

Unit: Soil Science

Name _____

Lesson 7: Soil Chemical Properties

Date _____

Evaluation

Directions: Match the definition on the left with the term on the right.

- | | |
|---|-----------------------------------|
| _____ 1. Smallest portion of an element that can take part in a chemical reaction | a. Lime |
| _____ 2. A measure of the soil's ability to hold nutrients that are cations in the soil | b. Atom |
| _____ 3. Negatively charged solid particle composed of clay or organic matter | c. Cation exchange capacity (CEC) |
| _____ 4. Measure of the acidity or alkalinity of a soil | d. Alkaline soil |
| _____ 5. A soil that contains more hydrogen ions than hydroxyl ions; soil pH is less than 7.0 | e. Soil pH |
| _____ 6. A soil that contains more hydroxyl ions than hydrogen ions; pH is greater than 7.0 | f. Cation |
| _____ 7. An ion with a negative or minus charge | g. Acid soil |
| _____ 8. An ion with a positive charge | h. Anion |
| _____ 9. Materials used to neutralize acidity | i. Micelle |

Directions: Use the following soil test data and calculate the cation exchange capacity (CEC) milliequivalent weights of potassium, magnesium, and calcium: K - 780 lbs, Mg - 240 lbs, Ca - 400 lbs.

Site No. 1	OM (%)	P ₂ O ₅ (lbs/A)	K (lbs/A)	Mg (lbs/A)	Ca (lbs/A)	NA (meq)	pH
Soil test results	2.5	180	390	360	2,400	4.0	5.2

10. K = _____

12. Ca = _____

11. Mg = _____

13. NA = _____

14. Total CEC = _____

Directions: Use the following soil test data and calculate the amount of exchangeable nutrients that the soil should contain. Optimal amount of nutrient per acre: K = 20, Mg = 24, Ca = 300.

Site No. 2	OM (%)	P ₂ O ₅ (lbs/A)	K (lbs/A)	Mg (lbs/A)	Ca (lbs/A)	NA (meq)	pH
Soil test results	2.5	180	390	360	2,400	4.0	5.2

Amounts of exchangeable nutrients that the soil should contain:

15. K = _____

16. Mg = _____

17. Ca = _____

Directions: Compare the results of the soil test and make recommendations for the nutrients needed.

18. Amount of K needed? _____

19. Amount of Mg needed? _____

20. What is the recommendation for Ca? _____