

Project 2.1.7 Lab Report Template

Problem

To determine what the topsoil and subsoils are made of, and their soil texture classification, soil structure and soil grade. I will be finding the structure of the soil whether it is soil has structure like platy, granular, blocky, or prismatic. I will also determine the soil grade whether it is strong, moderate, weak or if it has not structure at all. As well as the effects that different soil particles like sand, silt and clay has in the soil structure. I know that the structure of the soil and what it contains is a major factor in the permeability and porosity of the soil and will determine the depth the roots can grow as well as the water holding capacity.

Hypothesis

I predict that there will be a correlation between the horizons depending on what they contain. I think that the soil will contain a large amount of clay due to the depth that the soil pit is. The topsoil texture will be gritty and round to allow drainage; it will have a structure type of platy and a grade of a moderate grade. The top soil will have a small presence of mottles and the color of the soil will be grey brown. In the subsoil I predict that the texture will be blocky; and the structure type will be structure less and be a big mass of clay and the grade will be poor because it will mostly be a mass of clay. In the subsoil will have a big presences of mottles because of the clay and the soil color will be grade and have a presence of rocks.

Materials

- Project 2. 1. 7 Lab Report Template
- Project 2. 1. 7 Soil Evaluation Rubric
- Project 2. 1. 7 Evaluation Rubric
- Clipboard
- Water bottle
- Knife or Screwdriver
- Pencil
- Computer
- Agriscience Notebook
- Soil pit

Procedures

1. When arriving at the soil pit you look at the soil with grass still connected to it.
2. You will evaluate the texture of the top soil then the sub soil
3. Add the information to the soil evaluation card
4. After you are done outside you will add your data in your final lab

Data Collection

Table 1. Summary of Findings

<p align="center">Digital Photo of Soil Profile</p>	<p align="center">Written summary of findings for each horizon as determined on the soil evaluation card</p> <p align="center">Use a line to indicate horizon transitions</p>
	<p>First Horizon: Roots and other organic material. A light, brown yellowish brown colored soil. The soil texture was a sandy clay loam. A course fragment of less than 15%. A structure type of blocky and a grade of moderate.</p> <p>Second Horizon: Small presence of organic matter but a lot of rocks are seen. The color of the soil was dark grey, light grey and white. The texture of the soil was clay or silty clay or a sandy clay. There was a course fragment presence of 35 to 60%. The structure type was massive. The grade was moderate. And the horizon name was B.</p> <p>Third Horizon:</p> <p>Fourth Horizon:</p>

Table 2. Texture Determination of Soil Samples

Your Findings	Class Average or Official Analysis	Explanation for Potential Differences
<p>First Horizon (0 to 5 inches)</p> <p>Color ___4___</p> <p>Texture ___4___</p> <p>Coarse Fragments ___1___</p> <p>Structure Type ___3___</p> <p>Structure Grade ___3___</p> <p>Horizon Name ___2___</p>	<p>First Horizon (0 to 8 inches)</p> <p>_____ Color</p> <p>___1___ Texture</p> <p>___1___ Coarse Fragments</p> <p>_____ Structure Type</p> <p>_____ Structure Grade</p> <p>___2___ Horizon Name</p>	<p>The soil was wet when we did our testing and the soil that the other company that did the testing could have tested somewhere else.</p>
<p>Second Horizon (5 to 8 inches)</p> <p>Color ___2___</p> <p>Texture ___5___</p> <p>Coarse Fragments ___3___</p> <p>Structure Type ___5___</p> <p>Structure Grade ___3___</p> <p>Horizon Name ___4___</p>	<p>Second Horizon (___ to ___ inches)</p> <p>_____ Color</p> <p>___2___ Texture</p> <p>_____ Coarse Fragments</p> <p>_____ Structure Type</p> <p>_____ Structure Grade</p> <p>___AB___ Horizon Name</p>	<p>A difference could have been that I saw something different than another student.</p>
<p>Third Horizon (___ to ___ inches)</p> <p>Color _____</p> <p>Texture _____</p> <p>Coarse Fragments _____</p> <p>Structure Type _____</p> <p>Structure Grade _____</p>	<p>Third Horizon (___ to ___ inches)</p> <p>_____ Color</p> <p>_____ Texture</p> <p>_____ Coarse Fragments</p> <p>_____ Structure Type</p> <p>_____ Structure Grade</p>	

Horizon Name _____	_____ Horizon Name	
Fourth Horizon (___ to ___ inches) Color _____ Texture _____ Coarse Fragments _____ Structure Type _____ Structure Grade _____ Horizon Name _____	Fourth Horizon (___ to ___ inches) Color _____ Texture _____ Coarse Fragments _____ Structure Type _____ Structure Grade _____ Horizon Name _____	

Analysis of Results

I learned that there is a huge difference in the way that the soil is laid out is really different. The topsoil is really different in the way that its structure is softer than the subsoil and that the fact that is grade for the topsoil is really strong that the effective depth of the soil was very shallow of less than 4 inches. The subsoil is much large and has less porosity then the topsoil. Which means the subsoil is holding more water than the topsoil holds. The structure and grade was almost what I predicted it would be. Horizons where close to what I could have seen from the samples that we were provided.

Conclusions

I learned that there was a difference between the topsoil and the subsoil. The subsoil was mostly clay as I had predicted because of the shallow effective depth was less than four inches and the permeability is slow too because the clay in the subsoil holds water. This investigation is important for us to learn about the soil that is in our area, and how the use of new agricultural advancements have learn to adapt to these challenges and found more effective ways to grow plants. The data that I collected does support my hypothesis in the fact that I did predict that the soil will be gritty and be most effective at a short distance and that the subsoil will mostly be made of clay. The only errors that could be found in the experiment were the fact that the sprinklers came on the morning of. When we got to the pit it was full of water and we could not get a picture or see the different horizons. I used the notes I took in class to find the most effective way of grading and judging the soil will out using a lab to find the exact contents of the soil. The investigation could be strengthening by the fact that when the soil pit was dug that we take a picture of the horizons and that small portions of the soil be keep inside so they are not affected by the irrigation system or students messing them up.