**Chapter 37: Soil and Plant Nutrition**.

1) A gardener realized his plants were slowly dying off. After numerous analyses, he realized there was a toxic root growth and a tremendous increase in soil H+. Which of the following is a plausible cause?

a) Increase soil pH due to increase cation exchange

b) Lack of fertilizers

c) Increase aluminum uptake due to low soil pH.

d) Absence of clay from the soil.

2) Potassium deficiency causes plant leaves to develop a yellow coloration around margins and die. A gardener realizes this coloration only in the older leaves of the plant and not in the younger leaves. This observation suggests the fact that potassium is…

a) less mobile nutrient

b) K+ deficiency is only in leaves

c) mobile nutrient

d) none of the above

3) Maize leaves in a agricultural field are showing a purple coloration on their margins. This should suggest which of the following;

a) An excess of potassium

b) A deficiency of nitrogen

c) A increase uptake of Aluminum due to high soil pH

d) A deficiency of phosphorus

4) Which of the following is NOT a suitable condition best for plant growth?

a) Low salinicity

b) Good water-holding capacity

c) Free of toxic contaminants

d) a pH of about 8

5) ………………………………… is the settling or sinking of land.

a) Aquifers

b) Subsidence

c) Hallosinomity

d) Aggressive irrigation

6) At what pH would Ca2+ uptake and plant growth be hindered?

a) pH of 7.0

b) pH of 9.0 or higher

c) pH of 5.0 or less

d) All pH level have effect on cation exchange.

7) The local area surrounding the Trinity River in Texas has been red flagged with high levels of PCB’s. The U.S dept of Agriculture decides to employ plants that have the capability of extracting this pollutant from the soil area. The name of this process is called…

a) Salination

b) Aggressive Soil repair

c) Cation remediation

d) Phytoremdiation

8) Plants need very small amounts of…

a) Oxygen

b) Hydrogen

c) Phosphorus

d) zinc

9) A farmer in Finland is capable of obtaining information from his crops in respect to their nutrient excess or deficiency. For example, a blue tinge indicates that his plants need more phosphate and green signals nitrogen. Which of the following genetic modifications are being employed by this farmer?

a) Secretion of an alcohol dehydrogenase that breaks down ethanol and toxins in the absence of nutrients in the soil.

b) Resistance to Aluminum toxicity under extremely low pH

c) Soil modification to send impulses to plant leaves that modify their pigmentation hence expressing the deficient nutrient.

d) The linking of promoter of gene to a reporter gene which produces the colored pigmentations thus creating a “smart plant”

10) A plant that nourishes itself but grows on another plant (ex. Staghorn fern)

a) Epiphytes

b) Parasitic plant

c) a non-photosynthetic plant

d) Ghost flower

11) Absorbs nutrients from fungal hyphae of mycorrhizae of other plants. (ex. Indian pipe)

a) Epiphytes

b) Parasitic plant

c) a non-photosynthetic plant

d) Ghost flower

12) Photosynthetic but obtain some nitrogen & minerals from insects (ex. Venus flytrap)

a) Epiphytes

b) Parasitic plant

c) Carnivorous plant

d) Ghost flower

13) Absorb sugars and minerals from their living host plant (ex Mistletoe)

a) Epiphytes

b) Parasitic plant

c) Carnivorous plant

d) Ghost flower

14) A Dodder.

a) Epiphytes

b) Parasitic plant

c) Non-photosynthetic parasite

d) Ghost flower

15) Which soil mineral is most likely leached away during a hard rain?

A) Na+

B) K+

C) Ca2+

D) NO3-

E) H+