



Keynote speaker
Nadeem Ahmad
Soil Survey of
Punjab

Chief Guest
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HANDS ON TRAINING IN
IDENTIFICATION AND DESCRIPTION OF SOIL
PROFILE



Soil profile training activity for the students and academia.

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Soils develop from parent material under the influence of local climate, topography, and biota. The process of soil development is often referred to as soil weathering. Over time, a number of environmental forces act to create distinct layers or horizons parallel to the soil surface.

There is a dire need of time to study the soil profile, because it helps us in land use planning, soil health improvement and also useful for modeling agricultural productivity. Soil profile details are in line with the Sustainable Development goal target 15.3 of achieving Land Degradation Neutrality (LDN), as specified by the United Nations Convention to Combat Desertification (UNCCD; <http://www.unccd.int>), and are one of the main areas of interest of the FAO's Global Soil Partnership initiative. Therefore, a one-day training entitled **“Hands on training in Identification and Description of Soil Profile”** was held in MNS University of Agriculture, Multan.

Mr. Nadeem Ahmad from Soil Survey Department was the trainer. The Students of Soil and Environmental Sciences Department and faculty members from other departments participated in the event. A special tour of Bahauddin Zakariya University Multan, Soil Science Department also participated in the training under the supervisor of

Associate Professor Dr. Jam Niaz Ahmad and Dr. Bushra.



A pit has been dug in the C block of MNS University of Agriculture, Multan. Mr. Nadeem explained that Land form is mainly divided into two parts plains and mountains. The soils can be divided into three major categories: Bangar Soils (old alluvium); Khaddar Soils (new alluvium); and Indus Delta Soils.

1. **Recent Soils (Khaddar Soils):** These soils are found near the river and flooded every year by river. No soil structure is developed.
2. **Sub Recent Soils (Bangar soils):** These soils are away from flooded area. They have relatively very well defined soil structure, soil texture and soil color. Most of the material was sub-recent in origin, calcareous, and low in organic content. Khaddar soils are formed from recent and present-day deposits along the rivers. Part of these soils are

flooded each year, adding depositional layers of silt loam and silty clay loam. The organic content of these soils is low, but they are usually free of salts.

3. **Old River Terrace (Indus Delta Soils):**

These soils are developed more than 500 years ago. They have well developed soil and soil horizons are easily differentiable. Indus Delta Soils are formed of sub-recent alluvium and estuarine deposits. They cover the entire area of the Indus Delta from south of Hyderabad to the Mithan coat. Clayey soils, developed under flood water conditions, cover about one-third of the area. With irrigation, these soils are used for rice cultivation. Saline loamy soils cover most of the delta. Some with salt crust at the surface, have been reclaimed by simple leaching and better drainage. Extremely saline patches can be used only for poor grazing.

University Site Profile Description.

the site was described as Sub recent according to its origin. Overall there was no clear cut horizon formation. O horizon was missing and A horizon or plough layer has been characterized as Silty clay loam by using feel method. Soil plasticity was high

due to high clay content and roll formation was found. Micropores were found few and it is the indication that soil has low drainage of water. The consistency was found hard it also depicts that the clay particles are in high concentration. Structure was characterized by Sub- Angular Blocky. By using Munsell color book the value was 10/YR 6/2 (light Brown). The pH of the soil was also tested by



using thiamine blue color method. Fine and very fine roots were found which is an indicator of buried soil. As we proceeded downward micropores were many and porosity was improved.

A Horizon: 0-8 cm; Light brown (10YR 6/2) silty clay loam, weak Sub- Angular Blocky structure; many fine roots; slightly Alkaline; abrupt smooth boundary.

B Horizon: 8-28 cm; medium brown (10YR 5/4) silt loam; tabular pore; abrupt horizon/mix horizon; weak structure sub angular blocky common fine roots; no clear-cut boundary.



C Horizon: 90 cm; pale yellow (10YR 1/3) very fine sandy loam; tubular pores; buried soils (snail shells); moderately alkaline.

Presentation: A detailed and comprehensive lecture has been delivered at Mango Research Institute about the soil formation factors and soil profile. Mr. Nadeem Ahmad elaborated the field study with theoretical background. Soil is defined as that part of the unconsolidated material covering the surface of the earth which supports plant growth. It has three major constituents: solid particles (salts, minerals and organic matter), air and water. The type of soil formed is a function of topography, climate, vegetation, and the parent rocks from which the soil material is derived. Soil material transported and

deposited by running water is termed alluvium, while that transported and deposited by winds forms aeolian soil. Soils formed in situ are termed residual.

Soil texture varies with the size of the soil particles. Coarse textured soils are sandy, fine textured soils are clayey, and a mixture of sand and clay is called loam. The organic content of the soil also varies, being largely dependent of the extent and type of the vegetative cover. Soils of high organic content are darker in color, and have more nutrients for plant growth than those of low organic content. Since most of Pakistan is arid or semi-arid, the soils contain little organic matter.

Soil-forming processes are complex and continuous. As a result, soils vary in their chemical composition, color, texture, and organic matter content from place to place, even within small areas. The ensuing discussion describes only the major soil-groupings of Pakistan.

Vice Chancellor's Message and Shield

awarding ceremony: Vice Chancellor Professor Dr. Asif Ali along with Dean, Faculty of Agriculture and Environmental Sciences and Chinese delegation graced the occasion and appreciated the effort made by SES department. VC has appreciated the participation of BZU students along with faculty members. He also performed a brainstorming session with the students on



new learnings of today's activity. A plan was also finalized with the Soil Survey of Punjab to Survey the 500 acres land at Jalalpur Pirwala in the next phase.



A University souvenir has been presented to Mr. Nadeem Ahmad.

Vote of Thanks: At the end of ceremony Chairman DSES Dr. Tanveer-Ul-Haq thanked the trainer and the participants. He also acknowledged the support provided by SES staff in organizing the profile description training



Report Writing: Dr. Abid Hussain
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