USDA United States Department of Agriculture

Natural Resources Conservation Service

Soil and Plant Science Division—Region 9

Southern Great Plains Region

Key Differences of Ground Cover Identified by Rainfall Simulator

Purpose

Kenny Hall and Cody Langston, soil scientists with the Rosenberg, Texas Soil Survey Office, Soil and Plant Science Division, Region 9, demonstrated a rainfall simulator to local elementary students at the Fort Bend County Fair and Rodeo.

Classes that promote soil health and sound management of the soil resources are a priority in Region 9. This demonstration highlighted the effects of rainfall on various soil surface cover and 4th graders from schools in Fort Bend County were the audience.

Kenny Hall explaining the importance of grass to minimize runoff and to increase infiltration.

Background Information

The Fort Bend County Fair and Rodeo provides opportunities for people to learn about agriculture. Each year the Texas A&M AgrilLife Extension Service sets up an area depicting various facets of agriculture, such as, having animals and crops on display. It is known as the “Agtivity” Barn. In many cases this is the only hands on agricultural experience school aged kids receive.

Key Outcomes

This year the NRCS soil survey and field offices partnered with the Texas A&M AgriLife Extension Service to help promote the Fair’s theme of Farm to Table by running a rainfall simulator. The simulator shows how water quality in the form of runoff and infiltration from a rain is impacted by various ground covers. Hall and Langston demonstrated what happens to rain once it comes in contact with grassy versus bare soil versus concrete plots. The kids were fascinated at the differences between the three ground covers. Hall and Langston explained why the grassy plot had the least amount of runoff and the clearest water from infiltration. They also described why the bare soil plot yielded the dirtiest water and why the concrete plot had the most runoff. Hall emphasized the importance of minimizing erosion with cover, by keeping rainwater from detaching soil particles and washing away topsoil that would eventually end up polluting rivers and lakes. Langston warned the students how erosion destroyed the land making it hard for farmers to produce the food they eat. Hall added that increased runoff could lead to increased flooding. Many of the students were directly affected by flooding caused by Hurricane Harvey in 2017, and readily agreed that they didn’t want that to happen again.

Future Goals

At the end of the demonstration, Hall and Langston asked the students several questions about what they had just seen. It was clear the students had learned the key points by the answers given. Teachers accompanying the 4th graders told Hall and Langston that the students would be studying soils later in the school year and wanted to schedule the soil scientists to supplement the classroom curriculum.

Continual outreach and hands-on demonstrations provided by soil scientists, especially to students, ensures the public gains a better understanding of soil health and its impact on their daily lives..

Kenny Hall (left) and Cody Langston (right) demonstrating the rainfall simulator to area elementary students.