

READING GUIDE*

Alfisols

see Buol et al. (2011), Chapter 8, p. 233-248

OBJECTIVE: *To understand the nature and properties of soils classified as Alfisols, to know the potential uses and limitations of these soils, and to recognize the taxa associated with Alfisols in Soil Taxonomy.*

1. What is the central concept for soils classified as Alfisols?
2. What five conditions are associated with settings in which soils are classified as an Alfisol?
3. In what soil forming environments are Alfisols most commonly found?
4. Explain why Alfisols are found in each of the following settings. Be sure to specify the pedogenic processes that occur (or do not occur) to promote the occurrence of Alfisols. (a) stable uplands in humid temperate climates, (b) high-base parent materials, (c) deciduous forests, (d) old alluvial stream terraces.
5. **What are the diagnostic properties of an argillic horizon?** Contrast the processes of lessivage and neosynthesis. How does each contribute to the formation of an argillic horizon? Be specific.
6. Why are ratios of fine clay to total clay used to distinguish the presence of pedogenically translocated clay in argillic horizons?
7. What are *argillans*? What processes can cause argillans to be absent in the upper part of the argillic?
8. What processes can cause clay particles to start moving out of A and/or E horizons? What processes can cause clay particles to be deposited in B horizons?
9. **How can continued loss of clay from the A and E horizons and accumulation of clay in the B horizon change the processes that occur in the soil, such as water movement, water availability, and root growth? Explain your answer. Be specific.**
10. Why is decalcification an important precursor to lessivage?
11. What are some proposed mechanisms for the formation of fragipans?
12. What properties may be associated with Alfisols?
13. What types of land use problems may be associated with soils classified as Alfisols? Explain why land use practices may be limited. Be specific.
14. What land use practices are commonly supported by soils classified as Alfisols?
15. Which diagnostic horizons may be found in soils classified as Alfisols?
16. What suborders are identified for soils classified as Alfisols? What are the diagnostic properties of each?
17. What properties are used to distinguish the great groups of soils classified as Alfisols?
18. How are differences in soil drainage class, which are commonly recognized along a catena, represented taxonomically?

SYNTHESIS:

19. Where in West Virginia are soils classified as Alfisols likely to be found? What are the suitabilities and limitations of these soils for various land uses?

* Questions in plain type represent basic facts and concepts. Questions in **bold** type are those that are answered in the text but require more careful consideration. The Synthesis questions at the end help you apply the facts and concepts to a relevant issue.