

Evaluation of New Maize Hybrids Response to Zinc in Chihuahua, México

Project Leader: Ing. José Arreguín, Private Consultant, Av. Revolución # 20 C, Colonia Centro, La Barca, Jalisco – México. Telephone: 52-393-935-6468. E-mail: jarreguin@yahoo.com

New maize hybrids used extensively in Latin America frequently show Zn deficiency. Treatments in this study included NPK, NPKMgS, NPKMgSZn, and PKMgSZn, which were tested at four locations in the Cuauhtémoc area near Chihuahua, México. The N omission plot was included to understand N dynamics and efficiency in the cropping system used in the region. The sites represent four contrasting soil types which could become fertilizer recommendation domains for the region.

Data obtained in the first cycle of this three-year project showed slight differences among fertilizer treatments. The best location was Field 305 with yields being 13.3, 12.8, 13.9, and 5.0 t/ha for the above list of respective treatments. The highest yield obtained at Field 305 will be used as a yield goal for the next two cycles at all sites because it likely represents the yield potential for the climate of the region. Yields at Soto Maynez were 11.4, 11.8, 12.0, and 6.5 t/ha; yields were 10.1, 11.0, 12.2, and 8.0 t/ha at Field 114; and yields at Field 15 were 11.2, 11.4, 11.3, and 3.5 t/ha, for the above list of respective treatments.

Improvement of N use efficiency will increase yields and will allow the expression of the effect of other nutrients studied. During this cycle, Agronomic Use Efficiency for N (AE-N) was calculated for each site from the difference between the high yield and the yield obtained within the N omission plot. The AE-N for Field 305 was 36 kg grain increase/kg N applied (250 kg N/ha), AE-N for Soto Maynez was 20 kg grain increase/kg N (270 kg N/ha), AE-N for Field 114 was 10 kg grain increase/kg N (300 kg N/ha), and AE-N for Field 14 was 20 kg grain increase/kg N (270 kg N/ha). Nitrogen rates for the next crop cycle will be adjusted to take into account the new yield goal and the actual yield of the N omission plots. These parameters will be adjusted again with data from the current year's cycle of production.