

EFFECT OF QUADRIS AND HEADLINE ON CORN GRAIN YIELDS IN NORTHEAST MISSOURI

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High yield corn growers have been utilizing fungicides to reduce the incidence of disease and help increase grain yields. The objective of this study was to evaluate yield response of high yield value-added hybrids to Headline and Quadris fungicides.

Research was conducted at Novelty or Bethel in 2004, 2005, and 2006 in no-till or conventional tillage systems using high yielding high extractable starch (DeKalb, Golden Harvest, and Pioneer), yellow food grade (Burrus, Golden Harvest, and Pioneer), and white food grade (Garst and Pioneer) hybrids. Research was arranged as a randomized complete block in a split-plot arrangement with four replications. The main plot was hybrid and sub-plot was fungicide treatment. Plots were 10 by 35 to 45 ft. Additional research evaluated the impact of fungicide treatments on grain quality, but these results will not be discussed in this summary. Quadris at 6.4 oz/a plus non-ionic surfactant (NIS) at 0.25% v/v and Headline at 6.0 oz/a plus NIS at 0.25% v/v were applied when corn was early silking (Figure 1) with a CO₂ propelled hand boom calibrated to deliver 15 GPA at 18 psi. Insufficient disease pressure was present to adequately rate or identify control differences (data not presented). However, visual differences at harvest were observed (Figure 2).

Individual yield means from 16 site/year/hybrids were analyzed using box and whisker plots (Figure 3) using PROC UNIVARIATE (SAS Inst., 2006). The box represents 50% of the observations while 95-99% of the observations are represented by the whiskers. The median was reported with a horizontal dotted line in the box while the mean was represented by an asterisk.

Summary:

Grain yields were above normal in 2004 and average to below normal in 2005. A late planted white corn trial in 2006 had grain yields below normal. The greatest yield response occurred during a high yield environment in 2004. Few significant yield effects were observed in 2005 and 2006 in a low to medium yield environment. The average grain yield increase was 12.5 and 13.3 bu/a for Headline and Quadris, respectively (Figure 4). Median yields were 8.1 and 11.0 bu/acre for Headline and Quadris, respectively. Grain yields ranged from a 58 bu/acre increase to a -5 bu/acre decrease when compared to the non-treated control.

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Figure 1. Silking corn at the time of fungicide application.



Figure 2. Non-treated on the left and Headline treated on the right.

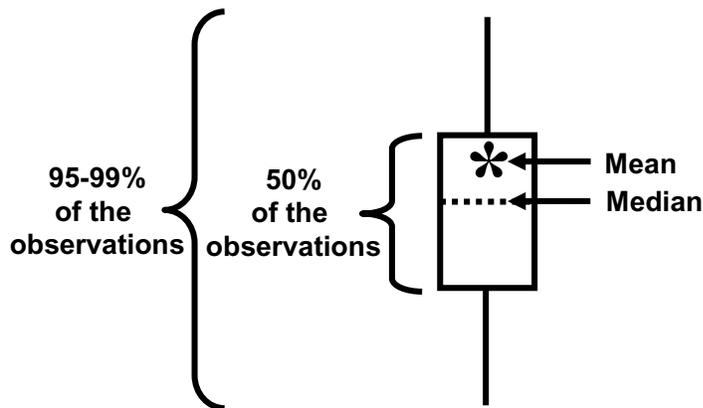


Figure 3. In a box and whisker plot, the box covers the central 50% of the observations while the range from the lower to the upper end of the whiskers covers between 95 and 99% of the observations depending on the distribution. The placement of the median with respect to the edges of the box and whiskers reveals skewness of the distribution. The mean was represented by an asterisk.

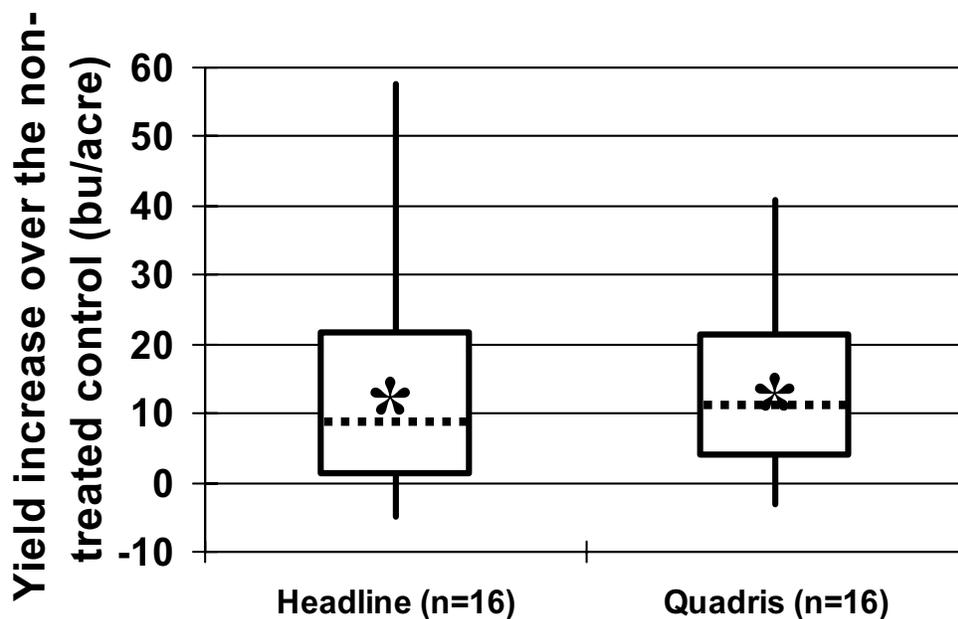


Figure 4. Corn grain yield as affected by Headline at 6 oz/a plus NIS at 0.25% v/v and Quadris at 6.4 oz/a plus NIS at 0.25% v/v for 16 site/year/hybrids from 2004 to 2006. The average grain yield increase (asterisk) was 12.5 and 13.3 bu/a for Headline and Quadris, respectively.