

DO YOU KNOW YOUR SOILS?

Circle all the correct answers.

1. What is the layer normally present on the surface of the soil in cropped fields? _____
a. O c. Ap e. B g. R
b. A d. E f. C
2. Available water/moisture capacity is the amount of water that a soil _____ .
a. holds when it is saturated with water
b. holds during long dry periods
c. can store and release to plants
d. provides to plants during wet periods
3. _____ is defined as a measure of the ability of air or water to move through the soil profile.
a. Density d. Bulk density
b. Texture e. Permeability
c. Structure f. Mottling
4. What is the most important physical property that controls the rate water moves through the soil to the groundwater?
a. Depth d. Structure
b. Organic Matter e. Topography
c. Color f. Slope
5. The key factor for texture differences in soils in Delaware is _____.
a. Climate ` d. Time
b. Position in the landscape e. Living organisms
c. Parent material
6. If a soil profile exhibits relatively thin layers of light and dark colored materials stratified approximately parallel to the surface, it is likely that the soil _____
a. is eroding c. is located on the floodplain
b. needs lime d. has been used as a garden
7. An ideal soil for growing crops is composed of:
a. 33% solids 33% water 33% air
b. 50% solids 25% water 25% air
c. 80% solids 10% water 10% air
d. 90% solids 5% water 5% air
8. Soil texture refers to the amounts of _____ sized particles in the soil.
a. sand, silt, and clay
b. coarse, medium and fine
c. large, average and small

9. The B-horizon in a soil profile is the layer of:

- a. partially disintegrated parent material
- b. maximum biological activity
- c. accumulation of organic material
- d. brighter color where leached material accumulates
- e. bedrock

10. Soil colors are identified using:

- a. a color wheel
- b. a Munsell chart
- c. a soil survey
- d. local convention

11. Soil colors are described using the following elements:

- a. shade, intensity, and darkness
- b. hue, value, chroma, and gley
- c. value, chroma, and gley
- d. hue, chroma, and value

12. Which of the following drainage classes would a hydric soil have?

- a. well drained
- b. excessively drained
- c. moderately well drained
- d. very poorly drained
- e. poorly drained

13. The presence of mottles in a soil indicates _____ .

- a. old root channels
- b. the presence of earthworms
- c. impeded soil drainage
- d. high iron concentrations

14. Wind moves soil in the following ways except for _____ .

- a. abrasion
- b. saltation
- c. suspension
- d. surface creep

15. Which soil will have the greatest potential for erosion if cropped?

- a. GgA
- b. GgB
- c. GgC
- d. GgD

16. In the soil name Chester silt loam, the "silt loam" refers to the texture of the:

- a. parent material
- b. surface material
- c. subsoil
- d. substratum

17. Which soils tend to be most susceptible to wind erosion?

- a. silty
- b. clayey
- c. sandy

18. Silty soils tend to have _____ available water/moisture than sandy soils.

- a. more
- b. less

19. Hydric soils are which of the following?

- a. wet soils
- b. can support hydrophytic vegetation
- c. used to define wetlands
- d. developed under wet conditions (anaerobic within 12")

20. Which of the following is not a form of erosion?

- a. wind
- b. gully
- c. sheet
- d. compaction
- e. rill

21. If a soil sample has a pH of 5.1 to 5.5 it is considered to be which of the following?

- a. neutral
- b. strongly acid
- c. extremely acid
- d. mildly alkaline

22. Under anaerobic conditions, iron and manganese can be reduced or removed from the soil, often resulting in a gray color. What is this process better known as?

- a. depletion
- b. gleying
- c. absorption
- d. effervescence

23. What are the three major plant nutrients?

- a. carbon
- b. potassium
- c. nitrogen
- d. phosphorous

Assuming that you have an area of interest on a soil map in Kent County, Delaware, with the soil map unit of DoB, answer the following questions.

24. What is the soil series (name) for this symbol. Downer
25. What is the soil texture? sandy loam
26. What is the slope class? 2-5%
27. What is the degree of erosion at the site? no number = slight
28. What is the flooding potential of this unit? none
29. What tree will produce at least 70 cu. Ft of boards on this site? Loblolly Pine, Southern Red Oak, Sweetgum and Yellow poplar
30. What is the depth to the seasonal high water table? Greater than 6'
31. What is the degree of limitation for a home with a basement? Not limited
32. If the soil was EmA undrained, what would limit the site for roads? Ponding, Depth to saturated zone, Frost action, and low strength
33. What is the drainage class? Well Drained
35. For this soil, the crop yield for non-irrigated corn is 120 bushels per acre. How does that compare with non-irrigated Greenwich loam on a 2-5% slope? It is 15 bushels/ac less
36. What is the Available Water Capacity? Low (5.7") see Map unit description
38. What other Minor Components might be found in this map unit? Galestown, Hammonton, and Ingelside
37. Where is this soil found in the landscape? Uplands

There are more charts on the site - <http://soildatamart.nrcs.usda.gov>

38 - 40. USING THE TEXTURAL TRIANGLE ON THE ATTACHED PAGE, IDENTIFY THE THREE SOILS ILLUSTRATED BY THE CIRCLES AT THE BOTTOM OF THAT PAGE.

38 = Clay loam

39 = Loamy Sand

40 = Silt loam