

# Soil quality at root of conservation

## ■ Building better dirt helps use water wisely

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People all over North Texas are searching for ways to conserve drought-stressed water resources.

One of the most effective plans, according to conservationists such as Eileen Vale, starts from the ground up.

"It's a matter of dollars and cents and it doesn't just affect farmers. You feel it every time you go to the store," said Vale, who works for the National Resources Conservation Service, a division of USDA. "We've all been watching prices go up."

Soil conservation dates back to one of the darkest eras of American history, the Dust Bowl of the 1930s, when drought and extensive deep plowing of the Great Plains literally sent shallow topsoils airborne.

Today, Vale and fellow conservationist James Bilbrey use data and demonstrations to show Wichita County's farmers, residents and schoolchildren why improving soil health with less tilling not only anchors earth but makes best use of limited rain and improves the quality of watershed resources.

"With children I use this cup and a straw to make the point," said Vale, smiling as she held up the homemade model. "When there's nothing in the cup but dirt and I put water in, mud comes out. When I put grass on top and add water, it comes out much, much cleaner. Healthy soils with cover crops feed a better watershed."

Cover crops and soil health are subjects about which Bilbrey is passionate. To the untrained eye, the field he's digging into just off U.S. 287 looks like its crop died and was left standing.

Instead, it is how fields look when a 12-species cover crop, the narrow-trench planting of a mixture of seeds such as cereal rye, barley, oats, collards, lentils and radishes are put in place.

Their roots not only anchor soil but generate glomalin, a key nutrient, while roots drill into the hard clays of North Texas (radishes can reach down 10 inches or more), letting rainwater sink in rather than run off. The dead vegetation acts as mulch for whatever carefully rotated cash crops may be planted later, reducing moisture evaporation and keeping roots cooler.

"Look at this," said Bilbrey, raising a spade of earth made dark and crumbly by the root network. "The addition of 1 percent organic matter adds 40 pounds of natural nitrogen and helps store 19,000



PHOTOS BY TORIN HALSEY/TIMES RECORD NEWS

James Bilbrey and Eileen Vale of the National Resources Conservation Service examine a soil sample in a field off U.S. 287 near Iowa Park. The office offers training and information to about 250 Wichita County farmers on how to improve soil quality and get best use of limited rainfall.



A sample of topsoil shows the effects of planting a 12-species cover crop as part of a no-till farming plan that kick starts the nutrient cycle and rejuvenates soil biology so less fertilizer and other treatments are needed. The National Resources Conservation Service of Wichita County helps farmers discover better ways of growing crops without harming natural resources like soil, water and air quality.

gallons of rain water."

There's another advantage to no-till and low-till farming that allergy sufferers

might never have considered.

"Everybody knows the joke about Lubbock blowing here every two or three

weeks. That's because they don't do nearly enough no-till farming," said Vale. "There are benefits in it for everyone."



Eileen Vale, a district conservationist with the National Resources Conservation Service, uses a rainfall water simulator to teach about the natural water cycle. Her office, part of the United States Department of Agriculture, helps Wichita County farmers naturally make their land more productive and profitable.