

## **CORN YIELD RESPONSE TO FOLIAR BORON AND HEADLINE FUNGICIDE**

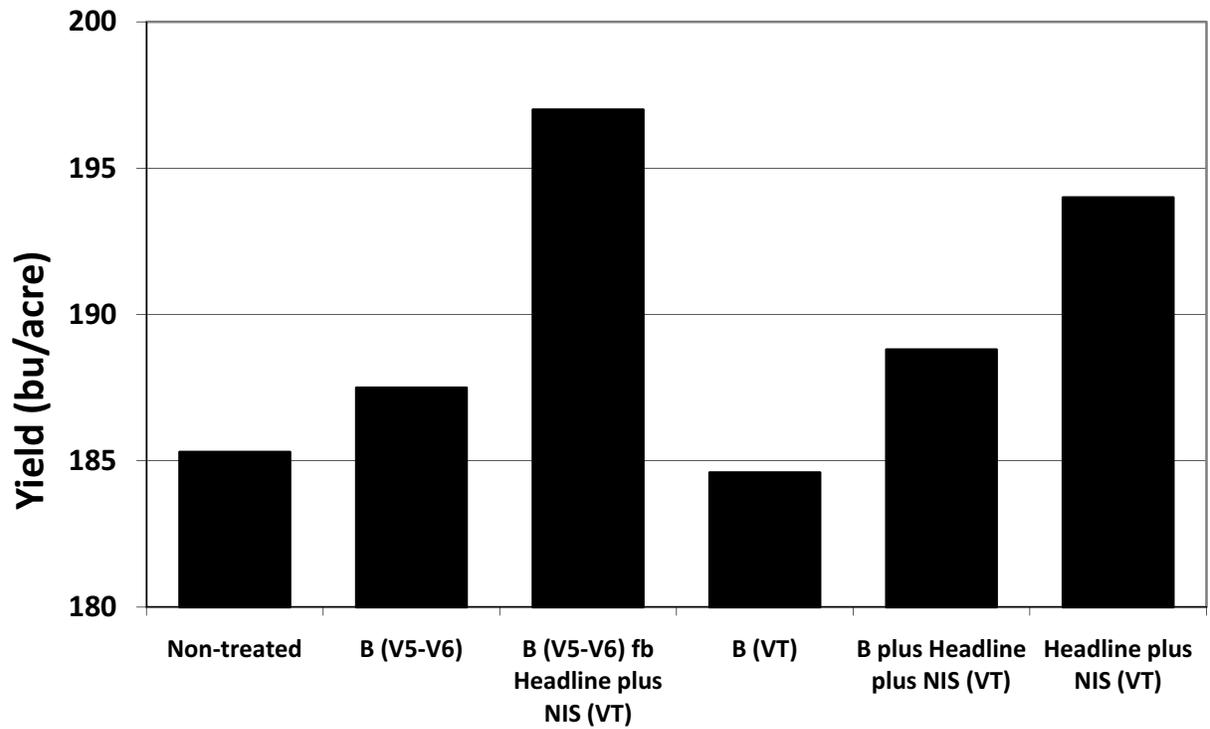
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Boron has typically been applied in semiarid tropical regions, on calcareous soils, and sandy soils. Limited research in the Midwest has evaluated corn response to B in fine textured soils. Modern corn hybrids offer increased yields, and farmers need to maximize yields to profit from high prices. Therefore, it is important to better understand the effects of B and Headline<sup>®</sup> (pyraclostrobin) fungicide as well as possible interactive benefits between B and crop protection chemicals such as Headline. The plant health benefits and disease management utility of Headline along with B's effect on pollen fertility and possible disease management benefits may synergistically increase yield. We hypothesized that an early foliar application of B or at tasseling (VT) in a high-yield environment would increase yield, assist in completing pollination in the tip of the cob, and increase disease tolerance. The objective of this research was to evaluate the effects of foliar-applied B and pyraclostrobin on yield, tissue B concentration, severity of disease, and grain quality.

This research was conducted at four locations in Northeast Missouri (Novelty, Bethel, Leonard, and Edina) from 2008 to 2010. Boron (0.5 lbs/acre) was topdressed at V5-V6, V5-V6 followed by Headline (6 oz/acre plus 0.25% v/v nonionic surfactant) at VT, and in the presence and absence of Headline at VT. Headline was also applied alone at VT and a non-treated control was included in the design. Averaged over all 12 site-years, Headline alone increased yield 5% and B at V5-V6 followed by Headline at VT increased yield 6% when compared to the non-treated control (Figure 1). Grain yield increased over 8 bu/acre when B was split-applied at V5-V6 followed by Headline at VT compared to B plus Headline at VT. Headline increased grain moisture 0.3 to 0.7% and reduced starch concentrations 0.1 to 0.2% compared to the non-treated control; however, no difference in the number of barren stalks, grain with diplodia (*Stenocarpella maydis*) symptoms, oil or protein concentrations was detected among treatments. In summary, B should be applied before VT to avoid antagonism with Headline on high yielding, fine textured soil.



**Figure 1.** Grain yield response of corn to foliar-applied B at 0.5 lb B/acre (V5-V6 and VT) and Headline at 6 oz/acre plus nonionic surfactant (NIS) at 0.25% v/v applied at VT in the presence and absence of B. Boron was applied at V5-V6 followed by (fb) pyraclostrobin at VT. Data were averaged over 12 site-years and the LSD ( $P = 0.05$ ) was 5 bu/acre.