Potassium: The effect on the severity of anthracnose affecting annual bluegrass

Potassium (K) is the second most abundantly used element in plants and has been shown to increase drought tolerance and stress resistance in turfgrass temperate zones (*cool season grasses*). Recent studies on anthracnose (*colletotrichum cereale*) have shown that fertilization with potassium and nitrogen (rather than nitrogen alone) significantly reduces the severity of the disease compared to other sources of nitrogen. However, the effect of potassium fertilization on the severity of anthracnose is still not clear.

The study conducted by Dr. Charles Schmid in 2012-2013 at the University of Rutgers is trying to determine whether the potash and/or source and K application rates have any effect on the incidence of anthracnose.

In this study they used many sources of potassium (potassium sulphate, potassium chloride, potassium nitrate and potassium caronate). All sources were applied at the N: K elemental ratio of 1:1, 2:1 and 4:1. A no-K control was included in the trial as well as a no-N with potassium chloride applied at the same K rate as the 1:1 treatments. All treatments were made every 14 days with 0.1 lb of N (except control without Nitrogen) from April 24th and until November 1st for 2 years (2012 and 2013).

In both years, turf that received applications of nitrogen and potassium at the same time, had less anthracnose incidence than those that only received nitrogen or potassium. This was true regardless of the potassium source. In 2012, few differences were detected between the sources and rates of potassium. However, in August 2013, the highest rates of potash (1:1 and 2:1) had less anthracnose that low (4:1). Interestingly, the potassium only fertilization had less disease than Nitrogen fertilization only.

Référence: Charles J. Schmid et Al., Plant Biology, Rutgers University (2013)