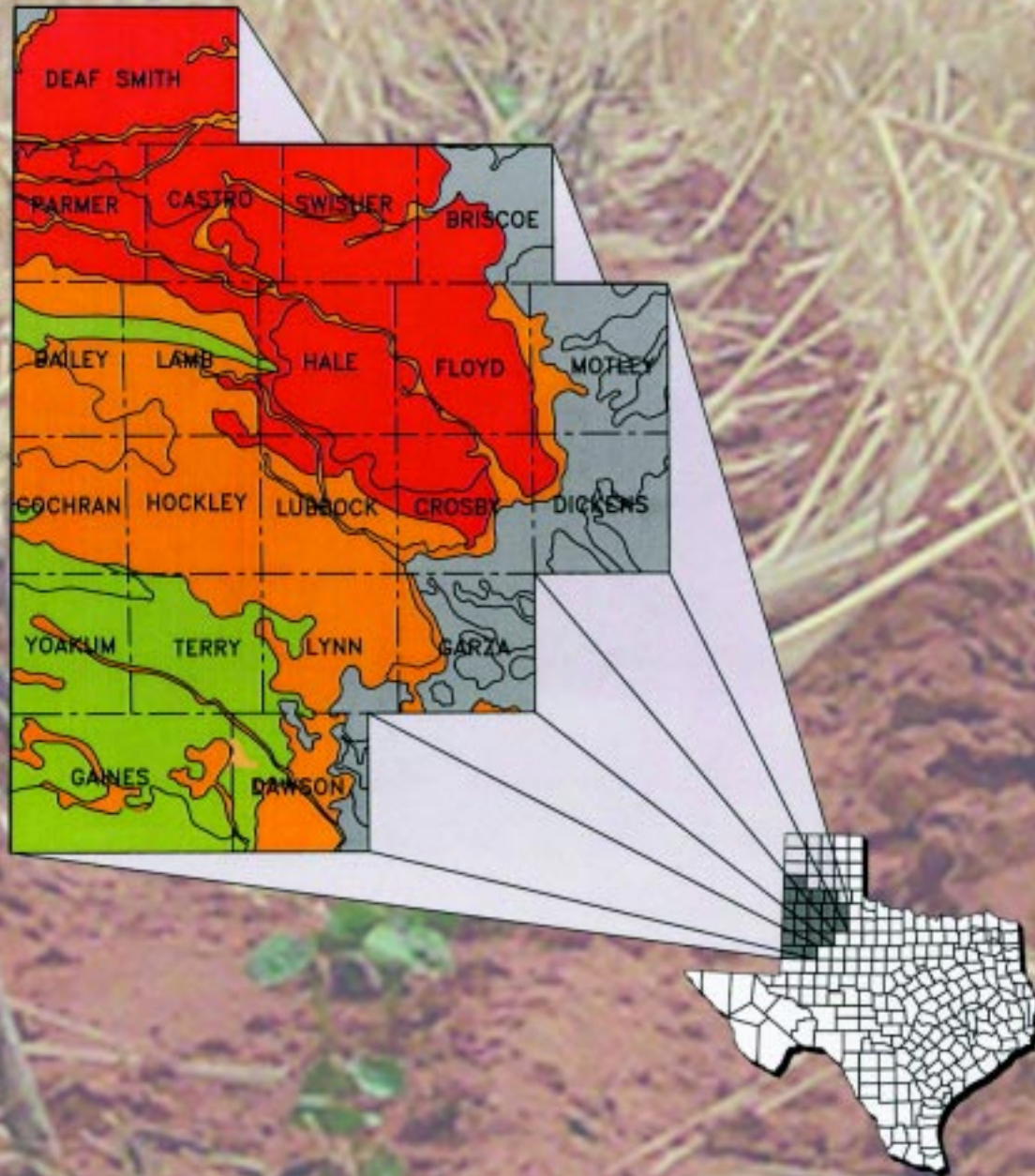


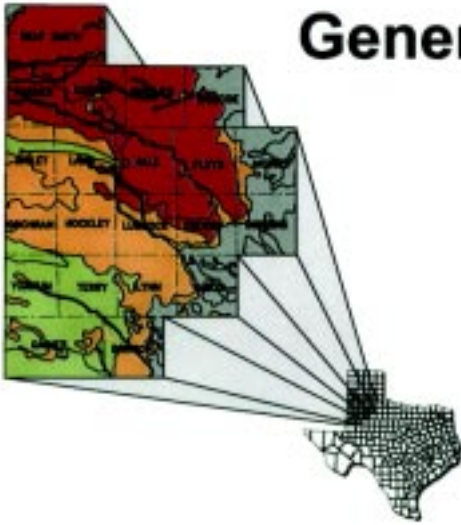
CONSERVATION TILLAGE

Within the Llano Estacado Regional Water Planning Area



 **NRCS** Natural Resources
Conservation Service





General Soils of the Region

Clays and Clay Loams

- Dominantly nearly level, deep to very deep, heavy loamy to loamy soils over loamy to clayey material.

Sandy Loams and Loams

- Dominantly nearly level, deep to very deep, loamy soils over loamy material.

Sands and Loamy Sands

- Dominantly nearly level, deep to very deep, sandy to loamy soils over sandy to loamy material.

Other

- Very shallow to very deep, nearly level to very steep, loamy to clayey soils over loamy to clayey material or bedrock.

Managing sandy soils with conservation tillage

Motley County producer Joe Clay

Joe Clay exemplifies conservation stewardship on a daily basis. He manages his land through conservation tillage practices, which is his preferred method of crop production to protect his cotton and peanut crops from West Texas winds.

Clay implemented conservation tillage practices 20 years ago. The soils on his land are Springer, a sandy soil variety which must be managed well to control wind erosion damage. During periods of high winds, the sandy surface can easily blow and damage crops.

“There was a time when this sandy land needed constant sand fighting, plowing and continuous upkeep that absorbed my profits,” Clay said.

Conservation tillage helped solve that problem. Clay manages 400 acres of irrigated cotton and 350 acres of irrigated peanuts.



Clay invented this row-till planter to maintain and fertilize the soil.



Joe Clay plants a rye cover crop to protect his cotton and peanuts.

Depending on his needs after harvest, he will broadcast up to 40 pounds per acre of rye for a cover crop or will plant 100 pounds per acre

if he plans to use the rye for grazing livestock. In the spring, Clay terminates the rye with glyphosphate, then will make one pass over the field with a row-till plow before planting cotton or peanuts into the dead litter cover.

Clay’s row-till plow is key to the operation. A wavy coulter on the plow makes contact with the rye-covered ground first, cleaning a narrow band through the cover. A ripper shank follows in the cleaned strip, eliminating any hard pan. Fertilizer is injected behind the ripper under the seedbed. Disk bedders follow the ripper shanks to build up and clean the seedbed. A conditioner then rolls over the top to firm the seedbed.

“I plant on 30 inch rows using an air planter that provides uniformity and uses less seed,” Clay said.

Perhaps Clay’s most limiting factor is water. He uses center pivot irrigation and has utilized funding available through the USDA-NRCS Environmental Quality Incentives Program (EQIP). These funds allowed Clay to switch to a low precision-within canopy system.

His irrigation efficiency has improved since he converted the wobbler nozzles to drop lines in the furrow.

A conservation combination to save water and soil

Lubbock County producer James Becton

Conservation tillage practices and drip irrigation have been a good combination for Lubbock County producer James Becton. Growing up in the small community of Becton, northeast of Idalou, he has had a connection to farming his entire life.

Although he refers to himself as a part-time farmer, he spends much of his time perfecting his farming operation. Becton admits that he continues learning, researching and experimenting on his own.

Becton farms 250 acres of irrigated land. About six years ago, he implemented conservation tillage practices into his farming operation and combined it with drip irrigation. Through his own experiments, Becton has concluded that his best results show the more cover crop produced, the more moisture he can hold in the soil. Overall, moisture savings and water erosion control are sound conservation goals he has worked to achieve for water quality and quantity management. He has applied conservation measures through the water quality management plans he has in place with the Lubbock



James Becton does not have a preference between wheat or rye as a cover crop for his young cotton seedlings.

County Soil and Water Conservation District and the USDA-NRCS.

Becton farms his land differently, depending on the slope of the field. If the field has little or no slope, he drills his cover crop on every other row. His average

targeted planting rate is eight pounds of seed per acre. If the land is sloped, Becton drills every row to reduce potential water erosion. He said the cover crop protects his cotton from wind damage and it adds organic matter to the soil.

“The young cotton plants need protection. A small wind storm can set back or destroy a cotton crop in a hurry,” Becton said.

In addition to protecting cotton plants, Becton also protects his water supply through no-till farming.

“The water continues to decline on my farms, and I’m trying to apply it more efficiently by using drip irrigation,” Becton said. Without supplemental rainfall, Becton applies about one inch of water every four to five days. The drip irrigation system assures Becton that his evaporation losses are minimal.

With the right combination of inputs and management, Becton said he has achieved better soil tilth. He has increased organic matter, improved infiltration and has shown a reduction in soil erosion using a conservation tillage system.

He applies fertilizer with a ground rig or through the drip irrigation system. Each year after harvest, Becton applies 100 pounds of 11-50-0 followed by bedding up his existing rows and planting wheat.

Becton said his only challenge in using the system is weed control.



Becton uses drip irrigation combined with conservation tillage to use water as efficiently as possible.

Saving time and labor by using no-till farming

Hockley County producer Don Mimms

Don Mimms farms in Hockley County near Pettit. Conservation tillage has been part of his farming operation for 12 years.

“The conventional methods I once used have been replaced with less work and peace of mind,” Mimms said.

Mimms made the transition to conservation tillage using wheat cover. He drills at a rate of 30 pounds per acre on 40 inch rows, drilling one row in the bottom of the furrow and one row on each side slope of the furrows.

“The extra row in the bottom of the furrow helps hold moisture better,” Mimms said. He says there is no better way to hold the rainfall amounts he receives and the irrigation he applies on his land than by using conservation tillage. Mimms primarily grows continuous cotton in his wheat stubble, but has some acres he rotates with peanuts, one in four years. He irrigates a total of 850 acres and operates eight center pivot irrigation systems.

“Center pivot sprinklers are a major component of my operation,” Mimms commented. “I can apply water more uniformly across my fields using center pivots.”

Although water is his limiting factor, he can justify irrigating his cover crops to provide the protection his crops need. His center pivots are designed to deliver between 350 to 500 gallons of water per minute. He boosts his water efficiencies by installing further management practices such as furrow dikes.

When Mimms converted his operation to conservation tillage, he saved much more time than with



This hooded sprayer was designed and built by Don Mimms for his conservation tillage operation.

conventional farming. “I had time to concentrate on other areas of my farming business that needed some attention, such as repairing and servicing farm equipment and building some farm implements I could use in my no-till operation,” he said.

Mimms’ innovative approach in using no-till practices inspired him to build a shielded sprayer that doubles for

a knifing rig with sweeps. He designed the spray hoods to be placed on the back of the plow and equipped it with spray nozzles. Galvanized sheet metal was cut and arranged in a hooded shape mounted over the spray nozzles.

“The hooded sprayer has helped me improve my weed control and it provides me with an excellent method of application,” said Mimms. Normally he needs to spray three applications of glyphosate to control his weeds and in some instances, he needs to apply a fourth application.



USDA-NRCS Soil Conservationist Lynnette Payne (left) and Mimms take a look at his cotton crop coming up through the wheat cover.

Conservation tillage protects crops from the wind

Gaines County producer Shelby Elam

For Gaines County producer Shelby Elam, conservation tillage means ultimate crop protection for his young cotton and peanut seedlings. He said his farming operation has become more profitable with reduced costs and labor. Elam altered his cropping strategies and incorporated conservation tillage into this farming operation ten years ago on 1,500 acres, rotating cotton, peanuts and wheat.



Shelby Elam provides wheat cover to protect young cotton plants. Top-notch management is key to successful conservation tillage farming.

“Conventional tillage methods that I once used did not help me protect my cotton and other crops from wind storms,” Elam said. His soil types are mostly Brownfield and Patricia, which are subject to severe wind erosion that can easily blow without a protected cover.

“Soil particles are easily carried, causing damage to my young cotton without the protective cover crop,” Elam said. “I drill wheat or rye each

the seed to help conserve my water.”

This cutback helped save on seed costs as well. He now plants 15 pounds per acre, drilling the cover crop seed on the side slopes of every other furrow and still has plenty of protection for cotton and peanut seedlings. In addition to the ground cover, Elam also benefits from grazing cattle on the wheat or rye.

Elam plants his cover crop every year in December. He rotates his crops, planting cotton two

or three years to one year of peanuts. Without plowing or hoeing weeds anymore, Elam has streamlined his operation by cutting out much of his labor and operational costs. His irrigation methods have been simplified with the use of a Low Energy Precision Application (LEPA) center pivot system.

“Irrigation water management is critical in the long term,” said Elam. He manages his water by using several management practices that enable him to utilize the water more efficiently, such as planting rows in a circular pattern and by using furrow dikes to hold water on the land better.



Young cotton seedlings, such as those pictured above, need protection from destructive wind erosion that can occur with sandy soils.

Protecting our water and soil is one of the most beneficial practices farmers can do to increase the value of their land and their annual income. Methods such as conservation tillage can protect crops and soil from wind and water erosion, while enriching the soil and using less water. For years, farmers have sought ways to improve their operations and increase productivity. Conservation tillage is an important farming practice that helps to ensure the future productivity and profitability of America's cropland.

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