Microenvironment and Plant Characteristics of Corn (*Zea mays* L.) Planted at Two Row Spacings

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Abstract

Development and yield of hybrid corn planted at 50- and 75-cm row spacings and thinned to final stands of 44,000 plants/ha were studied. Micrometeorological parameters were recorded during the 3 weeks before and 3 weeks after anthesis. Carbohydrate levels of ear leaves were determined during the same period.

Temperature, precipitation and solar radiation levels during the 1967 growing season were below recorded norreals. Air and soil temperatures, dew point temperatures, wind speeds, and carbon dioxide concentrations were similar at all canopy heights for the 50- and 75-cm row spacings. Likewise, the daily maximums and minimums for the above listed parameters occurred at approximately the same time in the two row spacings.

Carbohydrate percentages of plants grown in 50- or 75-cm row spacings were similar. For both row spacings, diurnal changes in carbohydrate concentration were highly significant. Concentration of water-soluble carbohydrates increased considerably during anthesis and early ear formation. Acid-soluble carbohydrate concentration decreased during this same period. Under the climatic conditions of the 1967 growing season a wider row spacing resulted in better yield performance although these differences were not statistically significant.

Key Words: Yield • Carbohydrates • Micrometeorological measurements

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