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Department of Chemistry

Certificate Course in Soil Analysis

Syllabus

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1	Introduction		1
2	Types of soil	Sandy Soil, Clay Soil, Loamy Soil, Slit Soil	1
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4	Taking Soil Testing sample		1
5	Factors affect the soil test result		2
6	Giving fertilizer recommendation		2
7	Report terms	PPM,Meq/100g,mmhos/cm	1
8	Study of instruments-PH Meter, Conductivity Meter	PH Meter, Conductivity Meter	2
9	Parameter Analysis	1.P^h of Soil	2
		2. Electric conductivity of soil	2
		3. Organic carbon in soil	2
		4. Phosphorous in soil	2
		5. Potassium in soil	2
		6. Calcium carbonate in soil	2

		7. Micronutrient in soil **a)Copper Sulphate** **b)Zinc Sulphate** **c) Ferrous sulphate** **d) Manganese Sulphate**	**7**

“Soil is the upper most layer of earth crust which contains the organic as well as mineral matter necessary for the growth of plants”.

Soil is the mixture of broken rocks and minerals living organisms and decaying organic matter called humus. This humus is dark, soft and rich in nutrients.

To design a good sampling plan for soil testing, one need to consider the basic facts related to soil formation and water cycling .Growers can roughly estimate how much fertilizers should be applied to their crop according to general fertilizer recommendation. But a more accurate, cost -effective fertilizer application requires soil testing.

Soil test allows you to know the starting point, and this is a very valuable piece of information.

Soil test has been around as a science for almost 100 years ,and is commonly used to determine if nutrients are sufficient for crop growth and optimal yield .Macronutrients are those required by the crop in the largest amounts .These are Nitrogen (N),Phosphorus(P)and Potassium(K).

These tests are widely available through KSU, crop consultants, and independent laboratories. Micro nutrient tests are also available from many labs. These are also required for crop growth, but in smaller amounts than the macronutrients. These are usually only a problem in specific situation, for example on an unusual soil type .The p^H, or acidity of the soil is also important to measure, since the p^H affects crop growth, and has an influence on the availability of both macro and micro nutrients .A p^H near neutral,or 6.0to7.0 is optimal for most crop, and also is the range in which most nutrients are available.

Types of Soil

There are three stages of soil:

- Solid Soil,
- Soil with air the pores,
- Soil with water in the pores

There are Various types of soil that undergo diverse environmental pressure .The Soil is mainly classified by its texture, properties and different forms of organic and mineral composition.

The soil is basically classified in to four types:

- Sandy Soil

- Silt Soil
- Clay Soil
- Loamy Soil

I. Sandy Soil

- The first type of soil is sand .It consist of small particles of weathered rock
-Sandy soils are one of the poorest types of soil for growing plants because it has very low nutrients and poor in holding in water, which makes it hard for the plants roots to absorb water .This type of soil is very good for drainage system.
-Sandy Soil is usually formed by the breakdown or fragmentation of rocks like granite, limestone and quartz.

II. Slit Soil

-Slit, Which is known to have much smaller particles compared to the sandy soil and is made up of rock and other mineral particles which are smaller than sand and larger than clay. It is the smooth and quite fine quality of the soil that holds water better than sand.

-Slit is easily transported by moving currents and it is mainly found near the river, lakes, and other water bodies. The slit soil is more fertile compared to the other three types of soil. Therefore it is also used in Agricultural Practices to improve soil fertility.

III. Clay Soil

-Clay is the smallest particles amongst the other two types of soil.

-The Particles in this soil tightly packed together with each other with very little or no airspace.

-This soil has very good water storage qualities and making hard for moisture and air to penetrate in to it.

-It is very sticky to the touch when wet, but smooth when dried.

-Clay is the densest and heaviest type of soil which do not provide space for plant root to flourish.