



# Illinois Envirothon | Soils

## SOILS OBJECTIVES

Envirothon soils contestants should be able to:

- 1.** Understand concepts of soil development and soil landscape relationships.
  - a. Identify soil horizons
  - b. Understand the five soil forming factors
  - c. Understand the soil forming processes
  - d. Understand the differences between Prairie and Forest soils
  - e. Understand how glaciations affected soils across Illinois
- 2.** Understand major soil properties and how they affect the use and management of soils.
- 3.** Be able to interpret all aspects of county soil surveys - either on-line or printed.
- 4.** Recognize and understand the features of a soil profile.
- 5.** Utilize hands on techniques to evaluate and interpret soils
  - a. Soil constituents (eg: sand, silt, clay, etc)
  - b. Texture
  - c. Structure
  - d. Color
  - e. Slope
  - f. Nutrients
- 6.** Define and understand types of soil erosion and methods used for reducing erosion.
- 7.** Define and understand soil quality/health and ways they are evaluated. Be able to describe the management approaches to improving soil quality/health.
- 8.** Understand the soil food web and the different roles that various soil organisms play in the soil environment.
- 9.** Understand water movement through various soil types.
- 10.** Identify and list soil characteristics (eg: texture, structure, etc) and their relation to soil properties.



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## SOILS RESOURCES

### A. pdf files found on CD

Broderson, William D. From the Surface Down: An Introduction to Soil Surveys for Agronomic Use. U.S. Department of Agriculture. Lincoln, Nebraska, 1988.  
<<http://www.urbanext.uiuc.edu/soil/Surface/surdown.pdf>>.

Minor, Paul. Soil Science, Student Guide. University of Missouri-Columbia, 1995.  
<<http://soils.missouri.edu/data/studentguide.pdf>>.

Munkel, Gary. Understanding Soil Risks and Hazards. U.S. Department of Agriculture. Lincoln, Nebraska, 2004. <<http://soils.usda.gov/use/risks.html>>.

Oschwald, W. R. and R. L. Courson. Understanding Soils (VAS 4052a). Ed. David T. Nolan. Vocational Agriculture Service, University of Illinois at Urbana-Champaign.

U.S. Department of Agriculture, Natural Resources Conservation Service. Soil Quality Information Sheets. <<http://soils.usda.gov/sqi/publications/publications.html>>.

### B. online only

U.S. Department of Agriculture, Natural Resources Conservation Service. Published Soil Surveys for Illinois. <[http://soils.usda.gov/survey/printed\\_surveys/state.asp?abbr=IL&state=Illinois](http://soils.usda.gov/survey/printed_surveys/state.asp?abbr=IL&state=Illinois)>.

U.S. Department of Agriculture, Natural Resources Conservation Service. Illinois Online Soil Survey Manuscripts. <[http://soils.usda.gov/survey/online\\_surveys/illinois/](http://soils.usda.gov/survey/online_surveys/illinois/)>.

U.S. Department of Agriculture, Natural Resources Conservation Service, Illinois. Soil Regions of Illinois. <<http://www.il.nrcs.usda.gov/technical/soils/soil-regions/index.html>>.

U.S. Department of Agriculture, Natural Resources Conservation Service, Illinois. SOILS. <<http://www.il.nrcs.usda.gov/technical/soils/index.html>>.

U.S. Department of Agriculture, Natural Resources Conservation Service, State Soils. <[http://soils.usda.gov/gallery/state\\_soils/](http://soils.usda.gov/gallery/state_soils/)>.

### C. material located in packet

Magdoff, Fred and Harold van Es. Building Soils for Better Crops. Maryland. Sustainable Agriculture Network, 2000. <<http://www.sare.org/publications/soils.htm>>.

Tugel, Arlene, Ann Lewandowski, Deb Happe-vonArb, eds. 2000. Soil Biology Primer. Rev. ed. Ankeny, Iowa: Soil and Water Conservation Society.

U.S. Department of Agriculture, Natural Resources Conservation Service. Conservation Choices. <<http://www2.ctic.purdue.edu/Core4/CT/Choices/Choices.html>>.