

Texas A&M AgriLife Research Center at El Paso

Irrigation Water Use Efficiency and Salinity in Pecan Fields under different Irrigation Methods

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BACKGROUND

Rio Grande Project area, covering far west Texas and southern New Mexico, is experiencing record water shortages due to increasing population, demands from urban sector and prolonged drought conditions. The conditions are expected to worsen in view of potential climate change impacts. Pecan (*Carya illinoensis*) is a major crop grown the region and it is a water intensive and salt sensitive crop. Average amount of water applied to pecan ranges from four to 10 feet per year. Border irrigation, a type of flood irrigation wherein water is applied from a field irrigation ditch at its upper end to leveled plots divided by earthen ridges, is the oldest and most common irrigation method used in the region. This method of irrigation can lead to over irrigation and wastage of precious freshwater. Pecan growers are generally reluctant to adopt alternative methods of irrigation because of the fear of salt accumulation in the root zone. It is therefore important to demonstrate that more efficient irrigation methods such as drip and sprinkler do not affect pecan productivity and quality while at the same time do not increase root zone salinity. This study is evaluating irrigation water use efficiency, soil salinity, pecan nut yield and quality under different irrigation methods.

OBJECTIVES

- To evaluate on farm irrigation water use efficiencies under different irrigation methods.
- Evaluate the effects of different irrigation methods on salinity and sodicity in the effective root-zone.
- Determine effects of different irrigation methods on pecan nut productivity and quality.

FINDINGS AND BENEFITS

Results of this project can alleviate the concerns of growers related to salinity and nut quality under alternative irrigation methods that can help in coping with potential climate change impacts.



Furrow



Basin



Surface Drip