

**Let's work together to protect Geronimo and Alligator Creeks...**  
**through soil testing**

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.

Fortunately, in 2009 a group of local citizens formed the Geronimo and Alligator Creeks Watershed Partnership. 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>. All citizens are encouraged to join the Partnership and help improve water quality throughout the watershed.

In addition to elevated bacteria levels, nitrate-nitrogen concentrations in Geronimo and Alligator Creeks also are elevated. When nitrate-nitrogen levels get too high, they can contribute to excessive growth of aquatic plants, algal blooms, and ultimately, to fish kills.

Nitrogen can come from a variety of sources such as human waste (septic systems), animal waste (manures), and inorganic fertilizers. When water runoff occurs due to rainfall or over-irrigation, nutrients including nitrogen can move into the creeks from residential lawns, gardens, golf courses, athletic fields, and agricultural cropland.

Proper management of nutrients, like nitrogen, hinges upon routine soil testing. Areas to be fertilized should be tested annually to determine the proper rate of application. Applying too much fertilizer can actually harm plants and the environment, and also wastes money.

**How much do you need?**

Soil testing measures two pools of nutrients in the soil: the native supply and fertilizer carryover. Native nutrients in a soil are the result of soil mineralogy and organic matter recycling. Typically, heavier soils like loams and clays have a greater native nutrient supply because they formed from minerals more rich in nutrients like potassium, calcium, and magnesium. Decomposition of organic matter both at the surface and below ground also releases nutrients into the soil.

When fertilizer is applied and not taken up by the lawn or crop, carryover nutrients can remain in the soil in a plant available form until the next season. This is particularly true for nutrients like phosphorus and potassium, which are relatively immobile in the soil. And while nitrogen can

leach or volatilize under certain conditions, if rainfall and crop growth are limited, nitrogen also can be stored in the soil for extended periods. Research has shown carryover nutrient levels, particularly following a drought or other type of event limiting plant growth can be substantial, and can supply part or all of plant needs when growing conditions improve. Given the fact many parts of the area recently faced or currently are facing significant drought conditions, the potential for carryover may be substantial where rainfall was insufficient to utilize applied fertilizer.

In many residential lawns and landscaped areas, grass clippings are not removed by bagging the grass. As a result, most of the nutrients used to grow the grass are returned to the soil and become available through organic matter decomposition. The same is true for agricultural grazing lands. Over 80% of the nutrients consumed by livestock in forages are recycled back to the soil in urine and feces. Over time, the nutrient status of the soil can increase due to fertilizer application and nutrient recycling so that much less fertilizer must be applied to produce the crop. In contrast, when hay is baled and removed, and likewise when lawn grass clippings are bagged and removed, more nutrients are removed and must be replaced by fertilization.

### **Test your soil**

Now is the best time of year to test your soil. Detailed information about how to collect a sample can be found on the back of soil sample submission forms on the website:

<http://soiltesting.tamu.edu/webpages/forms.html>.

For homeowners, a soil sample should be submitted for each type of “management area”. A management area is a zone with similar soil that is used to grow the same types of plants and has been treated similarly across the entire area—for example, a lawn or garden is a management area, and each should be tested separately. Soil cores should be collected from a minimum of 10-12 soil locations within the area to be tested and placed in a clean plastic bucket. Each core should be approximately 6 inches in length, from the surface downward, and about 1-2 inches wide and thick. Soil probes can be purchased to make sampling easy, but a shovel also works fine as long as each sample is uniform. Mix the 10-12 cores collected in a management zone thoroughly, remove any roots or plant material, and place about one pint of the mixture into a sturdy plastic or paper bag suitable for shipment to the laboratory.

For the farmer or rancher, submit one sample for every 10 to 40 acres. On these larger land areas, 12 to 15 individual cores should be taken for each field or management area. A separate sample should be taken for areas with different soil types, land use (grazing vs. hay), or cropping history. Avoid sampling gullies, field depressions, terraces, old roadways, feeding areas, or other unusual areas.

Soil samples can be sent to the Texas A&M Soil, Water and Forage Testing Lab in College Station, or the private laboratory of your choice. A routine analysis at the A&M Lab is \$10 per sample, and will provide you with valuable information about soil pH, soil salinity, and nutrient levels in your soil. Most importantly, the soil analysis provides specific recommendations on

which nutrients are needed, and based on that information, how much fertilizer should be applied. For many nutrients, little or no fertilizer may be needed. In fact, when excess nutrients are added they can be harmful to plant growth and hurt the environment. By having a soil test, you can select the best fertilizer to meet plant needs and avoid under- or over-application.

### **Testing Manures and Composts**

While inorganic fertilizers have a label with the product's nutrient content, most organic soil amendments, such as compost and manures, do not. If organic materials are to be added routinely or in larger amounts, a nutrient analysis is needed to determine the appropriate rate. The A&M AgriLife Extension Laboratory also can test manures, composts, and other organic amendments to support sound nutrient management.

Soil testing is an important best management practice that can help homeowners produce a nice lawn, landscape, and garden, help agricultural producers maximize yields and profits in row crop and hay production, and at the same time help anyone applying fertilizer protect the environment.

Please join us for the Second Annual Geronimo and Alligator Creeks Clean Up scheduled for Saturday, April 5, 2014. For more information, contact Ward Ling at 979-845-6980 or [wling@ag.tamu.edu](mailto:wling@ag.tamu.edu) or go to the project webpage [www.geronimocreek.org](http://www.geronimocreek.org).