

Forest Hills farm catches rain for natural irrigation



LONG BEFORE they heard the word “permaculture,” Forest Hills residents Terry Jo and Dave Bichell had embraced the tenets of organic gardening to create sustainable spaces on their Old Hickory Boulevard farm. Permaculture gave them the tools to overcome drought and flooding.

“Permaculture is a way of growing that uses the land to soak up and store water,” Terry Jo explained. “You use the natural features of the land and plant trees in such a way to hold water, and use plants to help nourish each other without fertilizers.”

The farm is a remnant of a historic plantation, she said, and the land had been used for pasture by previous owners. She was committed to avoiding pesticides or fertilizers, so she set out to see what could be grown on

pasture land without alteration. “We grew a crop of hay for a couple of years, because at that time that was about all we could grow without using irrigation and pesticides.”

Keeping the amount of daily work required to a minimum was another consideration.

“We are too busy to devote a lot of time to the garden,” she said. “We are lazy farmers. Dave calls it *neglecticulture*.”

An attempt to grow lavender was unsuccessful. “We tried growing lavender because it is hardy. Deer don’t eat it; bugs don’t bother it,” she said. “My husband has bees, and we thought the lavender would make good honey. But it didn’t work then because we couldn’t get water to stay where the lavender needed it.”

The couple was inspired by a visit to a vineyard in Argentina to continue their quest for completely organic gardening. Yellow flowers planted near the vines attracted bugs and kept them away from the fruit: no pesticides. Chickens roamed between the rows and ate the bugs, while llamas ate the weeds: no fertilizers. Roses were planted along the perimeter because they are susceptible to the same diseases as grapes and serve as “canaries in the coalmine” for a vineyard.

“It was a beautiful self-sustaining ecosystem,” Terry Jo said.

Armed with renewed inspiration, she reached out to a couple of local experts for help with natural irrigation and stormwater management: Jeremy Lekich from Nashville Foodscapes and Cliff Davis from Spiral Ridge Permaculture. They explained that potentially tens of thousands of gallons of rainwater that runs off the hillside could be captured and stored in the ground, and gradually released to irrigate plants and trees naturally. Some officials estimate 600 gallons of water per thousand square feet is generated by one inch of rainfall—more than 25,000 gallons per acre.

“A series of swales will drought-proof the whole field,” Lekich said. “We catch water as it runs down the slope into a trench, which gradually releases the water under the topsoil to the next lower level. Eventually it creates a reservoir under the soil.”

The water continues to accumulate over time, Davis explained. “It creates an envelope of water underground above the bedrock. Over time the envelope gets bigger,” he said. “Depending on the slope and the amount of water caught, you could even create a spring, where water is forced out of the ground by water pressure under the surface.”

The process protects against flooding, too, because instead of running off the surface the water is caught in the swales where it is held and slowly percolates into the ground.

“The system can be applied to any yard with even a minor slope, and the swales can be installed in stages,” Lekich said. He said the amazingly simple technique can have a profound impact, even having been used to grow trees in the desert.

Davis points out that trees play an important role in flood and drought control. “Trees are the geophysical equivalent of mechanical pump,” he said. “They suck the water up then through transpiration release it into the atmosphere, where it is absorbed into clouds and released as rain.”

The Bichells plans to plant fruit and nut trees, as well as other beneficial crops. “We have already put in some indigenous plants and trees because they are most likely to thrive without assistance. When the swales collect more water, the land will be able to support trees and vegetables that need more water.”

Their efforts are already bearing fruit, literally. “We planted apples and pears three years ago, and have already eaten a lot of apples, but no pears yet,” she said. “The others were planted last fall, so it will be awhile before they bear fruit. This is a long-term adventure!”

See the City of Forest Hills website for more information about indigenous plants, permaculture, and stormwater management.

