

Controlling Kentucky bluegrass with herbicide and burning

Corie Ereth, KLJ, Bismarck, ND



Kentucky bluegrass has increased on northern Great Plains rangelands over the past 30 years. While Kentucky bluegrass can provide adequate livestock forage in good years, in dry years, it can go dormant resulting in low quality forage. Besides the impact on livestock forage production, Kentucky bluegrass can lower species diversity, alter how nutrients are cycled through the ecosystems, alter water flow in rangelands and potentially reduce pollinator numbers and diversity because of fewer forb species.

The Northern Great Plains Research Laboratory (NGPRL) received a grant from the US Forest Service to investigate methods to control Kentucky bluegrass on the Sheyenne National Grasslands near Lisbon, ND. NGPRL teamed up with North Dakota State University to initiate this project.

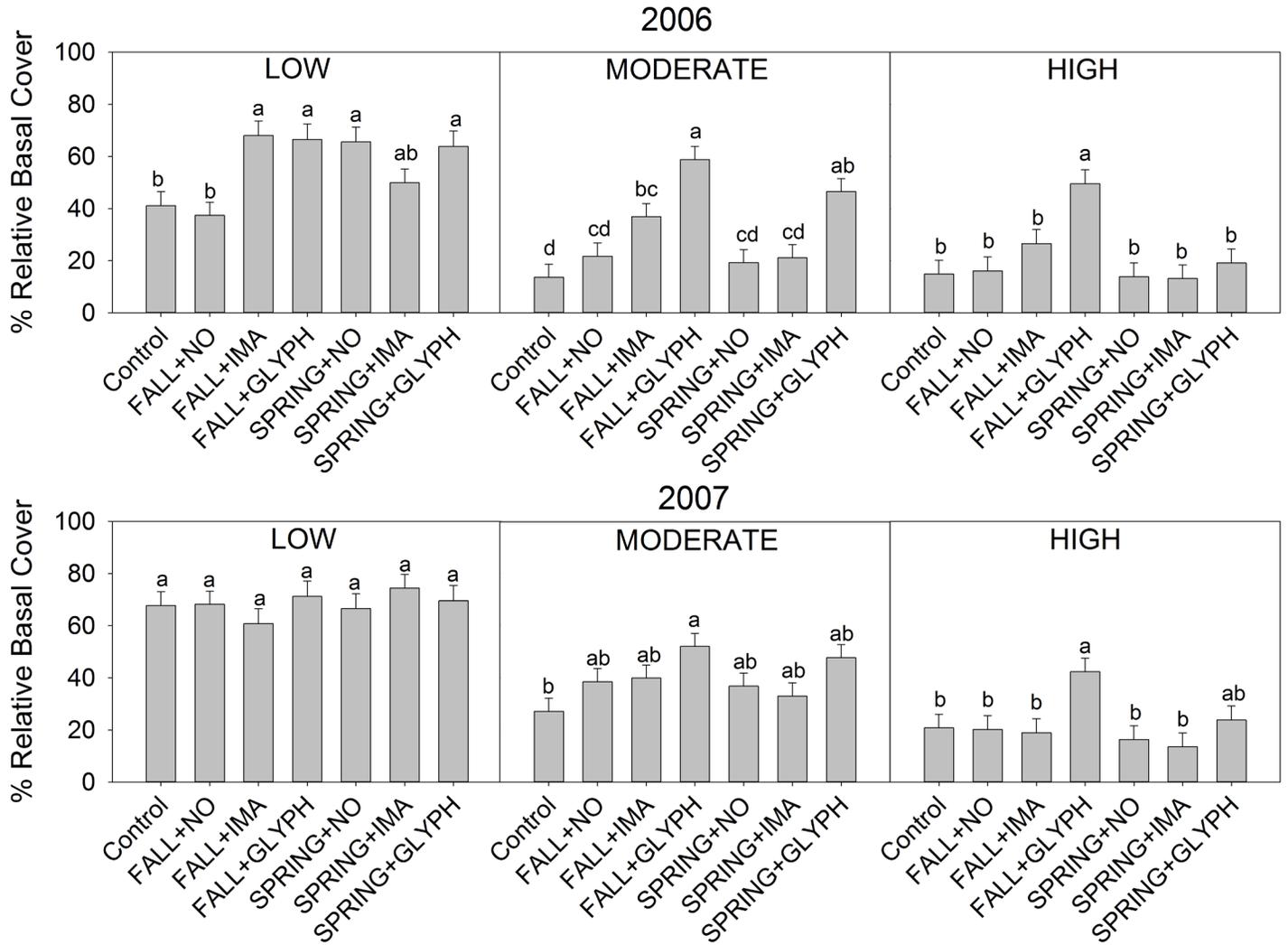
Three different sites were chosen on the Sheyenne National Grassland. Levels of Kentucky bluegrass invasion were different for each site and ranged from 37% (LOW), 77% (MODERATE) and 91% (HIGH). Treatments included two different burning treatments (FALL vs. SPRING), three different herbicide treatments (GLYPHOSATE, IMAZAPIC and NO) and a non-treated control. Plots were either burned in the fall (FALL) and sprayed with herbicide in the spring or sprayed with herbicides in the fall and then burned in the spring (SPRING).

Our data indicated that combining burning with herbicides can within one year reduce amounts of Kentucky bluegrass while increasing the native grass abundance. HOWEVER, as with most research, this good news comes with several important considerations. First, the amount of Kentucky bluegrass prior to initiating treatments is an important factor to consider when considering treatment options. On sites with relatively low amounts of Kentucky bluegrass (LOW), burning in the FALL followed by a spring IMAZAPIC application increased native grass and reduced Kentucky bluegrass the most. However, on the sites with MODERATE and HIGH amounts of Kentucky bluegrass, burning in the FALL followed by a spring application of GLYPHOSATE was the most effective at limiting Kentucky bluegrass and increasing native grasses.

Second, for a variety of reasons including weather, differences between treatments were not as apparent in 2007 compared to 2006. This suggests that these treatments are only the first step in reducing the Kentucky bluegrass in pastures. Producers need to continually monitor species composition and adjust their management to stay ahead of this invasive grass.

C. Ereth, J. Hendrickson, D. Kirby, E. DeKeyser, K. Sedivec, and M. West, 2017. Controlling Kentucky Bluegrass with herbicide and burning is influenced by invasion level. Invasive Plant Science and Management, 10:80-89.

Fig 1. Estimated mean percent basal cover of native grass adjusted for pre-treatment (2005) percent basal cover for sites with LOW, MODERATE and HIGH levels of Kentucky bluegrass invasion for years 2006 and 2007. Letter groupings over bars indicate significant differences among treatment means within a year and Kentucky bluegrass invasion level at a 0.05 level of significance.



John Hendrickson 701.667.3015 john.hendrickson@ars.usda.gov

One teaspoon of *healthy* soil contains

100 million-1 billion individual bacteria

Source: Soil Biology Primer page c-1 (Elaine Ingham, Andrew R. Moldenke, Clive Edwards)

USDA United States Department of Agriculture

Want more soil secrets? Check out www.nrcs.usda.gov

USDA is an equal opportunity provider and employer.