Developing Alternative Waters to Diversify Crops & Water Portfolio in the Rio Grande Basin

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BACKGROUND

Growth of switchgrass (Alamo) on saline soil

Rio Grande Project area, covering parts of Texas and southeast New Mexico, is experiencing record water shortages due to prolonged drought conditions. Cropping pattern in the region is composed of water intensive and salt sensitive crops such as alfalfa, chillies, pecan etc. While the freshwater availablity is declining due to increased competition from urban users and climate variability, the region is endowed with abundant amounts of alternative sources such as backish groundwater, produced water, industrial wastewater and treated municipal wastewaters. These sources can be used to meet agriculture irrigation needs if appropriate crops, crop and salinity management practices are developed. This project is evaluating use of alternative waters: treated municipal wastewaters in El Paso, TX; brackish groundwater in Lubbock, Pecos, Weslaco in Texas and Artesia in NM. and Weslaco to grow bioenergy crops switchgrass, energy sorghum and canola; cotton and pomegranate.

Energy sorghum (Blade) can be a potential bioenergy crop for saline soil

Biodiesel canola (DKL-30-42) also performed well under elevated salinity

OBJECTIVES

- Evaluate performance of appropriate crops/cultivars under alternative water irrigation on saline soils under arid conditions.
- Determine the effects of alternative water irrigation on soil salinity and sodicity.
- Develop realistic estimates of crop productivity under elevated salinity conditions, potential for alternative waters and appropriate salinity management practices.

BENEFITS

Results of this research will identify salt tolerant crops/cultivars appropriate for alternative water irrigation. Study outcomes will help in designing alternative cropping pattern, realistic expectations on crop yields and developing sustainable salinity management practices. Potential benefits of this research project include brining additional waters for supporting irrigated agriculture and extending the availability of freshwater for other sectors.

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