



SOIL AND PLANT SCIENCE DIVISION

Technical Soil Services

Southwest Soil Survey Region

Price, Utah, Major Land Resource Area (MLRA), Soil Survey Office (SSO)

Price, Utah, SSO and Students Have a Blast During Wind Erosion Demonstration

Purpose

The Utah State University (USU) Extension Office in Price, Utah, invited the Price SSO staff to participate in the annual Carbon County Farm Field Day on March 19, 2024. The goal of this event, held annually for 30 years, is to, “teach the kids about agriculture, farming, where their food from everyday life comes from...it all goes back to farming, animals, and natural resources,” said co-organizer and Carbon County Farm Bureau member Michele Barker. The 2024 Farm Field Day is sponsored by the Carbon County Farm Bureau, Western Ag, Utah Wool Growers, Utah Pork Producers, Dairy West, Utah Beef Producers, and Idaho Potato Association.

Background

This year’s event served 12 elementary schools and close to 300 second-and-third grade students. The event featured 10 demonstration booths manned by local agricultural stakeholders, including producers, USU Extension Agent Steve Price, 4H members, and Lucille Rollins, MLRA soil scientist. Each booth had eight to ten minutes to engage students and one to two minutes to prepare between groups. The individual school grades rotated through the booths, with classes ranging in size from 10 to 25 students. Each class was accompanied by 1–2 teachers or aids.

Area resource soil scientist Terron Pickett, in Richfield, Utah, brainstormed with the Price SSO soil scientists prior to the event on activities to captivate that age group in a limited amount of time. The conclusion reached was to keep the demonstration simple and demonstrate the relative differences in mass of particle sizes by showing how differently they are carried “in the wind.” Pickett provided bags of lab-verified soil textures, including sand, silt loam, and clay, for use in the demonstration. Miles Coker, MLRA soil scientist in Price, Utah, provided a battery-powered hand blower to use as the source of “wind.”



Rollins aimed to accomplish the following in eight minutes at her booth: 1. Teach students that there are three different soil particle sizes. 2. Lead hypothesis development about which loose particle size at the surface is most likely to be carried by wind of the same speed. 3. Facilitate discussions about management options to prevent wind erosion. The local area can be a windy place.

Key Outcomes

Rollins quickly reviewed the different particle-size class and then asked students if they had ever gotten dust in their face ("Yes!"), if they enjoyed the experience ("No!"), and to describe what dust was. She told students they were going to help conduct an experiment and asked student's which particle size they thought was most likely to be picked up by wind.

Four students operated the hand blower approximately 1.5 feet from the table, at table height, towards small, measured volumes of sand, silt loam, and clay texture samples, as well as a clod. The remaining students stood around the table to observe which mounds produced the biggest "dust cloud" and lost the most volume. The students correctly predicted that the sand particles would produce the least amount of dust and lose the least volume!

The last part of the demonstration included a discussion about wind erosion management options. Students excitedly volunteered that maintaining moist soil and adding rocks to the surface would keep loose soil particles in place. Asked if they thought plants could keep soil in place, they said "Yes!" and named their favorite plants at home. Rollins used a two-by-four piece of wood to demonstrate that fences can be effective at keeping loose soil in place. She placed the wood between the hand blower and the remaining mound of white clay and demonstrated that the soil did not blow away when the hand blower was turned on. A student then ran the hand blower towards the mound from the same distance without the wood to protect, and the students witnessed the clay produce a big cloud.

Overall, students stayed engaged and demonstrated intuition about the material. Eight minutes turned out to be plenty of time to convey a fundamental aspect of soil science.



Figure 1.— A photo of the wind erosion demonstration station.



Figure 2.—Soil scientist Lucille Rollins fielding questions from students.