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South Dakota

Soil Classification Key

**Agricultural Experiment Station
South Dakota State University
USDA**

TB 96

South Dakota

Soil Classification Key

Plant Science Department
South Dakota Agricultural Experiment Station
South Dakota State University
Brookings, SD 57007-2141

In Cooperation with the Natural Resources Conservation Service, USDA

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Soil Classification Key for South Dakota Soils¹

D. D. Malo²

Introduction

South Dakota has many different kinds of soils. To keep the characteristics and qualities of these soils in mind, grouping them systematically into a classification scheme is necessary. The classification of soils:

- (1) aids in remembering characteristics of individual soils,
- (2) clarifies relationships between soils,
- (3) aids in discovering new facts,
- (4) clarifies relationships between soils and their environment, and
- (5) aids in a person's ability to predict properties of unknown soil based on similar, known soils.

Soil classification

The system of soil classification adopted in the United States is called Soil Taxonomy (Soil Survey Staff, 1999). Soil Taxonomy has replaced the 1938 Yearbook System of Soil Classification (Baldwin, Kellogg, and Thorp, 1938; Kellogg, 1941).

To assist in using the current system, a list of approximate 1938 equivalents for South Dakota Soils is presented in Table 1. The soils of South Dakota as recognized by the USDA-NRCS (Soil Survey Staff, 2003) have been classified based on Soil Taxonomy (Appendix). There are six categories in Soil Taxonomy and they are (in decreasing rank or increasing number): order, suborder, great group, subgroup, family, and series. Using this information a classification key has been prepared (Table 2).

The highest category of the soil classification system is **order**. Orders differentiate soils by the presence or absence of diagnostic horizons or

features that are characteristic of the kinds and intensities of soil forming processes and contrasting climates. All soils fit into one of 12 soil orders. In South Dakota six soil orders are present (Table 3).

Suborders within a soil order are differentiated on the basis of important soil properties that influence genesis and plant growth. There are at least 64 suborders presently recognized with 23 in South Dakota. The large number of suborders is a result of differences in soil moisture, soil temperature, climatic and vegetative influences on soil genesis, and mineralogy.

At the **great group** level the entire soil profile, the horization present, and the most significant features of the entire profile are considered. Soil great groups are subdivisions of suborders and there are at least 315 great groups currently recognized (Soil Survey Staff, 1999); 54 are found in South Dakota. The great group category combines soils that have close profile similarities in the kinds of horizons, the arrangement of horizons, the degree of expression of horizons, soil moisture regimes, soil temperature regimes, base saturation status, calcium content, iron content, gypsum content, and other salt content.

Each great group is divided into three kinds of **subgroups**. These are: (1) the central concept of the great group (Typic); (2) soil properties which intergrade to or are transitional toward other orders, suborders, or great groups; and (3) subgroups with properties that are not representative of any other order, suborder, or great group (extragrades). There are at least 2,450 known subgroups with 158 in South Dakota.

¹This publication is a contribution from the Plant Science Department and the South Dakota Agricultural Experiment Station, South Dakota State University, Brookings 57007-2141. Project Number H-111. This key is an adaptation from and an expanded revision of Soil Classification Key for South Dakota Soils, TB 96, 1994, and contains revised material from Soils of South Dakota, Bulletin 656, 1978.

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The next lower category is the **soil family**. Soil families are separated within a subgroup on the basis of similar physical and chemical properties that influence plant growth, land management decisions, and engineering purposes. Soil properties such as texture, mineralogy, soil reaction, soil temperature regime, thickness of soil penetrable by roots, thickness of horizons, and the area's precipitation pattern are used as criteria to differentiate soil families. In the United States, at least 7,000 soil families are recognized, with 432 in South Dakota.

At the lowest level is the **soil series**. Soil series contain the least variation in soil properties while soil orders contain the most. The soils included in an individual soil series are nearly homogeneous, their range of properties is limited, and they have similar interpretations. Soil series are separated and rated on the basis of observable and mappable soil properties such as color, texture, structure, horizon arrangement and thickness, mineralogy, moisture and temperature regimes, consistence, and horizon presence and expression. There are at least 19,000 established and tentative soil series recognized in the United States with 610 in South Dakota. In addition, there are 16 inactive (not currently used in field mapping) soil series in South Dakota.

The higher the category (e.g., order and suborder) of classification, the fewer precise statements that can be made for the unit. For most farm management work, the soil series is the most useful unit. However, the higher categories have use in helping to clarify regional relationships among soils.

Soil classification nomenclature

The nomenclature used to classify soils (see soil classification key, Table 2) is not familiar to most users of soils information. As a result, definitions of the various terms used in South Dakota for each classification category are presented (Tables 4-11). Each part (syllable) of the soil classification name describes a soil property or genesis concept (see example for the Houdek soil, next).

Soil survey status in South Dakota

The status of soil surveys in South Dakota is shown in Figure 1. Figure 2 shows the status of digitization of soil survey maps. All counties in the state have either a published survey or have activities planned to complete and publish a survey.

Summary

This publication presents a soil classification key for soils found in South Dakota. Descriptions of the meanings of the various soil classification terms and an alphabetical listing of the South Dakota soil series are also presented (Appendix).

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Classification of the Houdek Soil - fine-loamy, mixed, superactive, mesic Typic Argiustoll. (Note: the formative element for each category is underlined)

<u>Classification</u>	<u>Category</u>	<u>Soil Description</u>
<u>Mollisol</u>	Order	Prairie derived; deep, dark colored surface; high bases and natural fertility.
<u>Ustoll</u>	Suborder	Mollisol with ustic moisture regime (spring moist, summer dry - small grain environment).
<u>Argiustoll</u>	Great Group	Ustoll with clay enriched or argillic horizon.
<u>Typic</u> Argiustoll	Subgroup	Argiustoll that is typical for the great group.
Typic Argiustoll, <u>fine-loamy,</u> <u>mixed,</u> <u>superactive,</u> <u>mesic</u>	Family	Typic Argiustoll with medium texture, mixed clay mineral content, the clay minerals have a very high cation exchange capacity, and has a mesic soil temperature regime (8-15°C average annual soil temperature at 50 cm depth).
<u>Houdek</u> - Typic Argiustoll, fine-loamy, mixed, superactive, mesic	Series	A group of Typic Argiustolls (fine-loamy, mixed, mesic) with similar horizons, properties and characteristics except for slope, surface texture, gravel, stones, and erosion.

Table 1. Approximate equivalents in *Soil Taxonomy* and the revised 1938 Yearbook Systems of Soil Classification for Soils in South Dakota.

1938 Yearbook System Great Soil Groups	Soil Taxonomy Taxa Mostly or Partly Included
Alluvial Soil	Fluvaquentic and fluventic subgroups of Mollisols; great groups of Fluvents; entic subgroups of Haplustolls; great groups of Psamments; Hapludolls; and Fluvaquents.
Brown soils	Aridic subgroups of Argiustolls and Haplustolls; mesic families of ustollic subgroups of Argids, Calcids, and Cambids; and aridic subgroups of other Mollisols.
Brunizems (Prairie soils)	Mesic and frigid families of Hapludolls and Argiudolls; Cryolls.
Calcisols	Calciudolls; Calciustolls; Calcids; Haplustepts; Calciustepts; and frigid families of calcic subgroups of Mollisols.
Calcium Carbonate Solonchak	Calciaquolls, Calcic Cryaquolls, and Calciudolls.
Chernozem soils	Typic and udic subgroups of Argiustolls and Haplustolls; Vermudolls; Cryolls; and frigid families of Calciudolls, Hapludolls, Argiudolls, and Natrudolls.
Chestnut soils	Aridic and typic subgroups of Argiustolls and Haplustolls.
Degraded Chernozems	Alfic Argicryolls and Cryolls.
Desert soils	Mesic families of Argids and Cambids.
Gray-Brown Podzolic soils	Udalfs and Glossocryalfs.
Gray Wooded soils	Cryalfs.
Grumusols	Vertisols and vertic subgroups (e.g., ustertic, udertic, torrertic, aquertic, and vertic) of Alfisols, Aridisols, Entisols, and Mollisols.
Humic Gley soils	Argiaquolls, Endoaquolls, Epiaquolls, Fluvaquents, Calciaquolls, and Endoaquepts.
Lithosols	Lithic subgroups and shallow families of Entisols, Alfisols, Aridisols, Inceptisols, Vertisols, and Mollisols.
Low-Humic Gley soils	Great groups of Aqualfs, Aquepts, and Aquepts.
Planosols	Argialbolls, Albaqualfs, and Glossocryalfs.
Regosols	Great groups of Psamments; subgroups of Orthents other than lithic; and entic subgroups of Haplustolls and

Table 1. Approximate equivalents in *Soil Taxonomy* and the revised 1938 Yearbook Systems of Soil Classification for Soils in South Dakota.

1938 Yearbook System Great Soil Groups	Soil Taxonomy Taxa Mostly or Partly Included
Rendzina	Calciustolls, Calciudolls, and Calcicryolls.
Sierozem	Argids, Calcids, and Cambids.
Solonetz Soils	Natric great groups of Alfisols, Aridisols, Vertisols, and Mollisols.
Solonchak Soils	Salids and gypsic subgroups of Ustepts.
Soloths	Argialbolls, Natraqualfs, and natric subgroups of Argids, Udolls, Ustolls, and Aquerts.

Table 2. List of soil orders, suborders, great groups, subgroups, families, and soil series (in bold) used in South Dakota. Terms used are defined in Tables 4 to 11.

ALFISOLS

AQUALFS

Typic Albaqualfs

fine, smectitic, frigid - **Nishon**

Typic Natraqualfs

fine-loamy, mixed, superactive, frigid - **Glenross**

CRYALFS

Eutric Glossocryalfs

fine, mixed, active – **Riflepit**

Vertic Glossocryalfs

fine, smectitic – **Lail**

Eutric Haplocryalfs

loamy-skeletal, carbonatic - **Trebor**

Inceptic Haplocryalfs

fine, smectitic – **Stovho**

UDALFS

Glossic Hapludalfs

fine, smectitic, frigid – **Citadel**

fine-loamy, mixed, superactive, frigid – **Maitland**

fine-silty, mixed, superactive, frigid – **Virkula**

loamy-skeletal, mixed, superactive, frigid – **Grizzly, Pactola, Rokoa**

loamy-skeletal, paramicaceous, frigid – **Buska**

Inceptic Hapludalfs

loamy-skeletal, mixed, superactive, frigid – **Vanocker**

Typic Hapludalfs

fine-loamy, mixed, superactive, frigid - **Lakoa**

USTALFS

Aridic Haplustalfs

fine, smectitic, mesic – **Baca, Norrest**

Torrertic Haplustalfs

fine, smectitic, mesic - **Demar**

Typic Haplustalfs

loamy-skeletal, mixed, superactive, frigid – **Mocmont**

loamy-skeletal, mixed, superactive, mesic - **Mathias**

Aquic Natrustalfs

fine, mixed, superactive, mesic - **Minatare**

Aridic Natrustalfs

fine-loamy, mixed, superactive, frigid – **Archin, Parchin**

Table 2. List of soil orders, suborders, great groups, subgroups, families, and soil series (in bold) used in South Dakota (continued). Terms used are defined in Tables 4 to 11.

USTALFS (continued)

Aridic Leptic Natrustalfs

fine, smectitic, mesic - **Wanblee**

fine-loamy, mixed, superactive, frigid – **Bullock**

Leptic Torrertic Natrustalfs

fine, smectitic, frigid – **Absher**

fine, smectitic, mesic – **Hisle**

Torrertic Natrustalfs

fine, smectitic, frigid – **Gerdrum, Loburn**

fine, smectitic, mesic – **Cedar Butte**

ARIDISOLS

ARGIDS

Ustic Haplargids

fine, smectitic, mesic - **Manzanola**

fine-loamy, mixed, superactive, mesic - **Cushman**

Haplic Ustic Natrargids

fine, smectitic, mesic - **Absted**

Vertic Natrargids

fine, smectitic, mesic - **Arvada**

Ustic Paleargids

fine, smectitic, mesic - **Bidman**

CALCIDS

Ustic Haplocalcids

coarse-loamy, mixed, superactive, frigid - **McFadden**

CAMBIDS

Ustertic Haplocambids

fine, smectitic, mesic - **Razor**

Ustic Haplocambids

fine-loamy, mixed, superactive, mesic - **Zigweid**

fine-silty, gypsic, mesic - **Gystrum**

SALIDS

Typic Aquisalids

fine-loamy, mixed, superactive, frigid - **Lardell**

Table 2. List of soil orders, suborders, great groups, subgroups, families, and soil series (in bold) used in South Dakota. Terms used are defined in Tables 4 to 11.

ENTISOLS

AQUENTS

Aeric Endoaquents

fine-loamy, mixed, superactive, calcareous, frigid - **Mauvais**
sandy over loamy, mixed, superactive, calcareous, frigid - **Minnewasta**

Aeric Fluvaquents

coarse-loamy, mixed, superactive, calcareous, mesic - **Bigwinder**
fine-loamy, mixed, superactive, calcareous, mesic - **Chaska**
sandy, mixed, mesic - **Platte**

Mollic Fluvaquents

coarse-loamy, mixed, superactive, calcareous, frigid - **Holmquist**

Typic Fluvaquents

coarse-loamy, mixed, superactive, calcareous, frigid - **Dogiecreek**
fine, smectitic, nonacid, mesic - **Sage**

Vertic Fluvaquents

fine, smectitic, calcareous, frigid - **Lallie**
fine, smectitic, calcareous, mesic - **Albaton**
fine, smectitic, nonacid, mesic - **Forney**

Typic Psammaquents

mixed, frigid - **Minnewaukan**
mixed, mesic - **Norway**

FLUVENTS

Ustic Torrifluvents

coarse-loamy, mixed, superactive, calcareous, mesic - **Glenberg**
fine, smectitic, calcareous, frigid - **Harlem**
fine-loamy, mixed, superactive, calcareous, mesic - **Barnum**
sandy, mixed, mesic - **Bankard**

Aquic Udifluvents

clayey over sandy or sandy-skeletal, smectitic over mixed, calcareous, mesic - **Percival**
coarse-silty over clayey, mixed, superactive, calcareous, mesic - **Modale**
fine-silty, mixed, superactive, calcareous, mesic - **Blake, Lossing**
fine-silty over sandy or sandy-skeletal, mixed, active, calcareous, mesic - **Scroll**
fine-silty over sandy or sandy-skeletal, mixed, superactive, calcareous, mesic - **Vore**

Mollic Udifluvents

coarse-silty, mixed, superactive, calcareous, mesic - **Haynie, McPaul**
coarse-silty over sandy or sandy-skeletal, mixed, superactive, calcareous, mesic - **Grable**

fine-loamy, mixed, superactive, calcareous, frigid - **Fairdale**

Typic Udifluvents

sandy over loamy, mixed, active, calcareous, mesic - **Ticonic**

Vertic Udifluvents

clayey over loamy, smectitic over mixed, superactive, calcareous, mesic - **Onawa**

Table 2. List of soil orders, suborders, great groups, subgroups, families, and soil series (in bold) used in South Dakota. Terms used are defined in Tables 4 to 11.

FLUVENTS (continued)

Aridic Ustifluvents

coarse-loamy, mixed, superactive, calcareous, frigid - **Glendive**
 coarse-silty, mixed, superactive, calcareous, mesic - **Craft**
 fine, smectitic, calcareous, frigid - **Harlake**
 fine-loamy, mixed, superactive, calcareous, frigid - **Havre**
 fine-loamy, mixed, superactive, calcareous, mesic - **Haverson**
 fine-silty, mixed, superactive, calcareous, mesic - **Interior**
 sandy, mixed, frigid - **Hanly**

Mollic Ustifluvents

fine-loamy, mixed, superactive, calcareous, frigid - **Korchea**
 fine-loamy, mixed, superactive, calcareous, mesic - **Nimbro**
 fine-silty, mixed, superactive, calcareous, mesic - **Aowa**

Torrertic Ustifluvents

fine, smectitic, calcareous, mesic - **Lohmiller**
 fine, smectitic, nonacid, mesic - **Stetter**

Typic Ustifluvents

coarse-loamy, mixed, superactive, calcareous, frigid - **Trembles**
 coarse-loamy, mixed, superactive, calcareous, mesic - **Munjor**
 coarse-silty, mixed, superactive, calcareous, mesic - **Bigbend**
 fine-loamy, mixed, superactive, calcareous, frigid - **Havrelon**
 loamy-skeletal, mixed, superactive, calcareous, frigid - **Winetti**
 sandy, mixed, frigid - **Banks**
 sandy, mixed, mesic - **Inavale**

Vertic Ustifluvents

fine, smectitic, calcareous, frigid - **Lohler**
 fine, smectitic, calcareous, mesic - **Wendte**
 very-fine, smectitic, calcareous, mesic - **Stirk**

ORTHENTS

Lithic Ustic Torriorthents

loamy, carbonatic, mesic - **Penrose**
 loamy, mixed, superactive, calcareous, mesic - **Travessilla**

Ustic Torriorthents

clayey, smectitic, calcareous, mesic, shallow – **Midway, Orella**
 coarse-silty, gypsic, mesic - **Gypnevee**
 coarse-silty, mixed, superactive, calcareous, mesic – **Keota, Mitchell**
 fine-silty, mixed, superactive, calcareous, mesic - **Manvel, Minnequa**
 loamy, gypsic, mesic, shallow - **Rekop**
 loamy, mixed, superactive, calcareous, frigid, shallow - **Blackhall**
 loamy, mixed, superactive, calcareous, mesic, shallow - **Canyon, Epping, Shingle, Tassel**

Table 2. List of soil orders, suborders, great groups, subgroups, families, and soil series (in bold) used in South Dakota. Terms used are defined in Tables 4 to 11.

Ustic Torriorthents (continued)

loamy-skeletal, mixed, superactive, calcareous, mesic - **Nihill**

Typic Udorthents

fine-loamy, mixed, superactive, calcareous, mesic - **Steinauer**

Aridic Ustorthents

clayey, smectitic, acid, mesic, shallow - **Grummit**

clayey, smectitic, calcareous, frigid, shallow - **Yawdim**

clayey, smectitic, calcareous, mesic, shallow – **Epsie, Samsil**

clayey, smectitic, nonacid, mesic, shallow - **Lismas**

coarse-silty, mixed, superactive, calcareous, mesic - **Nevee**

fine-loamy, mixed, superactive, calcareous, frigid – **Delridge**

fine-silty, mixed, superactive, calcareous, frigid - **Scroggin**

fine-silty, mixed, superactive, calcareous, mesic - **Colby**

loamy, carbonatic, mesic, shallow - **Enning**

loamy, mixed, superactive, calcareous, frigid, shallow – **Cabbart**

loamy, mixed, superactive, calcareous, mesic, shallow – **Fairburn, Spearfish**

loamy-skeletal, mixed, superactive, calcareous, mesic, shallow - **Imlay**

loamy-skeletal over fragmental, mixed, superactive, calcareous, frigid - **Kirby**

sandy-skeletal, mixed, superactive, mesic - **Schamber**

Aridic Lithic Ustorthents

loamy, mixed, superactive, nonacid, mesic - **Butche**

Lithic Ustorthents

loamy-skeletal, mixed, superactive, calcareous, frigid - **Reva**

Torrertic Ustorthents

fine, smectitic, acid, mesic - **Graner**

very-fine, smectitic, acid, mesic - **Broadhurst**

Typic Ustorthents

clayey, smectitic, calcareous, frigid, shallow - **Wayden**

clayey, smectitic, calcareous, mesic, shallow - **Okaton, Sansarc**

coarse-loamy, mixed, superactive, calcareous, mesic - **Westover**

coarse-silty, mixed, superactive, calcareous, mesic – **Joe Creek, Sully**

fine-silty, mixed, superactive, calcareous, frigid - **Lantry**

fine-silty, mixed, superactive, calcareous, mesic - **Coly, Crofton**

loamy, carbonatic, mesic, shallow - **Gavins**

loamy, mixed, superactive, calcareous, frigid, shallow - **Cabba, Cohagen**

loamy, mixed, superactive, calcareous, mesic, shallow - **Mariaville**

loamy-skeletal, mixed, superactive, calcareous, frigid - **Sawdust**

loamy-skeletal, mixed, superactive, calcareous, mesic - **Vivian**

sandy-skeletal, mixed, superactive, frigid - **Hopdraw**

Vertic Ustorthents

fine, smectitic, calcareous, mesic – **Gettys**

Table 2. List of soil orders, suborders, great groups, subgroups, families, and soil series (in bold) used in South Dakota. Terms used are defined in Tables 4 to 11.

PSAMMENTS

- Ustic Torripsamments
mixed, mesic - **Dwyer, Valent**
- Aquic Udipsamments
mixed, mesic - **Meckling**
- Typic Udipsamments
mixed, frigid - **Serden**
mixed, mesic – **Sardak, Sarpy**
- Aquic Ustipsamments
mixed, mesic - **Els**
- Aridic Ustipsamments
mixed, frigid – **Trey, Zeonna**
mixed, frigid, shallow - **Fleak**
- Oxyaquic Ustipsamments
mixed, mesic - **Ipage**
- Typic Ustipsamments
mixed, frigid - **Seroco, Yecross**
mixed, frigid, shallow - **Flasher**
mixed, mesic - **Duda, McKelvie, Peji, Valentine**

INCEPTISOLS

AQUEPTS

- Mollic Endoaquepts
fine-silty, mixed, superactive, calcareous, mesic - **Elpam**
- Typic Endoaquepts
coarse-silty, gypsic, mesic - **Higgins**
- Vertic Endoaquepts
fine, smectitic, nonacid, mesic – **Owego**

UDEPTS

- Typic Eutrudepts
coarse-loamy, mixed, superactive, frigid - **Sisseton**
fine-loamy, mixed, superactive, frigid - **Langhei**

USTEPTS

- Typic Calciustepts
fine-loamy, mixed, superactive, frigid - **Zahill**
fine-loamy, mixed, superactive, mesic - **Betts**
- Vertic Calciustepts
fine, smectitic, mesic - **Lakoma**
- Typic Dystrustepts
very-fine, smectitic, mesic - **Snomo**

Table 2. List of soil orders, suborders, great groups, subgroups, families, and soil series (in bold) used in South Dakota. Terms used are defined in Tables 4 to 11.

USTEPTS (continued)

Aridic Haplustepts

clayey, smectitic, mesic, shallow - **Conata**
 fine-silty, mixed, superactive, mesic - **Cedarpass**

Gypsic Haplustepts

fine-loamy, mixed, superactive, mesic - **Redig**

Haplocalcidic Haplustepts

coarse-loamy, mixed, superactive, frigid - **Twilight**

Torrertic Haplustepts

fine, smectitic, mesic - **Denby**

Typic Haplustepts

clayey, smectitic, mesic, shallow – **Dupree**

Vertic Haplustepts

clayey, smectitic, mesic, shallow - **Chantier**
 fine, smectitic, mesic – **Boro, Labu**

Vitrandidic Haplustepts

fine, mixed, superactive, mesic - **Buften**

MOLLISOLS

ALBOLLS

Argiaquic Argialbolls

fine, smectitic, frigid - **Tonka**
 fine, smectitic, mesic - **Tetonka**
 fine-loamy, mixed, superactive, frigid - **Koto**
 fine-loamy, mixed, superactive, mesic - **Toko**

Typic Argialbolls

fine, smectitic, mesic - **Plankinton**

Vertic Argialbolls

fine, smectitic, frigid – **Rimlap**
 fine, smectitic, mesic - **Scott**

AQUOLLS

Typic Argiaquolls

clayey over sandy or sandy-skeletal, smectitic, mesic - **Grat**
 fine, smectitic, mesic - **Crossplain**

Vertic Argiaquolls

fine, smectitic, frigid – **Badger, Parnell**
 fine, smectitic, mesic - **Chancellor, Worthing**

Aeric Calciaquolls

coarse-loamy, mixed, superactive, frigid - **Wyndmere**
 coarse-silty, mixed, superactive, frigid - **Glyndon**
 fine-loamy, mixed, superactive, frigid - **Antler, Hamerly, Moritz**

Table 2. List of soil orders, suborders, great groups, subgroups, families, and soil series (in bold) used in South Dakota. Terms used are defined in Tables 4 to 11.

Aeric Calciaquolls (continued)

fine-loamy, mixed, superactive, mesic - **Davison**
 fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid - **Divide**
 fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic - **Storla**
 fine-silty, mixed, superactive, frigid - **Bearden, Cubden, McIntosh**
 fine-silty, mixed, superactive, mesic - **Firesteel, Wakonda**
 fine-silty over sandy or sandy skeletal, mixed, superactive, frigid - **Mahoney**
 sandy, mixed, frigid - **Ulen**

Typic Calciaquolls

coarse-loamy, mixed, superactive, frigid - **Arveson**
 coarse-loamy, mixed, superactive, mesic - **Fedora**
 coarse-silty, mixed, superactive, frigid - **Borup**
 fine-loamy, mixed, superactive, frigid - **Lowe, Vallers**
 fine-loamy, mixed, superactive, mesic - **Harps, Lawet**
 fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid - **Marysland**
 fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic - **Arlo**
 fine-silty, mixed, superactive, frigid - **Colvin, Regan**
 sandy, mesic - **Orwet**

Cumulic Endoaquolls

coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic - **Gannett**
 fine-loamy, mixed, superactive, frigid - **Marshbrook**
 fine-loamy over sandy or sandy-skeletal, mixed, superactive, calcareous, frigid - **Volga**
 fine-silty, mixed, superactive, mesic - **Colo, Whitewood**
 fine-silty, mixed, superactive, calcareous, frigid - **Lamoure, Playmoor, Rauville**
 fine-silty, mixed, superactive, calcareous, mesic - **Badus, Calco, Lamo, Salmo**

Cumulic Vertic Endoaquolls

fine, smectitic, calcareous, frigid - **Southam**
 fine, smectitic, calcareous, mesic - **Baltic, James**
 fine, smectitic, frigid - **Castlewood**
 fine, smectitic, mesic - **Clamo**

Fluvaquentic Endoaquolls

fine-loamy over sandy or sandy-skeletal, mixed, superactive, calcareous, mesic - **Lex**
 fine-silty, mixed, superactive, mesic - **Leshara**

Typic Endoaquolls

coarse-loamy, mixed, superactive, frigid - **Tiffany**
 coarse-loamy, mixed, superactive, mesic - **Overshue**
 fine-loamy, mixed, superactive, frigid - **Flom, Leota**
 fine-loamy, mixed, superactive, calcareous, mesic - **Canisteo**
 fine-silty, mixed, superactive, frigid - **Hidewood**

Table 2. List of soil orders, suborders, great groups, subgroups, families, and soil series (in bold) used in South Dakota. Terms used are defined in Tables 4 to 11.

Typic Endoaquolls (continued)

fine-silty over sandy or sandy-skeletal, mixed, superactive, calcareous, frigid - **Trosky**
 sandy, mixed, superactive, calcareous, frigid - **Fossum**
 sandy, mixed, frigid – **Hamar, Venlo**
 sandy, mixed, mesic – **Loup**
 sandy over loamy, mixed, superactive, frigid - **Kratka**
 sandy over loamy, mixed, superactive, mesic - **Shue**

Vertic Endoaquolls

fine, smectitic, calcareous, mesic – **Egas, Erd, Herdcamp**

Cumulic Vertic Epiquolls

fine, smectitic, frigid - **Dovray**
 fine, smectitic, calcareous, frigid - **Oldham**

Vertic Epiquolls

fine, smectitic, calcareous, mesic - **Solomon**
 fine, smectitic, frigid - **Dimmick, Fulda**
 fine, smectitic, mesic - **Macken**

Typic Natraquolls

coarse-loamy, mixed, superactive, frigid - **Stirum**
 fine, mixed, superactive, mesic - **Silver Creek**
 fine, smectitic, frigid - **Harriet, Ranslo**
 fine-loamy, mixed, superactive, mesic - **Lute**

Vertic Natraquolls

fine, smectitic, mesic – **Durrstein, Hoven**

CRYOLLS

Alfic Argicryolls

fine, mixed, superactive - **Jenksdraw**

Pachic Argicryolls

loamy-skeletal, mixed, superactive - **Redbird**

Ustic Argicryolls

fine, smectitic – **Heath, Judy**

Vertic Argicryolls

fine, smectitic - **Gillum**

Lithic Calcicryolls

loamy-skeletal, mixed, superactive - **Soholt**

UDOLLS

Aquertic Argiudolls

fine, smectitic, frigid - **Doran**

Aquic Argiudolls

fine-loamy, mixed, superactive, frigid - **Gonvick**

Table 2. List of soil orders, suborders, great groups, subgroups, families, and soil series (in bold) used in South Dakota. Terms used are defined in Tables 4 to 11.

UDOLLS (continued)

Calcic Argiudolls

fine-loamy, mixed, superactive, frigid - **Forman**

Pachic Argiudolls

fine, smectitic, frigid – **Harmony, Sieche**

fine-silty, mixed, superactive, frigid - **Winship**

Pachic Vertic Argiudolls

fine, smectitic, frigid - **Hetland**

Typic Argiudolls

fine-loamy, mixed, superactive, frigid – **Bullflat**

loamy-skeletal, mixed, superactive, frigid - **Bluelead**

Vertic Argiudolls

fine, smectitic, frigid – **Peever**

Aquic Calciudolls

fine-silty, mixed, superactive, frigid - **Rondell**

Lithic Calciudolls

loamy-skeletal, mixed, superactive, frigid - **Rockerville**

Typic Calciudolls

coarse-silty, mixed, superactive, frigid – **Huffton, Zell**

fine-loamy, mixed, superactive, frigid – **Buse**

fine-silty, mixed, superactive, frigid – **Rusklyn**

fine-silty over sandy or sandy-skeletal, mixed, superactive, frigid - **Kampeska**

Aquertic Hapludolls

clayey over loamy, smectitic, mesic - **Blencoe**

fine, smectitic, mesic - **Lakeport**

Aquic Hapludolls

fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid - **Spottswood**

fine-silty, mixed, superactive, frigid - **Brookings**

Aquic Cumulic Hapludolls

fine-loamy, mixed, superactive, frigid - **Lismore**

fine-silty, mixed, superactive, frigid - **Goldsmith**

Calcic Hapludolls

coarse-loamy, mixed, superactive, frigid – **Egeland, Heimdal, Lanona**

coarse-loamy over clayey, mixed, active, frigid – **Rentill**

coarse-silty, mixed, superactive, frigid – **Eckman**

fine-loamy, mixed, superactive, frigid – **Barnes, Doland, Venagro, Vienna**

fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid – **Renshaw, Renwash, Strayhoss**

fine-silty, mixed, superactive, frigid – **Brandt, Great Bend, Kranzburg, Poinsett, Putney**

fine-silty over sandy or sandy-skeletal, mixed, superactive, frigid – **Estelline**

sandy, mixed, frigid – **Allivar, Arvilla**

Table 2. List of soil orders, suborders, great groups, subgroups, families, and soil series (in bold) used in South Dakota. Terms used are defined in Tables 4 to 11.

Calcic Hapludolls (continued)

sandy over loamy, mixed, superactive, frigid – **Dickey, Towner**

Cumulic Hapludolls

fine-loamy, mixed, superactive, frigid – **Darnen, LaPrairie**

fine-silty, mixed, superactive, frigid - **Ladelle**

fine-silty, mixed, superactive, mesic - **Kennebec**

Entic Hapludolls

loamy, mixed, superactive, frigid, shallow – **Kloten**

sandy, mixed, frigid – **Maddock**

sandy-skeletal, mixed, frigid - **Sioux**

Fluventic Hapludolls

coarse-loamy over clayey, mixed, superactive, mesic - **Waubonsie**

coarse-silty, mixed, superactive, mesic - **Blyburg**

fine-silty, mixed, superactive, mesic – **Omadi**

Oxyaquic Hapludolls

sandy, mixed, frigid - **Hecla**

Pachic Hapludolls

coarse-loamy, mixed, superactive, frigid – **Embden, Swenoda**

coarse-silty, mixed, superactive, frigid - **Gardena**

fine-loamy, mixed, superactive, frigid – **Aastad, Svea**

fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid – **Fordtown, Fordville, Tolley, Vang**

fine-silty, mixed, superactive, frigid – **Beotia, Overly, Waubay**

fine-silty over sandy or sandy-skeletal, mixed, superactive, frigid – **Athelwood**

loamy-skeletal, paramicaceous, frigid - **Hisega**

Typic Hapludolls

fine-loamy, mixed, superactive, frigid - **Edgeley**

fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid - **Brantford**

fine-silty, mixed, superactive, mesic – **Monona, Salix**

loamy-skeletal, mixed, superactive, frigid - **Heely**

sandy, mixed, frigid - **Sverdrup**

Calcic Natrudolls

coarse-loamy, mixed, superactive, frigid - **Letcher**

fine, smectitic, frigid – **Cavour, Nahon**

fine-loamy, mixed, superactive, frigid – **Larson**

fine-silty, mixed, superactive, frigid - **Turton**

Glossic Natrudolls

fine, smectitic, frigid – **Aberdeen, Cresbard**

fine-silty, mixed, superactive, frigid - **Camtown**

Leptic Natrudolls

fine, smectitic, frigid – **Exline, Ferney**

Table 2. List of soil orders, suborders, great groups, subgroups, families, and soil series (in bold) used in South Dakota. Terms used are defined in Tables 4 to 11.

UDOLLS (continued)

Haplic Vermudolls

fine-loamy, mixed superactive, frigid – **Oak Lake, Singaas**

USTOLLS

Aridic Argiustolls

clayey, smectitic, mesic, shallow - **Shena**

coarse-loamy, mixed, superactive, mesic - **Manter, Mawer**

fine, smectitic, frigid - **Tanna**

fine, smectitic, mesic - **Blackpipe, Boneek, Caputa, Emigrant, Huggins, Kube, Nunn, Richfield, Savo**

fine-loamy, mixed, superactive, frigid – **Assinniboine, Eapa, Marmarth**

fine-loamy, mixed, superactive, mesic - **Ascalon, Satanta**

fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid - **Attewan**

fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic - **Altvan, Eckley, Tuthill**

fine-silty, mixed, superactive, frigid - **Ralph**

fine-silty, mixed, superactive, mesic - **Kadoka, Keith, Norka, Oelrichs, Vale**

fine-silty over sandy or sandy-skeletal, mixed, superactive, mesic - **Weber**

loamy-skeletal, mixed, superactive, mesic - **Murdo**

Calcic Argiustolls

fine-loamy, mixed, superactive, mesic - **Rosebud**

Pachic Argiustolls

fine, smectitic, mesic - **Lane, Onita**

fine-loamy, mixed, superactive, frigid - **Bowbells**

fine-loamy, mixed, superactive, mesic - **Keya, Prosper, Renner, Woody**

fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic - **Brocksburg**

fine-silty, mixed, superactive, mesic - **Goshen, Mobridge**

Typic Argiustolls

coarse-loamy, mixed, superactive, mesic - **Holt**

fine, smectitic, mesic – **Ahnberg, Beadle, McClure, Raber, Reliance**

fine-loamy, mixed, semiactive, frigid - **Lefor**

fine-loamy, mixed, superactive, frigid – **Farnuf, Felor, Greenway, Gurney, Orient,**

Reeder, Vida, Watrous, Williams, Yegan

fine-loamy, mixed, superactive, mesic - **Glenham, Houdek, Ree, Wewela**

fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic - **Canning, Jansen**

fine-silty, mixed, superactive, frigid – **Farland, Morton**

fine-silty, mixed, superactive, mesic - **Agar, Eakin, Fairlo, Highmore**

fine-silty over sandy or sandy-skeletal, mixed, superactive, mesic - **Akaska**

loamy-skeletal, mixed, superactive, frigid – **Hilger**

loamy-skeletal over sandy or sandy-skeletal, mixed, superactive, frigid - **Shirrtail**

Table 2. List of soil orders, suborders, great groups, subgroups, families, and soil series (in bold) used in South Dakota. Terms used are defined in Tables 4 to 11.

USTOLLS (continued)

Vertic Argiustolls

fine, smectitic, frigid – **Bearpaw, Grail, Mondamin, Regent, Ridgeview, Savage**
 fine, smectitic, mesic - **Kirley, Oko, Okreek, Peno, Witten**

Typic Calciustolls

coarse-silty, mixed, superactive, frigid - **Sutley**
 fine-loamy, mixed, superactive, frigid - **Zahl**
 fine-loamy, mixed, superactive, mesic - **Ethan**
 fine-silty, mixed, superactive, mesic - **Redstoe**

Aquic Haplustolls

sandy, mixed, mesic - **Elsmere**

Aridic Haplustolls

coarse-loamy, mixed, superactive, frigid – **Chinook, Rhame**
 coarse-loamy, mixed, superactive, mesic - **Alice, Chappell, Jayem**
 coarse-silty, mixed, superactive, mesic - **Oglala**
 fine-loamy, mixed, superactive, frigid – **Boxwell, Kremlin**
 fine-silty, mixed, superactive, mesic - **Ulysses**

Cumulic Haplustolls

coarse-loamy, mixed, superactive, mesic - **Janude**
 fine-loamy, mixed, superactive, frigid – **Cordeston, Straw**
 fine-loamy, mixed, superactive, mesic - **Bon, St. Onge**
 fine-silty, mixed, superactive, frigid - **Dovecreek**
 fine-silty, mixed, superactive, mesic - **Alcester, Roxbury**

Entic Haplustolls

coarse-loamy, mixed, superactive, mesic - **Ronson**
 coarse-silty, mixed, superactive, mesic - **Edwin**
 fine-loamy, mixed, superactive, mesic - **Java**
 loamy, mixed, superactive, frigid, shallow - **Werner**
 sandy, mixed, frigid – **Lihen, Telfer**
 sandy, mixed, mesic - **Doger, Dunday, Meadin**
 sandy over loamy, mixed, superactive, mesic - **Forestburg**
 sandy-skeletal, mixed, frigid - **Wabek**

Fluvaquentic Haplustolls

coarse-loamy, mixed, superactive, mesic - **Wann**
 sandy, mixed, mesic - **Boel**

Fluventic Haplustolls

clayey over loamy, smectitic, mesic - **Hilmoe**
 coarse-loamy, mixed, superactive, mesic - **Cass**
 coarse-silty over clayey, mixed over smectitic, superactive, mesic - **Dorna**
 fine-loamy, mixed, superactive, mesic - **Swint**
 fine-silty, mixed, superactive, mesic – **Bridgeport**

Table 2. List of soil orders, suborders, great groups, subgroups, families, and soil series (in bold) used in South Dakota. Terms used are defined in Tables 4 to 11.

USTOLLS (continued)

Lithic Haplustolls

loamy-skeletal, mixed, superactive, frigid - **Paunsaugunt**

Oxyaquic Haplustolls

fine-silty, mixed, superactive, mesic - **Splitrock**

Pachic Haplustolls

coarse-loamy, mixed, superactive, frigid - **Parshall**

coarse-loamy, mixed, superactive, mesic - **Blendon, Carthage, Dalesburg, Vetal**

fine-loamy, mixed, superactive, frigid – **Arnegard, Roseglen**

fine-loamy, mixed, superactive, mesic - **Bonilla, Davis, Gann**

fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid - **Bowdle**

fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic - **Dimo, Enet**

fine-silty, mixed, superactive, frigid – **Grassna, Makoti**

fine-silty, mixed, superactive, mesic – **Alsen, Duroc, Eltree, Graceville, Trent,**

Viborg, Yankton

Torrertic Haplustolls

fine, smectitic, mesic – **Cactusflat, Owanka**

Torrifluventic Haplustolls

fine-loamy, mixed, superactive, mesic - **Colombo**

Torriorthentic Haplustolls

coarse-silty, mixed, superactive, mesic - **Bridget**

fine, smectitic, mesic - **Buffington**

fine-silty, mixed, superactive, mesic - **Tilford**

sandy, mixed, mesic - **Dailey**

sandy-skeletal, mixed, mesic – **Dix**

Typic Haplustolls

coarse-loamy, mixed, superactive, frigid – **Tally, Vebar**

coarse-loamy, mixed, superactive, mesic - **Anselmo, Orton**

coarse-loamy over sandy or sandy-skeletal, mixed, superactive, frigid - **Manning**

coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic - **O'Neill**

coarse-silty, mixed, superactive, frigid - **Linton**

coarse-silty, mixed, superactive, mesic - **Lowry**

fine-loamy, mixed, superactive, frigid – **Amor, Max, Shambo, Tansem**

fine-loamy, mixed, superactive, mesic - **Clarno, Hand**

fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid – **Lehr, Stady**

fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic - **Delmont, Oahe**

fine-silty, mixed, superactive, frigid – **Bryant, Temvik**

fine-silty, mixed, superactive, mesic - **Bend, Homme, Uly**

loamy-skeletal, mixed, superactive, frigid - **Slimbutte**

sandy, mixed, mesic – **Alwilda, Blula**

Udertic Haplustolls

fine, smectitic, mesic – **Benclare, Corson, Huntimer**

Table 2. List of soil orders, suborders, great groups, subgroups, families, and soil series (in bold) used in South Dakota. Terms used are defined in Tables 4 to 11.

USTOLLS (continued)

Udic Haplustolls

coarse-loamy, mixed, superactive, mesic - **Henkin**

fine-loamy, mixed, superactive, mesic – **Dobalt, Flandreau, Grovena, Volin**

Udic Haplustolls (continued)

fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic – **Twin Lakes, Wessington**

fine-silty, mixed, superactive, mesic - **Egan, Ihlen, Moody, Nora, Wentworth**

fine-silty over sandy or sandy-skeletal, mixed, superactive, mesic - **Dempster**

Udorthentic Haplustolls

fine-loamy, mixed, superactive, mesic - **Shindler**

sandy, mixed, mesic - **Thurman**

sandy-skeletal, mixed, mesic – **Crandon, Talmo**

Vertic Haplustolls

fine, smectitic, frigid - **Moreau**

fine, smectitic, mesic - **Artesian, Ottumwa**

Aridic Natrustolls

fine, smectitic, mesic - **Beckton, Wortman**

fine-loamy, mixed, superactive, frigid - **Sorum**

Glossic Natrustolls

fine, smectitic, frigid – **Belfield, Niobell**

fine, smectitic, mesic - **Demky, Northville, Stickney, Walke**

fine-loamy, mixed, superactive, mesic - **Woonsocket**

Leptic Natrustolls

fine, smectitic, frigid - **Miranda**

fine, smectitic, mesic - **Gayville, Jerauld, Weta**

very-fine, smectitic, mesic - **Hurley**

Leptic Vertic Natrustolls

fine, smectitic, frigid - **Rhoades**

Typic Natrustolls

coarse-loamy, mixed, superactive, frigid – **Ekalaka, Evridge**

fine, smectitic, frigid - **Noonan**

fine, smectitic, mesic - **Cavo, Degrey, Dudley**

fine-loamy, mixed, superactive, mesic - **Whitelake**

Vertic Natrustolls

fine, smectitic, frigid - **Daglun**

fine, smectitic, mesic – **Farmsworth, Mosher**

very-fine, smectitic, mesic - **Capa**

Aridic Paleustolls

fine, smectitic, mesic - **Dawes**

Vertic Paleustolls

very-fine, smectitic, mesic - **Carter**

Table 2. List of soil orders, suborders, great groups, subgroups, families, and soil series (in bold) used in South Dakota. Terms used are defined in Tables 4 to 11.

VERTISOLS

AQUERTS

Typic Calciaquerts

fine, smectitic, frigid - **Hegne**

Chromic Endoaquerts

fine, smectitic, frigid - **McKenzie**

Typic Endoaquerts

fine, smectitic, frigid - **Ludden**

fine, smectitic, mesic - **Luton**

Typic Epiaquerts

very-fine, smectitic, mesic - **Kolls**

Typic Natraquerts

fine, smectitic, frigid - **Heil, Ryan**

fine, smectitic, mesic - **Napa**

UDERTS

Aquic Hapluderts

fine, smectitic, frigid - **Hattie**

Chromic Hapluderts

fine, smectitic, frigid - **Nutley**

Typic Hapluderts

fine, smectitic, frigid - **Sinai**

USTERTS

Aridic Haplusterts

very-fine, smectitic, mesic - **Kyle, Swanboy, Twotop**

Aridic Leptic Haplusterts

fine, smectitic, frigid - **Abor**

fine, smectitic, mesic - **Pierre**

very fine, smectitic, mesic - **Larvie, Metre, Wasa, Whitewater, Winler**

Leptic Haplusterts

fine, smectitic, mesic - **Boyd, Opal**

Typic Haplusterts

fine, smectitic, frigid - **Lawther**

fine, smectitic, mesic - **Millboro**

very-fine, smectitic, mesic - **Bullcreek, Orman, Promise**

Table 3. Distribution of soil taxons in South Dakota (July 2003).

Classification Category	ALFISOL	ARIDISOL	ENTISOL	INCEPTISOL	MOLLISOL	VERTISOL	TOTAL
Order	1	1	1	1	1	1	6
Suborder	4	4	4	3	5	3	23
Great Group	7	6	12	5	18	6	54
Subgroup	17	8	32	13	76	12	158
Family	25	10	102	18	250	18	423
Series	30	10	123	19	416	28	626

Table 4. Soil orders found in South Dakota: the names and their meanings.*

Order Name	<i>Formative Element</i>	Principal Diagnostic Property(ies) - Definition
Alfisols	<i>alf</i>	Mineral soils; relatively low in organic matter; relatively high base saturation (>35%); an illuvial horizon of silicate clays (argillic [Bt] or natric [Btn]); moisture available to mature a crop; soils of temperate region forests with moderate effects of weathering and leaching; soils are slightly to moderately acid.
Aridisols	<i>id</i>	Mineral soils; relatively low in organic matter; inadequate moisture to mature a crop without irrigation in most years; some pedogenic horizons (e.g., horizons of lime [Bk], gypsum [By], salt [Bz] or clay [Bt] accumulation).
Entisols	<i>ent</i>	Mineral soils; weak or no pedogenic horizons, no deep, wide cracks in most years; limited profile development (weak A horizons only, no diagnostic B or A horizons other than ochric); soils of recent origin.
Inceptisols	<i>ept</i>	Mineral soils; some pedogenic (salt accumulations [e.g., Bk, By, or Bz horizons] or color development [e.g., Bw or Bg]) horizons and some weatherable minerals; moisture available to mature a crop in most years; no horizon of illuvial clays; relatively low in either organic matter or base saturation, or in both; more development than Entisols but less than other orders (except for some Aridisols).
Mollisols	<i>oll</i>	Mineral soils, thick dark surface horizon, relatively rich in organic matter; organic matter is due to soil genesis and not sedimentation; high base saturation throughout; no deep wide cracks in most years; friable; soils of subhumid to semiarid grasslands; often have horizons of lime accumulation (e.g., Bk) within the profile.
Vertisols	<i>ert</i>	Clayey soils; deep, wide cracks at some time in most years; self mixing soils; soils high in expanding clay (smectitic mineralogy); have distinct wet and dry seasons each year. Slickensides are evident in the B horizons (e.g., Bss).

*Soil Survey Staff, 1999.

Table 5. Suborder formative elements and their connotations for South Dakota soils.*

Formative Element	Connotation of Formative Element
alb	A nearly white (bleached) eluvial horizon (E) near the surface.
aqu	A soil that is very wet or that has been artificially drained. Characteristics associated with wetness (reduced, gleyed soil material). Has an aquic soil moisture regime.
arg	A soil having an illuvial horizon of silicate clays. Presence of an argillic horizon.
calc	Soil has a horizon of lime accumulation, a calcic (e.g., Bk) horizon.
camb	Soil has a cambic (color and structure development, Bw or Bg) horizon.
cry	A soil that is cool or cold even in summer, mean annual soil temperature is <8°C and summer temperature is cool (<15°C without an O horizon or <8°C with an O horizon) at a depth of 50 cm.
fluv	Composed of recent alluvium (e.g., floodplain areas).
orth	The most representative or true one.
psamm	Sandy texture, sand, or loamy sand, to a depth of 1 meter or more or to hard rock.
sal	Soil has a horizon of salt accumulation, a salic (e.g., Bz) horizon.
ud	Moist but not wet; dry for short periods or not at all, humid climates. Row crop climate. Udic soil moisture regime.
ust	Dry for long periods but moist in a growing season for 90 days or more in most years; droughts common. Small grain climate, most of the plant available water comes during the growing season. Ustic soil moisture regime.

*Soil Survey Staff, 1999.

Table 6. Great group formative elements and their connotations for South Dakota soils.*

Formative Element	Meaning/Description
alb	A nearly white eluvial horizon near the surface, (E or albic horizon).
aqu	A soil that is wet or that has been artificially drained. Characteristics associated with wetness (reduced soil color, gleyed soil material, redox features, Bg horizon, and maybe Cg horizon).
arg	A soil having an illuvial horizon of silicate clays, an argillic horizon (Bt).
calc	A soil that is calcareous throughout and that has a horizon with an appreciable accumulation of lime (calcic horizon, Bk).
dystr	Low base saturation (<50%).
endo	A type of soil saturation where all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.
epi	A type of soil saturation indicating a perched water table where saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.
eutr	High base saturation (>50%).
fluv	Composed of recent alluvium, and found in floodplains. Soils are often stratified.
gloss	Tongued eluvial (E) and illuvial (Bt) horizons. Normally described as E/B or B/E.
hapl	The simplest set of horizons for the Great Group.
natr	Presence of significant amounts of exchangeable sodium or magnesium and sodium (a natric horizon, e.g., Btn).
pale	A soil having horizons that has more than normal development, usually quite old.
psamm	Sandy texture, sand, or loamy sand, to a depth of one meter or more to rock.
torr	Inadequate moisture to mature a crop without irrigation (an aridic moisture regime).
ud	Moist but not wet, dry for short periods or not at all; humid climates. Row crop climates. Udic moisture regime.
ust	Dry for long periods but moist in a growing season for 90 days or more in most years; droughts are common. Small grain climate, most of water available comes during the growing season. Ustic soil moisture regime.
verm	Soil has B horizons intensively mixed by animals, chiefly worms and their predators.

*Soil Survey Staff, 1999.

Table 7. Adjectives used in the names of extragrade and intergrade subgroups and their meaning for South Dakota soils.*

Formative Element	Meaning/Description
aeric	Soil has properties that intergrade to well aerated soil.
alfic	Soil has properties that intergrade to an Alfisol.
aquic	Soil has properties that intergrade to the aquic soil moisture regime.
aquic cumulic	Soil has properties that intergrade to the aquic soil moisture regime and has an overthickened epipedon (surface A horizon) rich in humus due to accumulations.
argiaquic	Soil has properties that intergrade to an Argiaquoll.
aquertic	Soil has properties that intergrade to an Aquert.
aridic	Soil has properties that intergrade to the aridic soil moisture regime.
aridic leptic	Soil has properties that intergrade to the aridic soil moisture regime and has thin soil horizons.
aridic lithic	Soil has properties that intergrade to the aridic soil moisture regime and has hard rock (Moh's hardness >3) within 50 cm.
calcic	Soil has a horizon of lime accumulation, a calcic horizon (e.g., Bk).
calcidic	Soil has properties that intergrade to a Calcicid.
chromic	A soil having high chroma (4 or more) soil colors.
cumulic	An overthickened epipedon (surface A horizon) rich in humus due to accumulations.
cumulic vertic	A soil having an overthickened epipedon (surface A horizon) rich in humus due to accumulations and has properties that intergrade to Vertisols.
entic	Soil has properties that intergrade to an Entisol.
eutric	Soil has high base saturations (>50%).
fluvaquentic	Soil has properties that intergrade to a Fluvaquent.
fluventic	Soil has properties that intergrade to a Fluvent.
glossic	Tongued eluvial (E) and illuvial (B) horizons. Normally described as E/B or B/E.
gypsic	Soil has an accumulation of gypsum, a gypsic horizon (e.g., By).
haplic	Soil has minimal set of horizons for the subgroup.
haplic ustic	Soil has minimal set of horizon for the subgroup and has properties that intergrade to the ustic soil moisture regime.
haplocalcidic	Soil has properties that intergrade to a Haplocalcid.
inceptic	Soil has properties that intergrade to an Inceptisol.
leptic	Soil has thin horizons.
leptic torrertic	Soil has thin horizons and has properties that intergrade to the aridic soil moisture regime.

Table 7. Adjectives used in the names of extragrade and intergrade subgroups and their meaning for South Dakota soils (continued).*

Formative Element	Meaning/Description
leptic vertic	Soil has thin soil horizons and has properties that intergrade to Vertisols.
lithic	Hard rock (Mho's hardness >3) within 50 cm of the soil surface, the R horizon.
lithic ustic	Hard rock (Mho's hardness >3) within 50 cm of the soil surface, the R horizon, and the soil has properties that intergrade to the ustic soil moisture regime.
mollic	Soil has properties that intergrade to Mollisols.
oxyaquic	Soil has one or more saturated layers within 100 cm (150 cm for Psamments) of the surface for at least 20 consecutive or 30 cumulative days in normal (6 out of 10) years.
pachic	Soil has a thick dark surface (A) horizon or epipedon. The epipedon is thicker than normal.
pachic vertic	Soil has a thick dark surface (A) horizon or epipedon and has properties that intergrade to a Vertisol. The epipedon is thicker than normal.
torrertic	Soil has properties that intergrade to Torrerts.
torrifuventic	Soil has properties that intergrade to Torrfluvents.
torriorthentic	Soil has properties that intergrade to Torriorthents.
typic	The common or true representative of the Great Group.
udertic	Soil has properties that intergrade to Uderts.
udic	Soil having or intergrading to the udic soil moisture regime.
udorthentic	Soil has properties that intergrade to Ustorthents.
ustertic	Soil has properties that intergrade to Usterts.
ustic	Soil has properties that intergrade to the ustic soil moisture regime.
vertic	Soil has properties that intergrade to Vertisols.
vitrandic	Soil has properties that intergrade to Vitrandis.

*Soil Survey Staff, 1999.

Table 8. Soil family modifiers – particle-size classes for South Dakota soils.*

Particle Size Class	Meaning/Description
fragmental	Stones, cobbles, gravel, and very coarse sand particles with too little fine earth (<10%) to fill some of the interstices >1 mm in diameter.
sandy-skeletal	Rock fragments 2 mm in diameter or larger make up at least 35% by volume; enough fine earth to fill interstices >1 mm; and the fraction <2 mm is sandy as defined for the sandy particle-size class; and contains <50% by weight very fine sand.
loamy-skeletal	Rock fragments make up at least 35% by volume; enough fine earth to fill interstices >1 mm; and the fraction <2 mm is loamy (<35% clay) as defined for the loamy particle-size class.
clayey-skeletal	Rock fragments make up at least 35% by volume; enough fine earth to fill interstices >1 mm; and the fraction <2 mm is clayey as defined for the clayey particle-size class.
sandy	The texture of the fine earth is sand or loamy sand that contains <50% by weight very fine sand and rock fragments make up <35% by volume.
loamy¹	The texture of the fine earth is loamy very fine sand, very fine sand, or finer, but the amount of clay is <35% by weight (excludes Vertisols); rock fragments are <35% by volume; and soils are in a shallow family or a strongly contrasting particle-size class.
a. coarse-loamy	By weight, 15% or more of the particles are fine sand (diameter 0.25 to 0.1 mm) or coarser, including fragments up to 7.5 cm in diameter; and <18% (by weight) in the fine-earth fraction.
b. fine-loamy	By weight, 15% or more of the particles are fine sand (diameter 0.25 to 0.1 mm) or coarser, including fragments up to 7.5 cm in diameter; and 18 to 34% clay in the fine-earth fraction (Vertisols are excluded).
c. coarse-silty	By weight, <15% of the particles are fine sand (diameter 0.25 to 0.1 mm) or coarser, including fragments up to 7.5 cm in diameter; and <18% clay by weight in the fine-earth fraction.
d. fine-silty	By weight, <15% of the particles are fine sand (0.25 to 0.1 mm dia.) or coarser, including fragments up to 7.5 cm in diameter; and 18 to 34% clay (weight) in the fine-earth fraction (Vertisols are excluded).
clayey¹	The fine earth contains at least 35% clay by weight (30% in Vertisols); rock fragments are <35% by volume; and soils are in a shallow family or a strongly contrasting particle-size class.
a. fine	A clayey particle-size class for soils having 35 to 59% clay in the fine-earth fraction (30 to 59% clay for Vertisols).
b. very-fine	A clayey particle-size class for soils having at least 60% clay in the fine-earth fraction.

¹ If the ratio of 1500 kPa water retention to clay is 0.6 or more in half or more of the control section, the percentage of clay is considered to be 2.5 (% water retained at 1500 kPa - % organic carbon). Carbonates of clay size are not considered to be clay but are treated as silt in all particle-size classes.

*Soil Survey Staff, 1999.

Table 9. Soil family modifiers – strongly contrasting particle-size classes for South Dakota soils.*

Strongly Contrasting Soil Family Particle-Size Classes

clayey over loamy (must have at least 25% absolute clay difference between layers)

clayey over sandy or sandy-skeletal

coarse-loamy over clayey

coarse-loamy over sandy or sandy-skeletal (coarse-loamy material contains <50% fine sand or coarser sands)

coarse-silty over clayey

coarse-silty over sandy or sandy-skeletal

fine-loamy over sandy or sandy-skeletal

fine-silty over sandy or sandy-skeletal

loamy-skeletal over fragmental (volume of the fine earth fraction is at least 35% absolute greater in the loamy-skeletal part than the fragmental part)

loamy-skeletal over sandy or sandy-skeletal (loamy material contains <50% fine sand or coarser sand)

sandy over clayey

sandy over loamy (loamy material contains <50% fine sand or coarser sand)

*Used when there are strongly contrasting particle-size classes within the soil profile control section. Specific single particle-size classes are defined in Table 8. The transition zone between the two contrasting parts of the particle-size control section is <12.5 cm thick.

Table 10. Soil family modifiers - soil moisture and profile depth classes for South Dakota soils*.

Class	Definition
Frigid	Mean annual soil temperature at a depth of 50 centimeters or at a lithic or paralithic contact (if shallower) is <8°C (<47°F).
Mesic	Mean annual soil temperature at a depth of 50 centimeters or at a lithic or paralithic contact (if shallower) is 8° to 15°C (47° to 59°F).
Shallow	Less than 50 cm to upper boundary of a root limiting layer and not in a Lithic Subgroup.

*Soil Survey Staff, 1999.

Table 11. Soil family modifiers – mineralogy, cation exchange and reaction classes for South Dakota soils*.

Class	Definition
acid	The pH is less than 5.0 in 0.01 M CaCl ₂ (2:1) throughout the control section (about 5.5 in H ₂ O, 1:1).
active	Ratio of cation exchange capacity to clay percent is 0.40 to 0.59.
calcareous	The fine earth fraction effervesces in all parts (depth of 25 to 50 cm or shallower if lithic or paralithic contact is present) with cold dilute HCl.
carbonatic	More than 40% by weight (whole soil) carbonates plus gypsum and the carbonates are more than gypsum.
gypsic	More than 40% by weight (whole soil) of carbonates plus gypsum, and the gypsum is more than 35% of the total sum of carbonates and gypsum.
paramicaceous	More than 25% mica and stable mica pseudomorphs by weight (65% by grain count) in the coarse silt to gravel fractions (0.02 to 20 mm).
mixed	Soils which have less than 40% of any one mineral other than quartz or feldspars in the coarse silt and sand fractions (0.02 to 20 mm).
semiaactive	Ratio of cation exchange capacity to clay percent is 0.24 to 0.39.
smectitic	Have more smectite (e.g., montmorillonite and nontronite) by weight than any other single kind of clay mineral.
subactive	Ratio of cation exchange capacity to clay percent is <0.24.
superactive	Ratio of cation exchange capacity to clay percent is at least 0.60.
nonacid	The pH is 5.0 or more in 0.01 M CaCl ₂ (2:1) in at least some part of the control section. The term nonacid is not used in the family name of calcareous soils

*Soil Survey Staff, 1999.

Figure 1. Status of Soil Surveys in South Dakota (June 2003).

Soil Survey Status

USDA-NRCS

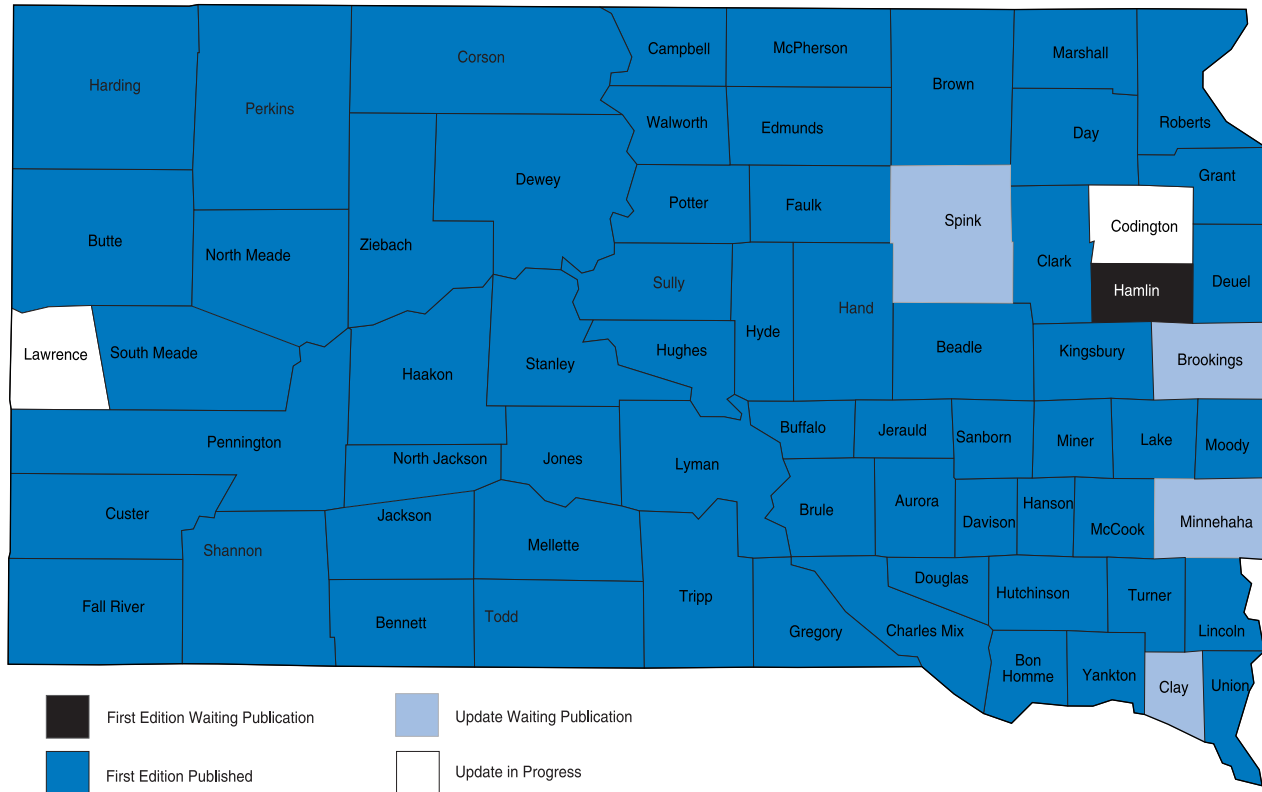
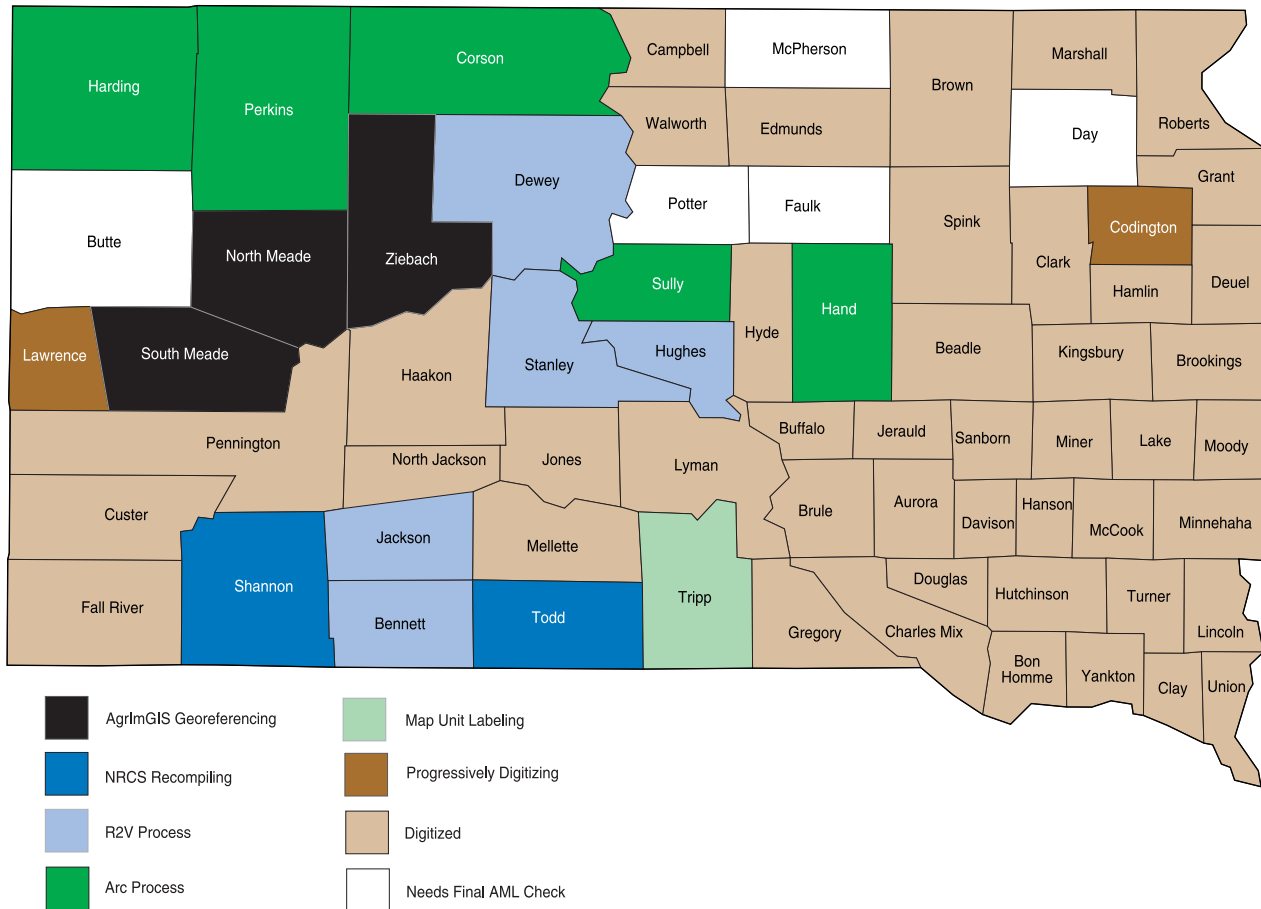


Figure 2. Status of Digitization of South Dakota Soil Surveys (June 2003).

Georeferencing and Digitizing Status

USDA-NRCS



**Appendix - Classification of soil series used in South Dakota.
July 2003 (inactive series are shown in *Italics*).**

Series	SOIL FAMILY
AASTAD	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID PACHIC HAPLUDOLLS
ABERDEEN	FINE, SMECTITIC, FRIGID GLOSSIC NATRUDOLLS
ABOR	FINE, SMECTITIC, FRIGID ARIDIC LEPTIC HAPLUSTERTS
ABSHER	FINE, SMECTITIC, FRIGID LEPTIC TORRERTIC NATRUSTALFS
ABSTED	FINE, SMECTITIC, MESIC HAPLIC USTIC NATRARGIDS
AGAR	FINE-SILTY, MIXED, SUPERACTIVE, MESIC TYPIC ARGUUSTOLLS
<i>AHNBERG</i>	<i>FINE, SMECTITIC, MESIC TYPIC ARGUUSTOLLS</i>
AKASKA	FINE-SILTY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, MESIC TYPIC ARGUUSTOLLS
ALBATON	FINE, SMECTITIC, CALCAREOUS, MESIC VERTIC FLUVAQUENTS
ALCESTER	FINE-SILTY, MIXED, SUPERACTIVE, MESIC CUMULIC HAPLUSTOLLS
ALICE	COARSE-LOAMY, MIXED, SUPERACTIVE, MESIC ARIDIC HAPLUSTOLLS
ALLIVAR	SANDY, MIXED, FRIGID CALCIC HAPLUDOLLS
<i>ALSEN</i>	<i>FINE-SILTY, MIXED, SUPERACTIVE, MESIC PACHIC HAPLUSTOLLS</i>
ALTVAN	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, MESIC ARIDIC ARGUUSTOLLS
ALWILDA	SANDY, MIXED, MESIC TYPIC HAPLUSTOLLS
AMOR	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC HAPLUSTOLLS
ANSELMO	COARSE-LOAMY, MIXED, SUPERACTIVE, MESIC TYPIC HAPLUSTOLLS
ANTLER	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID AERIC CALCIAQUOLLS
AOWA	FINE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC MOLLIC USTIFLUVENTS
ARCHIN	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID ARIDIC NATRUSTALFS
ARLO	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, MESIC TYPIC CALCIAQUOLLS
ARNEGARD	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID PACHIC HAPLUSTOLLS
ARTESIAN	FINE, SMECTITIC, MESIC VERTIC HAPLUSTOLLS
ARVADA	FINE, SMECTITIC, MESIC VERTIC NATRARGIDS
ARVESON	COARSE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC CALCIAQUOLLS
ARVILLA	SANDY, MIXED, FRIGID CALCIC HAPLUDOLLS
ASCALON	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC ARIDIC ARGUUSTOLLS
ASSINNIBOINE	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID ARIDIC ARGUUSTOLLS
ATHELWOLD	FINE-SILTY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, FRIGID PACHIC HAPLUDOLLS
ATTEWAN	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, FRIGID ARIDIC ARGUUSTOLLS
BACA	FINE, SMECTITIC, MESIC ARIDIC HAPLUSTALFS
BADGER	FINE, SMECTITIC, FRIGID VERTIC ARGIAQUOLLS
BADUS	FINE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC CUMULIC ENDOAQUOLLS
BALTIC	FINE, SMECTITIC, CALCAREOUS, MESIC CUMULIC VERTIC ENDOAQUOLLS
BANKARD	SANDY, MIXED, MESIC USTIC TORRIFLUVENTS
BANKS	SANDY, MIXED, FRIGID TYPIC USTIFLUVENTS
BARNES	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID CALCIC HAPLUDOLLS
BARNUM	FINE-LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC USTIC TORRIFLUVENTS
BEADLE	FINE, SMECTITIC, MESIC TYPIC ARGUUSTOLLS
BEARDEN	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID AERIC CALCIAQUOLLS
BEARPAW	FINE, SMECTITIC, FRIGID VERTIC ARGUUSTOLLS
BECKTON	FINE, SMECTITIC, MESIC ARIDIC NATRUSTOLLS
BELFIELD	FINE, SMECTITIC, FRIGID GLOSSIC NATRUSTOLLS
BENCLARE	FINE, SMECTITIC, MESIC UDERTIC HAPLUSTOLLS
BEND	FINE-SILTY, MIXED, SUPERACTIVE, MESIC TYPIC HAPLUSTOLLS
BEOTIA	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID PACHIC HAPLUDOLLS
BETTS	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC TYPIC CALCIUSTEPTS
BIDMAN	FINE, SMECTITIC, MESIC USTIC PALEARGIDS
BIGBEND	COARSE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC TYPIC USTIFLUVENTS

**Appendix - Classification of soil series used in South Dakota (continued).
July 2003 (inactive series are shown in *Italics*).**

Series	SOIL FAMILY
BIGWINDER	COARSE-LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC AERIC FLUVAQUENTS
BLACKHALL	LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID, SHALLOW USTIC TORRIORTHENTS
BLACKPIPE	FINE, SMECTITIC, MESIC ARIDIC ARGIUUSTOLLS
BLAKE	FINE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC AQUIC UDIFLUVENTS
BLENCOE	CLAYEY OVER LOAMY, SMECTITIC, MESIC AQUERTIC HAPLUDOLLS
BLENDON	COARSE-LOAMY, MIXED, SUPERACTIVE, MESIC PACHIC HAPLUSTOLLS
BLEULEAD	LOAMY-SKELETAL, MIXED, SUPERACTIVE, FRIGID TYPIC ARGIUODOLLS
BLULA	SANDY, MIXED, MESIC TYPIC HAPLUSTOLLS
BLYBURG	COARSE-SILTY, MIXED, SUPERACTIVE, MESIC FLUVENTIC HAPLUDOLLS
BOEL	SANDY, MIXED, MESIC FLUVAQUENTIC HAPLUSTOLLS
BON	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC CUMULIC HAPLUSTOLLS
BONEEK	FINE, SMECTITIC, MESIC ARIDIC ARGIUUSTOLLS
BONILLA	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC PACHIC HAPLUSTOLLS
BORO	FINE, SMECTITIC, MESIC VERTIC HAPLUSTEPTS
BORUP	COARSE-SILTY, MIXED, SUPERACTIVE, FRIGID TYPIC CALCIAQUOLLS
BOWBELLS	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID PACHIC ARGIUUSTOLLS
BOWDLE	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, FRIGID PACHIC HAPLUSTOLLS
BOXWELL	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID ARIDIC HAPLUSTOLLS
BOYD	FINE, SMECTITIC, MESIC LEPTIC HAPLUSTERTS
BRANDT	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID CALCIC HAPLUDOLLS
BRANTFORD	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, FRIGID TYPIC HAPLUDOLLS
BRIDGEPORT	FINE-SILTY, MIXED, SUPERACTIVE, MESIC FLUVENTIC HAPLUSTOLLS
BRIDGET	COARSE-SILTY, MIXED, SUPERACTIVE, MESIC TORRIORTHENTIC HAPLUSTOLLS
BROADHURST	VERY-FINE, SMECTITIC, ACID, MESIC TORRERTIC USTORTHENTS
BROCKSBURG	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, MESIC PACHIC ARGIUUSTOLLS
BROOKINGS	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID AQUIC HAPLUDOLLS
BRYANT	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID TYPIC HAPLUSTOLLS
BUFFINGTON	FINE, SMECTITIC, MESIC TORRIORTHENTIC HAPLUSTOLLS
BUFTON	FINE, MIXED, SUPERACTIVE, MESIC VITRANDIC HAPLUSTEPTS
BULLCREEK	VERY-FINE, SMECTITIC, MESIC TYPIC HAPLUSTERTS
BULLFLAT	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC ARGIUODOLLS
BULLOCK	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID ARIDIC LEPTIC NATRUSTALFS
BUSE	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC CALCIUDOLLS
BUSKA	LOAMY-SKELETAL, PARAMICACEOUS, FRIGID GLOSSIC HAPLUDALFS
BUTCHE	LOAMY, MIXED, SUPERACTIVE, NONACID, MESIC ARIDIC LITHIC USTORTHENTS
CABBA	LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID, SHALLOW TYPIC USTORTHENTS
CABBART	LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID, SHALLOW ARIDIC USTORTHENTS
CACTUSFLAT	FINE, SMECTITIC, MESIC TORRERTIC HAPLUSTOLLS
CALCO	FINE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC CUMULIC ENDOAQUOLLS
CAMTOWN	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID GLOSSIC NATRUDOLLS
CANISTEO	FINE-LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC TYPIC ENDOAQUOLLS
CANNING	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, MESIC TYPIC ARGIUUSTOLLS
CANYON	LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC, SHALLOW USTIC TORRIORTHENTS
CAPA	VERY-FINE, SMECTITIC, MESIC VERTIC NATRUSTOLLS
<i>CAPUTA</i>	<i>FINE, SMECTITIC, MESIC ARIDIC ARGIUUSTOLLS</i>
CARTER	VERY-FINE, SMECTITIC, MESIC VERTIC PALEUSTOLLS
CARTHAGE	COARSE-LOAMY, MIXED, SUPERACTIVE, MESIC PACHIC HAPLUSTOLLS
CASS	COARSE-LOAMY, MIXED, SUPERACTIVE, MESIC FLUVENTIC HAPLUSTOLLS
CASTLEWOOD	FINE, SMECTITIC, FRIGID CUMULIC VERTIC ENDOAQUOLLS
CAVO	FINE, SMECTITIC, MESIC TYPIC NATRUSTOLLS

**Appendix - Classification of soil series used in South Dakota (continued).
July 2003 (inactive series are shown in *Italics*).**

Series	SOIL FAMILY
CAVOUR	FINE, SMECTITIC, FRIGID CALCIC NATRUDOLLS
CEDAR BUTTE	FINE, SMECTITIC, MESIC TORRERTIC NATRUSTALFS
CEDARPASS	FINE-SILTY, MIXED, SUPERACTIVE, MESIC ARIDIC HAPLUSTEPTS
CHANCELLOR	FINE, SMECTITIC, MESIC VERTIC ARGIAQUOLLS
CHANTIER	CLAYEY, SMECTITIC, MESIC, SHALLOW VERTIC HAPLUSTEPTS
CHAPPELL	COARSE-LOAMY, MIXED, SUPERACTIVE, MESIC ARIDIC HAPLUSTOLLS
CHASKA	FINE-LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC AERIC FLUVAQUENTS
CHINOOK	COARSE-LOAMY, MIXED, SUPERACTIVE, FRIGID ARIDIC HAPLUSTOLLS
CITADEL	FINE, SMECTITIC, FRIGID GLOSSIC HAPLUDALFS
CLAMO	FINE, SMECTITIC, MESIC CUMULIC VERTIC ENDOAQUOLLS
CLARNO	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC TYPIC HAPLUSTOLLS
COHAGEN	LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID, SHALLOW TYPIC USTORTHENTS
COLBY	FINE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC ARIDIC USTORTHENTS
COLO	FINE-SILTY, MIXED, SUPERACTIVE, MESIC CUMULIC ENDOAQUOLLS
COLOMBO	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC TORRIFLUVENTIC HAPLUSTOLLS
COLVIN	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID TYPIC CALCIAQUOLLS
COLY	FINE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC TYPIC USTORTHENTS
CONATA	CLAYEY, SMECTITIC, MESIC, SHALLOW ARIDIC HAPLUSTEPTS
CORDESTON	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID CUMULIC HAPLUSTOLLS
CORSON	FINE, SMECTITIC, MESIC UDERTIC HAPLUSTOLLS
CRAFT	COARSE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC ARIDIC USTIFLUVENTS
<i>CRANDON</i>	<i>SANDY-SKELETAL, MIXED, MESIC UDORTHENTIC HAPLUSTOLLS</i>
CRESBARD	FINE, SMECTITIC, FRIGID GLOSSIC NATRUDOLLS
CROFTON	FINE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC TYPIC USTORTHENTS
CROSSPLAIN	FINE, SMECTITIC, MESIC TYPIC ARGIAQUOLLS
CUBDEN	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID AERIC CALCIAQUOLLS
CUSHMAN	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC USTIC HAPLARGIDS
DAGLUM	FINE, SMECTITIC, FRIGID VERTIC NATRUSTOLLS
DAILEY	SANDY, MIXED, MESIC TORRIORTHENTIC HAPLUSTOLLS
DALESBURG	COARSE-LOAMY, MIXED, SUPERACTIVE, MESIC PACHIC HAPLUSTOLLS
DARNEN	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID CUMULIC HAPLUDOLLS
DAVIS	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC PACHIC HAPLUSTOLLS
DAVISON	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC AERIC CALCIAQUOLLS
DAWES	FINE, SMECTITIC, MESIC ARIDIC PALEUSTOLLS
DEGREY	FINE, SMECTITIC, MESIC TYPIC NATRUSTOLLS
DELMONT	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, MESIC TYPIC HAPLUSTOLLS
DELRIDGE	FINE-LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID ARIDIC USTORTHENTS
DEMAR	FINE, SMECTITIC, MESIC TORRERTIC HAPLUSTALFS
DEMKY	FINE, SMECTITIC, MESIC GLOSSIC NATRUSTOLLS
DEMPSTER	FINE-SILTY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, MESIC UDIC HAPLUSTOLLS
DENBY	FINE, SMECTITIC, MESIC TORRERTIC HAPLUSTEPTS
DICKEY	SANDY OVER LOAMY, MIXED, SUPERACTIVE, FRIGID CALCIC HAPLUDOLLS
DIMMICK	FINE, SMECTITIC, FRIGID VERTIC EPIAQUOLLS
DIMO	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, MESIC PACHIC HAPLUSTOLLS
DIVIDE	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, FRIGID AERIC CALCIAQUOLLS
DIX	SANDY-SKELETAL, MIXED, MESIC TORRIORTHENTIC HAPLUSTOLLS
DOBALT	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC UDIC HAPLUSTOLLS
DOGER	SANDY, MIXED, MESIC ENTIC HAPLUSTOLLS
DOGIECREEK	COARSE-LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID TYPIC FLUVAQUENTS
DOLAND	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID CALCIC HAPLUDOLLS

**Appendix - Classification of soil series used in South Dakota (continued).
July 2003 (inactive series are shown in *Italics*).**

Series	SOIL FAMILY
DORAN	FINE, SMECTITIC, FRIGID AQUERTIC ARGIUDDOLLS
DORNA	COARSE-SILTY OVER CLAYEY, MIXED OVER SMECTITIC, SUPERACTIVE, MESIC FLUVENTIC HAPLUSTOLLS
DOVECREEK	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID CUMULIC HAPLUSTOLLS
DOVRAY	FINE, SMECTITIC, FRIGID CUMULIC VERTIC EPIAQUOLLS
DUDA	MIXED, MESIC TYPIC USTIPSAMMENTS
DUDLEY	FINE, SMECTITIC, MESIC TYPIC NATRUSTOLLS
DUNDAY	SANDY, MIXED, MESIC ENTIC HAPLUSTOLLS
DUPREE	CLAYEY, SMECTITIC, MESIC, SHALLOW TYPIC HAPLUSTEPTS
DUROC	FINE-SILTY, MIXED, SUPERACTIVE, MESIC PACHIC HAPLUSTOLLS
DURRSTEIN	FINE, SMECTITIC, MESIC VERTIC NATRAQUOLLS
DWYER	MIXED, MESIC USTIC TORRIPSAMMENTS
EAKIN	FINE-SILTY, MIXED, SUPERACTIVE, MESIC TYPIC ARGIUDDOLLS
EAPA	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID ARIDIC ARGIUDDOLLS
ECKLEY	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, MESIC ARIDIC ARGIUDDOLLS
ECKMAN	COARSE-SILTY, MIXED, SUPERACTIVE, FRIGID CALCIC HAPLUDOLLS
EDGELEY	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC HAPLUDOLLS
EDWIN	COARSE-SILTY, MIXED, SUPERACTIVE, MESIC ENTIC HAPLUSTOLLS
EGAN	FINE-SILTY, MIXED, SUPERACTIVE, MESIC UDIC HAPLUSTOLLS
EGAS	FINE, SMECTITIC, CALCAREOUS, MESIC VERTIC ENDOAQUOLLS
EGELAND	COARSE-LOAMY, MIXED, SUPERACTIVE, FRIGID CALCIC HAPLUDOLLS
EKALAKA	COARSE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC NATRUSTOLLS
ELPAM	FINE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC MOLLIC ENDOAQUEPTS
ELS	MIXED, MESIC AQUIC USTIPSAMMENTS
ELSMERE	SANDY, MIXED, MESIC AQUIC HAPLUSTOLLS
ELTREE	FINE-SILTY, MIXED, SUPERACTIVE, MESIC PACHIC HAPLUSTOLLS
EMBDEN	COARSE-LOAMY, MIXED, SUPERACTIVE, FRIGID PACHIC HAPLUDOLLS
EMIGRANT	FINE, SMECTITIC, MESIC ARIDIC ARGIUDDOLLS
ENET	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, MESIC PACHIC HAPLUSTOLLS
ENNING	LOAMY, CARBONATIC, MESIC, SHALLOW ARIDIC USTORTMENTS
EPPING	LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC, SHALLOW USTIC TORRIORTHENTS
EPSIE	CLAYEY, SMECTITIC, CALCAREOUS, MESIC, SHALLOW ARIDIC USTORTMENTS
ERD	FINE, SMECTITIC, CALCAREOUS, MESIC VERTIC ENDOAQUOLLS
ESTELLINE	FINE-SILTY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, FRIGID CALCIC HAPLUDOLLS
ETHAN	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC TYPIC CALCIUSTOLLS
EVRIIDGE	COARSE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC NATRUSTOLLS
EXLINE	FINE, SMECTITIC, FRIGID LEPTIC NATRUDOLLS
FAIRBURN	LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC, SHALLOW ARIDIC USTORTMENTS
FAIRDALE	FINE-LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID MOLLIC UDIFLUVENTS
FAIRLO	FINE-SILTY, MIXED, SUPERACTIVE, MESIC TYPIC ARGIUDDOLLS
FARLAND	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID TYPIC ARGIUDDOLLS
FARMSWORTH	FINE, SMECTITIC, MESIC VERTIC NATRUSTOLLS
FARNUF	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC ARGIUDDOLLS
FEDORA	COARSE-LOAMY, MIXED, SUPERACTIVE, MESIC TYPIC CALCIAQUOLLS
FELOR	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC ARGIUDDOLLS
FERNEY	FINE, SMECTITIC, FRIGID LEPTIC NATRUDOLLS
FIRESTEEL	FINE-SILTY, MIXED, SUPERACTIVE, MESIC AERIC CALCIAQUOLLS
FLANDREAU	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC UDIC HAPLUSTOLLS
FLASHER	MIXED, FRIGID, SHALLOW TYPIC USTIPSAMMENTS
FLEAK	MIXED, FRIGID, SHALLOW ARIDIC USTIPSAMMENTS
FLOM	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC ENDOAQUOLLS

**Appendix - Classification of soil series used in South Dakota (continued).
July 2003 (inactive series are shown in *Italics*).**

Series	SOIL FAMILY
FORDTOWN	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, FRIGID PACHIC HAPLUDOLLS
FORDVILLE	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, FRIGID PACHIC HAPLUDOLLS
FORESTBURG	SANDY OVER LOAMY, MIXED, SUPERACTIVE, MESIC ENTIC HAPLUSTOLLS
FORMAN	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID CALCIC ARGIUOLLS
FORNEY	FINE, SMECTITIC, NONACID, MESIC VERTIC FLUVAQUENTS
FOSSUM	SANDY, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID TYPIC ENDOAQUOLLS
FULDA	FINE, SMECTITIC, FRIGID VERTIC EPIAQUOLLS
GANN	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC PACHIC HAPLUSTOLLS
GANNETT	COARSE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, MESIC CUMULIC ENDOAQUOLLS
GARDENA	COARSE-SILTY, MIXED, SUPERACTIVE, FRIGID PACHIC HAPLUDOLLS
GAVINS	LOAMY, CARBONATIC, MESIC, SHALLOW TYPIC USTORTHENTS
GAYVILLE	FINE, SMECTITIC, MESIC LEPTIC NATRUSTOLLS
GERDRUM	FINE, SMECTITIC, FRIGID TORRERTIC NATRUSTALFS
GETTYS	FINE, SMECTITIC, CALCAREOUS, MESIC VERTIC USTORTHENTS
GILLUM	FINE, SMECTITIC VERTIC ARGICRYOLLS
GLENBERG	COARSE-LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC USTIC TORRIFLUVENTS
GLENDIVE	COARSE-LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID ARIDIC USTIFLUVENTS
GLENHAM	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC TYPIC ARGIUOLLS
GLENROSS	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC NATRAQUALFS
GLYNDON	COARSE-SILTY, MIXED, SUPERACTIVE, FRIGID AERIC CALCIAQUOLLS
GOLDSMITH	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID AQUIC CUMULIC HAPLUDOLLS
GOVICK	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID AQUIC ARGIUOLLS
GOSHEN	FINE-SILTY, MIXED, SUPERACTIVE, MESIC PACHIC ARGIUOLLS
GRABLE	COARSE-SILTY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, CALCAREOUS, MESIC MOLLIC UDIFLUVENTS
GRACEVILLE	FINE-SILTY, MIXED, SUPERACTIVE, MESIC PACHIC HAPLUSTOLLS
GRAIL	FINE, SMECTITIC, FRIGID VERTIC ARGIUOLLS
GRANER	FINE, SMECTITIC, ACID, MESIC TORRERTIC USTORTHENTS
GRASSNA	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID PACHIC HAPLUSTOLLS
GRAT	CLAYEY OVER SANDY OR SANDY-SKELETAL, SMECTITIC, MESIC TYPIC ARGIAQUOLLS
GREAT BEND	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID CALCIC HAPLUDOLLS
GREENWAY	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC ARGIUOLLS
GRIZZLY	LOAMY-SKELETAL, MIXED, SUPERACTIVE, FRIGID GLOSSIC HAPLUDALFS
GROVENA	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC UDIC HAPLUSTOLLS
GRUMMIT	CLAYEY, SMECTITIC, ACID, MESIC, SHALLOW ARIDIC USTORTHENTS
GURNEY	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC ARGIUOLLS
GYPNEVEE	COARSE-SILTY, GYPSIC, MESIC USTIC TORRIORTHENTS
GYSTRUM	FINE-SILTY, GYPSIC, MESIC USTIC HAPLOCAMBIDS
HAMAR	SANDY, MIXED, FRIGID TYPIC ENDOAQUOLLS
HAMERLY	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID AERIC CALCIAQUOLLS
HAND	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC TYPIC HAPLUSTOLLS
HANLY	SANDY, MIXED, FRIGID ARIDIC USTIFLUVENTS
HARLAKE	FINE, SMECTITIC, CALCAREOUS, FRIGID ARIDIC USTIFLUVENTS
HARLEM	FINE, SMECTITIC, CALCAREOUS, FRIGID USTIC TORRIFLUVENTS
HARMONY	FINE, SMECTITIC, FRIGID PACHIC ARGIUOLLS
HARPS	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC TYPIC CALCIAQUOLLS
HARRIET	FINE, SMECTITIC, FRIGID TYPIC NATRAQUOLLS
HATTIE	FINE, SMECTITIC, FRIGID AQUIC HAPLUDERTS
HAVERSON	FINE-LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC ARIDIC USTIFLUVENTS
HAVRE	FINE-LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID ARIDIC USTIFLUVENTS
HAVRELON	FINE-LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID TYPIC USTIFLUVENTS

**Appendix - Classification of soil series used in South Dakota (continued).
July 2003 (inactive series are shown in *Italics*).**

Series	SOIL FAMILY
HAYNIE	COARSE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC MOLLIC UDIFLUVENTS
HEATH	FINE, SMECTITIC, USTIC ARGICRYOLLS
HECLA	SANDY, MIXED, FRIGID OXYAQUIC HAPLUDOLLS
HEELY	LOAMY-SKELETAL, MIXED, SUPERACTIVE, FRIGID TYPIC HAPLUDOLLS
HEGNE	FINE, SMECTITIC, FRIGID TYPIC CALCIAQUERTS
HEIL	FINE, SMECTITIC, FRIGID TYPIC NATRAQUERTS
HEIMDAL	COARSE-LOAMY, MIXED, SUPERACTIVE, FRIGID CALCIC HAPLUDOLLS
HENKIN	COARSE-LOAMY, MIXED, SUPERACTIVE, MESIC UDIC HAPLUSTOLLS
HERDCAMP	FINE, SMECTITIC, CALCAREOUS, MESIC VERTIC ENDOAQUOLLS
HETLAND	FINE, SMECTITIC, FRIGID PACHIC VERTIC ARGIUOLLS
HIDEWOOD	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID TYPIC ENDOAQUOLLS
HIGGINS	COARSE-SILTY, GYPSIC, MESIC TYPIC ENDOAQUEPTS
HIGHMORE	FINE-SILTY, MIXED, SUPERACTIVE, MESIC TYPIC ARGIUOLLS
HILGER	LOAMY-SKELETAL, MIXED, SUPERACTIVE, FRIGID TYPIC ARGIUOLLS
HILMOE	CLAYEY OVER LOAMY, SMECTITIC, MESIC FLUVENTIC HAPLUSTOLLS
HISEGA	LOAMY-SKELETAL, PARAMICACEOUS, FRIGID PACHIC HAPLUDOLLS
HISLE	FINE, SMECTITIC, MESIC LEPTIC TORRERTIC NATRUSTALFS
HOLMQUIST	COARSE-LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID MOLLIC FLUVAQUENTS
HOLT	COARSE-LOAMY, MIXED, SUPERACTIVE, MESIC TYPIC ARGIUOLLS
HOMME	FINE-SILTY, MIXED, SUPERACTIVE, MESIC TYPIC HAPLUSTOLLS
HOPDRAW	SANDY-SKELETAL, MIXED, FRIGID TYPIC USTORTHERENTS
HOUDEK	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC TYPIC ARGIUOLLS
HOVEN	FINE, SMECTITIC, MESIC VERTIC NATRAQUOLLS
HUFFTON	COARSE-SILTY, MIXED, SUPERACTIVE, FRIGID TYPIC CALCIUDOLLS
HUGGINS	FINE, SMECTITIC, MESIC ARIDIC ARGIUOLLS
HUNTIMER	FINE, SMECTITIC, MESIC UDERTIC HAPLUSTOLLS
HURLEY	VERY-FINE, SMECTITIC, MESIC LEPTIC NATRUSTOLLS
IHLEN	FINE-SILTY, MIXED, SUPERACTIVE, MESIC UDIC HAPLUSTOLLS
IMLAY	LOAMY-SKELETAL, MIXED, SUPERACTIVE, CALCAREOUS, MESIC, SHALLOW ARIDIC USTORTHERENTS
INAVALE	SANDY, MIXED, MESIC TYPIC USTIFLUVENTS
INTERIOR	FINE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC ARIDIC USTIFLUVENTS
IPAGE	MIXED, MESIC OXYAQUIC USTIPSAMMENTS
JAMES	FINE, SMECTITIC, CALCAREOUS, MESIC CUMULIC VERTIC ENDOAQUOLLS
JANSEN	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, MESIC TYPIC ARGIUOLLS
JANUDE	COARSE-LOAMY, MIXED, SUPERACTIVE, MESIC CUMULIC HAPLUSTOLLS
JAVA	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC ENTIC HAPLUSTOLLS
JAYEM	COARSE-LOAMY, MIXED, SUPERACTIVE, MESIC ARIDIC HAPLUSTOLLS
JENKSDRAW	FINE, MIXED, SUPERACTIVE ALFIC ARGICRYOLLS
JERAULD	FINE, SMECTITIC, MESIC LEPTIC NATRUSTOLLS
<i>JOE CREEK</i>	<i>COARSE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC TYPIC USTORTHERENTS</i>
JUDY	FINE, SMECTITIC USTIC ARGICRYOLLS
KADOKA	FINE-SILTY, MIXED, SUPERACTIVE, MESIC ARIDIC ARGIUOLLS
KAMPESKA	FINE-SILTY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, FRIGID TYPIC CALCIUDOLLS
KEITH	FINE-SILTY, MIXED, SUPERACTIVE, MESIC ARIDIC ARGIUOLLS
KENNEBEC	FINE-SILTY, MIXED, SUPERACTIVE, MESIC CUMULIC HAPLUDOLLS
KEOTA	COARSE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC USTIC TORRIORTHERENTS
KEYA	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC PACHIC ARGIUOLLS
KIRBY	LOAMY-SKELETAL OVER FRAGMENTAL, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID ARIDIC USTORTHERENTS
KIRLEY	FINE, SMECTITIC, MESIC VERTIC ARGIUOLLS
KLOTEN	LOAMY, MIXED, SUPERACTIVE, FRIGID, SHALLOW ENTIC HAPLUDOLLS

**Appendix - Classification of soil series used in South Dakota (continued).
July 2003 (inactive series are shown in *Italics*).**

Series	SOIL FAMILY
KOLLS	VERY-FINE, SMECTITIC, MESIC TYPIC EPIAQUERTS
KORCHEA	FINE-LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID MOLLIC USTIFLUVENTS
KOTO	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID ARGIAQUIC ARGIALBOLLS
KRANZBURG	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID CALCIC HAPLUDOLLS
KRATKA	SANDY OVER LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC ENDOAQUOLLS
KREMLIN	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID ARIDIC HAPLUSTOLLS
KUBE	FINE, SMECTITIC, MESIC ARIDIC ARGIUSTOLLS
KYLE	VERY-FINE, SMECTITIC, MESIC ARIDIC HAPLUSTERTS
LA PRAIRIE	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID CUMULIC HAPLUDOLLS
LABU	FINE, SMECTITIC, MESIC VERTIC HAPLUSTEPTS
LADELLE	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID CUMULIC HAPLUDOLLS
LAIL	FINE, SMECTITIC VERTIC GLOSSOCRYALFS
LAKEPORT	FINE, SMECTITIC, MESIC AQUERTIC HAPLUDOLLS
LAKOA	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC HAPLUDALFS
LAKOMA	FINE, SMECTITIC, MESIC VERTIC CALCIUSTEPTS
LALLIE	FINE, SMECTITIC, CALCAREOUS, FRIGID VERTIC FLUVAQUENTS
LAMO	FINE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC CUMULIC ENDOAQUOLLS
LAMOURE	FINE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID CUMULIC ENDOAQUOLLS
LANE	FINE, SMECTITIC, MESIC PACHIC ARGIUSTOLLS
LANGHEI	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC EUTRUDEPTS
LANONA	COARSE-LOAMY, MIXED, SUPERACTIVE, FRIGID CALCIC HAPLUDOLLS
LANTRY	FINE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID TYPIC USTORTMENTS
LARDELL	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC AQUISALIDS
LARSON	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID CALCIC NATRUDOLLS
LARVIE	VERY-FINE, SMECTITIC, MESIC ARIDIC LEPTIC HAPLUSTERTS
LAWET	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC TYPIC CALCIAQUOLLS
LAWTHER	FINE, SMECTITIC, FRIGID TYPIC HAPLUSTERTS
LEFOR	FINE-LOAMY, MIXED, SEMIACTIVE, FRIGID TYPIC ARGIUSTOLLS
LEHR	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, FRIGID TYPIC HAPLUSTOLLS
<i>LEOTA</i>	<i>FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC ENDOAQUOLLS</i>
LESHARA	FINE-SILTY, MIXED, SUPERACTIVE, MESIC FLUVAQUENTIC ENDOAQUOLLS
LETCHER	COARSE-LOAMY, MIXED, SUPERACTIVE, FRIGID CALCIC NATRUDOLLS
LEX	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, CALCAREOUS, MESIC FLUVAQUENTIC ENDOAQUOLLS
LIHEN	SANDY, MIXED, FRIGID ENTIC HAPLUSTOLLS
LINTON	COARSE-SILTY, MIXED, SUPERACTIVE, FRIGID TYPIC HAPLUSTOLLS
LISMAS	CLAYEY, SMECTITIC, NONACID, MESIC, SHALLOW ARIDIC USTORTMENTS
LISMORE	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID AQUIC CUMULIC HAPLUDOLLS
LOBURN	FINE, SMECTITIC, FRIGID TORRERTIC NATRUSTALFS
LOHLER	FINE, SMECTITIC, CALCAREOUS, FRIGID VERTIC USTIFLUVENTS
LOHMILLER	FINE, SMECTITIC, CALCAREOUS, MESIC TORRERTIC USTIFLUVENTS
LOSSING	FINE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC AQUIC UDIFLUVENTS
LOUP	SANDY, MIXED, MESIC TYPIC ENDOAQUOLLS
LOWE	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC CALCIAQUOLLS
LOWRY	COARSE-SILTY, MIXED, SUPERACTIVE, MESIC TYPIC HAPLUSTOLLS
LUDDEN	FINE, SMECTITIC, FRIGID TYPIC ENDOAQUERTS
LUTE	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC TYPIC NATRAQUOLLS
LUTON	FINE, SMECTITIC, MESIC TYPIC ENDOAQUERTS
MACKEN	FINE, SMECTITIC, MESIC VERTIC EPIAQUOLLS
MADDOCK	SANDY, MIXED, FRIGID ENTIC HAPLUDOLLS
MAHONEY	FINE-SILTY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, FRIGID AERIC CALCIAQUOLLS
MAITLAND	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID GLOSSIC HAPLUDALFS

**Appendix - Classification of soil series used in South Dakota (continued).
July 2003 (inactive series are shown in *Italics*).**

Series	SOIL FAMILY
MAKOTI	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID PACHIC HAPLUSTOLLS
MANNING	COARSE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, FRIGID TYPIC HAPLUSTOLLS
MANTER	COARSE-LOAMY, MIXED, SUPERACTIVE, MESIC ARIDIC ARGUJUSTOLLS
MANVEL	FINE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC USTIC TORRIORTHENTS
MANZANOLA	FINE, SMECTITIC, MESIC USTIC HAPLARGIDS
MARIAVILLE	LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC, SHALLOW TYPIC USTORTHENTS
MARMARTH	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID ARIDIC ARGUJUSTOLLS
MARSHBROOK	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID CUMULIC ENDOAQUOLLS
MARYSLAND	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, FRIGID TYPIC CALCIAQUOLLS
MATHIAS	LOAMY-SKELETAL, MIXED, SUPERACTIVE, MESIC TYPIC HAPLUSTALFS
MAUVAIS	FINE-LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID AERIC ENDOAQUENTS
MAWER	COARSE-LOAMY, MIXED, SUPERACTIVE, MESIC ARIDIC ARGUJUSTOLLS
MAX	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC HAPLUSTOLLS
MCCLURE	FINE, SMECTITIC, MESIC TYPIC ARGUJUSTOLLS
MCFADDEN	COARSE-LOAMY, MIXED, SUPERACTIVE, FRIGID USTIC HAPLOCALCIDS
MCINTOSH	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID AERIC CALCIAQUOLLS
MCKELVIE	MIXED, MESIC TYPIC USTIPSAMMENTS
MCKENZIE	FINE, SMECTITIC, FRIGID CHROMIC ENDOAQUERTS
MCPAUL	COARSE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC MOLLIC UDIFLUVENTS
MEADIN	SANDY, MIXED, MESIC ENTIC HAPLUSTOLLS
MECKLING	MIXED, MESIC AQUIC UDIPSAMMENTS
METRE	VERY-FINE, SMECTITIC, MESIC ARIDIC LEPTIC HAPLUSTERTS
MIDWAY	CLAYEY, SMECTITIC, CALCAREOUS, MESIC, SHALLOW USTIC TORRIORTHENTS
MILLBORO	FINE, SMECTITIC, MESIC TYPIC HAPLUSTERTS
MINATARE	FINE, MIXED, SUPERACTIVE, MESIC AQUIC NATRUSTALFS
MINNEQUA	FINE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC USTIC TORRIORTHENTS
MINNEWASTA	SANDY OVER LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID AERIC ENDOAQUENTS
MINNEWAUKAN	MIXED, FRIGID TYPIC PSAMMAQUENTS
MIRANDA	FINE, SMECTITIC, FRIGID LEPTIC NATRUSTOLLS
MITCHELL	COARSE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC USTIC TORRIORTHENTS
MOBRIDGE	FINE-SILTY, MIXED, SUPERACTIVE, MESIC PACHIC ARGUJUSTOLLS
MOCMONT	LOAMY-SKELETAL, MIXED, SUPERACTIVE, FRIGID TYPIC HAPLUSTALFS
MODALE	COARSE-SILTY OVER CLAYEY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC AQUIC UDIFLUVENTS
MONDAMIN	FINE, SMECTITIC, FRIGID VERTIC ARGUJUSTOLLS
MONONA	FINE-SILTY, MIXED, SUPERACTIVE, MESIC TYPIC HAPLUDOLLS
MOODY	FINE-SILTY, MIXED, SUPERACTIVE, MESIC UDIC HAPLUSTOLLS
MOREAU	FINE, SMECTITIC, FRIGID VERTIC HAPLUSTOLLS
MORITZ	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID AERIC CALCIAQUOLLS
MORTON	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID TYPIC ARGUJUSTOLLS
MOSHER	FINE, SMECTITIC, MESIC VERTIC NATRUSTOLLS
MUNJOR	COARSE-LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC TYPIC USTIFLUVENTS
MURDO	LOAMY-SKELETAL, MIXED, SUPERACTIVE, MESIC ARIDIC ARGUJUSTOLLS
NAHON	FINE, SMECTITIC, FRIGID CALCIC NATRUDOLLS
NAPA	FINE, SMECTITIC, MESIC TYPIC NATRAQUERTS
NEVEE	COARSE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC ARIDIC USTORTHENTS
NIHILL	LOAMY-SKELETAL, MIXED, SUPERACTIVE, CALCAREOUS, MESIC USTIC TORRIORTHENTS
NIMBRO	FINE-LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC MOLLIC USTIFLUVENTS
NIOBELL	FINE, SMECTITIC, FRIGID GLOSSIC NATRUSTOLLS
NISHON	FINE, SMECTITIC, FRIGID TYPIC ALBAQUALFS
NOONAN	FINE, SMECTITIC, FRIGID TYPIC NATRUSTOLLS

**Appendix - Classification of soil series used in South Dakota (continued).
July 2003 (inactive series are shown in *Italics*).**

Series	SOIL FAMILY
NORA	FINE-SILTY, MIXED, SUPERACTIVE, MESIC UDIC HAPLUSTOLLS
NORKA	FINE-SILTY, MIXED, SUPERACTIVE, MESIC ARIDIC ARGUUSTOLLS
NORREST	FINE, SMECTITIC, MESIC ARIDIC HAPLUSTALFS
NORTHVILLE	FINE, SMECTITIC, MESIC GLOSSIC NATRUSTOLLS
NORWAY	MIXED, MESIC TYPIC PSAMMAQUENTS
NUNN	FINE, SMECTITIC, MESIC ARIDIC ARGUUSTOLLS
NUTLEY	FINE, SMECTITIC, FRIGID CHROMIC HAPLUDERTS
O'NEILL	COARSE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, MESIC TYPIC HAPLUSTOLLS
OAHE	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, MESIC TYPIC HAPLUSTOLLS
<i>OAK LAKE</i>	<i>FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID, HAPLIC VERMUDOLLS</i>
<i>OELRICHS</i>	<i>FINE-SILTY, MIXED, SUPERACTIVE, MESIC ARIDIC ARGUUSTOLLS</i>
OGLALA	COARSE-SILTY, MIXED, SUPERACTIVE, MESIC ARIDIC HAPLUSTOLLS
OKATON	CLAYEY, SMECTITIC, CALCAREOUS, MESIC, SHALLOW TYPIC USTORTHENTS
OKO	FINE, SMECTITIC, MESIC VERTIC ARGUUSTOLLS
OKREEK	FINE, SMECTITIC, MESIC VERTIC ARGUUSTOLLS
OLDHAM	FINE, SMECTITIC, CALCAREOUS, FRIGID CUMULIC VERTIC EPIAQUOLLS
OMADI	FINE-SILTY, MIXED, SUPERACTIVE, MESIC FLUVENTIC HAPLUDOLLS
ONAWA	CLAYEY OVER LOAMY, SMECTITIC OVER MIXED, SUPERACTIVE, CALCAREOUS, MESIC VERTIC UDIFLUVENTS
ONITA	FINE, SMECTITIC, MESIC PACHIC ARGUUSTOLLS
OPAL	FINE, SMECTITIC, MESIC LEPTIC HAPLUSTERTS
ORELLA	CLAYEY, SMECTITIC, CALCAREOUS, MESIC, SHALLOW USTIC TORRIORTHENTS
<i>ORIENT</i>	<i>FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID, TYPIC ARGUUSTOLLS</i>
<i>ORMAN</i>	<i>VERY-FINE, SMECTITE, MESIC, TYPIC HAPLUSTERTS</i>
ORTON	COARSE-LOAMY, MIXED, SUPERACTIVE, MESIC TYPIC HAPLUSTOLLS
ORWET	SANDY, MESIC TYPIC CALCIAQUOLLS
OTTUMWA	FINE, SMECTITIC, MESIC VERTIC HAPLUSTOLLS
OVERLY	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID PACHIC HAPLUDOLLS
OVERSHUE	COARSE-LOAMY, MIXED, SUPERACTIVE, MESIC TYPIC ENDOAQUOLLS
OWANKA	FINE, SMECTITIC, MESIC TORRERTIC HAPLUSTOLLS
OWEGO	FINE, SMECTITIC, NONACID, MESIC VERTIC ENDOAQUEPTS
PACTOLA	LOAMY-SKELETAL, MIXED, SUPERACTIVE, FRIGID GLOSSIC HAPLUDALFS
PARCHIN	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID ARIDIC NATRUSTALFS
PARNELL	FINE, SMECTITIC, FRIGID VERTIC ARGIAQUOLLS
PARSHALL	COARSE-LOAMY, MIXED, SUPERACTIVE, FRIGID PACHIC HAPLUSTOLLS
PAUNSAUGUNT	LOAMY-SKELETAL, MIXED, SUPERACTIVE, FRIGID LITHIC HAPLUSTOLLS
PEEVER	FINE, SMECTITIC, FRIGID VERTIC ARGUDOLLS
PEJI	MIXED, MESIC TYPIC USTIPSAMMENTS
PENO	FINE, SMECTITIC, MESIC VERTIC ARGUUSTOLLS
PENROSE	LOAMY, CARBONATIC, MESIC LITHIC USTIC TORRIORTHENTS
PERCIVAL	CLAYEY OVER SANDY OR SANDY-SKELETAL, SMECTITIC OVER MIXED, CALCAREOUS, MESIC AQUIC UDIFLUVENTS
PIERRE	FINE, SMECTITIC, MESIC ARIDIC LEPTIC HAPLUSTERTS
PLANKINTON	FINE, SMECTITIC, MESIC TYPIC ARGIALBOLLS
PLATTE	SANDY, MIXED, MESIC AERIC FLUVAQUENTS
PLAYMOOR	FINE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID CUMULIC ENDOAQUOLLS
POINSETT	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID CALCIC HAPLUDOLLS
PROMISE	VERY-FINE, SMECTITIC, MESIC TYPIC HAPLUSTERTS
PROSPER	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC PACHIC ARGUUSTOLLS
PUTNEY	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID CALCIC HAPLUDOLLS
RABER	FINE, SMECTITIC, MESIC TYPIC ARGUUSTOLLS
RALPH	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID ARIDIC ARGUUSTOLLS

**Appendix - Classification of soil series used in South Dakota (continued).
July 2003 (inactive series are shown in *Italics*).**

Series	SOIL FAMILY
RANSLO	FINE, SMECTITIC, FRIGID TYPIC NATRAQUOLLS
RAUVILLE	FINE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID CUMULIC ENDOAQUOLLS
RAZOR	FINE, SMECTITIC, MESIC USTERTIC HAPLOCAMBIDS
REDBIRD	LOAMY-SKELETAL, MIXED, SUPERACTIVE PACHIC ARGICRYOLLS
REDIG	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC GYPSIC HAPLUSTEPTS
REDSTOE	FINE-SILTY, MIXED, SUPERACTIVE, MESIC TYPIC CALCIUSTOLLS
REE	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC TYPIC ARGIUUSTOLLS
REEDER	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC ARGIUUSTOLLS
REGAN	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID TYPIC CALCIAQUOLLS
REGENT	FINE, SMECTITIC, FRIGID VERTIC ARGIUUSTOLLS
REKOP	LOAMY, GYPSIC, MESIC, SHALLOW USTIC TORRIORTHENTS
RELIANCE	FINE, SMECTITIC, MESIC TYPIC ARGIUUSTOLLS
RENNER	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC PACHIC ARGIUUSTOLLS
RENSHAW	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, FRIGID CALCIC HAPLUDOLLS
RENTILL	COARSE-LOAMY OVER CLAYEY, MIXED, ACTIVE, FRIGID CALCIC HAPLUDOLLS
RENWASH	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, FRIGID CALCIC HAPLUDOLLS
REVA	LOAMY-SKELETAL, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID LITHIC USTORTHENTS
RHAME	COARSE-LOAMY, MIXED, SUPERACTIVE, FRIGID ARIDIC HAPLUSTOLLS
RHOADES	FINE, SMECTITIC, FRIGID LEPTIC VERTIC NATRUSTOLLS
RICHFIELD	FINE, SMECTITIC, MESIC ARIDIC ARGIUUSTOLLS
RIDGEVIEW	FINE, SMECTITIC, FRIGID VERTIC ARGIUUSTOLLS
RIFLEPIT	FINE, MIXED, ACTIVE EUTRIC GLOSSOCRYALFS
RIMLAP	FINE, SMECTITIC, FRIGID VERTIC ARGIALBOLLS
ROCKERVILLE	LOAMY-SKELETAL, MIXED, SUPERACTIVE, FRIGID LITHIC CALCIUDOLLS
ROCKOA	LOAMY-SKELETAL, MIXED, SUPERACTIVE, FRIGID GLOSSIC HAPLUDALFS
RONDELL	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID AQUIC CALCIUDOLLS
RONSON	COARSE-LOAMY, MIXED, SUPERACTIVE, MESIC ENTIC HAPLUSTOLLS
ROSEBUD	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC CALCIDIC ARGIUUSTOLLS
ROSEGLEN	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID PACHIC HAPLUSTOLLS
ROXBURY	FINE-SILTY, MIXED, SUPERACTIVE, MESIC CUMULIC HAPLUSTOLLS
RUSKLYN	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID TYPIC CALCIUDOLLS
RYAN	FINE, SMECTITIC, FRIGID TYPIC NATRAQUERTS
SAGE	FINE, SMECTITIC, NONACID, MESIC TYPIC FLUVAQUENTS
SALIX	FINE-SILTY, MIXED, SUPERACTIVE, MESIC TYPIC HAPLUDOLLS
SALMO	FINE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC CUMULIC ENDOAQUOLLS
SAMSIL	CLAYEY, SMECTITIC, CALCAREOUS, MESIC, SHALLOW ARIDIC USTORTHENTS
SANSARC	CLAYEY, SMECTITIC, CALCAREOUS, MESIC, SHALLOW TYPIC USTORTHENTS
SARDAK	MIXED, MESIC TYPIC UDIPSAMMENTS
SARPY	MIXED, MESIC TYPIC UDIPSAMMENTS
SATANTA	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC ARIDIC ARGIUUSTOLLS
SAVAGE	FINE, SMECTITIC, FRIGID VERTIC ARGIUUSTOLLS
SAVO	FINE, SMECTITIC, MESIC ARIDIC ARGIUUSTOLLS
SAWDUST	LOAMY-SKELETAL, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID TYPIC USTORTHENTS
SCHAMBER	SANDY-SKELETAL, MIXED, SUPERACTIVE, MESIC ARIDIC USTORTHENTS
SCOTT	FINE, SMECTITIC, MESIC VERTIC ARGIALBOLLS
SCROGGIN	FINE-SILTY, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID ARIDIC USTORTHENTS
SCROLL	FINE-SILTY OVER SANDY OR SANDY-SKELETAL, MIXED, ACTIVE, CALCAREOUS, MESIC AQUIC UDIFLUVENTS
SERDEN	MIXED, FRIGID TYPIC UDIPSAMMENTS
SEROCO	MIXED, FRIGID TYPIC USTIPSAMMENTS
SHAMBO	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC HAPLUSTOLLS
SHENA	CLAYEY, SMECTITIC, MESIC, SHALLOW ARIDIC ARGIUUSTOLLS

**Appendix - Classification of soil series used in South Dakota (continued).
July 2003 (inactive series are shown in *Italics*).**

Series	SOIL FAMILY
SHINDLER	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC UDORTHENTIC HAPLUSTOLLS
SHINGLE	LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC, SHALLOW USTIC TORRIORTHENTS
SHIRTTAIL	LOAMY-SKELETAL OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, FRIGID TYPIC ARGUUSTOLLS
SHUE	SANDY OVER LOAMY, MIXED, SUPERACTIVE, MESIC TYPIC ENDOAQUOLLS
SIECHE	FINE, SMECTITIC, FRIGID PACHIC ARGUUDOLLS
SILVER CREEK	FINE, MIXED, SUPERACTIVE, MESIC TYPIC NATRAQUOLLS
SINAI	FINE, SMECTITIC, FRIGID TYPIC HAPLUDERTS
SINGSAAS	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID HAPLIC VERMUDOLLS
SIOUX	SANDY-SKELETAL, MIXED, FRIGID ENTIC HAPLUDOLLS
SISSETON	COARSE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC EUTRUDEPTS
SLIMBUTTE	LOAMY-SKELETAL, MIXED, SUPERACTIVE, FRIGID TYPIC HAPLUSTOLLS
SNOMO	VERY-FINE, SMECTITIC, MESIC TYPIC DYSTRUSTEPTS
SOHOLT	LOAMY-SKELETAL, MIXED, SUPERACTIVE LITHIC CALCICRYOLLS
SOLOMON	FINE, SMECTITIC, CALCAREOUS, MESIC VERTIC EPIAQUOLLS
SORUM	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID ARIDIC NATRUSTOLLS
SOUTHAM	FINE, SMECTITIC, CALCAREOUS, FRIGID CUMULIC VERTIC ENDOAQUOLLS
SPEARFISH	LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC, SHALLOW ARIDIC USTORTHENTS
SPLITROCK	FINE-SILTY, MIXED, SUPERACTIVE, MESIC OXYAQUIC HAPLUSTOLLS
SPOTTSWOOD	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, FRIGID AQUIC HAPLUDOLLS
ST. ONGE	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC CUMULIC HAPLUSTOLLS
STADY	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, FRIGID TYPIC HAPLUSTOLLS
STEINAUER	FINE-LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC TYPIC UDORTHENTS
STETTER	FINE, SMECTITIC, NONACID, MESIC TORRERTIC USTIFLUVENTS
STICKNEY	FINE, SMECTITIC, MESIC GLOSSIC NATRUSTOLLS
STIRK	VERY-FINE, SMECTITIC, CALCAREOUS, MESIC VERTIC USTIFLUVENTS
STIRUM	COARSE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC NATRAQUOLLS
STORLA	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, MESIC AERIC CALCIAQUOLLS
STOVHO	FINE, SMECTITIC INCEPTIC HAPLOCRYALFS
STRAW	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID CUMULIC HAPLUSTOLLS
STRAYHOSS	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, FRIGID CALCIC HAPLUDOLLS
SULLY	COARSE-SILTY, MIXED, CALCAREOUS, MESIC TYPIC USTORTHENTS
SUTLEY	COARSE-SILTY, MIXED, SUPERACTIVE, FRIGID TYPIC CALCIUSTOLLS
SVEA	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID PACHIC HAPLUDOLLS
SVERDRUP	SANDY, MIXED, FRIGID TYPIC HAPLUDOLLS
SWANBOY	VERY-FINE, SMECTITIC, MESIC ARIDIC HAPLUSTERTS
SWENODA	COARSE-LOAMY, MIXED, SUPERACTIVE, FRIGID PACHIC HAPLUDOLLS
SWINT	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC FLUVENTIC HAPLUSTOLLS
TALLY	COARSE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC HAPLUSTOLLS
TALMO	SANDY-SKELETAL, MIXED, MESIC UDORTHENTIC HAPLUSTOLLS
TANNA	FINE, SMECTITIC, FRIGID ARIDIC ARGUUSTOLLS
TANSEM	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC HAPLUSTOLLS
TASSEL	LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC, SHALLOW USTIC TORRIORTHENTS
TELFER	SANDY, MIXED, FRIGID ENTIC HAPLUSTOLLS
TEMIK	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID TYPIC HAPLUSTOLLS
TETONKA	FINE, SMECTITIC, MESIC ARGIAQUIC ARGIALBOLLS
THURMAN	SANDY, MIXED, MESIC UDORTHENTIC HAPLUSTOLLS
TICONIC	SANDY OVER LOAMY, MIXED, ACTIVE, CALCAREOUS, MESIC TYPIC UDIFLUVENTS
TIFFANY	COARSE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC ENDOAQUOLLS
TILFORD	FINE-SILTY, MIXED, SUPERACTIVE, MESIC TORRIORTHENTIC HAPLUSTOLLS

**Appendix - Classification of soil series used in South Dakota (continued).
July 2003 (inactive series are shown in *Italics*).**

Series	SOIL FAMILY
TOKO	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC ARGIAQUIC ARGIALBOLLS
<i>TOLLEY</i>	<i>FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, FRIGID, PACHIC HAPLUDOLLS</i>
TONKA	FINE, SMECTITIC, FRIGID ARGIAQUIC ARGIALBOLLS
TOWNER	SANDY OVER LOAMY, MIXED, SUPERACTIVE, FRIGID CALCIC HAPLUDOLLS
TRAVESSILLA	LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC LITHIC USTIC TORRIORTHENTS
TREBOR	LOAMY-SKELETAL, CARBONATIC EUTRIC HAPLOCRYALFS
TREMBLES	COARSE-LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID TYPIC USTIFLUVENTS
TRENT	FINE-SILTY, MIXED, SUPERACTIVE, MESIC PACHIC HAPLUSTOLLS
TREY	MIXED, FRIGID ARIDIC USTIPSAMMENTS
TROSKY	FINE-SILTY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID TYPIC ENDOAQUOLLS
TURTON	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID CALCIC NATRUDOLLS
TUTHILL	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, MESIC ARIDIC ARGIUSTOLLS
TWILIGHT	COARSE-LOAMY, MIXED, SUPERACTIVE, FRIGID HAPLOCALCIDIC HAPLUSTEPTS
<i>TWIN LAKES</i>	<i>FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, MESIC UDIC HAPLUSTOLLS</i>
TWOTOP	VERY-FINE, SMECTITIC, MESIC ARIDIC HAPLUSTERTS
ULEN	SANDY, MIXED, FRIGID AERIC CALCIAQUOLLS
ULY	FINE-SILTY, MIXED, SUPERACTIVE, MESIC TYPIC HAPLUSTOLLS
ULYSSES	FINE-SILTY, MIXED, SUPERACTIVE, MESIC ARIDIC HAPLUSTOLLS
VALE	FINE-SILTY, MIXED, SUPERACTIVE, MESIC ARIDIC ARGIUSTOLLS
VALENT	MIXED, MESIC USTIC TORRIPSAMMENTS
VALENTINE	MIXED, MESIC TYPIC USTIPSAMMENTS
VALLERS	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC CALCIAQUOLLS
VANG	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, FRIGID PACHIC HAPLUDOLLS
VANOCKER	LOAMY-SKELETAL, MIXED, SUPERACTIVE, FRIGID INCEPTIC HAPLUDALFS
VEBAR	COARSE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC HAPLUSTOLLS
VENAGRO	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID CALCIC HAPLUDOLLS
VENLO	SANDY, MIXED, FRIGID TYPIC ENDOAQUOLLS
VETAL	COARSE-LOAMY, MIXED, SUPERACTIVE, MESIC PACHIC HAPLUSTOLLS
VIBORG	FINE-SILTY, MIXED, SUPERACTIVE, MESIC PACHIC HAPLUSTOLLS
VIDA	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC ARGIUSTOLLS
VIENNA	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID CALCIC HAPLUDOLLS
VIRKULA	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID GLOSSIC HAPLUDALFS
VIVIAN	LOAMY-SKELETAL, MIXED, SUPERACTIVE, CALCAREOUS, MESIC TYPIC USTORTHENTS
VOLGA	FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID CUMULIC ENDOAQUOLLS
VOLIN	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC UDIC HAPLUSTOLLS
VORE	FINE-SILTY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, CALCAREOUS, MESIC AQUIC UDIFLUVENTS
WABEK	SANDY-SKELETAL, MIXED, FRIGID ENTIC HAPLUSTOLLS
WAKONDA	FINE-SILTY, MIXED, SUPERACTIVE, MESIC AERIC CALCIAQUOLLS
WALKE	FINE, SMECTITIC, MESIC GLOSSIC NATRUSTOLLS
WANBLEE	FINE, SMECTITIC, MESIC ARIDIC LEPTIC NATRUSTALFS
WANN	COARSE-LOAMY, MIXED, SUPERACTIVE, MESIC FLUVAQUENTIC HAPLUSTOLLS
WASA	VERY-FINE, SMECTITIC, MESIC ARIDIC LEPTIC HAPLUSTERTS
WATROUS	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC ARGIUSTOLLS
WAUBAY	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID PACHIC HAPLUDOLLS
WAUBONSIE	COARSE-LOAMY OVER CLAYEY, MIXED, SUPERACTIVE, MESIC FLUVENTIC HAPLUDOLLS
WAYDEN	CLAYEY, SMECTITIC, CALCAREOUS, FRIGID, SHALLOW TYPIC USTORTHENTS

**Appendix - Classification of soil series used in South Dakota (continued).
July 2003 (inactive series are shown in *Italics*).**

Series	SOIL FAMILY
WEBER	FINE-SILTY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, MESIC ARIDIC ARGIUSTOLLS
WENDTE	FINE, SMECTITIC, CALCAREOUS, MESIC VERTIC USTIFLUVENTS
WENTWORTH	FINE-SILTY, MIXED, SUPERACTIVE, MESIC UDIC HAPLUSTOLLS
WERNER	LOAMY, MIXED, SUPERACTIVE, FRIGID, SHALLOW ENTIC HAPLUSTOLLS
<i>WESSINGTON</i>	<i>FINE-LOAMY OVER SANDY OR SANDY-SKELETAL, MIXED, SUPERACTIVE, MESIC UDIC HAPLUSTOLLS</i>
WESTOVER	COARSE-LOAMY, MIXED, SUPERACTIVE, CALCAREOUS, MESIC TYPIC USTORTHENTS
WETA	FINE, SMECTITIC, MESIC LEPTIC NATRUSTOLLS
WEWELA	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC TYPIC ARGIUSTOLLS
WHITELAKE	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC TYPIC NATRUSTOLLS
WHITewater	VERY-FINE, SMECTITIC, MESIC ARIDIC LEPTIC HAPLUSTERTS
WHITWOOD	FINE-SILTY, MIXED, SUPERACTIVE, MESIC CUMULIC ENDOAQUOLLS
WILLIAMS	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC ARGIUSTOLLS
WINETTI	LOAMY-SKELETAL, MIXED, SUPERACTIVE, CALCAREOUS, FRIGID TYPIC USTIFLUVENTS
WINLER	VERY-FINE, SMECTITIC, MESIC ARIDIC LEPTIC HAPLUSTERTS
WINSHIP	FINE-SILTY, MIXED, SUPERACTIVE, FRIGID PACHIC ARGIUOLLS
WITTEN	FINE, SMECTITIC, MESIC VERTIC ARGIUSTOLLS
WOODLY	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC PACHIC ARGIUSTOLLS
WOONSOCKET	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC GLOSSIC NATRUSTOLLS
WORTHING	FINE, SMECTITIC, MESIC VERTIC ARGIAQUOLLS
WORTMAN	FINE, SMECTITIC, MESIC ARIDIC NATRUSTOLLS
WYNDMERE	COARSE-LOAMY, MIXED, SUPERACTIVE, FRIGID AERIC CALCIAQUOLLS
YANKTON	FINE-SILTY, MIXED, SUPERACTIVE, MESIC PACHIC HAPLUSTOLLS
YAWDIM	CLAYEY, SMECTITIC, CALCAREOUS, FRIGID, SHALLOW ARIDIC USTORTHENTS
YECROSS	MIXED, FRIGID TYPIC USTIPSAMMENTS
YEGEN	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC ARGIUSTOLLS
ZAHILL	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC CALCIUSTEPTS
ZAHL	FINE-LOAMY, MIXED, SUPERACTIVE, FRIGID TYPIC CALCIUSTOLLS
ZELL	COARSE-SILTY, MIXED, SUPERACTIVE, FRIGID TYPIC CALCIUDOLLS
ZEONA	MIXED, FRIGID ARIDIC USTIPSAMMENTS
ZIGWEID	FINE-LOAMY, MIXED, SUPERACTIVE, MESIC USTIC HAPLOCAMBIDS