following Tenacity application. University of Nebraska-Lincoln 2006

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