

**GROWERS' REGIONAL
PERSPECTIVE SOUTHWEST**

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The limiting factors for cotton production in the Southwest are weather and water. I can't change the weather, so I will talk about water and how I manage it on my 4,000 acres of cotton. Our area, the High Plains of Texas, averages 18" of rain per year, with a temperate climate of hot days and cool nights, plenty of wind year round, and a very limited underground water supply.

I think the best production system for our area is LEPA or Low Energy Precision Application irrigation system combined with conservation tillage. LEPA is an irrigation management system based on the ability to evenly apply and pond water on the soil surface until it soaks in. It was developed specifically for our dry, windy Southwestern conditions and limited water.

I plow my fields in a circle and water every other row using a drop with either a sock or a LEPA head. Water is placed on the ground beside each plant so I don't lose water to evaporation. Furrow dikes create a little pond beside each plant and with crop residue from my minimum tillage the irrigation water has time to be absorbed into the soil.

Conservation tillage is a vital part of the entire management system I use with LEPA to maximize my water resources. The cover crop does take a little water but my yields are increased. And I am saving my soil from blowing away, I save fuel on fewer trips across fields, and most importantly, I am protecting young seedlings from spring winds and blowing sand.

The new Roundup Ready varieties are a big help in controlling weeds in this type of management system. I estimate the limited tillage/residue management part of my system saves me about \$30 per acre and improves the earliness of my crop. LEPA requires half as much energy for water distribution compared to other low pressure systems. I also fertilize through my pivots. With LEPA and conservation tillage, I feel I am 95% efficient with water application during the growing season. This is vital for the future in a land with limited water resources.

Cotton is a desert plant that responds well to small quantities of water in a deficit irrigation schedule. With LEPA, I can put on ¼" every 2 ½ days to maximize my yields regardless of the weather. Deficit irrigation is a key factor in my management system for this area. LEPA allows me to do this in the most efficient and precise way possible. My irrigation capacity ranges from 2 gallons per minute per acre to 4

gallons per minute per acre on various pivots. I try to have my soil profile near field capacity early in the season and then I use an average of 4" to 8" of irrigation water during the growing season. My yields vary from pivot to pivot, but on an average over the past three years, my crops average from 500 to 1100 lbs. an acre.

In the few areas where I do not have irrigation I use furrow dikes, conservation tillage, and I pay close attention to the soil profile monitoring moisture content and checking soil fertility. These tools help me maximize my dryland production. The LEPA/conservation tillage management system developed for our dry conditions has allowed me to optimize my operation and maximize my yields and profitability.

LEPA is the only way I can be sure of a crop from year to year. For me, this new management technology is not a cost, but rather an investment in the future for me and for my family.