

Plant Function (Nutrition & Sensory)

10 March 2009, Bonine 6 & 7

Questions to help you review the material and comprehend important points.

Nutrition

1. Where in the environment does most of the mass of a tree come from?
2. What nutrients do fungi often provide their symbiotic host plants?
3. What are some of the essential nutrients. Where in the environment do they come from? What are the three most common elements in a plant?
4. What is the difference between macronutrients, limiting nutrients, and micro nutrients?
5. Co-factors are commonly required for proper _____ function.
6. What comprises mature soils?
7. How do anions and cations behave differently in the soil?
8. How do proton pumps facilitate moving nutrients from soil into plants?
9. Differentiate between cotransport and cation exchange.
10. What are some of the environmental conditions in bogs? How do those conditions affect decomposition rates?
11. What role do *Rhizobium* play in the lives of leguminous plants?
12. Distinguish between epiphytic plants and parasitic plants.
13. What conditions led to the evolution of carnivorous plants?

Sensory Systems

14. What environmental stimuli are important to plants? Why?
15. Define the term 'transduction' and give two examples.
16. How and why do plants typically respond to blue light? What hormone is involved? Where is the hormone produced and where does it act? What response does the hormone initiate?
17. Define photoperiod. Why would plants want to be able to measure photoperiod?
18. Why would plants want to be able to respond to gravity? How?
19. What hormone is involved in apical dominance? What other aspects of plant biology is this hormone involved with?
20. How do cytokinins act and what are they responsible for?
21. What do gibberellins and abscisic (ABA) do?
22. Explain the hormones underlying seed dormancy? Why is seed dormancy prevalent in the plant world?
23. How and why do roots in dry soil communicate with leaves?
24. Define senescence. What hormones are involved?
25. Why can you speed the ripening of fruit by placing them in a bag with a piece of very ripe fruit?
26. What hormones work together to drop leaves off temperate biome trees in the fall?
27. In what ways do plants respond to pathogens and herbivores?
28. What is the hypersensitive response?
29. What are secondary metabolites predominantly used for in plants? Can you provide four different examples of ways that plants use secondary metabolites to improve their fitness?
30. What is a parasitoid?