

IMPACTS OF CROP MANAGEMENT PRACTICES ON CORN YIELD GAP

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In south Cordoba province (Argentina) corn potential yield was determine in 20 Mg ha⁻¹. Farmer's average yield in the area is 7 mg ha⁻¹. This yield gap can be explained by different management factors: seeding rate, fertilization program, use of fungicides. The aim of this research was to evaluate the impact of different management practices on corn yield. During 2014/15 growing season an experiment was carry at Rio Cuarto National University Experimental Field (Cordoba, Argentina). The factor evaluated includes seeding rate, starter fertilization, nitrogen fertilization and use of fungicide. Two contrasting crop management practices were defined as high (90.000 seeds ha⁻¹, 150 kg ha⁻¹ of NPSZn [10-40-10-1], 110 kg ha⁻¹ of N applied at V6, fungicide application at V8) and low technology (68.000 seeds ha⁻¹, 75 kg ha⁻¹ of NP fertilizer [18-46], 55 kg N ha⁻¹ applied at V6). All possible combinations between both groups of management's practices were evaluated in a total of 10 treatments. The experimental design was factorial with contrasting management practices (high and low technology) and individual management practices (seeding rate, starter, nitrogen, fungicide. The experimental design was completely randomized design with three replications. Grain yield and number of grains per area were measured. The results shows that there was statistical interaction between factors. In high technology treatments decreasing seeding rate, starter fertilizer or nitrogen diminished yields in 15.6, 13.6 and 13.9% compared with the full high technology treatment. In low technology treatments increase in starter rate and nitrogen were statistically significant from the rest of the combinations with a positive impact in yields of 17.4 and 23.8% compared with the control. Preliminary results suggest that there is room to improve management practices to close yield gaps in the region on the study.