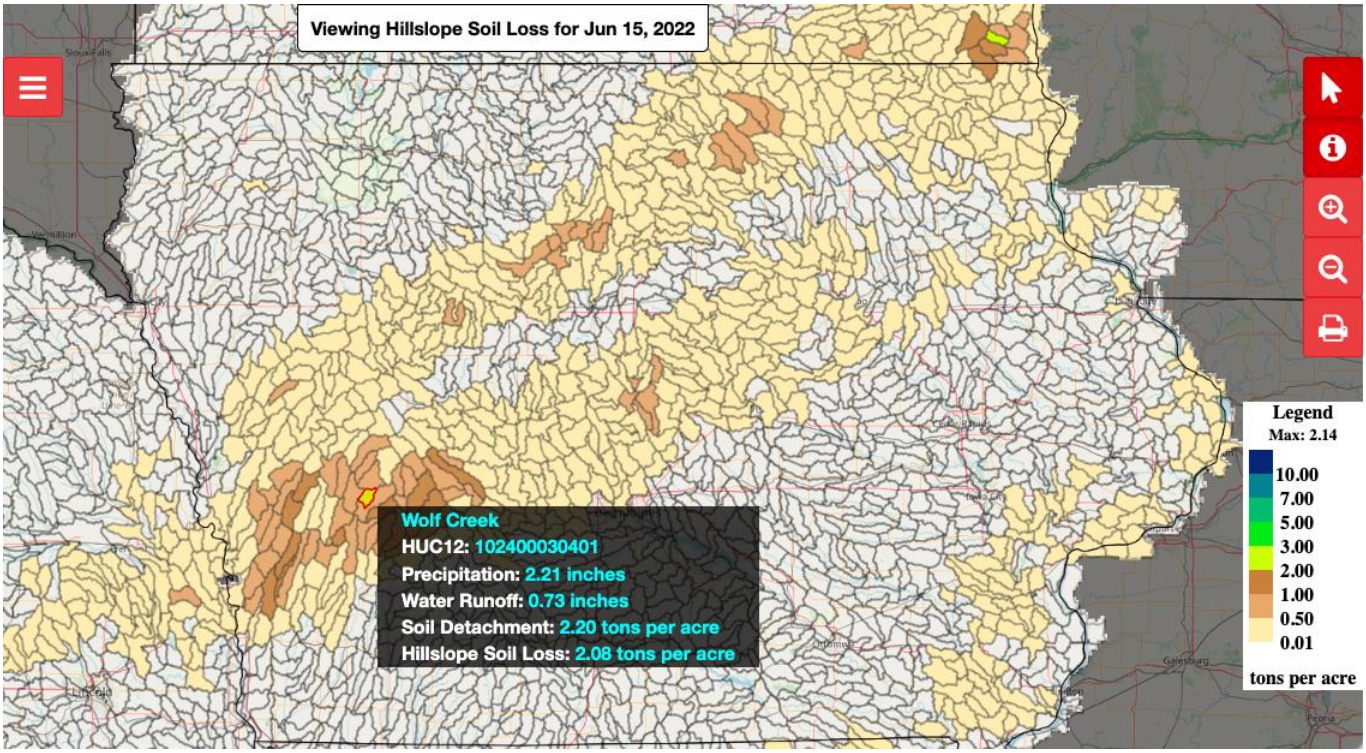
Regional Envirothon Soils Questions – 2025 KEY

1. Which statement is true regarding the HUC 12 – Wolf Creek area (shaded yellow) on the Daily Erosion Project (DEP) hillslope soil loss map for June 15, 2022? (see DEP map).
A. This area received under 2" of precipitation.
B. All of the 2.21" inches of precipitation appear to have soaked into the soil
C. The hillslope soil loss was estimated to be 2.08 tons per acre*
D. The hillslope soil loss in tons per acre was greater than the soil detachment in tons per acre



2. Which is a true statement regarding accurately determining "soil health"?
A. Soil health can be determined by measuring only a single factor such as crop yield or water quality.
B. Soil health can be measured directly with a soil health barometer.
C. Soil health can be determined by using indicators that measure properties of soil and/or plants that provide clues about how well the soil can function.*
D. All of these statements are true.

3. The five soil-forming factors include:
A. parent material, climate, living organisms, landscape position, and time*
B. climate, living organisms, landscape position, time, and texture
C. living organisms, landscape position, texture, time, and parent material
D. time, parent material, climate, living organisms, and radiation

4. On the soil survey block drawing (Figure 28), of the Lamoni-Shelby association which soil types are found in the floodplain areas? (see Figure 28).
A. Colo*
B. Shelby
C. Lamoni, Grundy, and Sharpsburg
D. All of the above

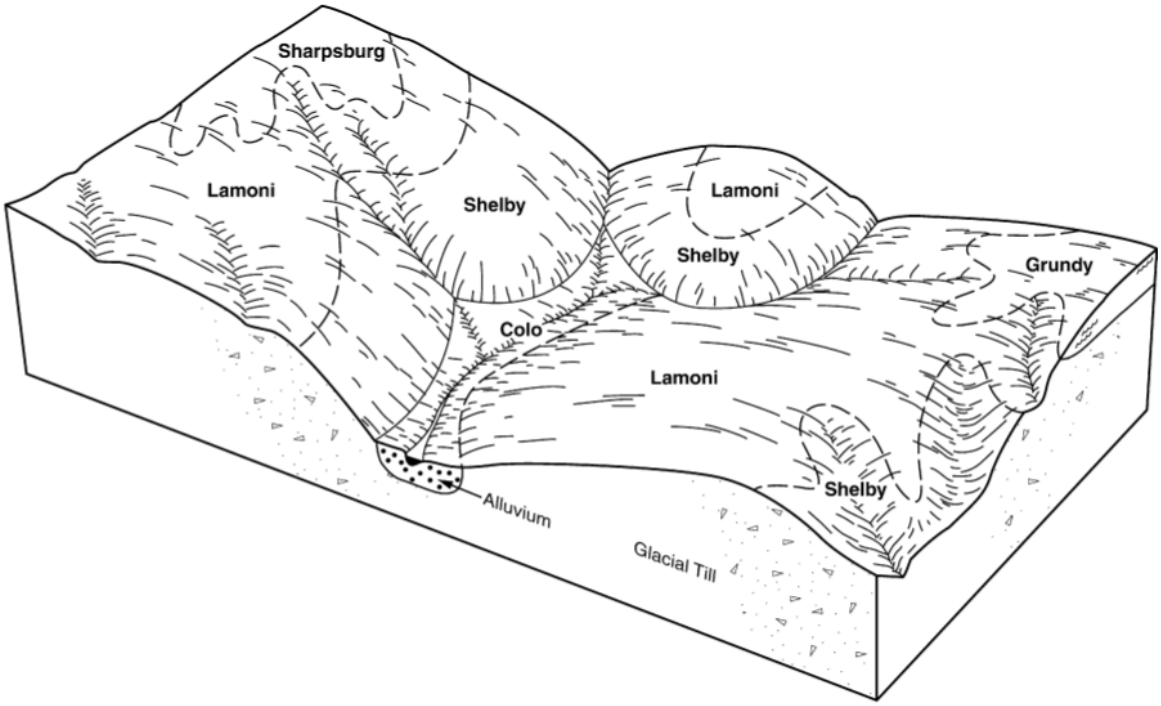


Figure 28.—Relationship of soils, topography, and parent material in the Lamoni-Shelby association in Gentry County, Missouri.

5. The _____ provides the public with access to the most current official soil survey information.
A. Bureau of Land Management (BLM)
B. Iowa Department of Natural Resources (Iowa DNR)
C. U.S. Geological Survey (USGS)
D. Web Soil Survey (WSS)*

6. Aggregate stability refers to the _____.
A. ability of soil aggregates to resist disintegration when disruptive forces associated with tillage and water or wind erosion are applied *
B. calculated dry weight of soil divided by its volume
C. arrangement of primary soil particles into aggregates
D. downward entry of water into the soil

7. Slaking is the _____.
A. ability of soil aggregates to resist disintegration when disruptive forces associated with tillage and water or wind erosion are applied
B. arrangement of primary soil particles into aggregates
C. breakdown of large, air-dry soil aggregates (>2-5 mm) into smaller sized microaggregates (<0.25 mm) when they are suddenly immersed in water *
D. downward entry of water into the soil

8. What biota are easy to count by personnel regardless of special training and are considered usable as biological indicators?
A. bacteria, fungi, and protozoa
B. earthworms*
C. gravel and pebbles
D. all of these are correct

9. What conservation practice involves growing different crops on the same piece of land year after year in a planned, recurring sequence? (Row crops, grasses, legumes, meadows or small grains such as oats and wheat could be included in this sequence).
A. Cover cropping
B. Crop rotation*
C. No-till/Strip-till
D. all of these are correct

10. _____is defined as "the continued capacity of soil to function within natural or managed ecosystem boundaries, sustain plant and animal productivity, maintain or enhance water and air quality, and promote plant and animal health."
A. Soil ampacity
B. Soil health *
C. Soil phytoplankton
D. Soil texture

11. Soil survey data available on the Web Soil Survey and in soil survey books _____.
A. is a product of the National Cooperative Soil Survey
B. is a joint effort of the USDA Natural Resources Conservation Service, other federal agencies, and state agencies including the Agricultural Experiment Stations, and local participants
C. provides useful information needed to make land-use and management decisions
D. all of these are correct*

12. What would be the slope group classification for a location with a two-foot fall over a sixty feet distance? (A slope that is exactly on the borderline between two groups is considered to belong in the steeper of the two groups)
A. A Slope: 0-2% (nearly level)
B. B Slope: 2-5% (gently sloping)*
C. C Slope: 5-9% (moderately sloping)
D. D Slope: 9-14% (strongly sloping)
E. E Slope: over 14% (steep)

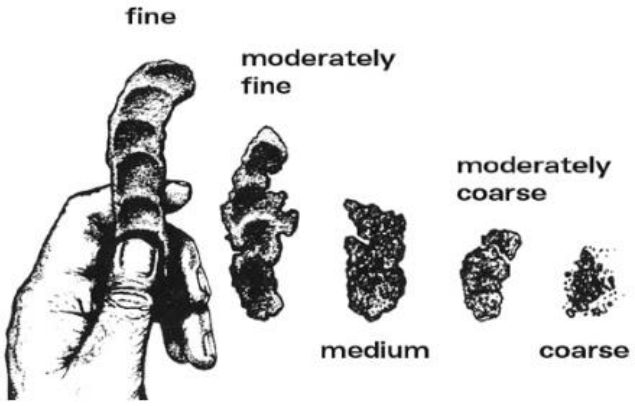
13. Soil profiles are composed of various layers called soil _____.
A. horizons*
B. plains
C. orders
D. textures
E. all of these are correct

14. Which of the following is hard bedrock?
A. A horizon
B. B horizon
C. C horizon
D. R horizon*
E. E horizon

15. The _____ horizon is usually the most fertile part of the soil.
A. A horizon*
B. B horizon
C. C horizon
D. E horizon
E. F horizon

16. _____ is the smallest mineral grains found in soil.
A. Clay*
B. Organic material
C. Sand
D. Silt

17. When using a ribbon test to determine the texture of a soil sample (see picture), which of the following would indicate the highest clay content?
A. fine*
B. moderately fine
C. medium
D. moderately coarse
E. coarse



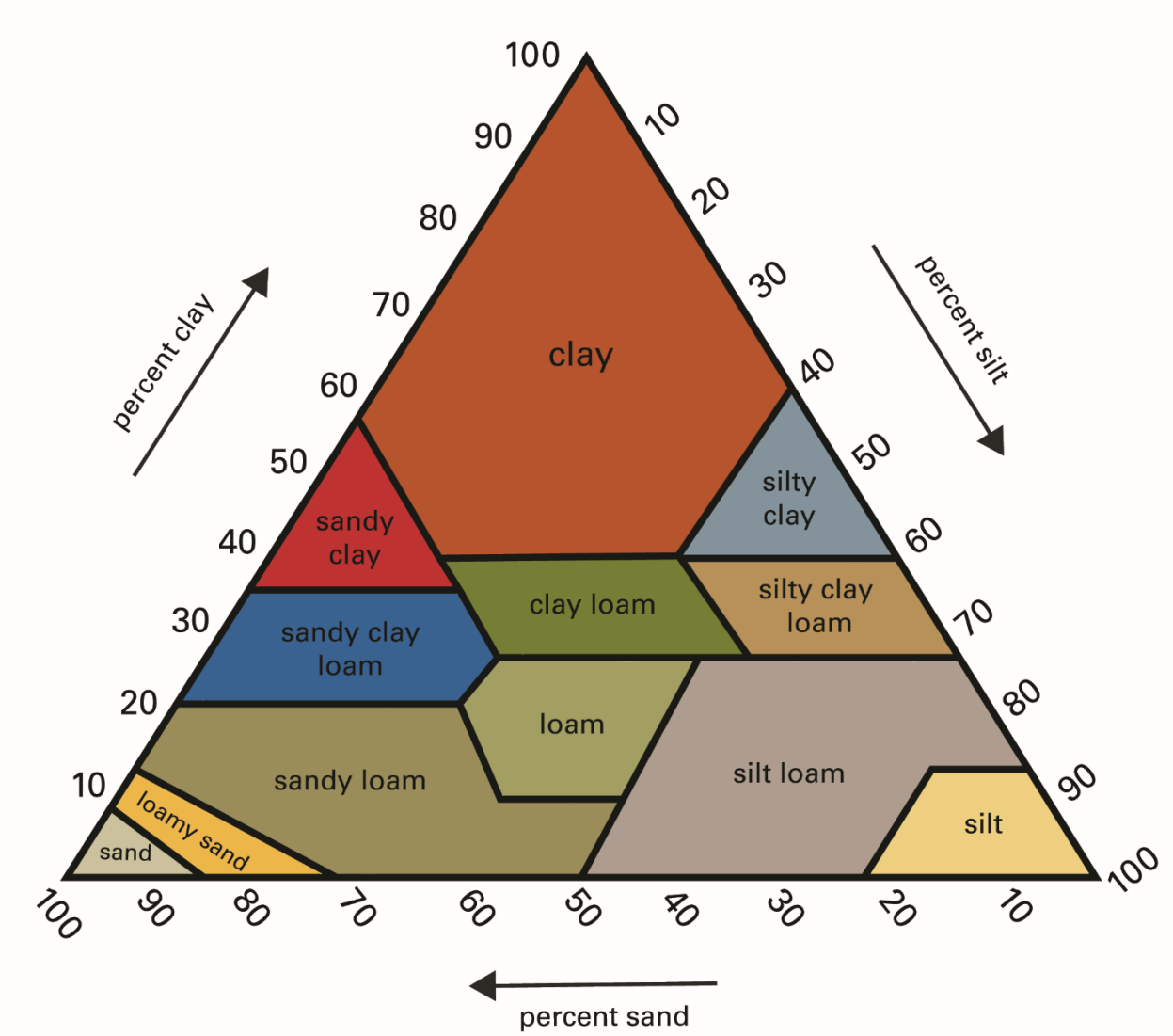
18. What class of soil parent material is formed from sediments deposited by running water?
A. Alluvium*
B. Colluvium
C. Glacial sediments
D. Loess
E. Residuum

19. Which of the following soil parent materials is least likely to be found in Iowa?
A. Alluvium
B. Colluvium*
C. Glacial sediments
D. Loess

20. Reeds, sedges, cattails, and other water-loving vegetation grow in what native vegetation group that is also associated with soils that are so wet that organic materials accumulate and form peat?
A. Forest
B. Marsh*
C. Prairie
D. Taiga
E. Transition

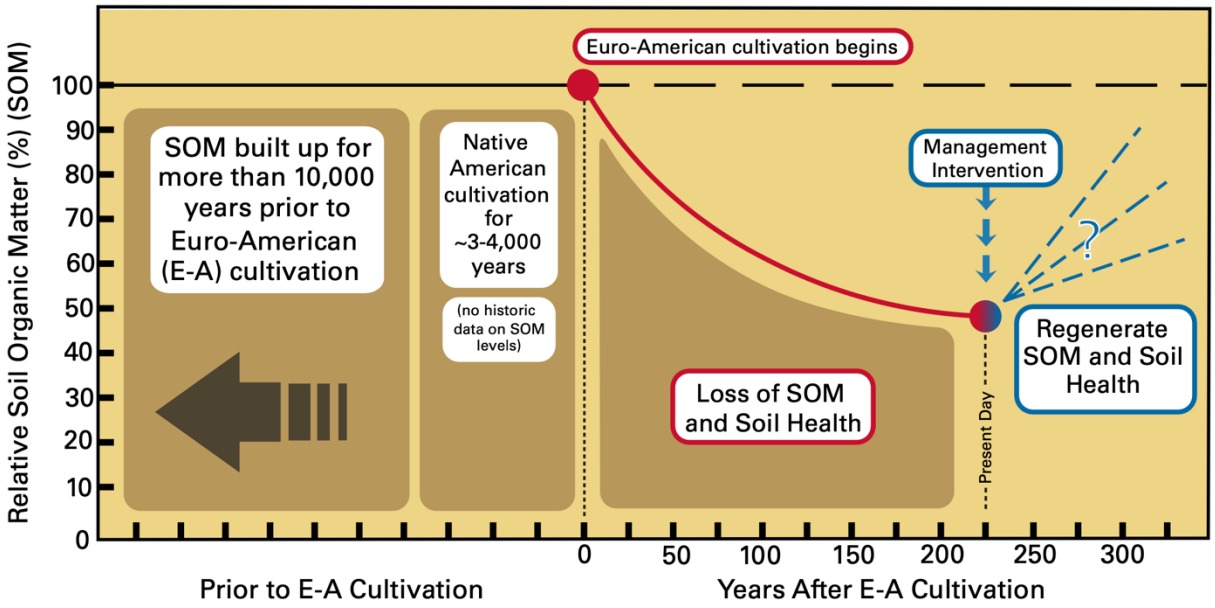
21. How many land-use capability classes are in classification system developed and used by the USDA Natural Resources Conservation Service?
A. two
B. six
C. eight*
D. ten

22. What is the texture classification for a soil that is 60% sand, 15% silt, and 25% clay? (see texture chart).
A. Loamy sand
B. Sandy clay
C. Sandy clay loam*
D. Sandy loam



23. Which of the following are Landform regions of Iowa?
A. Des Moines Lobe and Loess Hills
B. Southern Iowa Drift Plain, Northwest Iowa Plains and Alluvial Plains
C. Iowan Erosion Surface and Paleozoic Plateau
D. All of these are correct*

24. Which of the following describes how the changes in Iowa land use, has affected soil's organic matter content? (see chart)
A. Increased cultivation and tillage have increased soil organic matter content.
B. The soil organic matter reductions since Euro-American cultivation began is similar to the soil organic matter reductions during the time of Native American cultivation.
C. Soil organic matter decreased since Euro-American cultivation began.*
D. Soil organic matter has increased since Euro-American cultivation began.



25. During the Pleistocene epoch, the Loess Hills were formed as winds whipped primarily _____ particles, called loess, out of the floodplains of the Missouri River which was a major pathway for glacial meltwater.

A. coarse sand
B. fine sand
C. fine silt*
D. wet clay