

EFFECTS OF CLIMATE CHANGE AND NARROW ROWS WITH HIGHER PLANT DENSITIES ON YIELDS OF IRRIGATED CORN

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ABSTRACT

Climate change is significantly impacting agricultural systems worldwide, and although there are reports of these impacts contributing to higher yields in some regions, the general consensus is that there will be negative impacts on yields and soil quality across large regions.

Management practices that can contribute to higher yields and adaptation to a changing climate will be important during the 21st century. This presentation will cover results from two manuscripts. One (in peer review) assesses the long-term effects of climate on irrigated yields of corn using data from the Halvorson plots, which are unique long-term irrigated studies that were established in Fort Collins, Colorado. The other (just published) assesses the effects of narrow rows on corn yields with new studies conducted from 2018 to 2020 at the same location. Climate change is occurring at the site and higher yields were correlated with higher average minimum temperatures and growing degree days. Narrow rows (38.1-cm spacing) had 42.5% higher silage production and 9.5% higher harvested grain. Additional information about the results from these studies will be presented. These two sets of studies suggest that climate change is occurring and irrigation is an adaptive practice that could contribute to higher yields, and that management practices such as narrow rows with higher plant populations could contribute to higher silage and grain production. However, the results also suggest that the dryland corn in the region will be significantly negatively impacted.