

Soil Survey Technical Note No. 3

Clarification of the Definition of Aniso Class

Purpose

The purpose of this technical note is to increase awareness of the aniso class and clarify how it is to be applied.

Contact—The contact for this technical note is the National Leader for Soil Classification and Standards, National Soil Survey Center, Lincoln, NE.

Background

As a result of the 1996 report by the International Committee on Soil Families (ICOFAM), the aniso class was added to the *Keys to Soil Taxonomy*. At this time, only five series in the United States have been classified in an aniso class, but it is likely that additional series fit this category.

The aniso class is intended for use in soils with two or more strongly contrasting particle-size classes within the particle-size control section. It is currently defined on page 820 in *Soil Taxonomy* (Soil Survey Staff, 1999) as follows:

If the particle-size control section includes more than one pair of strongly contrasting classes, listed below, then the soil is assigned to an aniso class named for the pair of adjacent classes that contrast most strongly. The aniso class is considered part of the particle-size class name and is set off by commas after the particle-size name. An example is a sandy over clayey, aniso, mixed, active, mesic Aridic Haplustoll.

Clarification

Question 1: How do you determine if you have a strongly contrasting particle-size class, and how do you name the classes?

Answer: The following steps are required:

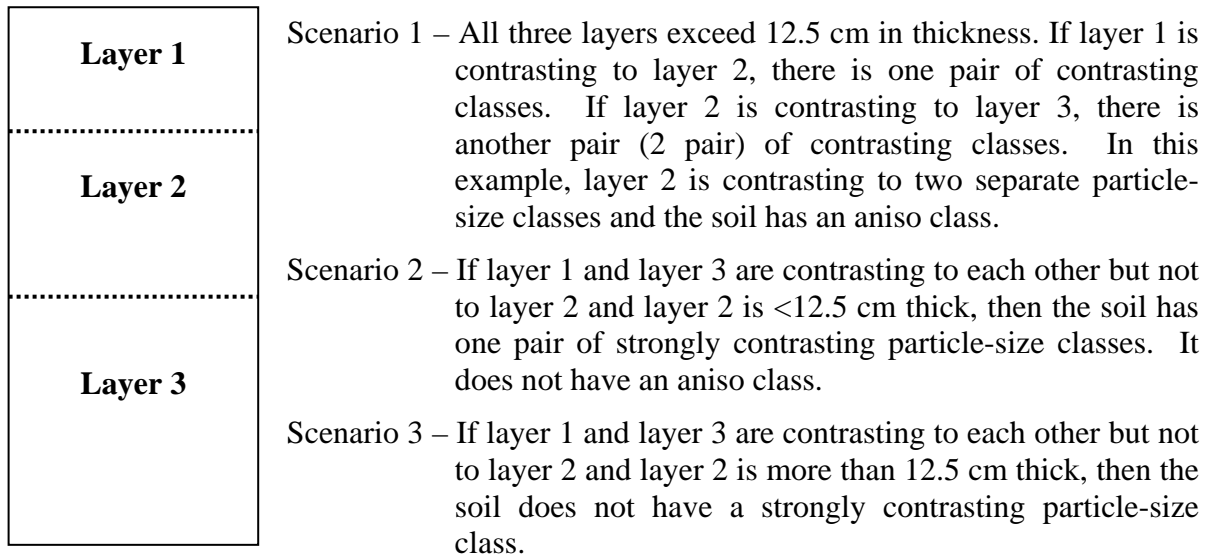
- 1) Use the “Key to the Control Section for Particle-Size Classes or Their Substitutes in Mineral Soils” (*Soil Taxonomy*, page 821) to identify the upper and lower boundaries of the particle-size control section.
- 2) Use the “Key to the Particle-Size and Substitute Classes of Mineral Soils” (*Soil Taxonomy*, pages 821-823) to determine the particle-size class or substitute for each layer within the control section.

- 3) Refer to the section “Strongly Contrasting Particle-Size Classes” (*Soil Taxonomy*, pages 823-825) to determine if any adjacent layers qualify as strongly contrasting. Note that each layer (including any adjacent noncontrasting layers) must be at least 12.5 cm thick.
- 4) If one pair of strongly contrasting particle-size classes is identified, a weighted average of the parts of the control section above and below the boundary between the contrasting materials is performed to name the class. When substitute classes are present, the thickest (cumulative) layer is used, rather than weighted average for the layer with the substitute class.
- 5) If more than one pair of strongly contrasting particle-size classes is identified, the procedure described in item 4 (above) is performed for each segment between the strongly contrasting boundaries. The class is named for the most strongly contrasting adjacent pair of classes. In addition to the resulting particle-size class, the term “aniso” is used in the family name.

Question 2: In the definition of aniso class, what is the meaning of “more than one pair of strongly contrasting classes”?

Answer: A particle-size control section with as few as three parts may constitute two pair of contrasting particle-size classes as defined on pages 823-825 in *Soil Taxonomy*. The example below shows the simplest form of two pairs of strongly contrasting particle-size classes. In this example all three layers are at least partially within the particle-size control section.

Example



Question 3: A new series has been defined as having two pairs of strongly contrasting particle-size classes and is thought to have an aniso class. The first pair (clayey over fragmental) is listed on page 824 of *Soil Taxonomy*. The second pair (fragmental over clayey) is not on the list, but it seems like a reasonable combination to be considered as contrasting. Can I consider the soil to have two pairs of contrasting classes and therefore classify in an aniso class?

Answer: No. Only those strongly contrasting classes listed are approved for use. To classify soils into one of over 300 possible combinations not presently listed, you must first request a revision to *Soil Taxonomy*.

References

Soil Survey Staff. 1999. Soil taxonomy. 2nd ed. NRCS. U.S. Dep. Agric. Handb. 436. U.S. Gov. Print. Office, Washington, D.C. (<http://soils.usda.gov/classification/taxonomy/main.htm>)