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# Use of a Fungicide to Reduce Stomatal Conductance for Production of Sweet Corn Planted at Different Populations with Limited Irrigation

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**Abstract**
Sweet corn is a potential value-added, alternative crop for producers in southeastern Kansas. Corn responds to irrigation, and timing of water deficits can affect yield components. Even though large irrigation sources, such as aquifers, are lacking in southeastern Kansas, supplemental irrigation could be supplied from the substantial number of small lakes and ponds in the area. However, this may not be enough to improve the water use of the plant. Reducing stomatal conductance and adjusting seeding rate may also help reduce water stress and/or improve water use efficiency. The objective of this study was to determine the effect of limited irrigation, seeding rate, and fungicide applied for stomatal control on sweet corn yield.

**Keywords**
fungicide, stomatal control, sweet corn, population, irrigation

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# Use of a Fungicide to Reduce Stomatal Conductance for Production of Sweet Corn Planted at Different Populations with Limited Irrigation

*D.W. Sweeney and M.B. Kirkham*[1]

## Summary

Sweet corn production was not greatly affected by target population, limited irrigation, or a fungicide applied for stomatal control.

## Introduction

Sweet corn is a potential value-added, alternative crop for producers in southeastern Kansas. Corn responds to irrigation, and timing of water deficits can affect yield components. Even though large irrigation sources, such as aquifers, are lacking in southeastern Kansas, supplemental irrigation could be supplied from the substantial number of small lakes and ponds in the area. However, this may not be enough to improve the water use of the plant. Reducing stomatal conductance and adjusting seeding rate may also help reduce water stress and/or improve water use efficiency. The objective of this study was to determine the effect of limited irrigation, seeding rate, and fungicide applied for stomatal control on sweet corn yield.

## Experimental Procedures

The experiment was established in spring 2017 on a Parsons silt loam on the Parsons field of the Kansas State University Southeast Agricultural Research Center. The experimental design was a split-plot arrangement of a randomized complete block with three blocks (replications). The whole plots were a 2 × 3 factorial of two irrigation schemes (no irrigation or 2.5 cm at VT [tassel]) and three fungicide treatments (none or application at either V6 or at both V6 and R1 [silk] growth stages). Subplots were three target populations of 15,000, 22,500, and 30,000 plants/a. Sweet corn was harvested at R3 (milk) and number of marketable ears, total fresh weight, and individual ear weight was determined. Sweet corn was replanted on May 24, 2017, after herbicide removal of poor original stand resulting from equipment malfunction. Sweet corn was picked by hand on August 1, 2017.

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## Results and Discussion

In 2017, even though increasing the sweet corn target population from 15,000 to 30,000 seeds/a increased stand, the number of ears/a harvested and total fresh weight were not significantly increased perhaps because of a reduction in the number of ears/plant. Sweet corn was little affected by limited irrigation or a fungicide applied for stomatal control.