

Response of Corn to Foliar Application of Phosphorus. (6426)

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Abstract:

Foliar applications of fertilizer phosphorus (P) could improve use efficiency by minimizing soil applications where high P fixation is problematic. Nine trials were conducted at Efaw, Goodwell, Guymon, Lake Carl Blackwell, Perkins and Stillwater Agronomy Station, OK using corn (*Zea mays* L.) hybrid varieties in 2002 and 2003 to determine foliar phosphorus rates and appropriate application growth stages. The experimental design was a randomized complete block with three replications for seven field experiments and a completely randomized design for two greenhouse experiments. Treatments comprised of ten factorial treatments combinations of three foliar P application timings and four rates of foliar P in 2002, and in 2003 additional two pre-plant P rates (25 and 50 kg P ha⁻¹) were included. Foliar application times were collar of fourth leaf visible (V4), collar of eighth leaf visible (V8) and last branch of the tassel completely visible but silks not yet emerged (VT). Foliar P rates were 0, 2, 4 and 8 kg P ha⁻¹. Foliar P applied at VT growth stage improved grain and forage P concentration which was reflected in increased grain yield in some of the trials. Foliar P rate of 8 kg ha⁻¹ improved to some extent yields and largely forage and grain P concentration of corn more than the smaller rates although phosphorus use efficiency was high only with low foliar P rates.

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