eManual: Soil Analysis Experiment (pH, N, K, P)

Materials and equipment: a soil sample from a typical agricultural setting (a field), a test kit (for example *The Intelligent Garden Soil Analysis Kit*) for testing soil for pH, N, K, P, digital lab scales, 2 glass measuring beakers, 1 funnel, 1 filter paper, 200 ml destilled/tap water, a spoon, a stirring rod.

Procedure: Let the soil sample dry in room temperature for at least one week. Measure 50g of soil in a beaker. Mix it with 200 ml water and stir with a stirring rod for 30 seconds. Filter the mixture through filter paper in the funnel into the other beaker. Measure the pH, phosphorus, potassium and nitrogen levels from the filtered water as instructed in the soil testing kit.
The kit we used contained a liquid and a powder for each element that was added to the filtered water in a test tube with a lid. After shaking it vigorously leave it for 5 min. Then compare the colour of the liquid in the test tube to the chart.

Recommendation: Take soil samples from different locations. Dry the samples in a warm place and you will save time.

The most common crops grown in Finland are wheat, barley, oats, rye, beets, potatoes and rape. These crops need a soil with a pH around 7. If the soil is too acidic it is necessary to add lime. It is also necessary to add N, K and P to the soil by using fertilizers, preferably organic. It's important to know how much of these elements the soil contains so as not to add too much because then they contribute to the eutrophication of nearby lakes and the sea.

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