AFNR Plant Systems
Soil N-P-K

Plants get their nutrients from the soil. This lab will test soil samples for nitrogen, phosphorus, and potassium to see the level of nutrients and how close the levels are to encourage optimal growth.

Materials:

- Soil Test kit for N-P-K (Rapi-test)
- 2 Soil Samples
- Distilled Water
- 2 containers for soil samples
- Droppers

Methods:

Part 1- Preparing the Soil Samples

1. Fill a clean container with 50 ml of soil and 250 ml of distilled water.
2. Thoroughly shake or stir the soil and water together for at least one minute; then allow the mixture to stand undisturbed until it settles (30 minutes to 24 hours)
3. Label the container “Soil Sample A”
4. Repeat process for “Soil Sample B”

Part 2- Testing the Soil Samples

1. Select the appropriate comparator for the test you wish to make.
2. Remove the cap and take out the capsules, which should be the same color as the cap. Make sure the color chart (film) is in place.
3. Using the dropper, fill the test and reference chambers to the fill mark on the chart with the liquid solution from your soil sample.
4. Remove one of the appropriate colored capsules from its bag.
5. Holding the capsule horizontally over the test chamber, carefully separate the two halves and pour the powder into the test chamber.
6. Fit the cap on the comparator, making sure it is seated properly and caps tightly.
7. Shake thoroughly.
8. Allow color to develop for 10 minutes.
9. Compare the color of the solution in the test chamber to the color chart.
10. Note your results in Table 1.
11. Repeat process for each of the N, P, and K tests.
12. Clean up work area.

Table 1- Soil Sample Nutrient Levels

Nutrient	**Soil Sample A**	**Soil Sample B**
Nitrogen		
Phosphorus		
Potassium		

Conclusion Questions:

1. Which of the soil samples is currently the most suitable for planting?
2. How does a nitrogen deficiency affect plant growth? toxicity?
3. How does a phosphorus deficiency affect plant growth? toxicity?
4. How does a potassium deficiency affect plant growth? toxicity?