

READING GUIDE*

Dynamic Soil Properties

see Buol et al. (2011), Chapter 2, p. 80-87

OBJECTIVE: *To understand the importance of soil climate variables to soil use and management and to know the soil temperature regimes and soil moisture regimes as used to classify soils.*

1. **Why are soil moisture and soil temperature important diagnostic soil properties? Why can they be difficult to assess?**
2. What is the relationship between mean annual soil temperature (MAST) and mean annual air temperature (MAAT) in the United States?
3. For the determination of MAST, how should direct measurements of soil temperature be made?
4. How is seasonality of soil temperature, or differences between mean summer and mean winter soil temperature, assessed for use in *Soil Taxonomy*?
5. What are the soil temperature regime (STR) classes used in *Soil Taxonomy* and the recognized criteria for each?
6. What constitutes a “normal year” as used to determine soil moisture regime (SMR)?
7. How is SMR often assessed when direct measurements are not possible?
8. How are the moisture conditions of *dry*, *saturated*, and *moist* defined?
9. What are the SMR classes used in *Soil Taxonomy* and the criteria of each?
10. What conditions are associated with the *aquic moisture regime*? How are these conditions assessed?
11. What is the difference between *endosaturation* and *episaturation*?
12. What is the *moisture control section*? What are the approximate depths for the moisture control section of soil with different textures? **Why do these differences occur?**
13. Why are soil temperature limits included in definitions of SMR?
14. What types of conditions may cause a soil to have a moister or drier SMR than surrounding soils in the same climatic area?

SYNTHESIS:

15. What factors control the amount of water in a soil? Explain your answer.
16. What STR and SMR are present in West Virginia? In general, where does each occur? How might knowledge of STR and SMR be used to make land use decisions in West Virginia?

* 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.