Nebraska On-Farm Research Network

Effects of Irrigation on Corn Diseases

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Objective: Assess the effects of irrigation on corn disease.

Rationale: Irrigation has been critical is sustaining high corn yields in the semi-arid environment of Nebraska. The introduction of the corn disease tar spot, has brought about concern of reducing yield potentials in irrigated fields. Irrigation creates a more favorable environment for disease allowing for early onset and more severe development of disease. Microclimate conditions are effected more drastically under the inner spans of center pivot system due to the extended duration of irrigation when compared to outer spans.

Treatment Design: This trial has no set treatment list. Disease will be assessed throughout a center pivot irrigated field. Four rows will be randomly selected from the field. Selected rows will have 15-20 designated plants for disease assessment. Center pivot fields will have a total of 60 randomly selected plants. (45 within irrigated environments, 15 in nonirrigated environments of the same field). A minimum of three weather stations will be used for monitoring canopy microclimate.

Example field set-up

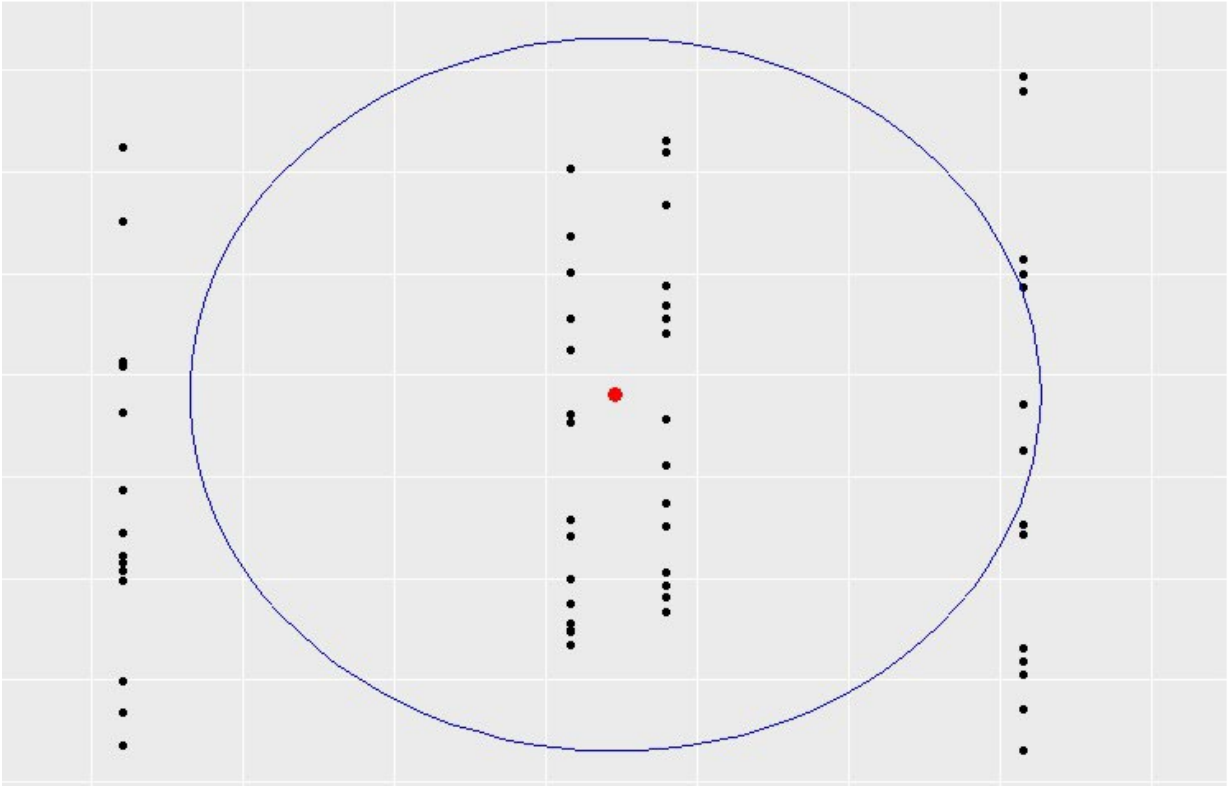

Figure: Red dot is the center pivot point. Blue circle is the outside tower path. Black dots represent potential plants for disease assessment.

NOTE: This study is irregular and requires no additional management from the grower. Yield will not be affected by this research. Fungicide use, while not recommended, is at the discretion of the farmer.

Grower Requirements:

1. Provide all necessary inputs for crop production. All management practices will need to maintain uniformity across the entire field.
2. Complete background agronomic form about site and practices.
3. Allow UNL Extension to use submitted and collected data for research, educational, and informational purposes.

Nebraska On-Farm Research Network will:

1. Provide required trial set-up of equipment and plots for field assessments
2. Provide assessment of disease
3. Analyze raw data using statistical analysis and provide this information to the grower.

Disclaimer: The Nebraska On-Farm Research Network does not endorse the use of products tested in on-farm replicated strip trials. While treatments are replicated within trials and may be replicated across multiple sites under various conditions, your individual results may vary.