

Let's work together to protect Geronimo and Alligator Creeks
using vegetated filter strips

According to the Texas Commission on Environmental Quality (TCEQ) water quality in almost half of the streams, rivers, and lakes in Texas is "impaired". An impaired waterbody has pollutant levels above established standards that limit important uses such as recreation and fishing, or that may be harmful to aquatic life. Unfortunately, two local waterbodies are impaired, Geronimo Creek and Alligator Creek. Both creeks have elevated concentrations of *E.coli* bacteria which create risks for any type of contact recreation that might result in ingestion of water, such as wading and swimming. Monitoring also has found elevated levels of nitrate-nitrogen which can contribute to algal blooms and ultimately, to fish kills.

Fortunately, in 2009 a group of local citizens formed the Geronimo and Alligator Creeks Watershed Partnership. And working together and with state and federal agency support, the Partnership developed the Geronimo and Alligator Creeks Watershed Protection Plan (WPP). The plan identifies potential sources of pollution and provides a basic strategy to restore and protect water quality in Geronimo and Alligator Creeks. The plan and information about on-going activities in the watershed can be found on the Partnership's website at <http://geronimocreek.org>.

To inform the public about practices they can adopt to improve and protect water quality, the Partnership is producing monthly news articles. This month we are focusing on filter strips for agricultural land.

A filter strip is a vegetated buffer positioned between potential contamination sources and a body of water such as a creek, stream, or river (either flowing or typically dry), or a pond or lake. The purpose of a filter strip is to reduce concentrations of pollutants in rainfall runoff. They are effective in limiting the transport of suspended sediment, nutrients, bacteria, and pesticides to adjacent waterways. Filter strips can be installed down slope from field crops, pastureland, livestock pens, equipment and chemical storage areas, and other land areas from which pollutants might originate.

Filter strips reduce contamination of surface water through a variety of mechanisms. As runoff enters the filter strip, velocity decreases allowing suspended sediment to settle out. Some nutrients and pesticides bound to soil particles are removed in this manner. Since more water infiltrates into the soil, dissolved contaminants also are removed. Captured nutrients are utilized by the filter vegetation, while pesticides and other organics are degraded through natural processes.

Slope, soil texture, vegetation, and the flow distribution of runoff all should be considered when siting and designing a filter strip. Slope length and steepness directly affect runoff velocity, and thus infiltration rate. Gently sloping areas are ideal, however, sites with slopes greater than 5%, can be used effectively with proper design. Generally, as slope increases, the width of the filter strip should increase. While there is no minimum or maximum, filter strips often range in width from 25 to 50 feet for slopes between 1-10%.

Soil texture also influences infiltration rate, and soils with greater clay content typically require a wider filter strip to achieve the same amount of pollutant removal compared to sandy soils. Non-woody

species native to the region should be used, but also must be tolerant to any herbicides that may be present in the runoff. Plantings can be a single species or a mixture, but should provide a solid plant cover.

Contaminant removal efficiencies vary based on the characteristics of a given runoff event and the pollutants of concern. Filter strips should be constructed to maintain uniform flow across the width of the strip and limit channelized flow. Removal of pollutants that are dissolved in runoff typically requires a greater filter strip width to achieve desired reductions.

The United States Department of Agriculture Natural Resources Conservation Service (NRCS) and the Texas State Soil and Water Conservation Board (TSSWCB) both offer technical and financial incentives for installation of conservation practices, including filter strips. For information regarding NRCS programs visit www.nrcs.usda.gov. or contact your local USDA-NRCS representative, Bill Finch at 830-379-0930 or william.finch@tx.usda.gov For assistance through TSSWCB programs contact the Comal-Guadalupe SWCD at comalguadalupeswcd@tx.nacdnet.org.

For more information on assistance opportunities in your area, contact your Texas A&M AgriLife County Extension Agent in Guadalupe (830) 379-1972 or Comal Counties (830) 620-3440.