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Agriculture

Soil  
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**NATIONAL SOIL TAXONOMY HANDBOOK**  
430-VI  
ISSUE NO. 10

Purpose. To distribute current amendments to Soil Taxonomy, Agriculture Handbook 436.

Effective Date. These amendments and revisions are effective when received.

Filing Instructions. File this copy of the changes in the three-ring binder with Issue No. 3 through 9. It is suggested that you keep this binder with the Soil Taxonomy volume for easy reference.

Replace 615 contents dated October 1986 with the enclosed contents dated May 1987. Replace page 615-2h dated August 1986 with the enclosed page 615-2h dated May 1987. File pages 615.101-109 following pages 615-100.

Supplementation. States and NTC's may not supplement the handbook.

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DIST: NSTH



The Soil Conservation Service  
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(430-VI-NSTH, June 1987)

615.43 Ustalfs, Ustochrepts, and Ustolls.

Ustalfs, Ustochrepts, and Ustolls include soils that have an udic moisture regime based on lime content. The lime content may be due to high lime content in the parent material or restricted drainage and can be misleading if interpretations are based on the assumption that the lime content reflects precipitation and leaching. Our interpretations are improved if udic moisture regime is excluded from Ustalfs, Ustochrepts, and Ustolls. The lime content criterion is a hold-over from the period in the development of Soil Taxonomy before moisture regimes were introduced and lime content was used as an indication of drier conditions and less leaching.

The following changes are required in Soil Taxonomy to accommodate this amendment:

Page 109, first column, Item HC.

Delete "item HC. 3." Delete footnote No. 2 at bottom of page.

Page 125, first column, Definition.

Item 2., change to read: "2. Have an udic moisture regime;" Delete remainder of item. Delete footnote 12 at bottom of page.

Page 137, second column, Ustalfs, Definition.

Item 3., change to read: "3. Have an ustic moisture regime, or if the moisture regime is aridic but marginal to ustic, have an epipedon that is both massive and hard or very hard when dry." Delete footnote No. 14 at bottom of page.

Page 139, First column.

Distinctions between Typic Haplustalfs and other subgroups  
Change item f. to read:

"f. When neither irrigated nor fallowed to store moisture:

1. If the soil temperature regime is mesic or thermic, are dry for more than four-tenths of the cumulative days in some part of the moisture control section when the soil temperature at a depth of 50 cm exceeds 50 C; or

2. If the soil temperature regime is hyperthermic, isomesic, or warmer, the soils are dry in some or all parts of the moisture control section for more than 90 days during a period when the soil temperature at a depth of 50 cm exceeds 80 C;"

Page 139.

Delete footnote #15.

Page 139, Second Column.

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Change Arenic Aridic Haplustalfs to read: ". . . are like Typic Haplustalfs except for b and 1."

Change Aridic Haplustalfs to read: ". . . are like Typic Haplustalfs except for 1."

After Psammentic Haplustalfs add:  
Udertic Haplustalfs are like Typic Haplustalfs except for f and h, with or without a.

Change Vertic Haplustalfs to read: ". . . are like Typic Haplustalfs except for h, with or without a or i or both.

Page 139, Description of subgroups, Typic Haplustalfs.--(Page 140), First column, second paragraph:

Delete: "The absence of a calcic horizon or soft powdery lime or the presence of one of them at considerable depth, depending on the particle size, reflects a higher effective precipitation than is considered normal and defines the udic subgroup" and  
substitute: "A soil moisture regime that approaches the udic regime is considered more moist than normal and defines the udic subgroup."

Page 141, first column, Udic Haplustalfs.

Delete: "do not have a calcic horizon or soft, powdery secondary lime within the following depth of the soil surface: 1.25 m if the weighted average particle-size class of the upper 5 cm of the argillic horizon or of the whole argillic horizon, if it is thinner than 50 cm, is sandy; or 90 cm if the particle-size class of the same part of the argillic horizon is loamy; or 90 cm if it is clayey." and  
substitute: "are dry for less than four-tenths of the cumulative days in some part of the moisture control section when the soil temperature at a depth of 50 cm exceeds 50 C if the soil temperature regime is mesic or thermic and are dry in some or all parts of the moisture control section for less than 90 days during a period when the soil temperature at a depth of 50 cm exceeds 80 C if the soil temperature regime is hyperthermic, isomesic, or warmer."

Page 142, second column, Distinctions between Typic Paleustalfs and other subgroups, Page 143, first column.

Change item d. to read:

"d.-When neither irrigated nor fallowed to store moisture:

1. If the soil temperature regime is mesic or thermic, are dry for more than four-tenths of the cumulative days in some part of the moisture control section when the soil temperature at a depth of 50 cm

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exceeds 50 C; or

2. If the soil temperature regime is hyperthermic, isomesic, or warmer, the soils are dry in some or all parts of the moisture control section for more than 90 days during a period when the soil temperature at a depth of 50 cm exceeds 80 C;"

Page 143, second column.

Change Arenic Aridic Paleustalfs to read: ". . . are like Typic Paleustalfs except for b and h and they. . ."

Change Udertic Paleustalfs to read: ". . . are like Typic Paleustalfs except for d and f, with or without a."

Page 143-144, Description of subgroups, Typic Paleustalfs, (Page 144), first column.

Delete: "The absence of a calcic horizon or of soft powdery lime, or the presence of one of them only at considerable depth, depending on particle size, reflects a higher effective precipitation than is considered normal" and

substitute: "A soil moisture regime that is ustic but borders on udic is more moist than normal"

Page 145, first column, Udertic Paleustalfs.

Delete: "except that either they do not have a calcic horizon or a horizon that contains soft, powdery secondary lime or the depth to such a horizon is >70 cm in more than half of each pedon." and

substitute: "except they are moist for longer periods of time."

Page 145, first column, Udic Paleustalfs.

Delete: "except that either they do not have a calcic horizon or a horizon that contains soft, powdery secondary lime or such a horizon is deeper than in the typic subgroup." and substitute: "except they are moist for longer periods of time."

Page 146, first column, Distinctions between Typic Rhodustalfs and other subgroups, change item c. to read:

"c. When neither irrigated nor fallowed to store moisture:

1. If the soil temperature regime is mesic or thermic, are dry for more than four-tenths of the cumulative days in some part of the moisture control section when the soil temperature at a depth of 50 cm exceeds 50 C; or

2. If the soil temperature regime is hyperthermic, isomesic, or warmer, the soils are dry in some or all

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parts of the moisture control section for more than 90 days during a period when the soil temperature at a depth of 50 cm exceeds 80 C;"

Page 146, description of subgroups, Typic Rhodustalfs--  
Delete: "The absence of secondary carbonates at moderate depth is thought to be abnormal and defines the udic subgroup." and

substitute: "Rhodustalfs that are moist for longer periods than are described for the typic subgroup, defines the udic subgroup."

Udic Rhodustalfs. --

Delete: "Soils in this subgroup either do not have a calcic horizon or other horizon that contains soft, powdery secondary lime, or if one of these horizons is present, it is deeper than in Typic Rhodustalfs." and  
substitute: "Soils in this subgroup are moist for longer periods of time than is defined for Typic Rhodustalfs."

Page 254, second column, Distinctions between Typic Ustochrepts and other subgroups, change item e. to read:

"e. When neither irrigated nor fallowed to store moisture:

1. If the soil temperature regime is mesic or thermic, are dry for more than four-tenths of the cumulative days in some part of the moisture control section when the soil temperature at a depth of 50 cm exceeds 50 C; or

2. If the soil temperature regime is hyperthermic, isomesic, or warmer, the soils are dry in some or all parts of the moisture control section for more than 90 days during a period when the soil temperature at a depth of 50 cm exceeds 80 C;"

Page 255, after Lithic Ustochrepts add:

Udertic Ustochrepts are like Typic Ustochrepts except for c and e, with or without a or d, or both.

Page 255, Description of subgroups, second column, Udic Ustochrepts. --

Delete: "These soils may be free of carbonates, or the carbonates in them are deep." and

substitute: "Soils in this subgroup receive more moisture than those of the typic subgroup."

Page 273 (Mollisols), Key to suborders, Item GF., change to read:

"Other Mollisols that have an ustic or an aridic moisture regime that borders on ustic."

Ustolls, p. 298

Page 273: Delete: Footnote 3.

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Page 295, Udolls, Definition, Item 5., change to read:  
 "Have a udic moisture regime."

Item 6., Delete all of item 6.

Page 298-299, Ustolls,

Page 299, first column, lines 3 and 4.

Delete: " , and a few may have an udic regime that is marginal to ustic"

Page 299, Definition, Item 4., change to read:  
 "Have an ustic or aridic moisture regime."

Page 299, delete footnote No. 10 at bottom of page.

Page 299, Distinctions between Typic Argiustolls and other subgroups, Typic Argiustolls are the Argiustolls that, Page 300, Change item f. to read:

"f. When neither irrigated nor fallowed to store moisture:

1. If the soil temperature regime is mesic or thermic, are dry for more than four-tenths of the cumulative days in some part of the moisture control section when the soil temperature at a depth of 50 cm exceeds 50 C; or

2. If the soil temperature regime is hyperthermic, isomesic, or warmer, the soils are dry in some or all parts of the moisture control section for more than 90 days during a period when the soil temperature at a depth of 50 cm exceeds 80 C;"

Change Aridic Argiustolls to read: ". . . are like Typic Argiustolls except for h."

Second column, change Torrertic Argiustolls to read:

". . . are like Typic Argiustolls except for g, with or without e or h, and the cracks are open 6 months or more in most years.

Second column, after Torrertic Argiustolls, add:

"Udertic Argiustolls are like the Typic Argiustolls except for f and g, with or without a or e, wor both, and cracks are open less than 135 days in most years."

Second column, change Vertic Argiustolls to read:

". . . Are like Typic Argiustolls except for g except for a or e or both, and cracks are open between 135 and 180 days in most years.

Description of subgroups, Typic Argiustolls.-- Delete:

"Deep carbonates are an indication of precipitation

higher than that of Typic Argiustolls and are used to define udic subgroups." and substitute: "Argiustolls that are moist for longer periods of time than is described for the typic subgroup, define the udic subgroup."

Page 301, Udic Argiustolls. --Delete:

"The ca horizon or the calcic horizon is deeper than in Typic Argiustolls."

Page 301-302, Distinctions between Typic Calcicustolls and other subgroups, Typic Calcicustolls are the Calcicustolls that, Page 302, first column, add item h:

"h. When neither irrigated nor fallowed to store moisture:

1. If the soil temperature regime is mesic or thermic, are dry for more than four-tenths of the cumulative days in some part of the moisture control section when the soil temperature at a depth of 50 cm exceeds 50 C; or

2. If the soil temperature regime is hyperthermic, isomesic, or warmer, the soils are dry in some or all parts of the moisture control section for more than 90 days during a period when the soil temperature at a depth of 50 cm exceeds 80 C;"

Page 302, first column, after Torricustolls, add: Udertic Calcicustolls are like Typic Calcicustolls except for g and h, with or without a or b or both, and cracks are open less than 135 days in most years.

Udic Calcicustolls are like Typic Calcicustolls except for h.

Page 303, Distinctions between Typic Haplustolls and other subgroups, Typic Haplustolls (plate 12B) are the Haplustolls that, Change item 1. to read:

"1. When neither irrigated nor fallowed to store moisture:

1. If the soil temperature regime is mesic or thermic, are dry for more than four-tenths of the cumulative days in some part of the moisture control section when the soil temperature at a depth of 50 cm exceeds 50 C; or

2. If the soil temperature regime is hyperthermic, isomesic, or warmer, the soils are dry in some or all parts of the moisture control section for more than 90 days during a period when the soil temperature at a depth of 50 cm exceeds 80 C;"

Page 304, first column.

Change Aridic Haplustolls to read: ". . . are like Typic

Haplustolls except for j."

Change Lithic Haplustolls to read: ". . . are like Typic Haplustolls except for f, with or without any or all of d, i, and j."

Change Torrifluventic Haplustolls to read: ". . . are like Typic Haplustolls except for e and j, with or without d."

Change Torriorthentic Haplustolls to read: ". . . are like Typic Haplustolls except for d and j."

Change Torroxic Haplustolls to read: ". . . are like Typic Haplustolls except for j and k, with or without b, or e."

Page 304, second column, Description of subgroups, Typic Haplustolls. -- First paragraph, delete:

"and they have a shallow horizon of carbonate accumulation or an ustic moisture regime, or both".

Second paragraph, delete:

"A udic moisture regime characterizes udic subgroups." and substitute: "A moisture regime that borders on udic characterizes udic subgroups."

Page 306, Udic Haplustolls.-- Second sentence, add before the word, deeper, the word "usually", so the sentence reads:

"Secondary carbonates are usually deeper than in Typic Haplustolls, and the soils are moist for longer periods.

Page 308, Distinctions between Typic Paleustolls and other subgroups, Typic Paleustolls are the Paleustolls that, Change item e. to read:

"e. When neither irrigated nor fallowed to store moisture:

1. If the soil temperature regime is mesic or thermic, are dry for more than four-tenths of the cumulative days in some part of the moisture control section when the soil temperature at a depth of 50 cm exceeds 50 C; or

2. If the soil temperature regime is hyperthermic, isomesic, or warmer, the soils are dry in some or all parts of the moisture control section for more than 90 days during a period when the soil temperature at a depth of 50 cm exceeds 80 C;"

Page 308, second column, change Torreritic Paleustolls to read: ". . . with or without c or g, or both, . . ."

Description of subgroups, Typic Paleustolls.--(Page 309).

Delete: "Deep secondary carbonates are associated with a

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supply of moisture greater than normal and define udic subgroups." and substitute: "A moisture regime that borders on udic characterizes udic subgroups."

Second column, Udertic Paleustolls. -- First sentence, add the word "usually" before the word "deep" s. the sentence reads:

"These soils have deep wide cracks in most years, and carbonates are usually deep."

Second column, Udic Paleustolls. -- First sentence, change to read:

"These soils have more precipitation than Typic Paleustolls and carbonates are usually at a greater depth."

615.44 Additions and changes.

The following additions and changes are required in Soil Taxonomy to accommodate new amendments and to correct and add to previous issues of the National Soil Taxonomy Handbook [NSTH].

Page 52, first column, line 7 (Reference: NSTH issue No. 6, correction).

Change ca to k, cs to y, and sa to z.

Pages 196, 198, 199, 200, and 201, definitions of Torriorthents, Troorthents, Udorthents, Ustorthents, and Xerorthents (Reference: NSTH issue No. 4).

From each of these definitions delete "Have conductivity of the saturation extract that is 2 mmho per centimeter or greater at 25o C in some part above whichever of the following depths is the least: a lithic or paralithic contact, 1.25 m if the particle-size class is sandy, 90 cm if loamy, and 75 cm if clayer."

Pages 194, 196, 198, 199, 200, and 201. Delete footnotes 11, 14, 15, 16, 17, and 18.

Pages 228 & 229, footnotes 1 & 2 (Reference: NSTH issue No. 1, p. 615-12).

Delete footnote 1 and replace the text of footnote 2 with the text of footnote 1.

Page 256, Distinctions between Typic Xerochrepts and other subgroups, (Reference: Personnel communications with Dr. Tavernier and Ph. D. thesis by Ilaiwi, Univ. of Ghent).

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Add item h as follows: "h. Do not have a petrocalcic horizon within a depth of 100 cm of the soil surface."

After "Lithic Ruptic-Xerorthentic Xerochrepts" insert "Petrocalcic Xerochrepts are like Typic Xerochrepts except for h, with or without f or i or both."

Add item i as follows: "i. Do not have a gypsic horizon within a depth of 100 cm of the soil surface."

After "Fluventic Xerochrepts" insert "Gypsic Xerochrepts are like Typic Xerochrepts except for i, with or without f."

Pages 282 & 283, distinctions between Typic Argiborolls and other subgroups, Abruptic Udic Argiborolls (clarification).

Delete "for g, with or without d or f(1)," so statement reads: "Abruptic Udic Argiborolls are like Typic Argiborolls except for a and f(2), with or without b(1) or h, or both."

Page 351, first column, item FB. 2. (clarification).

Change ". . . depth of 1 m below the base of the mineral soil surface . . ." to ". . . depth of 1 m below the top of the mineral soil surface . . ."

Page 385, second column, item E., end of second line (Reference: NSTH issue No. 6, correction).

Change ca to k.

Page 420, first column, line 10 (Reference: NSTH issue No. 8).

Change "Tropohumults" to "Kanhaplohumults".

Page 427, Humults, third paragraph, first sentence (Reference: NSTH issue No. 8).

Change "Tropohumults" to "Kanhaplohumults".

National Soil Taxonomy Handbook issue 8 (corrections).

Change ". . . CEC <16 . . ." to ". . . CEC <16 . . ." in the Definitions on pages 615-59, 62, 63, 66, 68, 78, 79, 82, 83, 87, 89, 93, and 95.

National Soil Taxonomy Handbook issue 8, page 615-79, Kanhaplaquults, Definition, item 1, second line (correction).

Insert: "and an ECEC <12 meq per 100 g clay (sum of bases extracted with 1N NH4OAc pH 7 plus 1N KCl extractable Al)" after "7)".