PENANG SANGAM HIGH SCHOOL
P.O.BOX 44, RAKIRAKI
LESSON NOTES

School: Penang Sangam High School
Subject: Agricultural Science
Year/Level: 11 **Week 14**

Strand	Strand as 11.3 Agronomy
Sub Strand	Sub-strand 11.3.1 Soils
Content Learning Outcome	Demonstrate the assessment methods used in determining the physical properties of the soil.

LESSON 2: DESCRIBING SOIL STRUCTURE
LESSON OUTCOME: At the end of this lesson the student will discuss how soil structure is described.

Soil structure is studied in the field under natural conditions and is described under three categories:

1. **Type** - describes the shape or form and arrangement pattern of peds. [Refer to page 92 of the textbook to understand different types].\

2. **Class** - This describes the size of the individual peds. Each primary structural type of soil is differentiated into 5 size classes depending upon the size of the individual peds. \

   Soil textural classes The terms commonly used for the size classes are: a. b. c. d. e. Very fine or very thin Fine or thin Medium Coarse or thick Very Coarse or very thick The terms thin and thick are used for platy types, while the terms fine and coarse are used for other structural types.

3. **Grade** – This indicates the degree of distinctness of the individual peds. http://www.slideshare.net It is determined by the stability of the aggregates. Grade of structure is influenced by the moisture content of the soil. Grade also depends on organic matter, texture etc. Four terms commonly used to describe the grade of soil structure are:
   a. Structureless: There is no noticeable aggregation, such as conditions exhibited by loose sand.
   b. Weak Structure: Poorly formed, indistinct formation of peds, which are not durable and unaggregated material.
   c. Moderate structure: Moderately well-developed peds, which are fairly durable and distinct.
   d. Strong structure: Very well formed peds, which are quite durable and distinct.

Soil Structure Naming: For naming a soil structure the sequence followed is grade, class and type; for example
a) strong coarse angular blocky
b) moderate thin platey.

LESSON 3: IMPORTANCE OF SOIL STRUCTURE

LESSON OUTCOME: At the end of this lesson the student will discuss the importance of soil structure.

- Soil porosity - the fraction of void space in the material, where the void may contain, for example, air or water.

NOTES

Soil structure influences the following factors:

1. Soil water – infiltration, retention, percolation, availability to plants, water holding capacity. In soils with good structure, the pore space which occurs between pores in relatively large and facilitates air and water movement. Clay soils with poor structure resist water movement.

2. Soil porosity - the fraction of void space in the soil which can contain air or water.

3. Soil aeration - the amount of water in soil pores in inversely proportionate to the amount of water, hence soil aeration is influenced by soil structure.

4. Heat transfer- heat will travel through soil with larger pore spaces. The temperature of soil with a well-developed structure will not fluctuate a lot.

5. Emergence of seedlings- seedlings push their way through pores as they germinate towards light.

Student Activity

1. Discuss the importance of soil structure on a crop farm.

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