

## READING GUIDE\*

### Oxisols

see Buol et al. (2011), Chapter 16, p. 349-359

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

1. What is the central concept for soils classified as Oxisols?
2. What characteristics are commonly associated with soils classified as Oxisols?
3. In what soil forming environments are Oxisols most commonly found?
4. **Why are Oxisols commonly found in materials that have been through several cycles of weathering (and pedogenesis), erosion, transportation, and redeposition?**
5. Explain why Oxisols 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 Oxisols. (a) low latitudes, (b) hot, wet climates, (c) transported parent materials, (d) gentle slopes, (e) acidic parent materials, (f) old geomorphic surfaces.
6. What minerals dominate the clay fraction of the oxic soil material? Why?
7. What is a *petroferric contact*? How does it form?
8. Why can the organic C content of Oxisols sometimes be as high or higher than that of Mollisols? Why do Oxisols not have thick, dark surface horizons as Mollisols do?
9. What types of land use problems may be associated with soils classified as Oxisols? Explain why land use practices may be limited. Be specific.
10. What land use practices are commonly supported by soils classified as Oxisols?
11. **Why is the phosphorus retention capacity of Oxisols so high? Explain your answer. Be specific.**
12. What suborders are identified for soils classified as Oxisols? What are the diagnostic properties of each?
13. What properties are used to distinguish the great groups of soils classified as Oxisols?

**SYNTHESIS:**

14. Oxisols are generally considered infertile soils. However, modern agricultural practices have been used to make these soils highly productive. What characteristics of Oxisols make them naturally infertile? What characteristics of Oxisols make them adaptable to productive agriculture? Be specific. Explain your answers in terms of physical, chemical, and other soil and landscape properties.

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\* 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.