Quantifying sensitivity of yield and yield components of corn to crowding stress. (C03-hashemi092228-Poster)

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Abstract:

Plants grown at non-competitive densities (isolated plants) can be used to relate competitive pressure on yield and yield components in higher densities. Corn hybrids were planted at 6 densities where the lowest density was considered as isolated plants. Densities were factorially combined with 4 removal treatments, consisting of removal of alternate plants in rows at different growth stages. Intensity of competition was quantified by comparing grain yield and components of plants grown in non-isolated densities to those of isolated plants. Kernel yield decreased up to 80% compared to isolated plants. Reduction in grain yield was primarily due to reduction in kernels per row and ears per plant. Early competition had no effect on final yield but competition between vegetative stage and anthesis had the greatest effect on yield reduction. Increasing density decreased grain growth rate while plant removal showed no influence. Kernels at the middle and tip showed 3% and 11% slower grain growth rate than basal kernels. The average grain filling period for the hybrids was 34 days and was not changed by density and plant removal.

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