

SOIL AND PLANT SCIENCE DIVISION  
Technical Soil Services  
North Central Soil Survey Region



**Duluth, Minnesota, Major Land Resource Area (MLRA) Soil Survey Office (SSO)**

**SPSD Staff Cultivates Curiosity by Teaching Soil Health**

**Purpose**

Lindsey Weiss and Kade Anderson (Duluth MLRA SSO staff) assisted Ella Aspenson, Nick Rainey, and Cody Holubeck (Minnesota NRCS Customer Service Team) at the Farm-to-School Field Day held at Lake Superior College on May 19, 2023 (figure 1). The Farm-to-School Field Day connected over 200 local students from the Lincoln Park School District with farmers and educators. Students participated in hands-on learning while exploring Duluth's local food systems and touring a working farm. Other presenters spoke on local foods, how to plant seeds, urban farming, and other important land stewardship practices.



*Figure 1. A photograph of the soil booth at the Farm-to-School Field Day event with a poster board of the soil textural triangle, a variety of soil tools, and buckets of soil for texturing.*

## Background

With limited time at the soil booth, the NRCS staff knew they had to captivate the students' attention by using hands-on learning and engaging speaking techniques to help paint a vivid picture of the intricate relationship between soil health and the food on our plates. During the 10-minute rotational session at each soil table, the NRCS staff embarked on an enlightening journey into the vital role of soil in sustainable agriculture.

The NRCS staff taught students about sand, silt, and clay particle sizes as well as what soil is made of and quizzed them on where the samples fell on the texture triangle. Students learned about the composition of soil and the vital components like minerals, organic matter, water, and air that contribute to its fertility. Through interactive demonstrations and relatable examples, the students received a hands-on learning experience that revealed the significance of soil texture and structure and how it affects plant growth and overall agricultural productivity (figures 2 and 3).

To establish a direct connection with the Farm-to-School Day event, the NRCS staff explored the journey of food from farm to plate through the lens of soil health. Students learned how farming practices impact soil quality and, in turn, influence the nutritional value and taste of the food we consume. Students were also given examples of sustainable farming methods, such as cover cropping, to illustrate how responsible soil management can enhance both the quality and sustainability of our food systems.



*Figure 2. MLRA SSO soil scientist Lindsey Weiss shows students how to texture soils in the field.*

## Key Outcomes

Although the NRCS staff presentations at each table were brief, the impact we had on the students was clear. NRCS staff witnessed students' wide-eyed fascination and active engagement. Many students expressed a newfound appreciation for the crucial role of soil in their lives and were eager to share what they learned with others at the end of the sessions.

In the short time NRCS staff and students spent together talking about soil, it ignited a spark of curiosity in some students and nurtured a deeper connection to the soil beneath their feet. By condensing the essential concepts into a brief timeframe, NRCS staff managed to foster a sense of environmental stewardship and unveil the profound impact of healthy soil on our food systems. NRCS staff sowed the seeds of awareness and empowered young minds to become agents of change through soil health knowledge.

Overall, the event was a whirlwind of knowledge-sharing and inspiration that left a lasting impression on the students who didn't know it was possible to have a career as a soil scientist. The event showcased that—together—we can cultivate a future where sustainable farming practices and soil health thrive, ensuring a bountiful and nourishing planet for generations to come.



*Figure 3. Left to Right: Ella Aspenson, Nick Rainey, Cody Holubeck (Minnesota NRCS Customer Service Team), Kade Anderson, and Lindsey Weiss (Duluth MLRA SSO staff).*