TAWC Site 50
Variable Rate Irrigation

The **Texas Alliance for Water Conservation (TAWC)** provides producer demonstrations in water and soil conservation and uses a model of "Producer Teaching Producer" education approach. Most producers in agriculture today have access to scientific findings promoting various conservation technologies. However, the risk of adoption to their own production system is considered too great. On the other hand, when a producer observes implementation on a neighbor's farm or ranch, adoption becomes more likely. These producers listen to other producers because they have a common vested interest and genuine trust for one another. TAWC bridges this gap through on-farm demonstrations and installation of technologies and management systems that enable producers to observe these technologies firsthand under real-farm scenarios.

TAWC Site 50 is one such demonstration site implementing Variable Rate Irrigation (VRI). This method of water application rate is varied by changing the speed of the pivot and matching water to the needs of the crop based on soil, yield potential, and topography. With multiple crops under a single pivot, application rates can be continuously adjusted to match growing conditions and field variability. Types of VRI irrigation prescriptions are Static which maintains the same application rate and the more complex, Dynamic prescriptions in which application rates change much more frequently over a growing season. A Dynamic prescription has the greatest potential water savings, but both can save water and result in greater yields and net returns. This demonstration was conducted 2017-2019 using Dynamic prescriptions.

Based on a 3-year study on this site, average water, yield, savings, and net returns are listed below:

Irrigation Scheme	Average Application /Pass inches	In-Season Total Applied inches/ac	Cotton Yield/acre lbs	Loan Rate $/lb	Total return $/acre
Flat Rate	**0.935**	**7.2**	**777**	**$0.5173**	**$402.04**
VRI	**1.000**	**7.6**	**892**	**$0.5284**	**$471.41**
VRI Advantage			**115.0**	**$0.0111**	**$69.37**
Water Savings of 0.4" @$8/inch				**Water Savings $3.20/ac**	**Net Return $48.81**

As a result of various partnerships with Lindsay FieldNet, Crop Metrics, and ForeFront Agronomy it has been demonstrated that VRI can result in a 115 lb/acre cotton yield advantage over conventional irrigation with greater net returns/acre of $48.81 and a water savings of 0.4 inches over the whole growing season. This represents the mission of TAWC and the benefit to our producers through increased yields, profitability, and water savings. The opportunity provided by TAWC to demonstrate this technology on-farm has resulted in the whole farm being converted to these technologies increasing the total farm water savings. TAWC education and outreach demonstrations provide opportunities to promote these types of technologies to impact water and soil conservation across the Texas High Plains and beyond.