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The Alternative Way of Farming

By Sarah Calloway

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What happens to farming when the water runs out? Researchers, predominately from Texas Tech University are working to address this question. They are looking into alternatives to irrigated crops, including an integrated crop/forage/beef cattle system.

The research being conducted at the agricultural science research farm near New Deal includes a number of people from different universities, departments and agencies. Dr. Vivien Allen, Thornton Distinguished chair in the department of plant and soil sciences, is heading up the

project.

“Crop production in the Texas High Plains is about a \$2.3 billion industry per year,” Allen said, “but about 70 percent of that is supported from irrigated agriculture.”

The water comes mostly from the Ogallala Aquifer, which has supported the production of crops for more than 100 years. As many High Plains agricultural workers know, water from the aquifer is a resource that is becoming scarce, especially in recent years.

“Today our problem is that our water supplies are running out,” Allen said.

According to the High Plains Underground Water Conservation District No. 1, the water level has dropped an average of 1.13 feet per year in the last 10 years in the 15 counties surrounding Lubbock. Researchers say this will make traditional one-crop systems unsustainable. Research conducted so far has established that integrated cotton, forage and beef cattle systems improve profitability and reduce water use by 20 percent.

“We’re looking for ways in which we can design agricultural systems that will use less water and still maintain the productivity and economic viability for this region,” Allen said.

This project began in 1997 to compare the two systems. Researchers looked at the conventional irrigated cotton system using best management practices. They compared the conventional system to an alternative irrigated crop-livestock system for production of both cotton and feedlot-ready stocker cattle.

In the alternative system being tested, 50 percent of the land area is established in

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Where Are They Now?	<p>permanent pasture. The remaining half is divided into two equal parts, where the rotation of rye, cotton and wheat takes place.</p> <p>Cotton is produced in each of the two paddocks, in alternating years, so that in any one year cotton is planted in only one of the paddocks. The cattle graze the small grains in sequence.</p>
The Bobwhite Crusade	<p>Producer cooperatives provide on-farm testing and demonstrations of both the livestock and cotton systems.</p> <p>Allen said the co-op producers, one of which is in Lockney, are important to the study of the systems.</p>
Seed Association has Rural Roots	<p>“These systems won’t work if the locations change,” Allen said. “A system is absolutely unique to its specific place, because it combines all factors, so the minute you move it, the factors change.”</p> <p>The alternative system is designed over a period of time to use less water and make better use of land.</p> <p>“This region is extremely important to agriculture, yet extremely challenged,” Allen said. “Water is diminishing and we need to secure the future of our resources.”</p>
Sponsors	<p>This research foreshadows what could be a breakthrough for High Plains farmers. Allen and fellow researcher, Matt Baker, chairman of the department of agricultural education and communications at Tech, agree that Lubbock must maintain a strong agricultural base in order to thrive.</p>
Home	<p>“Lubbock is dependent on a healthy agricultural economy,” Baker said. “If we don’t have that, we don’t have anything.”</p> <p>Allen says that it looks like it is possible to design a system for this region that will be more sustainable and compatible with natural resource utilization.</p> <p>She is quick to caution, however, that there is still much work to be done and one system will not solve everyone’s problems.</p> <p>“We’re going to have to look at alternative approaches and find ways that we can make sustainable agriculture a possibility, but within the use of natural resources,” Allen said.</p> <p>The ultimate goal of the research is to get to the point where production agriculture can be done without the use of irrigation.</p> <p>“We would like to get to the point where we can take water out of our agricultural production system,” Allen said. “That looks like it may be a possibility, but it is going to take a lot of research.”</p> <p>Both Allen and Baker say it’s important to make the general public aware of water conservation strategies.</p> <p>“Without education, research isn’t worth anything,” Baker said.</p>