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

D. W. Sweeney
Kansas State University, dsweeney@ksu.edu

M. B. Kirkham
Kansas State University, mbk@ksu.edu

Follow this and additional works at: https://newprairiepress.org/kaesrr

Part of the Agronomy and Crop Sciences Commons

Recommended Citation

This report is brought to you for free and open access by New Prairie Press. It has been accepted for inclusion in Kansas Agricultural Experiment Station Research Reports by an authorized administrator of New Prairie Press. Copyright 2018 Kansas State University Agricultural Experiment Station and Cooperative Extension Service. Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. Brand names appearing in this publication are for product identification purposes only. No endorsement is intended, nor is criticism implied of similar products not mentioned. K-State Research and Extension is an equal opportunity provider and employer.
Use of a Fungicide to Reduce Stomatal Conductance for Production of Sweet Corn Planted at Different Populations with Limited Irrigation

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

Creative Commons License
This work is licensed under a Creative Commons Attribution 4.0 License.
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

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.
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.