Texas Project for Ag Water Efficiency: Citrus

TEEA 2017 Winner: Agriculture

Texas A&M University-Kingsville Citrus Center – Weslaco

Texas A&M AgriLife Research and Extension – Corpus Christi and Weslaco

Harlingen Irrigation District – Cameron County #1

Texas Project for Ag Water Efficiency (TexasAWE) finds a better way to grow a top crop.

In the Lower Rio Grande Valley (LRGV), agriculture has been the dominant economic engine for over 100 years. One crop of economic importance is citrus. This subtropical crop requires water all year to produce high-quality fruit and to sustain ideal tree health.

The Texas Project for Ag Water Efficiency was a 10-year project that investigated relative benefits of different irrigation techniques. Analysis of the project revealed a technique with the greatest water savings and economic gains for citrus producers in the LRGV called "narrow border flood" (NBF) irrigation.

Citrus growers in the LRGV commonly use "large pan" irrigation to flood the field with about six inches of water. NBF is a modified version of large pan that requires a flat field and berms between each of the citrus rows. When flooding the field using NBF, only the channels underneath the citrus trees receive water. This technique reduces the amount of water that moves beyond the root zone, which keeps fertilizers in place to be absorbed by the citrus trees.

Compared to large pan irrigation, NBF reduces water use by 35 percent in citrus groves. NBF also uses less water when compared to microjet spray or drip irrigation during drought conditions.

TexasAWE estimates a savings of about 13 billion gallons of water per year if the entire citrus industry in the LRGV converted to NBF.

Saving water is not the only benefit of using NBF irrigation. It is also cheaper and easier to convert a citrus grove to NBF versus microjet spray or drip irrigation. Producers earn a greater profit when using NBF because the technique produces higher yields and better fruit than large pan, microjet spray, or drip irrigation. When compared to large pan, TexasAWE estimates that NBF brings producers an additional $1,000 per acre each year.

Efforts continue in the LRGV to study different irrigation and farming techniques to tackle other challenges, like pest and disease control. This dedication benefits the environment and producers, and ensures a fruitful future for the citrus industry in the LRGV.