

LARS Technical Report 111579

Atlas of Soil Reflectance Properties

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Department of Agronomy
and
Laboratory for Applications of Remote Sensing
Purdue University West Lafayette, Indiana 47906 USA
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with support of the

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Soil Color in Perspective

In delineating differences between soils and in describing the characteristics of a soil profile, color is one of the most obvious and useful attributes for documenting these differences. For more than 50 years soil scientists have worked to refine and make more quantitative the descriptions of soil color.

In the 1920's a national committee on soil color standards was established and assigned the task of developing a standardized procedure for determining soil color. The work of this committee resulted in the adoption of the Munsell color notation along with color descriptions to document the color characteristics of specific soils and the different horizons within any soil profile (Pendleton and Nickerson, 1951).

Today the common method for determining this important soil property is for the human observer of soils to make a visual comparison between a given soil sample and the various color chips in an array of artificially produced Munsell colors, arranged according to hue, value and chroma. Once the observer has matched the color of the soil sample with that of the appropriate color chip, the soil is then assigned an alphanumeric Munsell color notation and a word description of the soil color. Often soil color will be determined by this method for soil samples in both air dry and moist conditions. In general, increasing moisture content will lower the numerical designation for value, i.e., reduce reflectance.

Since soil color is related to numerous other soil properties, it is important that soil color descriptions be as precise as possible. Recent developments in field and laboratory instrumentation now make it possible to reduce much of the subjectivity involved in the determination of soil color. New instrumentation also provides the opportunity to obtain precise quantitative reflectance measurements not only in the visible portion (color) of the electromagnetic spectrum but also in the near and middle infrared regions (Figure 1). This capability adds a new dimension to the possible use of soil spectral measurements to explain other soil characteristics and to predict soil response to different treatments, management, and variations in climate.

Reflectance measurements in the near and middle infrared often reveal textural, structural, mineralogical and/or other significant differences which may not be detectable by standard color observations (Figure 2). In this example, soils from three very different climatic regimes (Oklahoma, USA; Badajoz, Spain; Paraná, Brazil) were described by soil scientists as dark red and given the same Munsell color designation (2.5YR 3/6). The visible portion of the reflectance curves reveal similar spectral characteristics. However, in the near and middle infrared there are great differences in both the shapes of the curves and the intensity of reflectance.

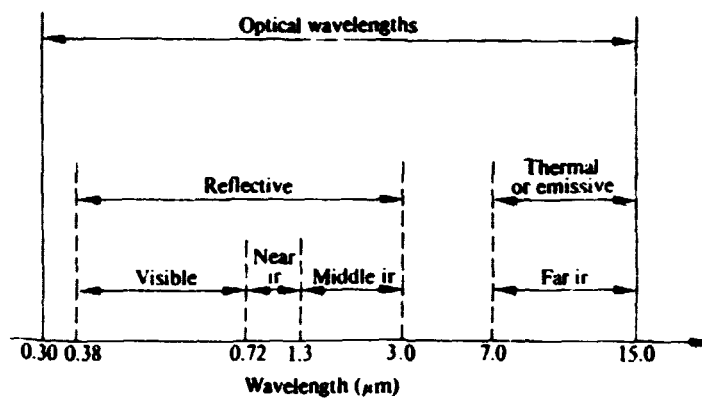
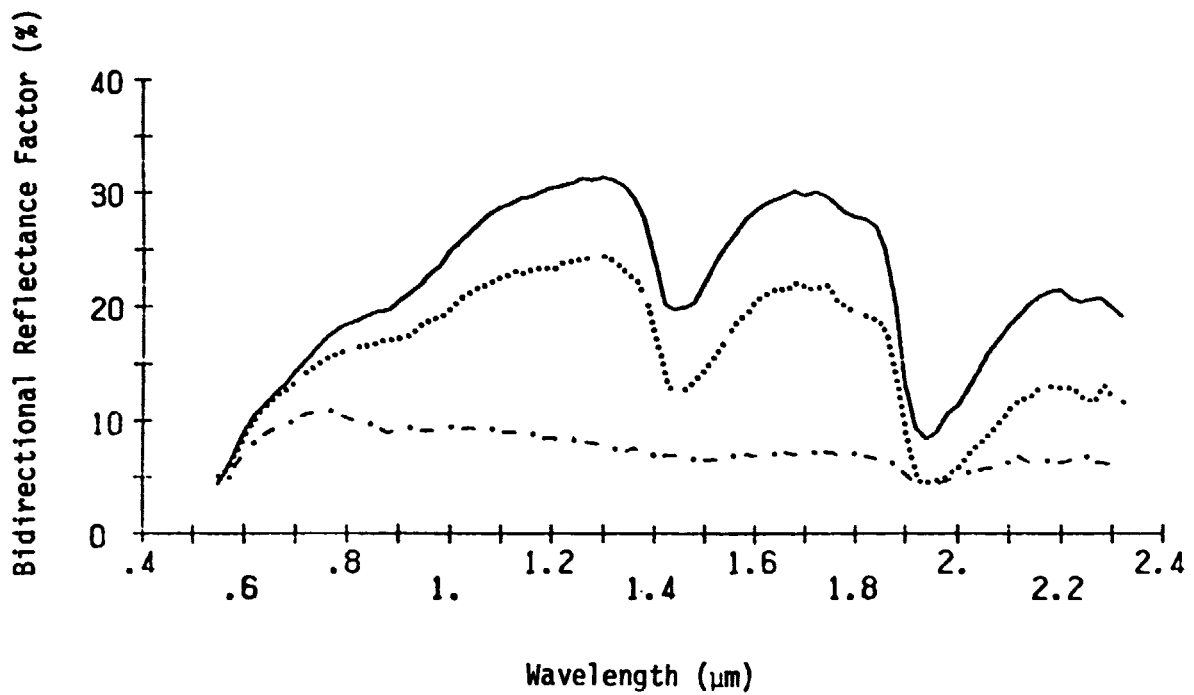


Figure 1. Electromagnetic spectrum.



Key to Soils Data

Soil	Curve	% Organic Matter	% Fe ₂ O ₃
Dill (Oklahoma, USA)	—	0.6	0.87
Arroyo (Spain)	1.28	2.00
Londrina (Brazil)	-----	2.28	25.6

Figure 2. Reflectance curve for three dark red surface soils having moist Munsell color notations 2.5 YR 3/6. (Stoner, 1979).

Purpose

The purpose of this atlas is to present for the first time a compendium of laboratory-measured soil parameters and soil site characteristics together with reflectance measurements of soils. Only those soil parameters and site characteristics known to influence soil reflectance properties are included, with the recognition that even more detailed soil mineralogical and organic constituent investigations are needed to understand soil reflectance differences.

The 251 soils shown here represent a wide range of soil forming factors characteristic of soils in the continental United States and Brazil. Selection of 247 of these soils based on stratification of the continental United States by soil temperature regime and climatic moisture zone provides a statistical sampling of soils in proportion to the geographic extent of each climatic region (Figure 3). Information about the soils in this atlas can be extended to many of those soils closely related in classification and geography.

This atlas is intended to promote an appreciation of the diversity of soil reflectance properties as those soils might be viewed by remote sensing devices. The well-ordered physical and chemical relationships that impart diverse spectral character to soils become apparent here. The need for a quantitative, reliable laboratory procedure for measuring soil spectral properties should also become evident.

Collection of Soil Samples

The Soil Survey Investigations Division of the Soil Conservation Service (USDA) cooperated with the Laboratory for Applications of Remote Sensing/Purdue University by taking responsibility for field collection of almost 500 individual soil samples from 190 counties within 39 states. Two separate soil samples were collected for each soil series, one at a site near the type location for the current official series, and another at a site from one to twenty miles distant from the first site in a different mapping delineation of the same series. Samples were forwarded to Purdue University complete with additional site information regarding exact sampling location, physiographic position, slope, drainage, vegetation, and parent material. Brazilian soils were sampled in connection with a soil survey of Paraná State, Brazil (Fasolo, 1978).

Measurement of Soil Reflectance Properties

The sieved soil fraction less than 2 mm diameter was used for reflectance measurements in an attempt to standardize this procedure in line with the use of this same size fraction for most laboratory determinations of soil properties. All measurements were made on uniformly-moist soils which were equilibrated for 24 hours at a one-tenth bar moisture tension on asbestos tension tables. Specially constructed 10 cm diameter by 2 cm rings with 60 mesh wire bottoms held the soil in place through the stages of saturation, equilibration, and spectral reading (Figure 4).

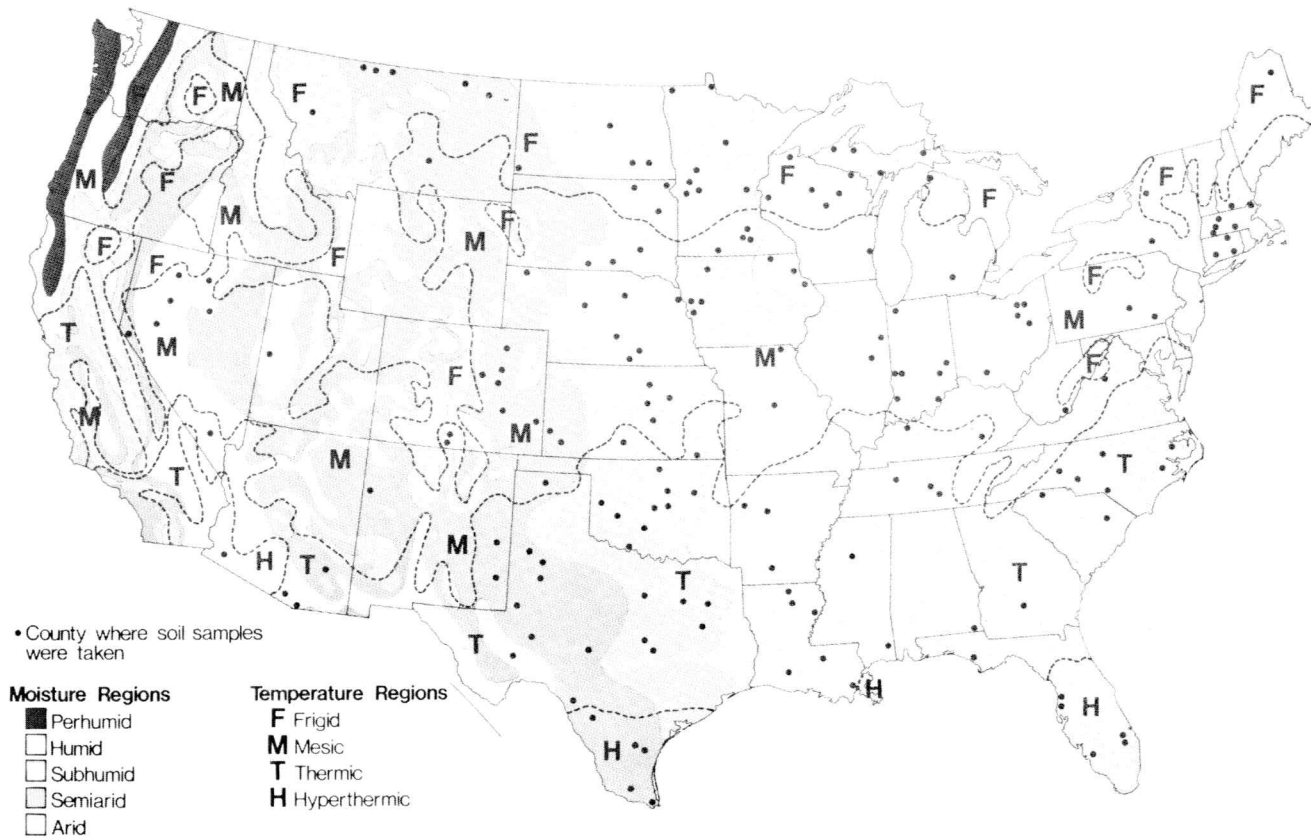
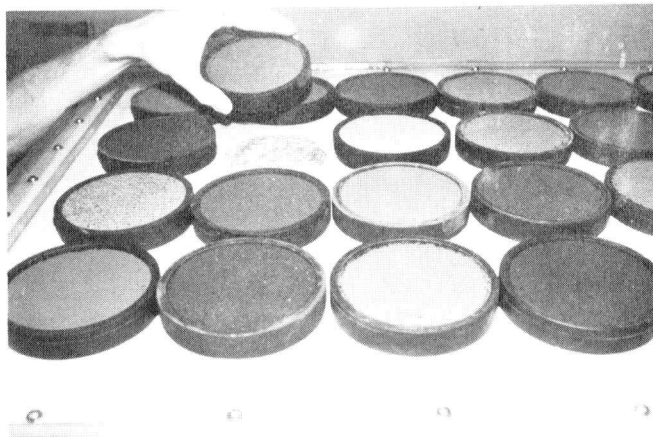


Figure 3. Climatic zones in the continental United States as identified by soil temperature regime (Soil Survey Staff, 1975; FAO-UNESCO, 1975) and the Thornthwaite (1948) moisture index.

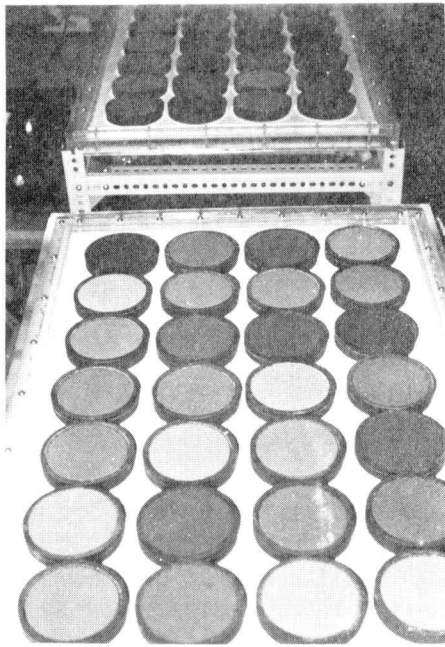


a. Soil sample and 10 cm diameter sample holder.

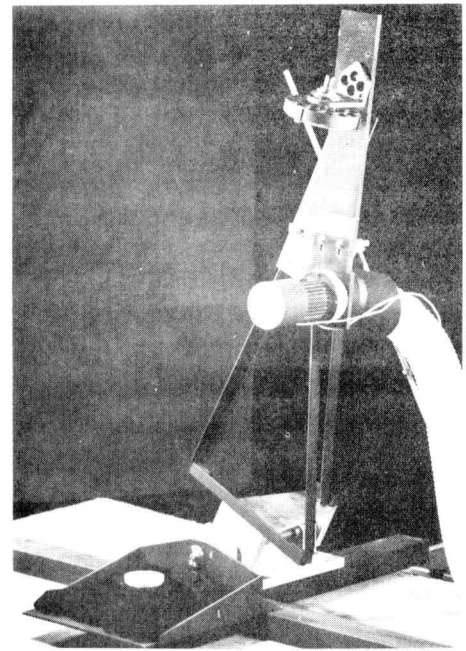


b. Saturated sample being placed on asbestos tension table.

Figure 4. Setup for laboratory spectral measurements of soils.



c. Fifty-six soil samples ready for spectral measurement after 24 hours equilibration at 100 cm H₂O tension.



d. BRF reflectometer positioned for soil sample detection by the Exotech 20C spectroradiometer.

Figure 4. (Cont.)

Soil reflectance was measured using an Exotech Model 20C spectroradiometer adapted for indoor use with a reflectometer equipped with an artificial illumination source, transfer optics, and sample stage. Spectral readings were taken in 0.01 μm increments over the 0.52-2.32 μm wavelength range. A 1000 watt tungsten iodine coiled filament lamp provided incident irradiation similar to that of solar illumination. Pressed barium sulfate was used as a calibration standard, with measurements being taken after every fifth soil sample to account for possible changes in the intensity of the illumination source. A more detailed explanation of the instrumentation is found in Silva, et al. (1971), Leamer, et al. (1973) and DeWitt and Robinson (1976), while the sample preparation procedure is described by Stoner (1979).

The repeatable quantitative nature of reflectance measurements made using this procedure is evident from spectral curves of check samples measured on each of the ten days needed to run over 500 individual soil samples (Figure 5). Random soil reflectance readings of twenty separately prepared Fincastle silt loam soil samples (a fine-silty mixed mesic Aeric Ochraqualf) gave very similar results.

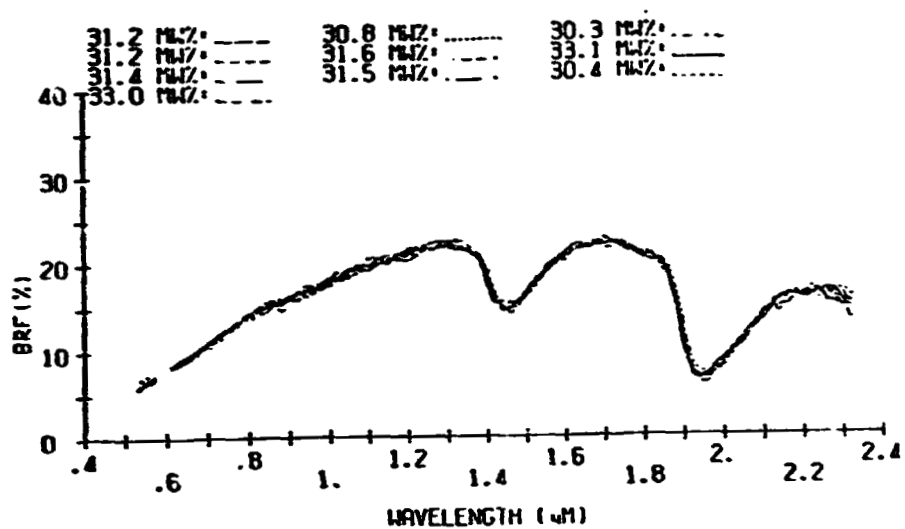
Soil Reflectance Properties Data Base

An identification record containing 100 items of information including complete soil taxonomic classification along with site characteristics and laboratory analyses is available in computer tape format for all of the soils in this atlas. This information together with digitized soil reflectance data is accessible for editing and rapid retrieval of all soils information by means of the LARSPEC software package (Simmons, et al., 1975). Graphical display of soil reflectance curves as shown in this atlas is accomplished by one of the LARSPEC processors while another processor permits selection of specific soil analyses, site characteristics, and taxonomic data in the abbreviated format used here.

Organization of Soil Atlas

Soils are arranged in this atlas by alphabetical order of the 39 states in which they were sampled. Four soils from Paraná State, Brazil follow at the end. Four soils are displayed on each page, while information specific to one of two field samples is given in separate columns under each soil series name. A few soils are represented by only one field sample. Two indices are included, arranged by state and by soil series name. A narrative key follows, with each numbered item of soil information identified in Figure 6 described in detail as it appears in the atlas.

DAYS 1 - 5



DAYS 6 - 10

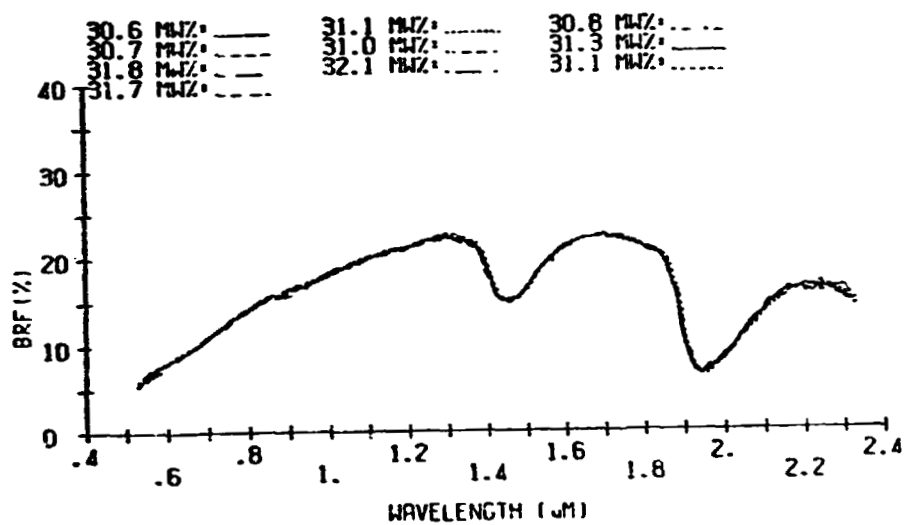


Figure 5. Soil reflectance curves and moisture percentages by weight (MM%) for 20 check samples of Fincastle sil, a fine-silty mixed mesic Aeric Ochraqualf, from ten different setups of the tension table apparatus.

1) ONTONAGON(MI)

- 2) Glossic Entroboralf
 3) very fine, mixed
 4) humid zone
 5) glacial lake plain sediments
 6) Ontonagon Co.

7) Ap horizon	Ap horizon
8) B slope	B slope
9) mod. well drained	mod. well drained
10) clay	clay
11) 7%S 22%Si 70%C	6%S 29%Si 66%C
12) 2.5YR 3/6 (moist)	2.5YR 4/4 (moist)
5YR 6/4 (dry)	5YR 6/4 (dry)
13) 4.88% O.M.	3.95% O.M.
14) 38.0 meq/100g CEC	31.6 meq/100g CEC
15) 1.73% Fe ₂ O ₃	2.76% Fe ₂ O ₃

16) 47.5 MWZ: _____ 43.2 MWZ: - - - -

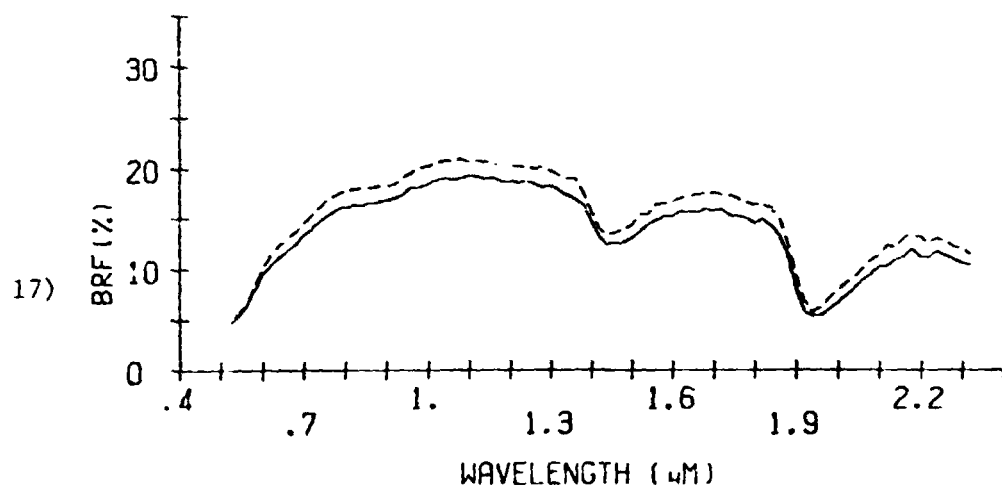


Figure 6. Numbered guide corresponding to narrative key to soil information.

Narrative Key to Soil Information

1) soil series name with two-letter state abbreviation

The series is the lowest category in the soil taxonomic system. Names of series as a rule are abstract place names with no connotation regarding soil diagnostic properties. This atlas contains soil information for 247 of the more than 10,000 soil series recognized in the United States. These 247 soil series were selected from a list of over 1,300 benchmark soils whose large geographic extent renders them an important part of a state or resource area. Soil samples were taken from sites within states having the responsibility for maintaining the standard series description for that soil series. Data from these soils are widely applicable to soils occurring in the continental United States.

2) soil subgroup name

Subgroup names consist of the name of a great group modified by one or more adjectives. About 970 subgroups are currently recognized in the United States. The name of a great group consists of the name of a suborder and a prefix that consists of one or two formative elements suggesting something of the diagnostic properties. There are about 225 great groups in the U.S. soil taxonomy (Soil Survey Staff, 1975). Names of suborders have exactly two syllables. The first syllable connotes some information about the diagnostic properties of the soils while the second is the formative element from the name of the order. Forty-seven suborders are recognized, while there are only ten soil orders.

It has been observed that high organic content surface soils of the Mollisol and Histosol soil order frequently have a concave-shaped reflectance curve in the 0.5 to 1.3 μm wavelength region. Lower organic content surface soils of the Alfisol soil order frequently have convex-shaped reflectance curves in the same wavelength region. Reflectance curves for surface soils of the Ultisol soil order often resemble those for Alfisols except for the presence of slight dips in the curve at 0.7 and 0.9 μm caused by iron absorption. It should be understood that these generalizations about soil reflectance of certain soil orders are only an aid to facilitate the appreciation of differences in spectral properties among surface soils. Soil orders distinguished primarily by subsoil horizon properties cannot always be expected to show characteristic reflectance in the surface horizon.

3) soil family modifiers

Names of soil families are polynomial, consisting of the name of a subgroup and adjectives. These adjectives describe the particle-size class (11 classes plus others if strongly contrasting), the mineralogy (20 classes and a few subclasses), the temperature regime (8 classes), and, in some families, depth of soil (3 classes), consistence (2 classes), moisture equivalent (2 classes) and other properties. Names of most families have three adjectives modifying the subgroup name but some have only one or two and others have four or more. Soil properties are used in this category without regard to their significance as marks of processes or lack of them. About 4,500 families are presently recognized in the United States.

Redundancy is avoided in naming families, thus, for example, the modifier frigid is left out of families in which the formative element bor in the suborder name indicates soils having a frigid temperature regime. Particle-size distribution and mineralogy are specified for only those horizons of major biologic activity below plow depth.

Soils have been observed to increase in reflectance with increasing soil temperature. This is most likely explained by decreased organic matter contents in warmer regions. Lower organic content soils reflect more than those with elevated levels of organic matter.

Soil mineralogy appears to influence soil reflectance in various manners. While soils with gypsic mineralogy reflect highly because of the inherent reflectance properties of gypsum, montmorillonitic soils, often associated with higher organic matter levels, show low reflectance attributable to this high organic matter content.

4) moisture zone

Although the soil moisture regime is an important property of a soil, the moisture regimes defined in the U.S. soil taxonomy are not always included in the taxonomic name, and are defined not necessarily by climatic moisture zone, but rather in terms of the ground-water level and the presence or absence of water held at a tension less than 15 bars throughout the year. Moisture zones in this atlas are defined in terms of climatic moisture zones as described by the Thornthwaite (1948) moisture index. Five main moisture zones are defined on this basis in the continental United States.

Soils from wetter climates generally reflect less than those from dry climates because of organic matter accumulation under higher rainfall conditions. Exceptions to this rule occur when soils are formed under prairie grass vegetation in drier climates.

5) parent material

Parent material, as the initial geologic material from which soils are formed, can be expected to demonstrate an eventual influence on soil reflectance. Certain soils referred to as lithochromic are even known to owe their spectral colors to inheritance from the parent material rather than from soil-forming processes. Parent material types listed in this atlas were obtained from the established series profile descriptions for each soil.

6) county

The county within the state where soils were collected is listed in order to specify the sampling location for each of two sets of samples whose analyses follow.

7) horizon designation

All soil samples represented only the surface soil, containing material from 0 to 15 cm (0 to 6 inches) if depth to a B horizon permitted. Those surface soils under cultivation or which still show the marks of cultivation are designated by the symbol "p" following the capital letter symbol for the horizon. Undisturbed soils are represented by horizon designations such as A1, A11, A1-A2, A1-A21 and A11-A12.

8) slope class

Relief, as expressed by slope class grouping, is an important soil-forming factor that is characteristic of each site in the soil landscape. Slope classes in this atlas follow the convention of capital letter symbols designating slope percentages as follows: A, 0-2%; B, 2-6%; C, 6-12%; D, 12-18%; E, 18-25%; F, 25-35%; G, greater than 35%.

9) internal drainage

All soil series have a specific internal drainage which is indicative of the local landscape position and broader climatic conditions under which they formed. Drainage classes used in this atlas are as follows: v. (very) poorly drained, poorly drained, s. (somewhat) poorly drained, mod. (moderately) well drained, well drained, s. excess. (somewhat excessively) drained, and excess. (excessively) drained.

Soils have been seen to show overall decreased reflectance with increasingly poorer drainage. Very poorly drained soils reflect considerably less than any of the other drainage classes at all wavelengths. As a site characteristic integrating the effects of climate, local relief, and accumulated organic matter, soil drainage characteristics are closely associated with reflectance properties of surface soils.

10) textural class name

Twenty-one textural class names have been defined in terms of size distribution of five sand size fractions plus silt and clay as determined by mechanical analysis in the laboratory (Soil Survey Staff, 1975). Organic soils are identified by using the term muck in place of the textural class name.

Because textural class names are defined wholly in terms of size distribution, the actual consistence or structure of the crushed, sieved soil samples may not necessarily be conveyed by this name. Highly aggregated clays may in some cases present surface structures similar to that of coarse sands. Use of the textural class name, however, is still the best available convention for expressing the size relationships among soil separates.

11) percent sand, silt, and clay

Particle size analysis was performed on organic matter-free soil portions (SCS-USDA, 1972). Clay and silt contents were determined by sedimentation-pipetting while five sand size fractions (here summed to give one sand amount) were separated by passing through a nest of sieves.

Decreasing particle size has been seen to increase soil reflectance among sand textured soils, possibly by forming a smoother surface with fewer voids to trap incoming light. The inverse appears to be true with medium to fine textured soils, however, possibly because increased moisture content and organic matter content associated with higher clay contents lead to lower reflectance.

12) Munsell color designations

Color standard comparisons were obtained at two soil moisture levels: air dry and field capacity. Moist soil colors were obtained by moistening samples and reading the color at a point in which visible moisture films were not present. Dry soil colors were obtained on the air dry sieved samples. All soil colors were determined by comparison to standard color chips of the Munsell Soil Color Charts.

Munsell designations for color consist of separate notations for hue, value, and chroma, which are combined in that order to form the color designation. The symbol for hue is the letter abbreviation of the color of the rainbow preceded by numbers from zero to ten. The notation for value, or relative lightness of color ranges from zero, for absolute black to ten, for absolute white. Chroma, or saturation, is the relative purity or strength of the spectral color and increases in number with decreasing grayness.

It is important to remember in comparisons between soil reflectance data and soil colors that the wavelength region of human physiological perception of visible reflectance extends only from about 0.4 to 0.7 μm , while reflectance data presented here extend from about 0.5 to 2.3 μm . While the color imparted to a soil may be due to specific absorptions in the visible region, it may also be caused by intense absorptions outside the visible wavelengths in either the ultraviolet or near infrared, the influence of which may extend into the visible. This points out the importance of having a full range of reflectance data from the visible to the middle infrared for thorough characterization of soil spectral properties.

13) organic matter content

Organic matter contents were determined by the modified Walkley-Black procedure of acid dichromate digestion with ferrous ammonium sulfate titration (Franzmeier, et al., 1977). Organic matter appears to be one of the dominant soil parameters responsible for imparting spectral properties to soils. Increased organic matter contents as a rule lead to decreased reflectance throughout the reflective spectrum. Many cases can be seen in this atlas where duplicate soil samples with otherwise similar properties exhibit

different reflectance curves because of slight differences in organic matter content.

Although increased organic matter content has been seen to decrease soil reflectance in mineral soils, the form or decomposition stage of organic material is more important in understanding reflectance properties of organic soils. Less decomposed organic materials have higher reflectance in the near infrared region because of enhanced reflectance attributable to remnant cell structure of well preserved fibers. In contrast, very highly decomposed organic materials show very low reflectance throughout the 0.5 to 2.3 μm range.

14) cation exchange capacity (CEC)

Cation exchange capacity (CEC) was measured for each soil sample as the sum of extractable cations of Ca, Mg, K, Na, plus extractable acidity, all expressed in terms of milliequivalents per 100 g of soil (SCS-USDA, 1972).

Cation exchange capacity is frequently seen to have a high negative correlation with reflectance, especially in the 2.08-2.32 μm middle infrared region. Although there is no direct physical basis for this relationship, it seems that cation exchange capacity is acting as a natural integrating factor for clay type and content as well as organic matter content, soil parameters which exhibit inherent spectral behavior.

15) iron oxide content

Free iron was measured by the so-called CBD procedure (Franzmeier, et al., 1977). Ferric iron absorption bands can be seen in certain soil reflectance curves in the 0.7 and 0.9 μm wavelength regions. Broad bands at these wavelengths frequently occur in high iron content soils; while a sharp, narrow absorption band at 0.9 μm is evident in many soils of relatively low or even negligible iron content.

Different forms of iron oxides are known to impart red and yellow colors to soils. Reflectance data in this atlas indicate that near infrared absorption may be partly responsible for coloring in high iron content soils.

16) moisture percentage by weight (MW%)

Soil moisture content by weight was determined gravimetrically on the soil samples used to obtain reflectance measurements. All soil samples were equilibrated at a one-tenth bar moisture tension, so resulting moisture differences are closely related to clay type, soil texture, and organic matter content. All other properties being equal, an increase in soil moisture content decreases soil reflectance at all wavelengths.

Strong water absorption bands at 1.45 and 1.95 μm are present in all of the spectral curves of these uniformly-moist soils. Weak water absorption bands at 1.2 and 1.77 μm are seen in some low organic content fine

sandy soils. Actual soil moisture content has been seen to be most highly correlated with soil reflectance in the 2.08-2.32 μm region.

17) plot of bidirectional reflectance factor (BRF%) versus wavelength (μm)

A convenient standard measure of reflectance that closely simulates the directional characteristics of illumination and viewing in an airborne remote sensor is the bidirectional reflectance factor. Bidirectional reflectance factor can be described as the ratio of the flux reflected by an object under specified conditions of negligibly small solid angles of irradiation and viewing to that reflected by the ideal, completely reflecting, perfectly diffusing surface, identically irradiated and viewed (Nicodemus, et al., 1977).

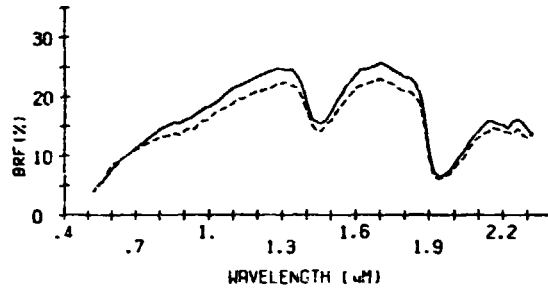
Wavelength, expressed in micrometer (μm) units, denotes the portion of the electromagnetic spectrum under consideration. Wavelength regions frequently referred to are the visible (0.38-0.72 μm), near infrared (0.72-1.3 μm), and middle infrared (1.3-3.0 μm).

RED BAY(AL)

Rhodic Paleudult
fine-loamy, siliceous, thermic
humid zone
marine sediments
Houston Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
loamy sand	sandy loam
83% Si 7% Si 10% C	76% Si 11% Si 13% C
5YR 3/4 (moist)	5YR 3/4 (moist)
7.5YR 5/6 (dry)	7.5YR 5/6 (dry)
0.58% O.M.	0.91% O.M.
10.8 meq/100g CEC	7.1 meq/100g CEC
0.80% Fe ₂ O ₃	1.32% Fe ₂ O ₃

12.8 MWZ* — 15.2 MWZ* - - - -

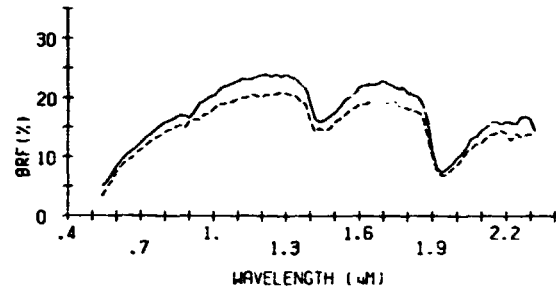


CONTINENTAL(AZ)

Typic Haplargid
fine, mixed, thermic
arid zone
acid rock alluvium
Santa Cruz Co.

All horizon	All horizon
A slope	A slope
well drained	well drained
coarse sandy loam	fine sandy loam
70% Si 20% Si 9% C	53% Si 35% Si 11% C
5YR 3/4 (moist)	5YR 3/3 (moist)
7.5YR 4/6 (dry)	7.5YR 4/6 (dry)
0.48% O.M.	0.71% O.M.
6.0 meq/100g CEC	15.7 meq/100g CEC
0.74% Fe ₂ O ₃	1.55% Fe ₂ O ₃

12.6 MWZ* — 17.2 MWZ* - - - -

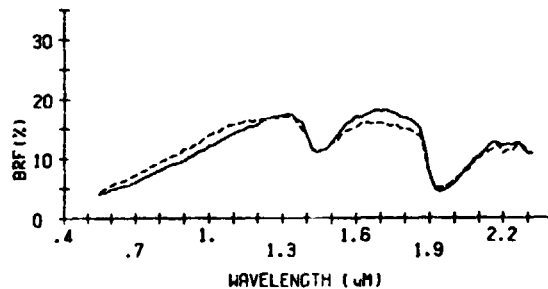


PIMA(AZ)

Cumulic Haplustoll
fine-silty, mixed, thermic
arid zone
mixed alluvium
Santa Cruz Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silty clay	silty clay loam
8% Si 48% Si 44% C	9% Si 52% Si 39% C
7.5YR 3/2 (moist)	7.5YR 3/2 (moist)
10YR 4/2 (dry)	10YR 5/2 (dry)
3.66% O.M.	1.86% O.M.
52.6 meq/100g CEC	44.8 meq/100g CEC
0.94% Fe ₂ O ₃	1.25% Fe ₂ O ₃

50.9 MWZ* — 55.9 MWZ* - - - -

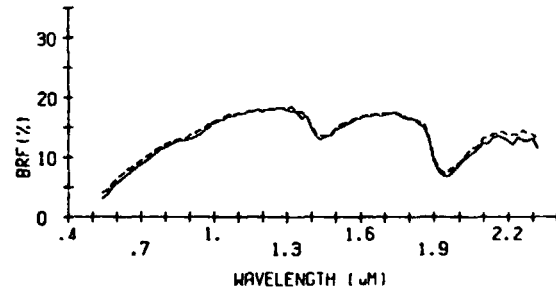


WHITE HOUSE(AZ)

Ustollic Haplargid
fine, mixed, thermic
arid zone
mixed alluvium
Santa Cruz Co.

Al horizon	Al horizon
A slope	B slope
well drained	well drained
fine sandy loam	sandy loam
52% Si 34% Si 14% C	62% Si 26% Si 12% C
5YR 3/3 (moist)	5YR 3/3 (moist)
7.5YR 4/4 (dry)	7.5YR 4/4 (dry)
1.68% O.M.	1.70% O.M.
15.7 meq/100g CEC	10.6 meq/100g CEC
1.64% Fe ₂ O ₃	1.85% Fe ₂ O ₃

21.8 MWZ* — 18.8 MWZ* - - - -



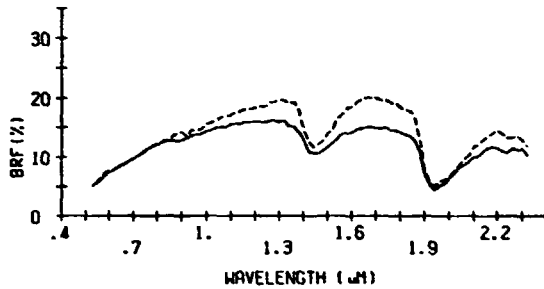
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GILA(AZ)

Typic Torrifluvent
coarse-loamy, mixed (calcareous),
thermic

arid zone
mixed alluvium
Graham Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	loam
25%S 50%Si 25%Cl	43%S 43%Si 14%Cl
7.5YR 3/2 (moist)	7.5YR 4/2 (moist)
7.5YR 5/2 (dry)	10YR 5/3 (dry)
1.38% O.M.	1.08% O.M.
39.6 meq/100g CEC	30.2 meq/100g CEC
1.13% Fe ₂ O ₃	0.69% Fe ₂ O ₃
37.2 MWZ	34.0 MWZ

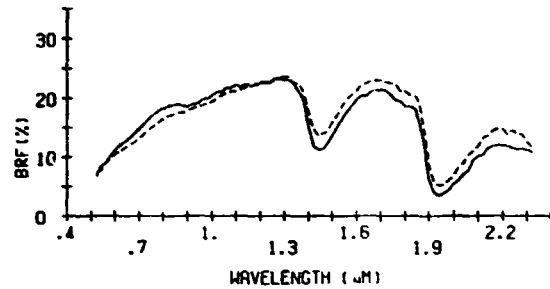


GLENDALE(AZ)

Typic Torrifluvent
fine-silty, mixed (calcareous),
thermic

arid zone
mixed alluvium
Graham Co.

Al horizon	Al horizon
A slope	A slope
well drained	well drained
silty clay loam	silty clay
17%S 52%Si 31%Cl	11%S 46%Si 43%Cl
10YR 4/3 (moist)	10YR 5/3 (moist)
10YR 5/4 (dry)	10YR 6/3 (dry)
0.64% O.M.	1.89% O.M.
126.0 meq/100g CEC	44.8 meq/100g CEC
0.59% Fe ₂ O ₃	0.78% Fe ₂ O ₃
56.2 MWZ	42.0 MWZ

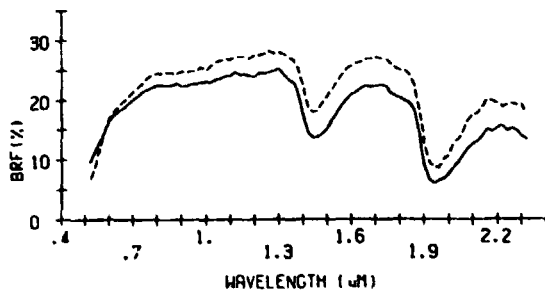


SUPERSTITION(AZ)

Typic Calciorthid
sandy, mixed, hyperthermic
arid zone

mixed alluvium
Yuma Co.

Al horizon	Al horizon
A slope	A slope
s. excess. drained	s. excess. drained
sand	sand
96%S 3%Si 1%Cl	93%S 1%Si 6%Cl
7.5YR 5/4 (moist)	5YR 5/6 (moist)
7.5YR 7/4 (dry)	7.5YR 7/4 (dry)
0.09% O.M.	0.10% O.M.
8.9 meq/100g CEC	10.9 meq/100g CEC
0.23% Fe ₂ O ₃	0.26% Fe ₂ O ₃
13.5 MWZ	8.0 MWZ

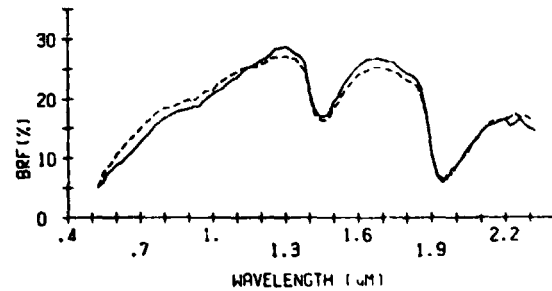


ENDERS(AR)

Typic Hapludult
clayey, mixed, thermic
humid zone

residuum from shale and limestone
Franklin Co.

All-A12 horizon	All-A12 horizon
E slope	E slope
well drained	well drained
loam	loam
37%S 37%Si 26%Cl	43%S 41%Si 16%Cl
10YR 4/6 (moist)	7.5YR 4/6 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
7.98% O.M.	4.70% O.M.
28.1 meq/100g CEC	14.3 meq/100g CEC
4.43% Fe ₂ O ₃	2.87% Fe ₂ O ₃
37.8 MWZ	33.4 MWZ



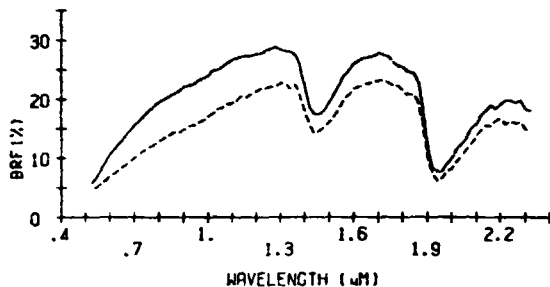
SAFFELL (AR)

Typic Hapludult
loamy-skeletal, siliceous,
thermic

humid zone
marine sediments
Ouachita Co.

Al horizon	Al horizon
B slope	A slope
well drained	well drained
fine sandy loam	fine sandy loam
66ZS 29ZSi 5ZC	54ZS 38ZSi 8ZC
7.5YR 4/4 (moist)	10YR 3/3 (moist)
7.5YR 6/4 (dry)	10YR 5/4 (dry)
0.58% O.M.	2.29% O.M.
4.1 meq/100g CEC	9.9 meq/100g CEC
0.49% Fe ₂ O ₃	0.91% Fe ₂ O ₃

18.0 MWZ* — 26.6 MWZ* ----



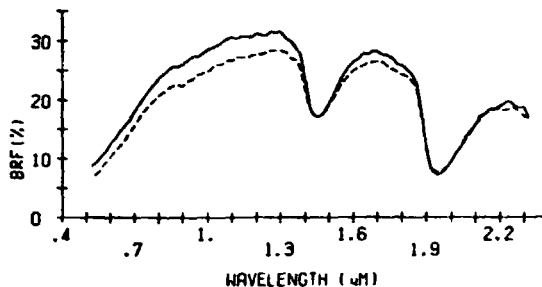
LINKER (AR)

Typic Hapludult
fine-loamy, siliceous, thermic
humid zone

residuum from sandstone
Pope Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
fine sandy loam	sandy loam
66ZS 30ZSi 5ZC	60ZS 33ZSi 7ZC
10YR 4/3 (moist)	10YR 4/3 (moist)
10YR 7/3 (dry)	10YR 7/3 (dry)
1.56% O.M.	1.93% O.M.
5.3 meq/100g CEC	6.4 meq/100g CEC
0.32% Fe ₂ O ₃	0.98% Fe ₂ O ₃

21.9 MWZ* — 23.9 MWZ* ----



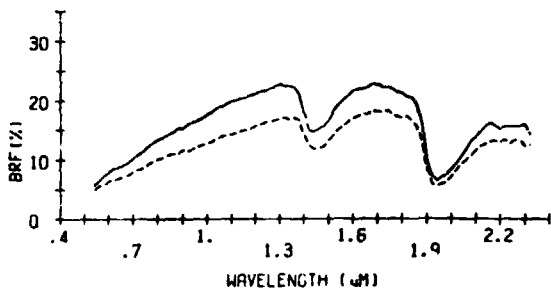
GLENBERG (CO)

Ustic Torrifluvent
coarse-loamy, mixed (calcareous),
mesic

semiarid zone
mixed alluvium
Crowley Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
coarse sandy loam	fine sandy loam
71ZS 14ZSi 15ZC	64ZS 25ZSi 11ZC
10YR 4/3 (moist)	10YR 3/2 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
1.12% O.M.	2.53% O.M.
22.6 meq/100g CEC	19.8 meq/100g CEC
0.66% Fe ₂ O ₃	0.92% Fe ₂ O ₃

13.7 MWZ* — 27.1 MWZ* ----

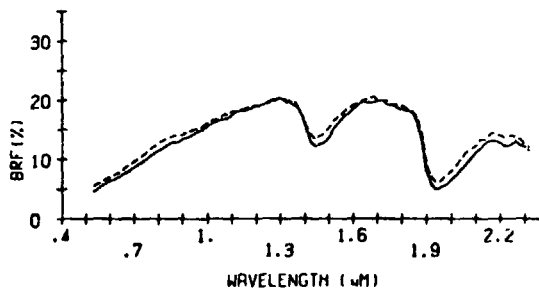


KUTCH (CO)

Torrertic Argiustoll
fine, montmorillonitic, mesic
semiarid zone
clayey sedimentary residuum
Elbert Co.

Al horizon	Al horizon
B slope	B slope
well drained	well drained
sandy clay loam	clay loam
53ZS 25ZSi 22ZC	31ZS 41ZSi 28ZC
10YR 4/2 (moist)	10YR 4/2 (moist)
10YR 4/2 (dry)	10YR 5/3 (dry)
1.79% O.M.	4.10% O.M.
22.9 meq/100g CEC	27.7 meq/100g CEC
0.63% Fe ₂ O ₃	1.47% Fe ₂ O ₃

33.2 MWZ* — 33.8 MWZ* ----



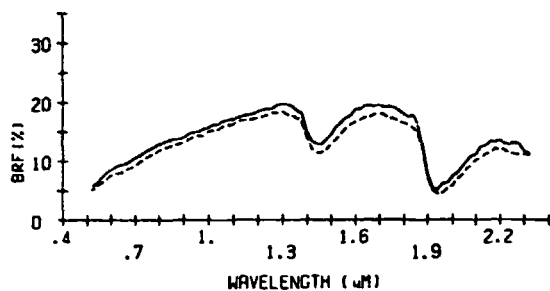
APISHAPA(CO)

Vertic Fluvaquent
fine, montmorillonitic (calcareous),
mesic

semiarid zone
mixed alluvium
Crowley Co.

Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
clay loam	clay loam
20%S 48%Si 32%Cl	30%S 36%Si 34%Cl
10YR 3/3 (moist)	10YR 4/2 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
2.58% O.M.	2.52% O.M.
32.6 meq/100g CEC	52.7 meq/100g CEC
1.24% Fe ₂ O ₃	1.13% Fe ₂ O ₃

34.4 MWZ: ——— 35.9 MWZ: - - - -

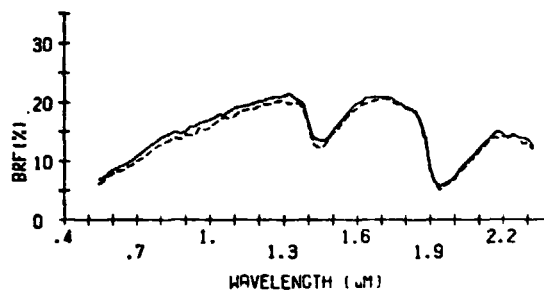


HAVERSON(CO)

Ustic Torrifuvent
fine-loamy, mixed (calcareous), mesic
semiarid zone
mixed alluvium
Prowers Co.

Al horizon	Al horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
11%S 73%Si 16%Cl	19%S 66%Si 14%Cl
10YR 4/2 (moist)	10YR 4/2 (moist)
10YR 6/3 (dry)	10YR 6/3 (dry)
2.56% O.M.	3.26% O.M.
32.6 meq/100g CEC	27.3 meq/100g CEC
1.14% Fe ₂ O ₃	1.09% Fe ₂ O ₃

40.9 MWZ: ——— 40.6 MWZ: - - - -



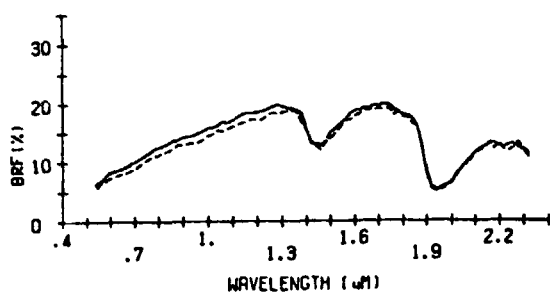
KORNMAN(CO)

Ustic Torrifuvent
coarse-loamy, mixed (calcareous),
mesic

semiarid zone
mixed alluvium
Prowers Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
clay loam	clay loam
34%S 30%Si 36%Cl	20%S 47%Si 33%Cl
10YR 3/3 (moist)	10YR 4/2 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
1.64% O.M.	3.25% O.M.
33.4 meq/100g CEC	36.2 meq/100g CEC
1.17% Fe ₂ O ₃	1.31% Fe ₂ O ₃

29.5 MWZ: ——— 35.5 MWZ: - - - -

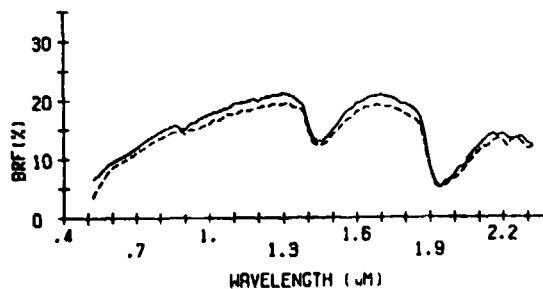


MINNEQUA(CO)

Ustic Torrifuvent
fine-silty, mixed (calcareous), mesic
semiarid zone
soft rock residuum
Prowers Co.

Al horizon	Al horizon
B slope	B slope
well drained	well drained
loam	silt loam
36%S 49%Si 15%Cl	27%S 58%Si 15%Cl
10YR 4/2 (moist)	10YR 4/2 (moist)
10YR 6/3 (dry)	10YR 6/3 (dry)
1.63% O.M.	1.90% O.M.
28.5 meq/100g CEC	29.2 meq/100g CEC
0.73% Fe ₂ O ₃	0.78% Fe ₂ O ₃

28.9 MWZ: ——— 32.7 MWZ: - - - -



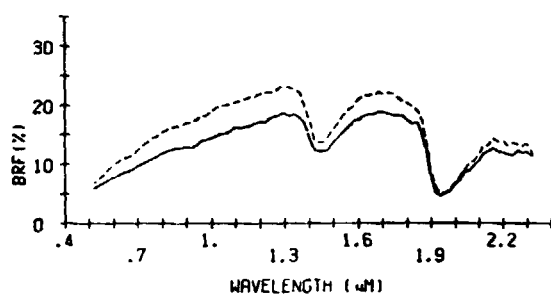
ROCKY FORD (CO)

Ustic Torriorthent
fine-silty, mixed (calcareous),
mesic

semiarid zone
mixed alluvium
Prowers Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silty clay	clay loam
4%S 50%Si 46%C	24%S 39%Si 37%C
10YR 4/2 (moist)	10YR 5/3 (moist)
10YR 5/2 (dry)	10YR 5/3 (dry)
3.70% O.M.	2.44% O.M.
47.3 meq/100g CEC	38.1 meq/100g CEC
1.39% Fe ₂ O ₃	1.04% Fe ₂ O ₃

37.8 MWZ* — 32.3 MWZ* ----

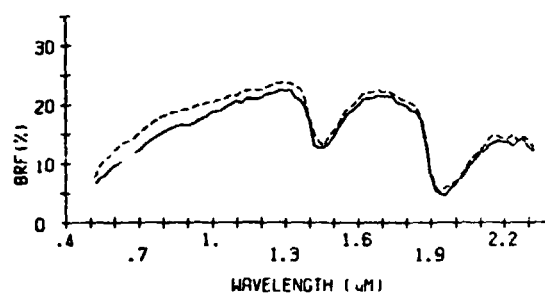


WILEY (CO)

Ustollic Haplargid
fine-silty, mixed, mesic
semiarid zone
eolian sediments
Prowers Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
23%S 57%Si 20%C	29%S 61%Si 10%C
10YR 4/3 (moist)	10YR 5/3 (moist)
10YR 6/3 (dry)	10YR 6/3 (dry)
1.30% O.M.	1.22% O.M.
32.3 meq/100g CEC	28.0 meq/100g CEC
0.83% Fe ₂ O ₃	1.09% Fe ₂ O ₃

37.6 MWZ* — 34.5 MWZ* ----



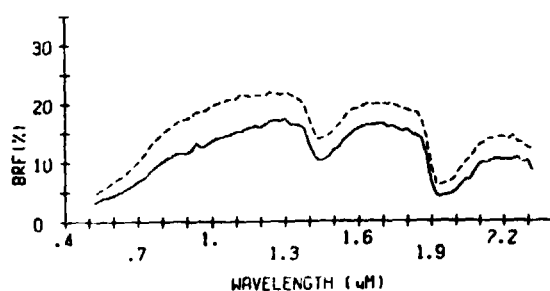
LA JARA (CO)

Typic Haplaquoll
coarse-loamy, mixed (calcareous),
frigid

arid zone
alluvium from basalt
Conejos Co. Alamosa Co.

Al horizon	Al horizon
A slope	A slope
poorly drained	poorly drained
sandy loam	loam
52%S 30%Si 18%C	34%S 42%Si 24%C
10YR 3/2 (moist)	5YR 3/4 (moist)
10YR 4/3 (dry)	10YR 5/3 (dry)
7.33% O.M.	5.95% O.M.
44.9 meq/100g CEC	33.5 meq/100g CEC
2.63% Fe ₂ O ₃	1.93% Fe ₂ O ₃

54.3 MWZ* — 36.4 MWZ* ----

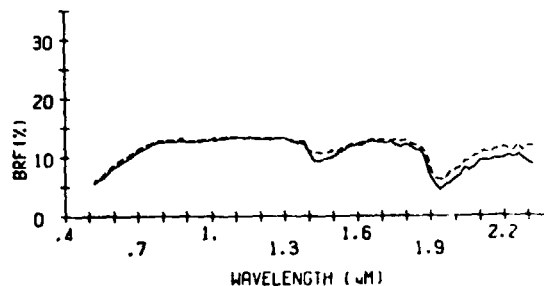


MOSCA (CO)

Typic Natrargid
coarse-loamy, mixed, frigid
arid zone
alluvium from basalt
Alamosa Co.

Al horizon	Al horizon
A slope	A slope
well drained	well drained
loamy coarse sand	coarse sand
84%S 10%Si 6%C	88%S 9%Si 3%C
7.5YR 4/2 (moist)	10YR 4/2 (moist)
10YR 5/3 (dry)	10YR 6/3 (dry)
0.11% O.M.	0.0% O.M.
20.5 meq/100g CEC	4.6 meq/100g CEC
0.54% Fe ₂ O ₃	0.36% Fe ₂ O ₃

17.8 MWZ* — 10.9 MWZ* ----



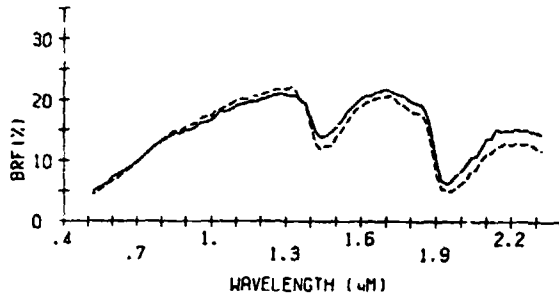
BRESSER(CO)

Aridic Argiustoll
fine-loamy, mixed, mesic
semiarid zone
coarse textured alluvial materials
Arapahoe Co.

Al horizon	Al horizon
C slope	B slope
well drained	well drained
coarse sandy loam	coarse sandy loam

10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/2 (dry)

17.1 MWZ: ——— 14.7 MWZ: - - - -



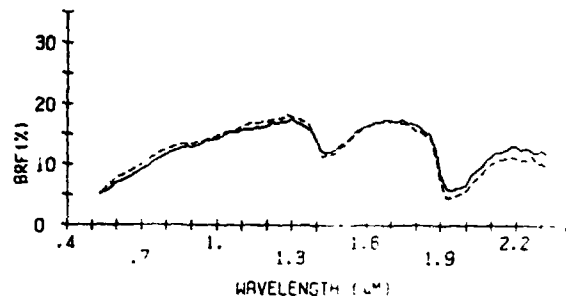
FONDIS(CO)

Aridic Paleustoll
fine, montmorillonitic, mesic
semiarid zone
loess over coarse textured outwash
Arapahoe Co.

Al horizon	Ap horizon
A slope	B slope
well drained	well drained
silt loam	silt loam

10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/2 (dry)

39.2 MWZ: ——— 36.5 MWZ: - - - -



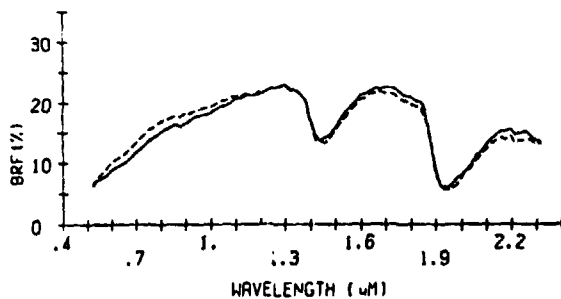
VONA(CO)

Ustollic Haplargid
coarse-loamy, mixed, mesic
semiarid zone
eolian materials
Morgan Co.

Al horizon	Al horizon
C slope	A slope
well drained	well drained
sandy loam	sandy loam

10YR 4/2 (moist)	10YR 4/2 (moist)
10YR 6/2 (dry)	10YR 6/2 (dry)

21.2 MWZ: ——— 25.9 MWZ: - - - -



BLAKELAND(CO) & VASQUEZ(CO)

Torriorthentic
Haplustoll
sandy, mixed, mesic
semiarid zone
eolian sediments
Douglas Co.

Al horizon
C slope
s. excess. drained
loamy coarse sand

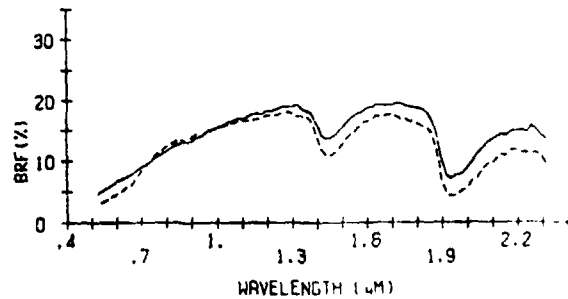
10YR 3/2 (moist)
10YR 5/2 (dry)

Humic Pergelic
Cryarcept
coarse-loamy, mixed,
acid
humid zone
local acid alluvium
Boulder Co.

Al horizon
A slope
poorly drained
loam

10YR 2/1 (moist)
10YR 4/1 (dry)

16.2 MWZ: ——— 45.5 MWZ: - - - -

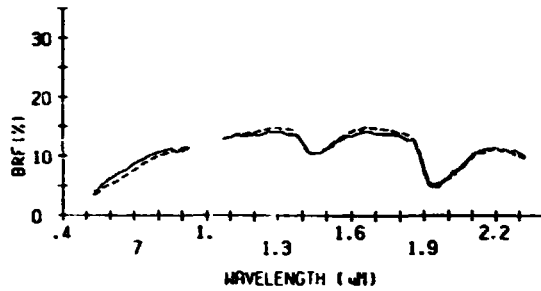


CHARLTON (CT)

Typic Dystrachrept
coarse-loamy, mixed, mesic
humid zone
acid till
New Haven Co.

Al horizon	Al horizon
B slope	B slope
well drained	well drained
loam	fine sandy loam
41XS 48XS1 11XC	58XS 34XS1 8XC
10YR 3/4 (moist)	10YR 3/3 (moist)
10YR 4/4 (dry)	10YR 4/3 (dry)
5.77% O.M.	6.99% O.M.
19.1 meq/100g CEC	21.0 meq/100g CEC
1.85% Fe ₂ O ₃	2.03% Fe ₂ O ₃

34.7 MWZ* ——— 36.3 MWZ* - - - -

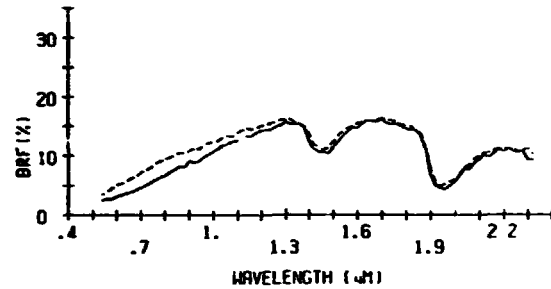


NINIGRET (CT)

Aquic Dystrachrept
coarse-loamy over sandy or sandy-
skeletal, mixed, mesic
humid zone
thin loamy over thick sandy deposits
New London Co.

Ap horizon	Ap horizon
A slope	A slope
m. well drained	m. well drained
fine sandy loam	fine sandy loam
61XS 36X Si 3Z C	55XS 39XS1 6ZC
10YR 2/2 (moist)	10YR 3/4 (moist)
10YR 4/2 (dry)	10YR 5/4 (dry)
8.20% O.M.	6.85% O.M.
23.5 meq/100g CEC	21.8 meq/100g CEC
1.32% Fe ₂ O ₃	2.27% Fe ₂ O ₃

38.5 MWZ* ——— 39.4 MWZ* - - - -

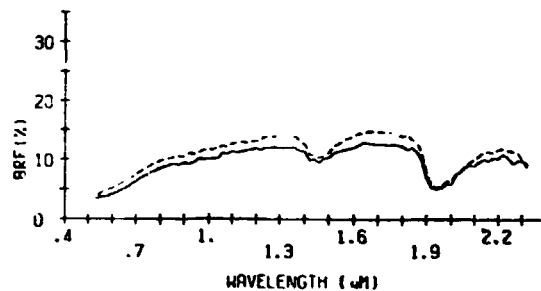


HOLLIS (CT)

Lithic Dystrachrept
loamy, mixed, mesic
humid zone
acid till
Tollan Co.

Al horizon	Al horizon
B slope	B slope
s. excess. drained	s. excess. drained
sand	sand
92XS 47XS1 4XC	96XS 2XS1 2XC
5YR 2/2 (moist)	10YR 3/3 (moist)
10YR 4/3 (dry)	10YR 4/3 (dry)
12.56% O.M.	10.21% O.M.
24.8 meq/100g CEC	26.2 meq/100g CEC
1.63% Fe ₂ O ₃	2.03% Fe ₂ O ₃

37.7 MWZ* ——— 43.0 MWZ* - - - -

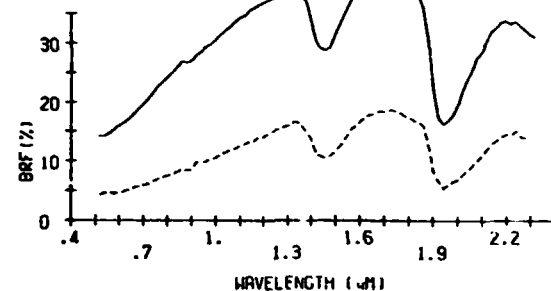


MYAKKA (FL)

Aeric Haplaquod
sandy, siliceous, hyperthermic
humid zone
sandy marine deposits
Lee Co.

Al horizon	Al horizon
A slope	A slope
poorly drained	poorly drained
fine sand	fine sand
99XS 0XS1 1XC	97XS 2XS1 1XC
10YR 4/1 (moist)	10YR 3/1 (moist)
10YR 7/1 (dry)	10YR 6/1 (dry)
1.08% O.M.	1.85% O.M.
2.4 meq/100g CEC	4.8 meq/100g CEC
trace Fe ₂ O ₃	trace Fe ₂ O ₃

6.4 MWZ* ——— 25.7 MWZ* - - - -

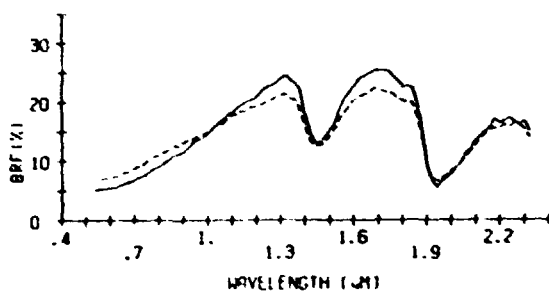


BASINGER (FL)

Spodic Psammaquent
siliceous, hyperthermic
humid zone
marine sands
Pasco Co.

Al-A2 horizon	Al-A2 horizon
A slope	A slope
poorly drained	poorly drained
fine sand	fine sand
982S 22S1 02C	982S 22S1 02C
7.5YR 3/2 (moist)	2.5YR 3/0 (moist)
10YR 6/1 (dry)	10YR 6/1 (dry)
1.39% O.M.	1.71% O.M.
4.8 meq/100g CEC	4.4 meq/100g CEC
trace Fe ₂ O ₃	trace Fe ₂ O ₃

24.5 M% ——— 26.0 M% - - - -

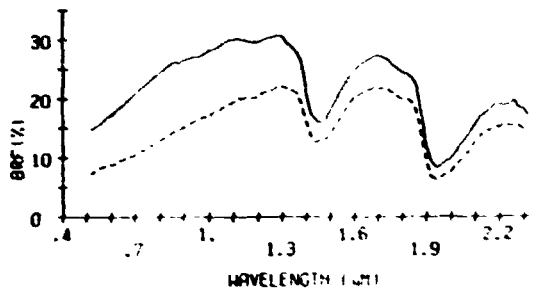


POMPANO (FL)

Typic Psammaquent
siliceous, hyperthermic
humid zone
marine sands
Lee Co.

All horizon	All horizon
A slope	A slope
poorly drained	poorly drained
fine sand	fine sand
1002S 02S1 02C	972S 22S1 12C
10YR 5/1 (moist)	10YR 4/1 (moist)
10YR 7/1 (dry)	10YR 7/1 (dry)
0.51% O.M.	0.57% O.M.
0.0 meq/100g CEC	1.3 meq/100g CEC
trace Fe ₂ O ₃	trace Fe ₂ O ₃

20.9 M% ——— 23.3 M% - - - -

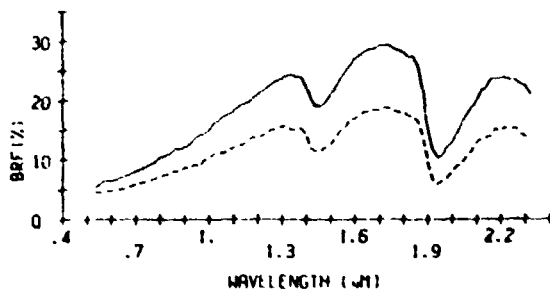


WABASSO (FL)

Alfic Haplaquod
sandy, siliceous, hyperthermic
humid zone
marine sands over loamy materials
Hernando Co.

Al horizon	Al horizon
A slope	A slope
poorly drained	poorly drained
fine sand	fine sand
942S 52S1 12C	982S 02S1 22C
7.5YR 3/0 (moist)	2.5YR 3/0 (moist)
10YR 6/1 (dry)	10YR 6/1 (dry)
1.60% O.M.	3.25% O.M.
6.3 meq/100g CEC	9.3 meq/100g CEC
trace Fe ₂ O ₃	trace Fe ₂ O ₃

10.5 M% ——— 22.4 M% - - - -

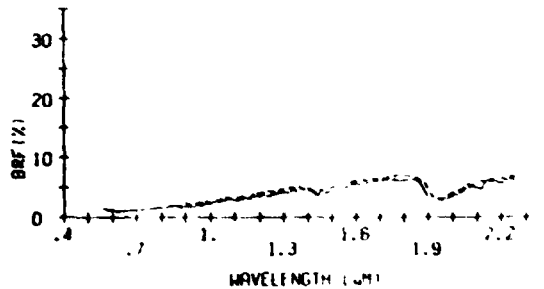


TERRA CEIA (FL)

Typic Medisaprist
eucic, hyperthermic
humid zone
hydrophytic plant remains
Palm Beach Co.

Oap horizon	Oap horizon
A slope	A slope
v. poorly drained	v. poorly drained
muck	muck
22S 812S1 172C	152S 682S1 172C
7.5YR 2/0 (moist)	7.5YR 2/0 (moist)
10YR 2/1 (dry)	10YR 2/1 (dry)
76.4% O.M.	83.6% O.M.
152.0 meq/100g CEC	147.0 meq/100g CEC
0.00% Fe ₂ O ₃	0.00% Fe ₂ O ₃

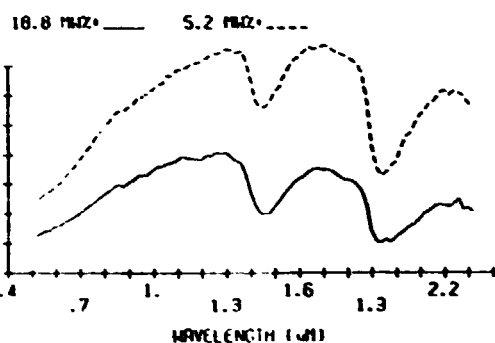
137. M% ——— 113. M% - - - -



PAOLA (FL)

Spodic Quartzipement
uncoated, hyperthermic
humid zone
marine sands
Martin Co.

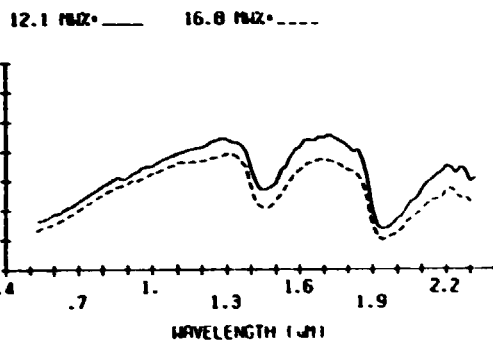
Al horizon	Al horizon
B slope	B slope
excess. drained	excess. drained
sand	sand
100ZS 0ZS1 0ZC	100ZS 0ZS1 0ZC
10YR 5/1 (moist)	10YR 5/1 (moist)
10YR 7/1 (dry)	10YR 7/1 (dry)
1.94% O.M.	1.16% O.M.
4.5 meq/100g CEC	5.9 meq/100g CEC
trace Fe ₂ O ₃	trace Fe ₂ O ₃



LEON (FL)

Aeric Haplaquod
sandy, siliceous, thermic
humid zone
acid marine sands
Bay Co.

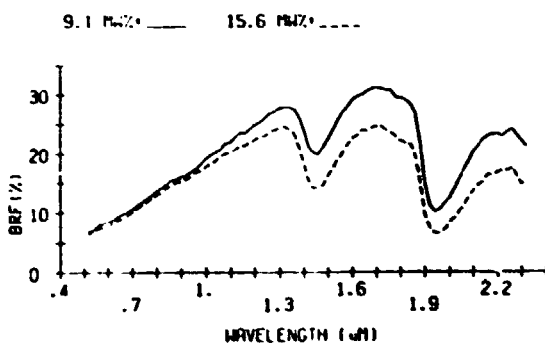
Al-A21 horizon	Al-A21 horizon
A slope	A slope
poorly drained	poorly drained
sand	sand
97ZS 2ZS1 1ZC	99ZS 0ZS1 1ZC
7.5YR 4/1 (moist)	10YR 5/1 (moist)
10YR 7/1 (dry)	10YR 6/1 (dry)
0.85% O.M.	1.07% O.M.
2.1 meq/100g CEC	3.4 meq/100g CEC
trace Fe ₂ O ₃	trace Fe ₂ O ₃



OCILLA (GA)

Aquic Arenic Paleudult
loamy, siliceous, thermic
humid zone
sandy and loamy marine sediments
Irvin Co.

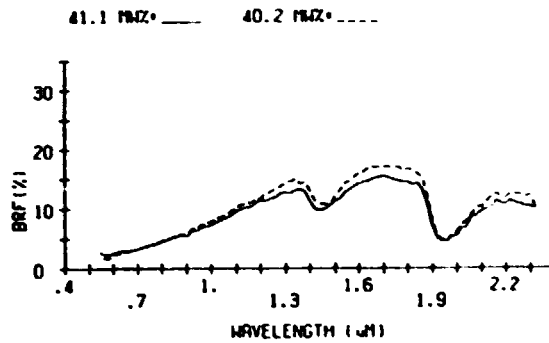
Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
loamy sand	sand
82ZS 17ZS1 1ZC	91ZS 8ZS1 1ZC
10YR 4/1 (moist)	10YR 4/1 (moist)
10YR 6/2 (dry)	10YR 6/2 (dry)
1.10% O.M.	0.94% O.M.
5.6 meq/100g CEC	4.5 meq/100g CEC
0.10% Fe ₂ O ₃	0.03% Fe ₂ O ₃



DRUMMER (IL)

Typic Haplaquoll
fine-silty, mixed, mesic
humid zone
thick loess over outwash and drift
Champaign Co.

Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
silty clay loam	silty clay loam
13ZS 56ZS1 3Z2C	8ZS 60ZS1 3Z2C
10YR 2/1 (moist)	10YR 2/1 (moist)
10YR 3/2 (dry)	10YR 3/2 (dry)
5.61% O.M.	6.09% O.M.
40.3 meq/100g CEC	41.7 meq/100g CEC
0.76% Fe ₂ O ₃	0.92% Fe ₂ O ₃

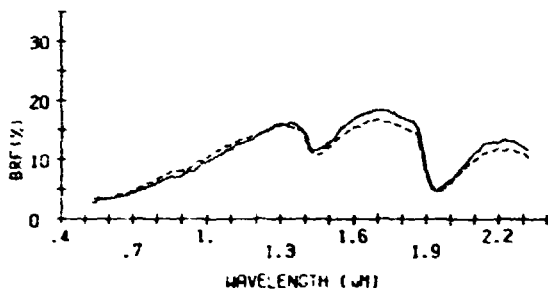


FLANAGAN (IL)

Aquic Argiudoll
fine, montmorillonitic, mesic
humid zone
thick loess over calcareous till
Champaign Co.

Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
silt loam	silt loam
8ZS 66ZS1 26ZC	7ZS 67ZS1 26ZC
10YR 2/1 (moist)	10YR 3/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
3.27% O.M.	4.74% O.M.
25.7 meq/100g CEC	28.0 meq/100g CEC
1.17% Fe ₂ O ₃	1.29% Fe ₂ O ₃

35.8 MW% ——— 38.5 MW% - - - -

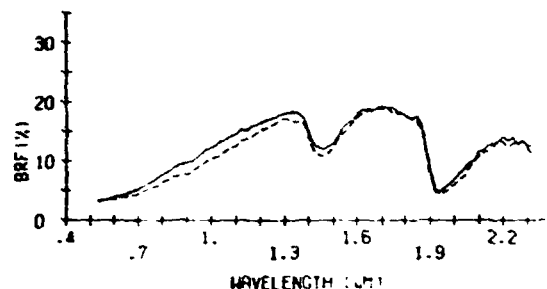


RIDGEVILLE (IL)

Aquic Argiudoll
coarse-loamy, mixed, mesic
humid zone
stratified glacial alluvium
Iroquois Co.

Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
fine sandy loam	fine sandy loam
66ZS 23ZS1 11ZC	70ZS 19ZS1 11Z
10YR 3/1 (moist)	10YR 3/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
1.94% O.M.	2.77% O.M.
15.2 meq/100g CEC	21.5 meq/100g CEC
0.57% Fe ₂ O ₃	0.50% Fe ₂ O ₃

23.0 MW% ——— 28.4 MW% - - - -

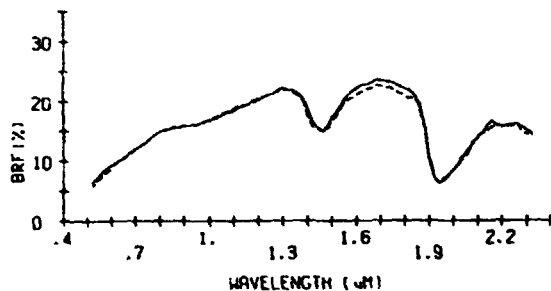


HAYMOND (IN)

Typic Udifluent
coarse-silty, mixed, nonacid, mesic
humid zone
silty alluvium
Clark Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
10ZS 74ZS1 16ZC	6ZS 75ZS1 19ZC
10YR 4/3 (moist)	10YR 4/4 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
3.08% O.M.	2.32% O.M.
15.0 meq/100g CEC	15.8 meq/100g CEC
1.25% Fe ₂ O ₃	2.91% Fe ₂ O ₃

35.3 MW% ——— 34.5 MW% - - - -

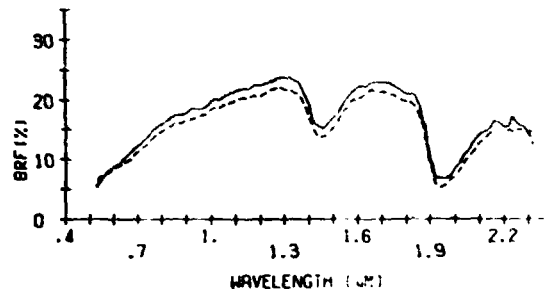


RUSSELL (IN)

Typic Hapludalf
fine-silty, mixed, mesic
humid zone
mod. thick loess and calcareous loam till
Decatur Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
11ZS 70ZS1 19ZC	17ZS 63ZS1 20ZC
10YR 4/2 (moist)	10YR 5/3 (moist)
10YR 6/4 (dry)	10YR 6/2 (dry)
2.18% O.M.	3.17% O.M.
15.8 meq/100g CEC	17.6 meq/100g CEC
1.32% Fe ₂ O ₃	1.26% Fe ₂ O ₃

32.7 MW% ——— 36.7 MW% - - - -

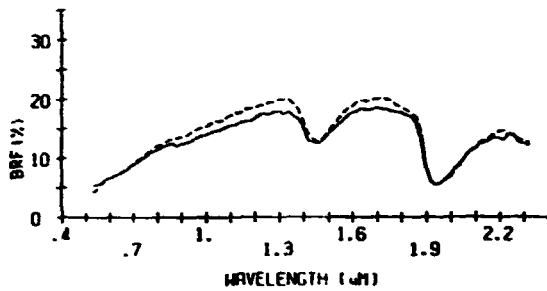


GENESEE (IN)

Typic Udifluvent
fine-loamy, mixed, nonacid, mesic
humid zone
alluvium
Fayette Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
202S 60ZSi 20ZC	232S 59ZSi 18ZC
10YR 3/3 (moist)	10YR 3/3 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
4.19% O.M.	2.19% O.M.
6.1 meq/100g CEC	21.2 meq/100g CEC
1.36% Fe ₂ O ₃	1.27% Fe ₂ O ₃

30.7 Mhz — 32.0 Mhz - - - -

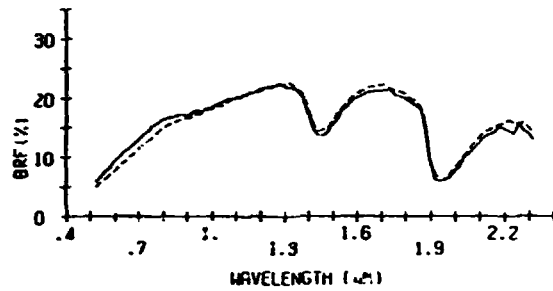


ALFORD (IN)

Typic Hapludalf
fine-silty, mixed, mesic
humid zone
loess
Knox Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
22S 76ZSi 22ZC	22S 80ZSi 18ZC
10YR 4/4 (moist)	10YR 4/4 (moist)
10YR 5/4 (dry)	10YR 5/4 (dry)
2.03% O.M.	1.44% O.M.
19.6 meq/100g CEC	14.8 meq/100g CEC
1.52% Fe ₂ O ₃	1.35% Fe ₂ O ₃

32.6 Mhz — 31.3 Mhz - - - -

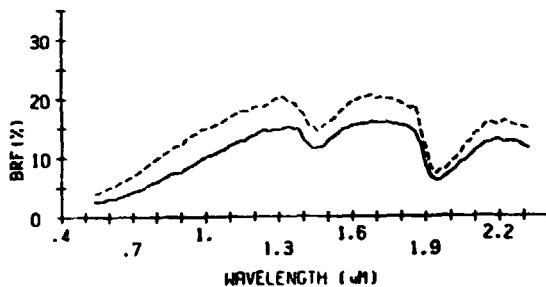


DOOR (IN)

Ultic Hapludalf
fine-loamy, mixed, mesic
humid zone
loamy outwash
Porter Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
fine sandy loam	loam
54ZS 29ZSi 17ZC	44ZS 44ZSi 12ZC
10YR 2/1 (moist)	10YR 3/2 (moist)
10YR 4/2 (dry)	10YR 4/3 (dry)
3.73% O.M.	1.96% O.M.
22.0 meq/100g CEC	11.7 meq/100g CEC
1.55% Fe ₂ O ₃	1.36% Fe ₂ O ₃

24.5 Mhz — 24.4 Mhz - - - -

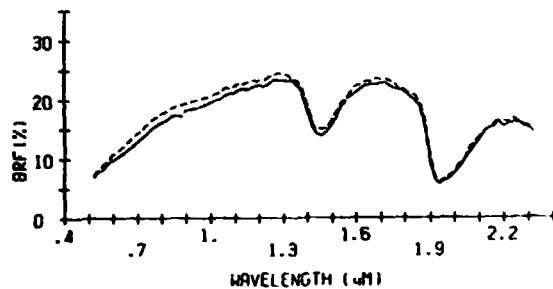


IVA (IN)

Aeric Ochraqualf
fine-silty, mixed, mesic
humid zone
loess
Vigo Co. Clay Co.

Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
silt loam	silt loam
11ZS 78ZSi 11ZC	19ZS 71ZSi 10ZC
10YR 5/3 (moist)	10YR 5/4 (moist)
10YR 6/4 (dry)	10YR 6/3 (dry)
1.24% O.M.	1.56% O.M.
13.1 meq/100g CEC	11.5 meq/100g CEC
0.96% Fe ₂ O ₃	1.19% Fe ₂ O ₃

33.5 Mhz — 30.6 Mhz - - - -

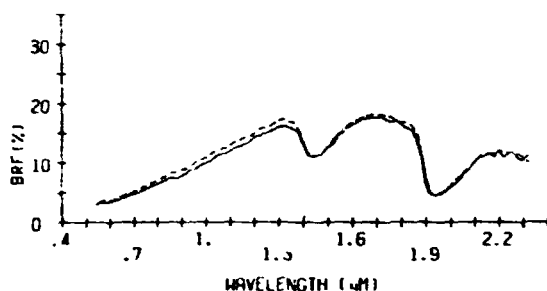


SAC(IA)

Typic Hapludoll
fine-silty, mixed, mesic
subhumid zone
loess and glacial till
Clay Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silty clay loam	silty clay loam
52S 59ZSi 36ZC	62S 62ZSi 32ZC
10YR 2/1 (moist)	10YR 2/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
5.37% O.M.	5.06% O.M.
37.0 meq/100g CEC	36.0 meq/100g CEC
1.43% Fe ₂ O ₃	1.42% Fe ₂ O ₃

40.8 MWZ* — 42.2 MWZ* - - - -

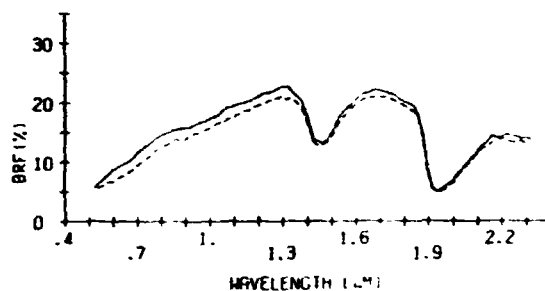


IDA(IA)

Typic Udorthent
fine-silty, mixed, calcareous, mesic
subhumid zone
loess
Crawford Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
32S 74ZSi 23ZC	32S 73ZSi 24ZC
10YR 3/3 (moist)	10YR 4/3 (moist)
10YR 5/4 (dry)	10YR 5/4 (dry)
1.18% O.M.	3.00% O.M.
26.7 meq/100g CEC	28.7 meq/100g CEC
1.33% Fe ₂ O ₃	1.32% Fe ₂ O ₃

37.5 MWZ* — 40.9 MWZ* - - - -

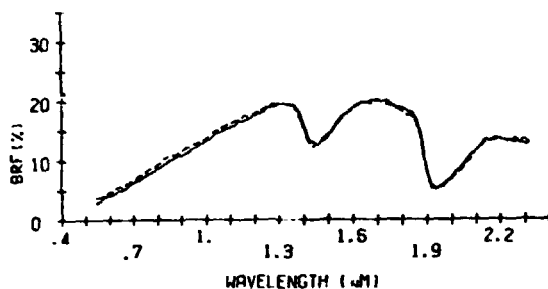


MONONA(IA)

Typic Hapludoll
fine-silty, mixed, mesic
subhumid zone
loess
Harrison Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
32S 76ZSi 21ZC	22S 72ZSi 26ZC
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 4/3 (dry)	10YR 4/3 (dry)
3.58% O.M.	2.92% O.M.
25.1 meq/100g CEC	21.0 meq/100g CEC
1.46% Fe ₂ O ₃	1.35% Fe ₂ O ₃

37.3 MWZ* — 38.5 MWZ* - - - -

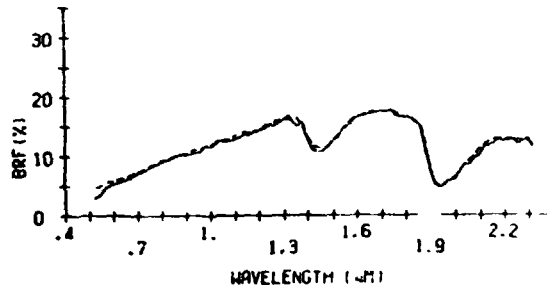


HAYNIE(IA)

Mollic Udifluent
coarse-silty, mixed, calcareous, mesic
subhumid zone
recent alluvium
Monona Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
92S 77ZSi 14ZC	102S 76ZSi 14ZC
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/2 (dry)
2.38% O.M.	2.56% O.M.
20.2 meq/100g CEC	21.5 meq/100g CEC
1.02% Fe ₂ O ₃	1.09% Fe ₂ O ₃

36.0 MWZ* - - - - 36.8 MWZ* —

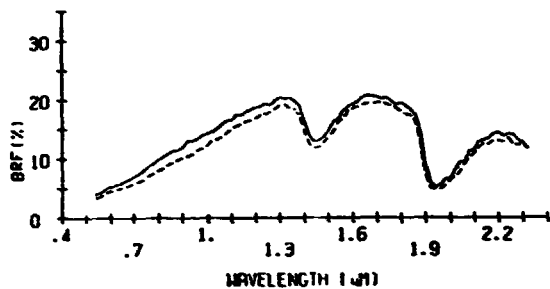


DOWNS (IA)

Mollic Hapludalf
fine-silty, mixed, mesic
humid zone
loess
Clayton Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
3ZS 76ZS1 21ZC	2ZS 7ZS1 26ZC
10YR 3/2 (moist)	7.5YR 3/2 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
2.84% O.M.	3.82% O.M.
21.1 meq/100g CEC	25.4 meq/100g CEC
1.15% Fe ₂ O ₃	1.29% Fe ₂ O ₃

33.0 M_hZ₀ — 35.0 M_hZ₀ ----

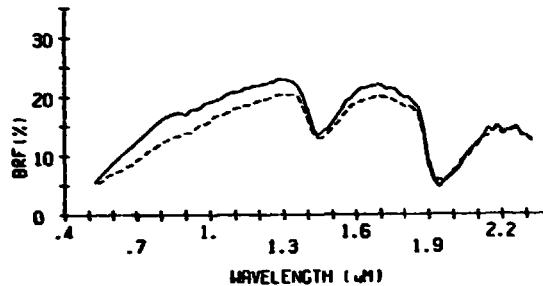


DUBUQUE (IA)

Typic Hapludalf
fine-silty, mixed, mesic
humid zone
loess
Dubuque Co.

Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
silt loam	silt loam
3ZS 78ZS1 19ZC	10ZS 68ZS1 22ZC
10YR 4/3 (moist)	10YR 3/3 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
2.08% O.M.	2.80% O.M.
17.3 meq/100g CEC	16.4 meq/100g CEC
0.19% Fe ₂ O ₃	0.21% Fe ₂ O ₃

32.9 M_hZ₀ — 36.2 M_hZ₀ ----

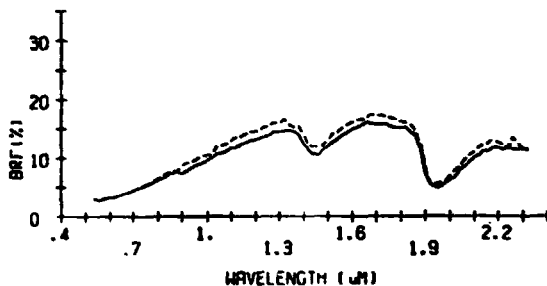


WAUKEE (IA)

Typic Hapludoll
fine-loamy over sandy or sandy-
skeletal, mixed mesic
humid zone
stratified loamy alluvium over sand
Howard Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loam	loam
4ZS 49ZS1 24ZC	3ZS 48ZS1 20ZC
10YR 7/1 (moist)	10YR 2/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
4.09% O.M.	3.93% O.M.
25.1 meq/100g CEC	22.2 meq/100g CEC
1.22% Fe ₂ O ₃	1.11% Fe ₂ O ₃

32.4 M_hZ₀ — 29.9 M_hZ₀ ----

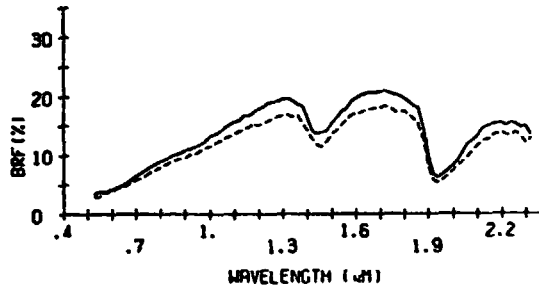


HEDVILLE (KS)

Lithic Haplustoll
loamy, mixed, mesic
subhumid zone
sandstone residuum
Cloud Co.

All horizon	All horizon
C slope	C slope
s. excess, drained	s. excess, drained
loam	silt loam
49ZS 39ZS1 12ZC	25ZS 60ZS1 15ZC
7.5YR 3/2 (moist)	10YR 3/2 (moist)
10YR 4/3 (dry)	10YR 3/3 (dry)
3.61% O.M.	3.86% O.M.
16.0 meq/100g CEC	20.2 meq/100g CEC
1.67% Fe ₂ O ₃	0.51% Fe ₂ O ₃

23.7 M_hZ₀ — 33.0 M_hZ₀ ----

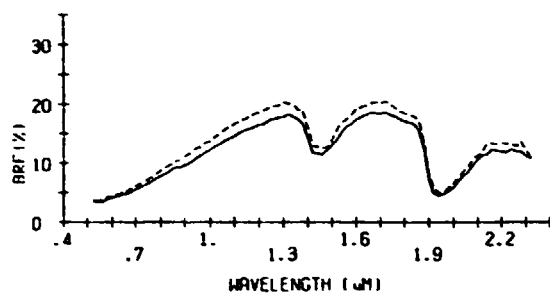


IRWIN(KS)

Pachic Argiustoll
fine, mixed, mesic
subhumid zone
pedisements from clay shales
Geary Co.

Ap horizon	Ap horizon
B slope	B slope
m. well drained	m. well drained
silty clay loam	silty clay loam
3ZS 67S1 30XC	3ZS 70ZS1 27XC
7.5YR 3/2 (moist)	10YR 3/2 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
3.15% O.M.	2.26% O.M.
29.1 meq/100g CEC	23.9 meq/100g CEC
0.99% Fe ₂ O ₃	1.01% Fe ₂ O ₃

36.5 MWZ* — 37.8 MWZ* ----

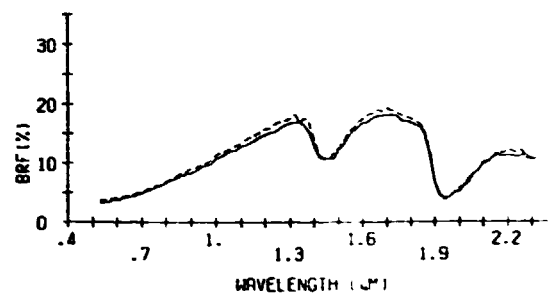


GUESSEL(KS)

Udic Pellustert
fine, montmorillonitic, mesic
subhumid zone
clayey alluvium
McPherson Co.

Ap horizon	Ap horizon
A slope	A slope
m. well drained	m. well drained
silty clay loam	silty clay loam
6ZS 54ZS1 40XC	10ZS 53ZS1 37XC
10YR 2/1 (moist)	10YR 3/1 (moist)
10YR 3/1 (dry)	10YR 4/1 (dry)
2.83% O.M.	2.77% O.M.
36.1 meq/100g CEC	32.6 meq/100g CEC
0.59% Fe ₂ O ₃	0.41% Fe ₂ O ₃

35.5 MWZ* — 37.3 MWZ* ----

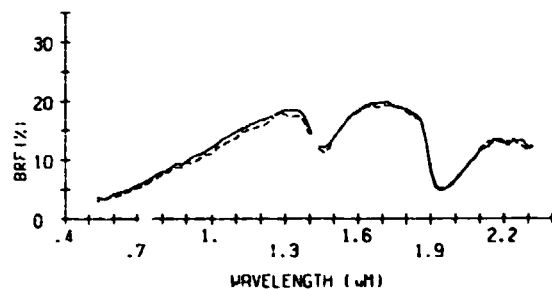


LANCASTER(KS)

Udic Argiustoll
fine-loamy, mixed, mesic
subhumid zone
sandstone and sandy shale residuum
Saline Co.

Al horizon	Al horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
23ZS 55ZS1 22XC	32ZS 51ZS1 17XC
7.5YR 3/2 (moist)	10YR 3/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
3.97% O.M.	3.37% O.M.
16.3 meq/100g CEC	15.4 meq/100g CEC
1.26% Fe ₂ O ₃	1.22% Fe ₂ O ₃

31.2 MWZ* — 29.4 MWZ* ----

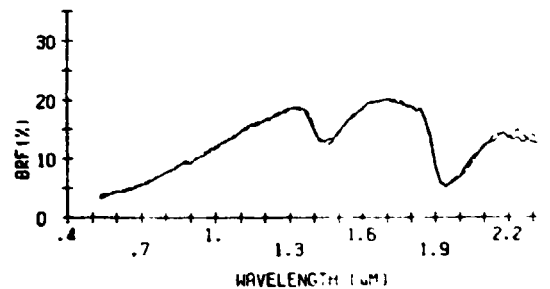


VERDIGRIS(KS)

Cumuli Hapludoll
fine-silty, mixed, thermic
humid zone
silty alluvium
Montgomery Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
9ZS 90ZS1 12C	16ZS 60ZS1 24XC
10YR 3/2 (moist)	10YR 3/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
2.86% O.M.	1.84% O.M.
24.1 meq/100g CEC	23.0 meq/100g CEC
1.26% Fe ₂ O ₃	1.13% Fe ₂ O ₃

32.1 MWZ* — 34.1 MWZ* ----

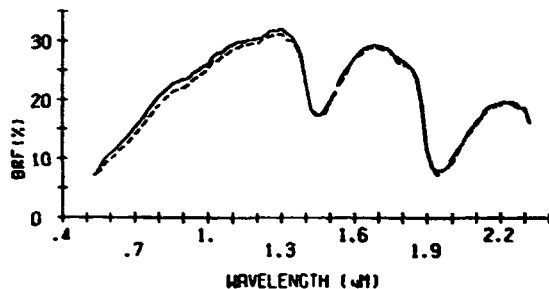


PRATT(KS)

Psammentic Haplustalf
sandy, mixed, thermic
subhumid zone
sandy eolian deposits
Pratt Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
fine sandy loam	fine sandy loam
73ZS 24ZSi 3ZC	61ZS 37ZSi 2ZC
10YR 3/3 (moist)	10YR 4/3 (moist)
7.5YR 6/4 (dry)	7.5YR 6/2 (dry)
0.55% O.M.	0.44% O.M.
2.8 meq/100g CEC	1.9 meq/100g CEC
0.31% Fe ₂ O ₃	0.25% Fe ₂ O ₃

11.0 MWZ° — 13.4 MWZ° ----

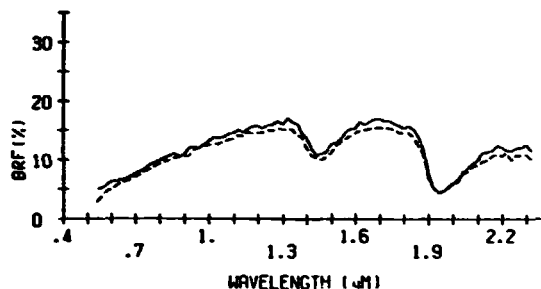


RICHFIELD(KS)

Aridic Argiustoll
fine, montmorillonitic mesic
semiarid zone
silty eolian sediments
Grant Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
8ZS 72ZSi 20ZC	12ZS 70ZSi 18ZC
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 5/3 (dry)	10YR 5/2 (dry)
2.14% O.M.	1.78% O.M.
21.4 meq/100g CEC	21.3 meq/100g CEC
0.79% Fe ₂ O ₃	0.86% Fe ₂ O ₃

37.3 MWZ° — 35.6 MWZ° ----

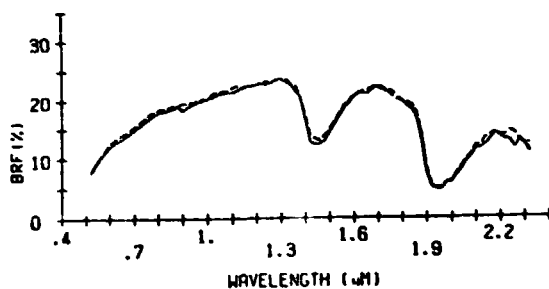


COLBY(KS)

Ustic Torriorthent
fine-silty, mixed, calcareous, mesic
semiarid zone
calcareous silty material
Hamilton Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
22ZS 54ZSi 24ZC	15ZS 62ZSi 24ZC
10YR 5/3 (moist)	10YR 5/3 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
1.24% O.M.	0.85% O.M.
30.3 meq/100g CEC	30.2 meq/100g CEC
0.69% Fe ₂ O ₃	0.68% Fe ₂ O ₃

37.3 MWZ° — 36.6 MWZ° ----

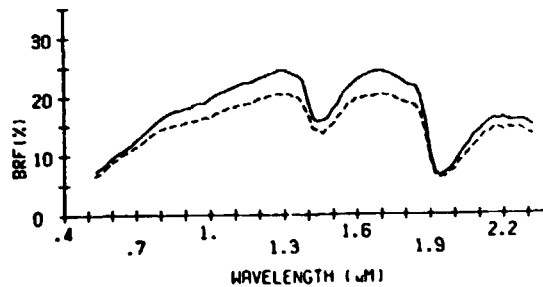


NEWARK(KY)

Aeric Fluventic Haplaquept
fine-silty, mixed, nonacid, mesic
humid zone
mixed alluvium
Daviness Co.

Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
silt loam	silt loam
25ZS 57ZSi 18ZC	4ZS 79ZSi 18ZC
10YR 4/2 (moist)	10YR 4/3 (moist)
10YR 6/3 (dry)	10YR 6/4 (dry)
1.83% O.M.	2.84% O.M.
15.7 meq/100g CEC	17.0 meq/100g CEC
1.05% Fe ₂ O ₃	1.93% Fe ₂ O ₃

29.0 MWZ° — 34.1 MWZ° ----

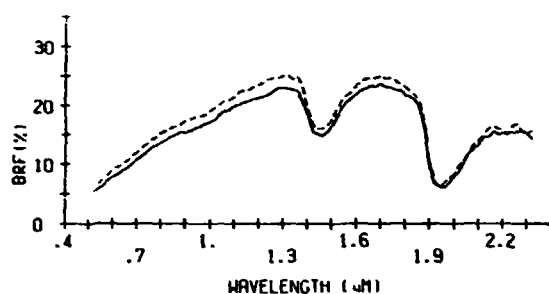


WHITLEY(KY)

Typic Hapludult
fine-silty, mixed, mesic
humid zone
part alluvium, part acid residuum
Laurel Co.

Ap horizon	Ap horizon
E slope	B slope
well drained	well drained
silt loam	silt loam
23% Si 57% Si 20% C	16% Si 65% Si 19% C
10YR 4/3 (moist)	10YR 4/3 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
3.50% O.M.	2.57% O.M.
17.7 meq/100g CEC	14.2 meq/100g CEC
1.55% Fe ₂ O ₃	2.11% Fe ₂ O ₃

18.5 MWZ* ——— 35.9 MWZ* - - - -

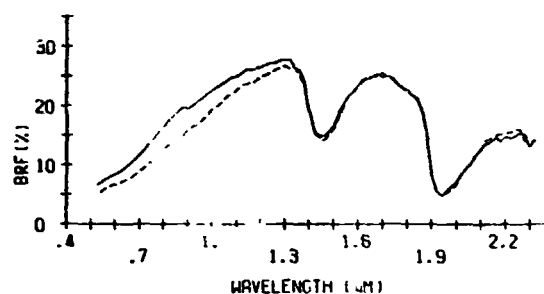


MIDLAND(LA)

Typic Ochraqualf
fine, montmorillonitic, thermic
humid zone
clayey sediments
Acadia Parish

Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
silty clay loam	silty clay loam
5% Si 57% Si 38% C	3% Si 65% Si 32% C
10YR 4/2 (moist)	10YR 3/1 (moist)
10YR 6/3 (dry)	10YR 6/3 (dry)
2.42% O.M.	2.32% O.M.
25.1% meq/100g CEC	27.3 meq/100g CEC
0.88% Fe ₂ O ₃	0.62% Fe ₂ O ₃

37.7 MWZ* ——— 41.2 MWZ* - - - -

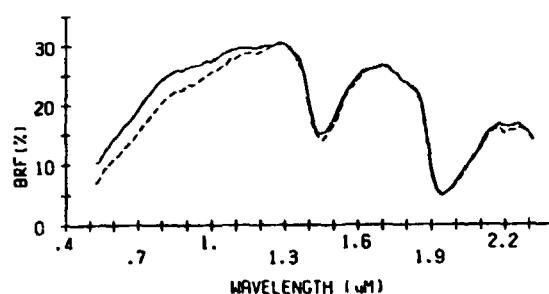


CALHOUN(LA)

Typic Glossaqualf
fine-silty, mixed, thermic
humid zone
loess
East Baton Rouge Parish

Al horizon	Al horizon
A slope	A slope
poorly drained	poorly drained
silt loam	silt loam
15% Si 71% Si 14% C	20% Si 69% Si 10% C
10YR 5/3 (moist)	10YR 5/3 (moist)
10YR 7/3 (dry)	10YR 6/4 (dry)
1.74% O.M.	2.40% O.M.
7.1 meq/100g CEC	11.4 meq/100g CEC
0.60% Fe ₂ O ₃	0.72% Fe ₂ O ₃

34.6 MWZ* ——— 33.7 MWZ* - - - -

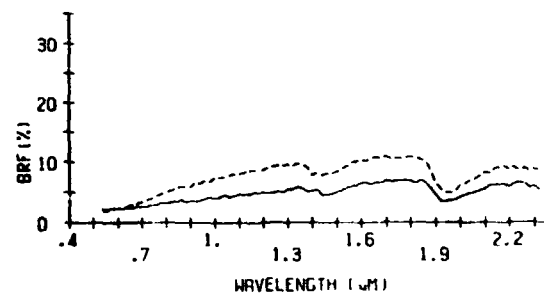


KENNER(LA)

Fluvaquentic Medisaprict
euc, thermic
humid zone
herbaceous plant remains with clayey
alluvium
Jefferson Parish

Oel horizon	Oel horizon
A slope	A slope
v. poorly drained	v. poorly drained
muck	muck
4% Si 40% Si 56% C	3% Si 31% Si 66% C
7.5YR 2/0 (moist)	10YR 2/1 (moist)
10YR 2/1 (dry)	10YR 2/1 (dry)
55.14% O.M.	54.34% O.M.
73.6 meq/100g CEC	82.1 meq/100g CEC
0.00% Fe ₂ O ₃	0.00% Fe ₂ O ₃

77.2 MWZ* - - - - 73.1 MWZ* ———

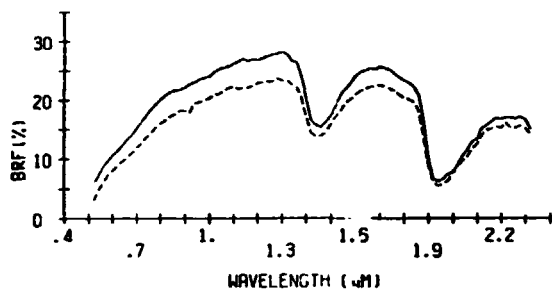


RILLA(LA)

Typic Hapludalf
fine-silty, mixed, thermic
humid zone
mixed silty alluvium
Ouachita Parish

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
20YS 70XS1 10ZC	17YS 76XS1 7ZC
10YR 5/4 (moist)	10YR 4/3 (moist)
10YR 7/4 (dry)	10YR 6/4 (dry)
1.46% O.M.	0.83% O.M.
10.0 meq/100g CEC	8.9 meq/100g CEC
0.45% Fe ₂ O ₃	0.50% Fe ₂ O ₃

33.5 MWZ* ——— 31.2 MWZ* - - - -

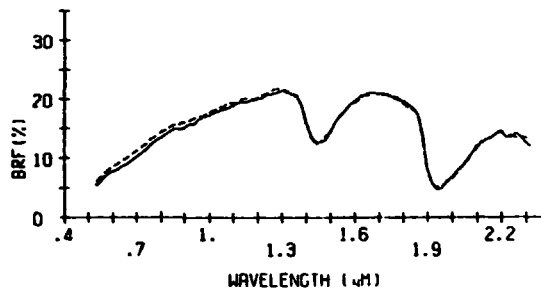


COMMERCE(LA)

Aeric Fluvaquent
fine-silty, mixed, nonacid, thermic
humid zone
loamy alluvium
Tensas Parish

Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
silt loam	silt loam
14YS 68XS1 18ZC	5YS 71XS1 24ZC
10YR 4/2 (moist)	10YR 4/3 (moist)
10YR 6/3 (dry)	10YR 6/4 (dry)
1.60% O.M.	1.33% O.M.
24.8 meq/100g CEC	25.4 meq/100g CEC
0.60% Fe ₂ O ₃	0.88% Fe ₂ O ₃

33.4 MWZ* ——— 34.1 MWZ* - - - -

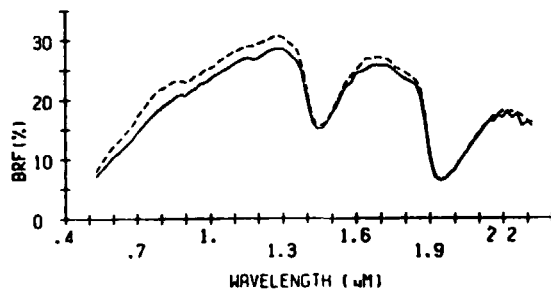


RUSTON(LA)

Typic Paleudult
fine-loamy, siliceous, thermic
humid zone
loamy marine deposits
Union Parish

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
loamy fine sand	loamy fine sand
76YS 21XS1 3ZC	78YS 19XS1 3ZC
10YR 5/3 (moist)	7.5YR 4/4 (moist)
10YR 6/3 (dry)	10YR 6/4 (dry)
1.10% O.M.	0.69% O.M.
4.6 meq/100g CEC	2.5 meq/100g CEC
0.35% Fe ₂ O ₃	0.58% Fe ₂ O ₃

21.5 MWZ* ——— 22.7 MWZ* - - - -

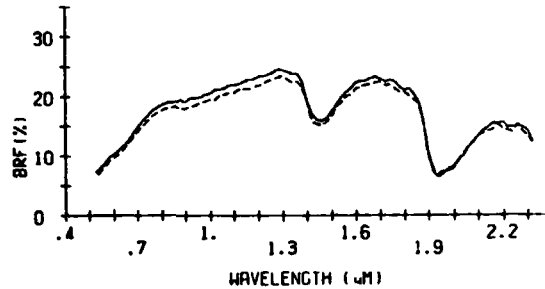


CARIBOU(ME)

Typic Haplorthod
sandy-skeletal, mixed, frigid
humid zone
calcareous loam till
Aroostook Co.

Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
silt loam	loam
29YS 59XS1 22ZC	37YS 48XS1 15ZC
2.5Y 5/4 (moist)	10YR 5/4 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
3.84% O.M.	3.82% O.M.
24.5 meq/100g CEC	25.5 meq/100g CEC
2.31% Fe ₂ O ₃	2.18% Fe ₂ O ₃

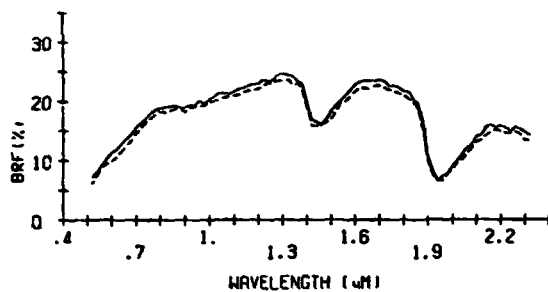
33.4 MWZ* ——— 31.1 MWZ* - - - -



PLAISTED (ME)

Typic Fragliorthod
coarse-loamy, mixed, frigid
humid zone
glacial till
Aroostook Co.

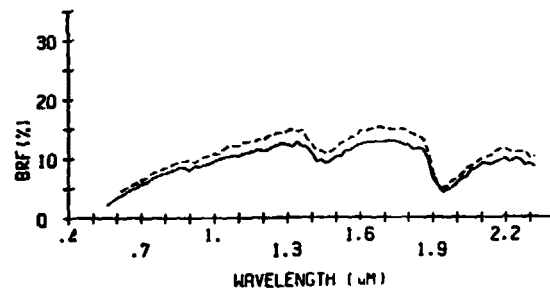
Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
loam	silt loam
37XS 50ZSi 13XC	37ZS 56ZSi 5XC
10YR 5/4 (moist)	10YR 5/4 (moist)
10YR 6/4 (dry)	10YR 6/3 (dry)
4.28% O.M.	4.40% O.M.
23.4 meq/100g CEC	25.8 meq/100g CEC
2.21% Fe ₂ O ₃	2.19% Fe ₂ O ₃
33.0 MW% —	31.2 MW% - - -



SUDBURY (MA)

Aquic Dystrachrept
sandy, mixed, mesic
humid zone
mixed alluvium
Essex Co.

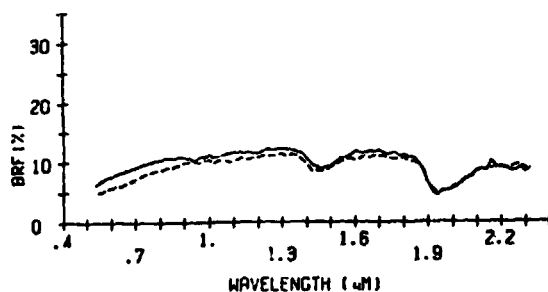
Ap horizon	Ap horizon
A slope	A slope
mod. well drained	mod. well drained
sandy loam	coarse sandy loam
56XS 37ZSi 7XC	72ZS 23ZSi 5XC
10YR 3/2 (moist)	7.5YR 3/2 (moist)
10YR 4/3 (dry)	10YR 3/3 (dry)
6.07% O.M.	4.38% O.M.
25.1 meq/100g CEC	22.7 meq/100g CEC
1.46% Fe ₂ O ₃	1.37% Fe ₂ O ₃
27.9 MW% —	23.1 MW% - - -



WINOOSKI (MA)

Aquic Udifluvent
coarse-silty, mixed, non-acid, mesic
humid zone
fine sand and silt alluvium
Franklin Co.

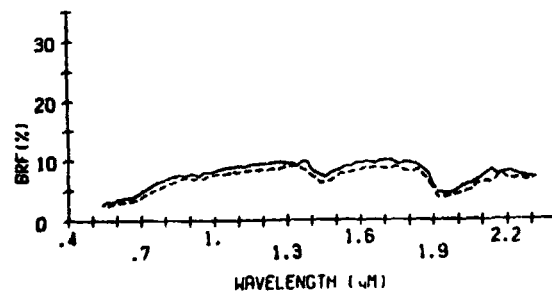
Ap horizon	Ap horizon
A slope	A slope
mod. well drained	mod. well drained
silt loam	silt loam
30XS 67ZSi 3XC	17ZS 80ZSi 3XC
2.5Y 4/2 (moist)	10YR 4/1 (moist)
5Y 6/3 (dry)	2.5Y 6/2 (dry)
1.96% O.M.	3.30% O.M.
14.7 meq/100g CEC	20.8 meq/100g CEC
1.12% Fe ₂ O ₃	0.27% Fe ₂ O ₃
39.7 MW% —	39.0 MW% - - -



BERKSHIRE (MA)

Typic Haplorthod
coarse-loamy, mixed, frigid
humid zone
glacial till
Franklin Co.

Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
sandy loam	loam
65XS 25ZSi 10XC	43XS 50ZSi 7XC
10YR 2/1 (moist)	10YR 2/1 (moist)
10YR 4/1 (dry)	10YR 4/1 (dry)
11.52% O.M.	19.95% O.M.
33.0 meq/100g CEC	43.4 meq/100g CEC
1.52% Fe ₂ O ₃	0.89% Fe ₂ O ₃
42.5 MW% —	69.8 MW% - - -

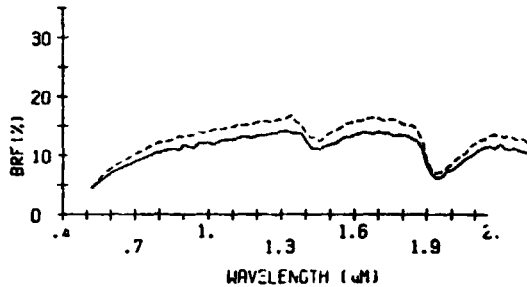


AGAWAM (MA)

Typic Dystrachrept
coarse-loamy over sandy or sandy-skeletal, mixed, mesic humid zone
sandy alluvium
Hampden Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
fine sandy loam	fine sandy loam
73ZS 23ZS1 4ZC	74ZS 21ZS1 5ZC
10YR 3/3 (moist)	10YR 3/3 (moist)
10YR 5/4 (dry)	10YR 5/4 (dry)
1.46% O.M.	1.26% O.M.
9.7 meq/100g CEC	5.2 meq/100g CEC
0.98% Fe ₂ O ₃	2.17% Fe ₂ O ₃

17.8 MW% — 15.2 MW% - - - -

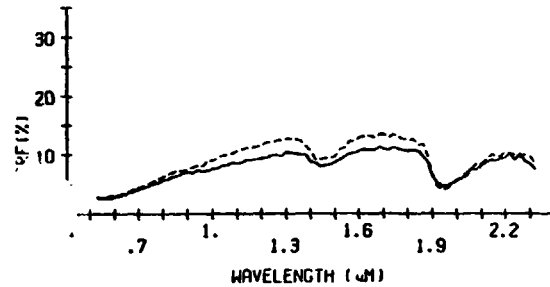


RIDGEBURY (MA)

Aeric Fragiaquept
coarse-loamy, mixed, mesic humid zone
sandy and stony glacial till
Hampden Co.

Al horizon	Al horizon
A slope	A slope
poorly drained	poorly drained
sandy loam	loam
64ZS 33ZS1 3ZC	48ZS 43ZS1 9ZC
10YR 2/1 (moist)	7.5YR 2/0 (moist)
10YR 4/1 (dry)	10YR 4/1 (dry)
8.49% O.M.	7.78% O.M.
27.7 meq/100g CEC	28.3 meq/100g CEC
0.84% Fe ₂ O ₃	1.14% Fe ₂ O ₃

31.1 MW% — 49.9 MW% - - - -

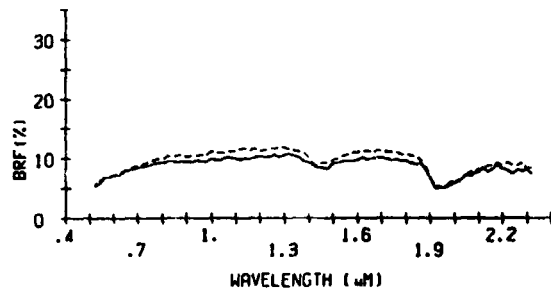


HADLEY (MA)

Typic Udifluvent
coarse-silty, mixed, nonacid, mesic humid zone
fine sand and silt alluvium
Hampshire Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
24ZS 71ZS1 5ZC	20ZS 75ZS1 5ZC
10YR 3/2 (moist)	2.5Y 4/2 (moist)
2.5Y 5/2 (dry)	2.5YR 5/2 (dry)
1.16% O.M.	1.61% O.M.
12.8 meq/100g CEC	13.1 meq/100g CEC
1.13% Fe ₂ O ₃	1.16% Fe ₂ O ₃

35.0 MW% — 36.2 MW% - - - -

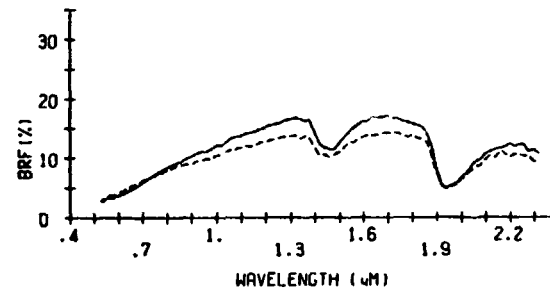


HINCKLEY (MA)

Typic Udorthent
sandy-skeletal, mixed, mesic humid zone
sandy alluvium
Worcester Co.

Ap horizon	Ap horizon
B slope	B slope
s. excess. drained	s. excess. drained
loamy coarse sand	loamy coarse sand
81ZS 16ZS1 3ZC	75ZS 20ZS1 5ZC
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 4/3 (dry)	10YR 4/3 (dry)
4.20% O.M.	6.80% O.M.
17.5 meq/100g CEC	26.1 meq/100g CEC
0.95% Fe ₂ O ₃	1.09% Fe ₂ O ₃

30.2 MW% — 22.4 MW% - - - -

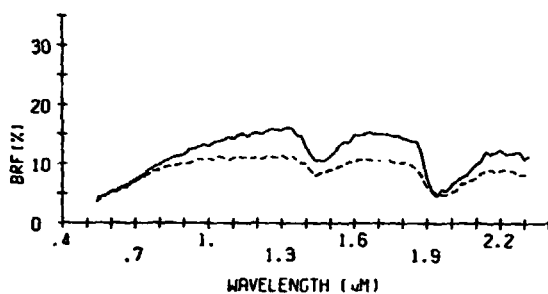


IRON RIVER(MI)

Alfic Fragiorthod
coarse-loamy, mixed, frigid
humid zone
glacial till
Baraga Co.

Al-A2 horizon	Al-A2 horizon
B slope	B slope
mod. well drained	mod. well drained
silt loam	silt loam
14ZS 77Z 9XC	27ZS 61ZS1 13ZC
7.5YR 3/2 (moist)	7.5YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/2 (dry)
6.38Z O.M.	10.75Z O.M.
20.4 meq/100g CEC	26.3 meq/100g CEC
1.06Z Fe ₂ O ₃	1.73Z Fe ₂ O ₃

52.2 MWZ: ——— 48.5 MWZ: - - - -

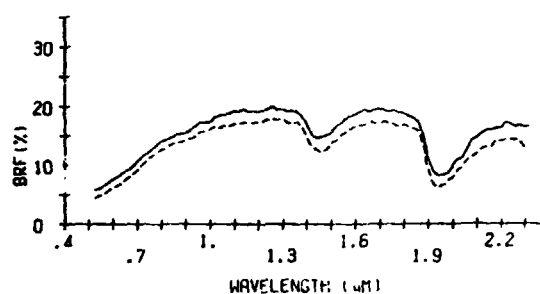


MUNISING(MI)

Alfic Fragiorthod
coarse-loamy, mixed, frigid
humid zone
glacial till
Baraga Co.

Al-A2 horizon	Al-A2 horizon
B slope	B slope
mod. well drained	mod. well drained
loamy sand	sandy loam
78ZS 19ZS1 3ZC	74ZS 22ZS1 4ZC
5YR 3/2 (moist)	5YR 3/1 (moist)
5YR 6/2 (dry)	5YR 6/2 (dry)
2.61Z O.M.	4.79Z O.M.
9.5 meq/100g CEC	14.2 meq/100g CEC
0.55Z Fe ₂ O ₃	0.54Z Fe ₂ O ₃

17.5 MWZ: ——— 24.5 MWZ: - - - -

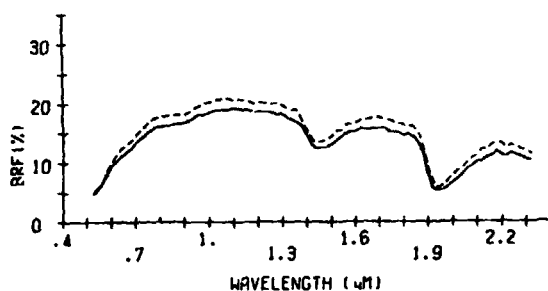


ONTONAGON(MI)

Glossic Eutroboralf
very fine, mixed
humid zone
glacial lake plain sediments
Ontonagon Co.

Ap horizon	Ap horizon
B slope	B slope
mod. well drained	mod. well drained
clay	clay
7ZS 22ZS1 70ZC	6ZS 29ZS1 66ZC
2.5YR 3/6 (moist)	2.5YR 4/4 (moist)
5YR 6/4 (dry)	5YR 6/4 (dry)
4.88Z O.M.	3.95Z O.M.
38.0 meq/100g CEC	31.6 meq/100g CEC
1.73Z Fe ₂ O ₃	2.76Z Fe ₂ O ₃

47.5 MWZ: ——— 43.2 MWZ: - - - -

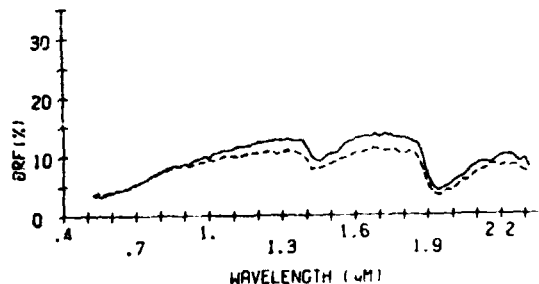


PICKFORD(MI)

Aeric Haplaquept
fine, mixed, nonacid, frigid
humid zone
clayey glacial till or
lacustrine material
Chippewa Co.

All-A12 horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
silty clay	clay
5ZS 48ZS1 47ZC	7ZS 29ZS1 64ZC
5YR 2.5/2 (moist)	10YR 3/2 (moist)
10YR 4/2 (dry)	10YR 5/2 (dry)
14.57Z O.M.	15.16Z O.M.
51.6 meq/100g CEC	50.8 meq/100g CEC
3.71Z Fe ₂ O ₃	0.64Z Fe ₂ O ₃

60.8 MWZ: ——— 62.3 MWZ: - - - -

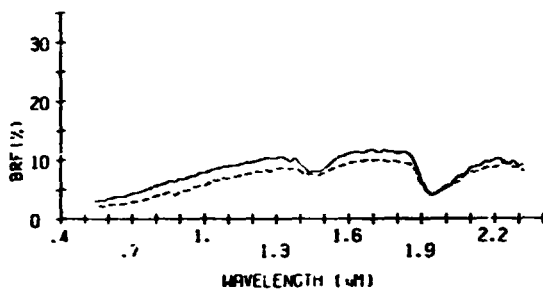


ANGELICA (MI)

Aeric Haplaquept
fine-loamy, mixed, nonacid, frigid
humid zone
glacial till
Delta Co.

Al horizon	Al horizon
A slope	A slope
poorly drained	poorly drained
silt loam	silt loam
44TS 51ZSi 5ZC	18ZS 70ZSi 11ZC
10YR 3/1 (moist)	7.5YR 2/0 (moist)
10YR 5/1 (dry)	10YR 3/1 (dry)
8.86% O.M.	25.23% O.M.
23.4 meq/100g CEC	63.1 meq/100g CEC
0.28% Fe ₂ O ₃	0.44% Fe ₂ O ₃

46.7 MWZ* — 42.9 MWZ* ----

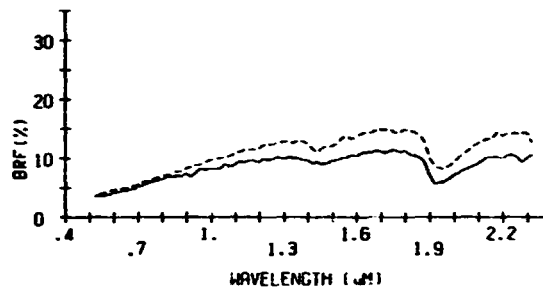


GRAYLING (MI)

Typic Udipsamment
mixed, frigid
humid zone
sandy glaciofluvial sediments
Delta Co.

Al-A2 horizon	Al-A2 horizon
A slope	A slope
excessively drained	excessively drained
sand	loamy sand
93ZS 5ZSi 2ZC	84ZS 14ZSi 2ZC
5YR 2/1 (moist)	7.5YR 2/0 (moist)
10YR 4/1 (dry)	10YR 4/1 (dry)
4.47% O.M.	3.57% O.M.
15.0 meq/100g CEC	12.9 meq/100g CEC
0.21% Fe ₂ O ₃	0.22% Fe ₂ O ₃

15.3 MWZ* — 12.0 MWZ* ----

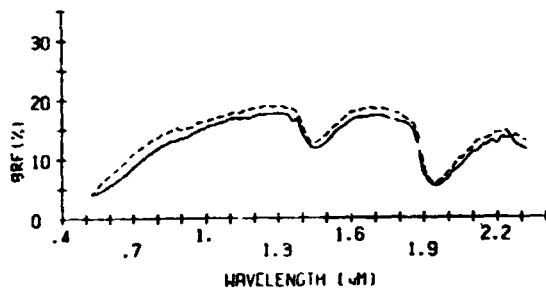


ONAWAY (MI)

Alfic Haplorthod
fine-loamy, mixed, frigid
humid zone
glacial drift
Delta Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
fine sandy loam	loam
61ZS 34ZSi 6ZC	44ZS 47ZSi 9ZC
7.5YR 3/2 (moist)	10YR 3/4 (moist)
10YR 5/2 (dry)	10YR 6/3 (dry)
3.32% O.M.	2.78% O.M.
13.2 meq/100g CEC	13.7 meq/100g CEC
0.81% Fe ₂ O ₃	0.92% Fe ₂ O ₃

27.3 MWZ* — 27.5 MWZ* ----

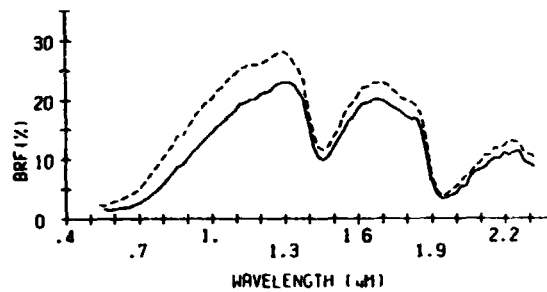


RIFLE (MI)

Typic Borohemist
euic
humid zone
organic material
Delta Co.

O11 horizon	O11 horizon
A slope	A slope
v. poorly drained	v. poorly drained
muck	muck
38ZS 43ZSi 20ZC	5ZS 94ZSi 1ZC
10YR 2/1 (moist)	7.5YR 3/2 (moist)
10YR 2/2 (dry)	10YR 3/2 (dry)
75.11% O.M.	84.79% O.M.
240.0 meq/100g CEC	151.0 meq/100g CEC
trace Fe ₂ O ₃	trace Fe ₂ O ₃

176. MWZ* — 217. MWZ* ----

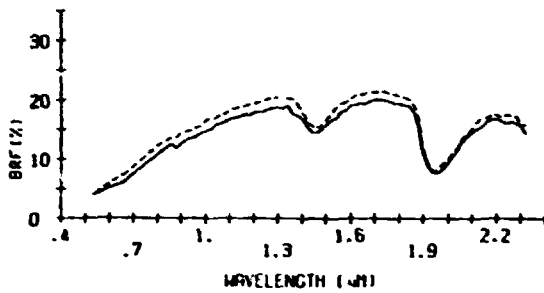


EMMET (MI)

Alfic Haplorthod
coarse-loamy, mixed, frigid
humid zone
glacial till
Delta Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
loamy sand	loamy sand
79ZS 19ZS1 2ZC	78ZS 15ZS1 7ZC
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/3 (dry)
2.46% O.M.	2.98% O.M.
7.7 meq/100g CEC	10.2 meq/100g CEC
0.42% Fe ₂ O ₃	0.54% Fe ₂ O ₃

12.7 PMZ* — 12.2 PMZ* ----

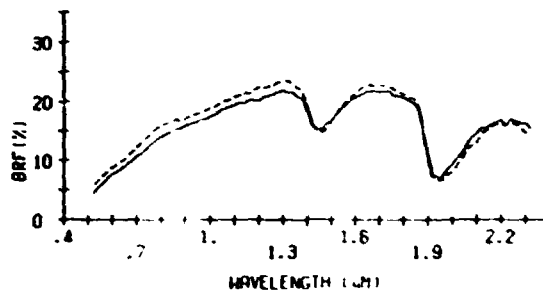


HILLSDALE (MI)

Typic Hapludalf
coarse-loamy, mixed, mesic
humid zone
glacial till and drift
Jackson Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
fine sandy loam	fine sandy loam
57ZS 35ZS1 8ZC	75ZS 17ZS1 8ZC
10YR 3/3 (moist)	7.5YR 4/4 (moist)
10YR 6/3 (dry)	10YR 6/4 (dry)
1.69% O.M.	2.02% O.M.
9.2 meq/100g CEC	9.6 meq/100g CEC
1.11% Fe ₂ O ₃	0.99% Fe ₂ O ₃

20.0 PMZ* — 19.7 PMZ* ----

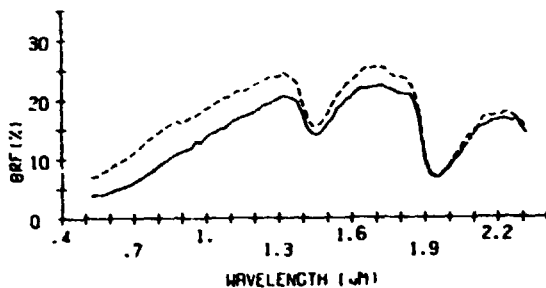


TAYLOR (MN)

Typic Eutroboralf
fine, mixed
subhumid zone
silty clay loam till and
lacustrine silts
Lake-of-the-Woods Co.

Ap horizon	Ap horizon
A slope	A slope
mod. well drained	mod. well drained
loamy sand	fine sandy loam
78ZS 16ZS1 6ZC	73ZS 21ZS1 6ZC
5YR 2.5/1 (moist)	10YR 3/2 (moist)
10YR 5/1 (dry)	10YR 6/1 (dry)
3.72% O.M.	2.21% O.M.
13.6 meq/100g CEC	9.2 meq/100g CEC
0.31% Fe ₂ O ₃	0.23% Fe ₂ O ₃

20.0 PMZ* — 23.9 PMZ* ----

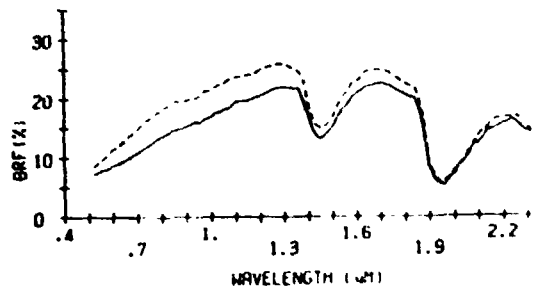


WARBA (MN)

Typic Glossoboralf
fine, mixed
subhumid zone
calcareous clay loam materials
Case Co.

Al-A21 horizon	Al-A21 horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
26ZS 68ZS1 6ZC	22ZS 73ZS1 5ZC
10YR 4/1 (moist)	10YR 5/3 (moist)
10YR 7/1 (dry)	10YR 7/2 (dry)
1.71% O.M.	1.61% O.M.
9.6 meq/100g CEC	9.3 meq/100g CEC
0.41% Fe ₂ O ₃	0.45% Fe ₂ O ₃

32.7 PMZ* — 29.3 PMZ* ----

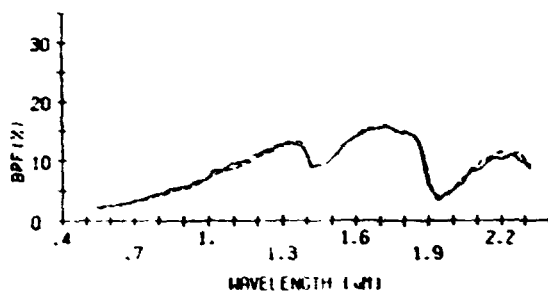


ROLISS (MN)

Typic Haplaquoll
fine-loamy, mixed, calcareous, frigid
subhumid zone
calcareous glacial till
Grant Co.

Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
clay loam	loam
37S 34S1 29C	46S 30S1 24C
7.5YR 2/0 (moist)	7.5YR 2/0 (moist)
10YR 3/1 (dry)	10YR 3/1 (drv)
4.0% O.M.	4.7% O.M.
45.7 meq/100g CEC	37.6 meq/100g CEC
0.21% Fe ₂ O ₃	0.32% Fe ₂ O ₃

39.0 MWZ* — 38.3 MWZ* - - - -

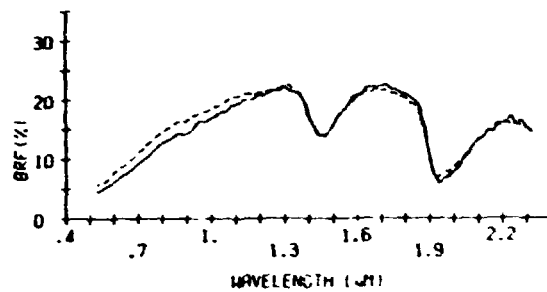


ANOKA (MN)

Eutric Glossoberalf
coarse-loamy, mixed
subhumid zone
sandy outwash
Isanti Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loamy fine sand	silt
87S 72S1 64C	15S 80S1 4C
10YR 3/2 (moist)	10YR 3/3 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
0.74% O.M.	0.71% O.M.
5.2 meq/100g CEC	3.0 meq/100g CEC
0.42% Fe ₂ O ₃	0.21% Fe ₂ O ₃

22.3 MWZ* — 16.8 MWZ* - - - -

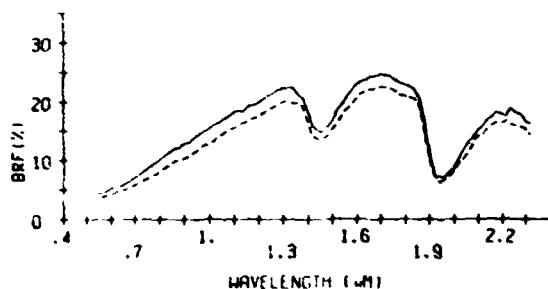


GRYGLA (MN)

Mollic Haplaquent
sandy over loamy, mixed, nonacid,
frigid
subhumid zone
lacustrine sediments over till
Kittson Co.

Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
fine sand	fine sand
90S 62S1 42C	89S 72S1 52C
10YR 3/1 (moist)	10YR 3/1 (moist)
10YR 5/1 (dry)	10YR 5/1 (dry)
2.0% O.M.	2.8% O.M.
8.1 meq/100g CEC	9.4 meq/100g CEC
0.13% Fe ₂ O ₃	0.09% Fe ₂ O ₃

17.3 MWZ* — 27.8 MWZ* - - - -

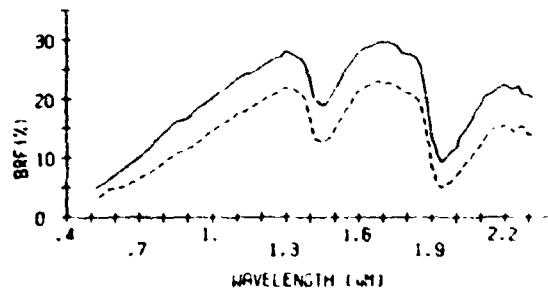


REDBY (MN)

Aquic Udipsamment
mixed, frigid
subhumid zone
sands of glacial origin
Kittson Co.

Al horizon	Al horizon
A slope	A slope
s. poorly drained	s. poorly drained
fine sand	fine sand
94S 32S1 3C	88S 82S1 52C
10YR 3/2 (moist)	10YR 3/1 (moist)
10YR 5/2 (drv)	10YR 4/2 (drv)
0.90% O.M.	1.37% O.M.
5.4 meq/100g CEC	11.1 meq/100g CEC
0.14% Fe ₂ O ₃	0.10% Fe ₂ O ₃

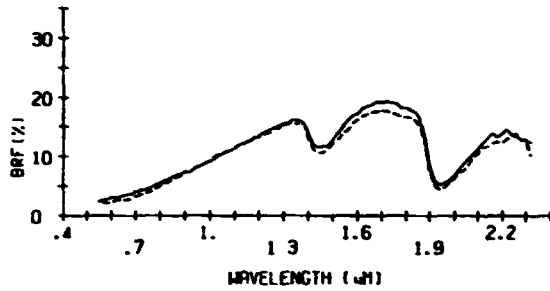
10.0 MWZ* — 19.3 MWZ* - - - -



CORMANT (MN)

Mollic Psammaquent
mixed, frigid
subhumid zone
sandy sediments
Lake-of-the-Woods Co.

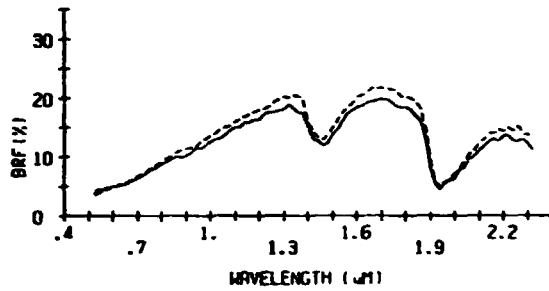
Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
loamy fine sand	loamy fine sand
82S 11XSi 7ZC	83S 10XSi 7ZC
10YR 2/1 (moist)	7.5YR 2/0 (moist)
10YR 4/2 (dry)	10YR 4/1 (dry)
4.38% O.M.	8.93% O.M.
23.2 meq/100g CEC	52.7 meq/100g CEC
0.39% Fe ₂ O ₃	0.08% Fe ₂ O ₃
28.7 MWZ	38.9 MWZ



BUSE (MN)

Udortheitic Haploboroll
fine-loamy, mixed
subhumid zone
glacial till
Ottertail Co.

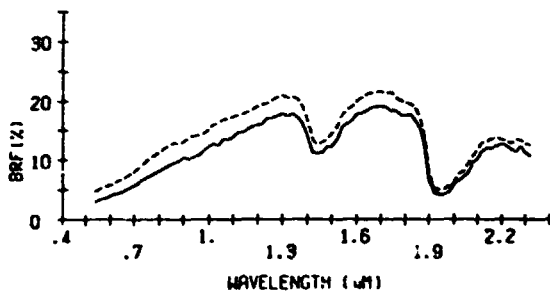
Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
loam	loam
43S 33Si 24ZC	34S 41Si 25ZC
10YR 3/1 (moist)	10YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/3 (dry)
3.51% O.M.	3.92% O.M.
29.3 meq/100g CEC	30.0 meq/100g CEC
0.91% Fe ₂ O ₃	1.01% Fe ₂ O ₃
30.0 MWZ	33.9 MWZ



LANGHEI (MN)

Typic Udorthent
fine-loamy, mixed, calcareous, frigid
subhumid zone
calcareous glacial till
Pope Co.

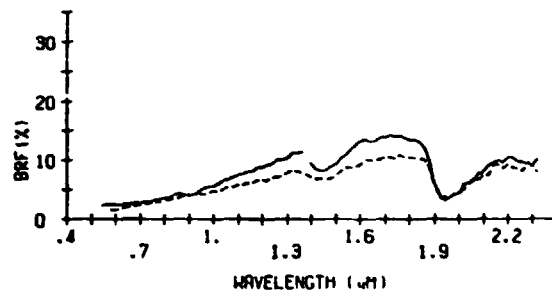
Ap horizon	Ap horizon
D slope	C slope
s. excess. drained	s. excess. drained
loam	loam
29S 48Si 23ZC	38S 44Si 18ZC
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 4/2 (dry)	10YR 5/3 (dry)
3.00% O.M.	2.52% O.M.
25.1 meq/100g CEC	25.3 meq/100g CEC
0.71% Fe ₂ O ₃	0.77% Fe ₂ O ₃
35.0 MWZ	29.7 MWZ



FLOM (MN)

Typic Haplaquoll
fine-loamy, mixed, frigid
subhumid zone
glacial till
Stevens Co.

Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
silty clay loam	silty clay loam
18S 47Si 35ZC	11S 52Si 37ZC
7.5YR 2/0 (moist)	7.5YR 2/0 (moist)
10YR 3/1 (dry)	10YR 3/1 (dry)
6.06% O.M.	7.76% O.M.
53.6 meq/100g CEC	63.6 meq/100g CEC
0.30% Fe ₂ O ₃	0.45% Fe ₂ O ₃
47.4 MWZ	50.7 MWZ

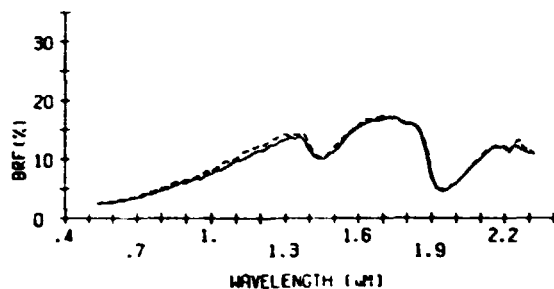


NICOLLET (MN)

Aquic Hapludoll
fine-loamy, mixed, mesic
subhumid zone
calcareous loam till
Martin Co.

Ap horizon	Ap horizon
B slope	B slope
mod. well drained	mod. well drained
loam	loam
462S 292Si 252C	432S 312Si 262C
10YR 2/1 (moist)	10YR 2/1 (moist)
10YR 3/1 (dry)	10YR 3/1 (dry)
4.13% O.M.	4.42% O.M.
30.2 meq/100g CEC	27.2 meq/100g CEC
0.89% Fe ₂ O ₃	1.09% Fe ₂ O ₃

31.7 Mw% — 29.8 Mw% - - - -

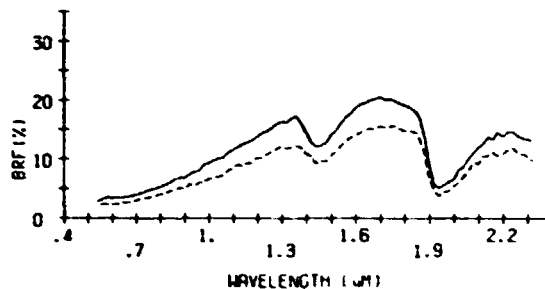


CANISTEO (MN)

Typic Haplaquoll
fine-loamy, mixed, calcareous, mesic
subhumid zone
glacial till
Steele Co.

Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
loam	loam
392S 382Si 222C	352S 382Si 272C
7.5YR 2/0 (moist)	7.5YR 2/0 (moist)
10YR 4/1 (dry)	10YR 3/1 (dry)
4.98% O.M.	8.94% O.M.
33.7 meq/100g CEC	42.0 meq/100g CEC
0.30% Fe ₂ O ₃	0.33% Fe ₂ O ₃

36.3 Mw% — 40.8 Mw% - - - -

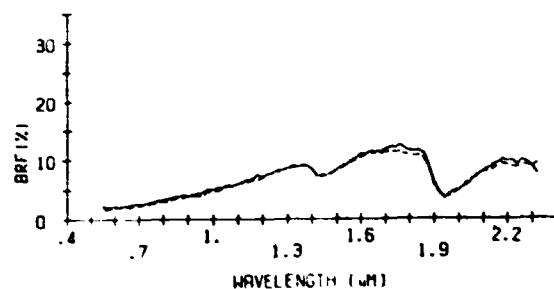


GLENCOE (MN)

Cumultic Haplaquoll
fine-loamy, mixed, mesic
subhumid zone
loamy sediments and till
Steele Co.

Ap horizon	Ap horizon
A slope	A slope
v. poorly drained	v. poorly drained
clay loam	siltv clay loam
352S 372Si 282C	152S 382Si 372C
7.5YR 2/0 (moist)	7.5YR 2/0 (moist)
10YR 3/1 (dry)	10YR 3/1 (dry)
8.41% O.M.	9.93% O.M.
43.5 meq/100g CEC	50.7 meq/100g CEC
0.30% Fe ₂ O ₃	0.59% Fe ₂ O ₃

41.0 Mw% — 43.7 Mw% - - - -

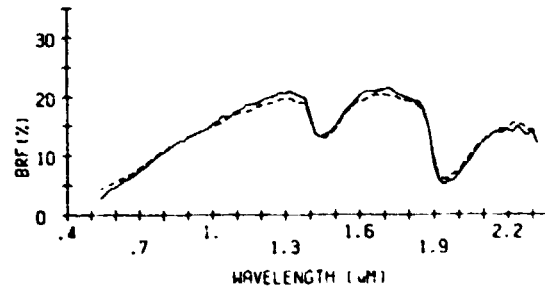


HAYDEN (MN)

Typic Hapludalf
fine-loamy, mixed, mesic
subhumid zone
calcareous loam till
Rice Co.

Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
loam	loam
402S 402Si 202C	472S 432Si 102C
10YR 3/2 (moist)	10YR 4/2 (moist)
10YR 5/2 (dry)	10YR 5/2 (dry)
2.16% O.M.	2.02% O.M.
20.0 meq/100g CEC	12.5 meq/100g CEC
0.84% Fe ₂ O ₃	0.67% Fe ₂ O ₃

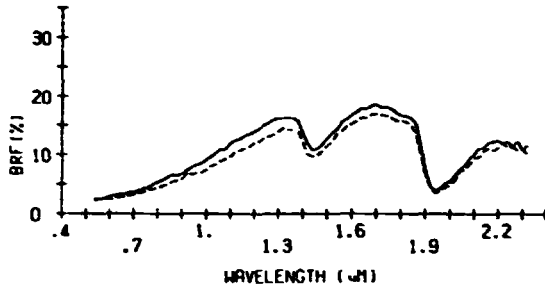
28.0 Mw% — 27.1 Mw% - - - -



CORDOVA (MN)

Typic Argiaquoll
fine-loamy, mixed, mesic
subhumid zone
calcareous loamy till
Waseca Co.

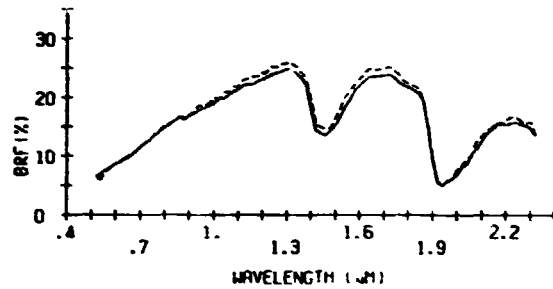
Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
clay loam	clay loam
26ZS 41ZS1 33ZC	34ZS 34ZS1 32ZC
10YR 2/1 (moist)	7.5YR 2/0 (moist)
10YR 4/2 (dry)	10YR 3/1 (dry)
4.37% O.M.	4.32% O.M.
35.8 meq/100g CEC	40.4 meq/100g CEC
0.69% Fe ₂ O ₃	0.49% Fe ₂ O ₃
39.3 MIZ: —	37.1 MIZ: - - - -



SUSQUEHANNA (MS)

Vertic Paleudalf
fine, montmorillonitic, thermic
humid zone
coastal plain clays
George Co.

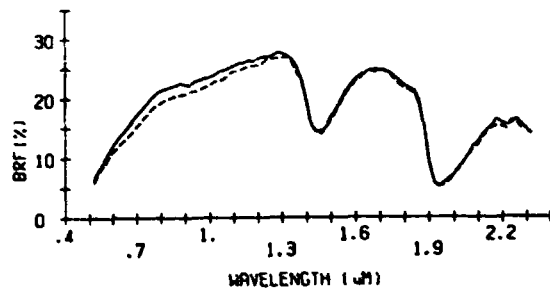
Al horizon	Al horizon
C slope	C slope
s. poorly drained	s. poorly drained
fine sandy loam	silt loam
51ZS 42ZS1 7ZC	39ZS 50ZS1 11ZC
10YR 4/2 (moist)	10YR 4/3 (moist)
10YR 7/2 (dry)	10YR 6/3 (dry)
1.96% O.M.	2.12% O.M.
8.5 meq/100g CEC	11.6 meq/100g CEC
0.73% Fe ₂ O ₃	0.97% Fe ₂ O ₃
29.8 MIZ: —	33.9 MIZ: - - - -



GRENADA (MS)

Glossic Fragludalf
fine-silty, mod., thermic
humid zone
loess
Grenada Co.

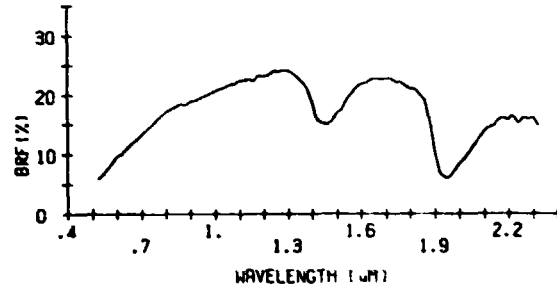
Ap horizon	Ap horizon
A slope	A slope
mod. well drained	mod. well drained
silt loam	silt loam
2ZS 84ZS1 14ZC	6ZS 80ZS1 14ZC
10YR 5/6 (moist)	10YR 5/6 (moist)
10YR 6/6 (dry)	10YR 6/6 (dry)
0.60% O.M.	1.55% O.M.
11.3 meq/100g CEC	13.2 meq/100g CEC
1.26% Fe ₂ O ₃	1.44% Fe ₂ O ₃
33.0 MIZ: —	34.6 MIZ: - - - -



UNION (MO)

Typic Hapludalf
very-fine, mixed, mesic
humid zone
limestone and shale residuum
Moniteau Co.

Ap horizon
C slope
well drained
silt loam
1XZ 83ZS1 16ZC
10YR 4/4 (moist)
10YR 6/4 (dry)
1.45% O.M.
12.0 meq/100g CEC
0.98% Fe ₂ O ₃
33.4 MIZ: —

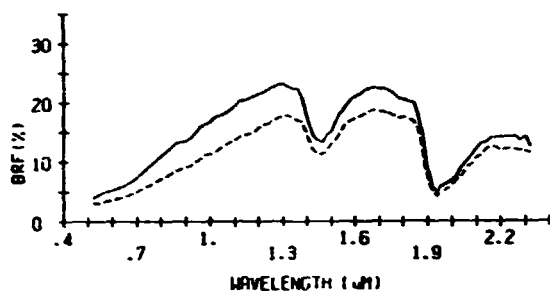


KILWINNING (MO)

Vertic Ochraqualf
fine, montmorillonitic, mesic
humid zone
thick loess over till
Scotland Co.

Ap horizon	Ap horizon
B slope	B slope
s. poorly drained	s. poorly drained
silt loam	silt loam
52S 70ZS1 25ZC	12ZS 70ZS1 21ZC
10YR 3/2 (moist)	10YR 3/1 (moist)
10YR 5/2 (dry)	10YR 4/2 (dry)
2.54% O.M.	3.57% O.M.
25.8 meq/100g CEC	31.3 meq/100g CEC
1.63% Fe ₂ O ₃	1.17% Fe ₂ O ₃

39.5 M4Z* ——— 42.4 M4Z* - - - -

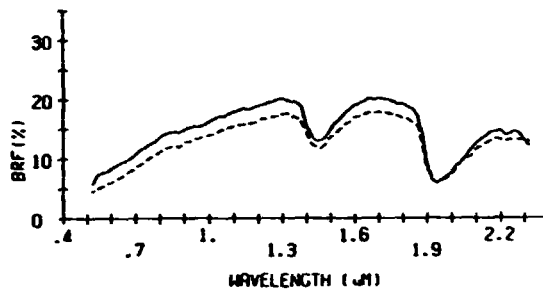


CHINOOK (MT)

Aridic Haploboroll
coarse-loamy, mixed
semiarid zone
fine sandy loam alluvium
Hill Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
v. fine sandy loam	fine sandy loam
52ZS 41ZS1 6ZC	67ZS 26ZS1 7ZC
2.5YR 4/2 (moist)	10YR 3/2 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
1.52% O.M.	2.67% O.M.
14.4 meq/100g CEC	10.3 meq/100g CEC
0.50% Fe ₂ O ₃	0.67% Fe ₂ O ₃

26.6 M4Z* ——— 25.1 M4Z* - - - -

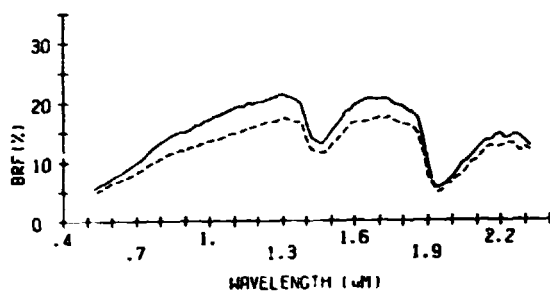


ELLOAM (MT)

Borollic Natragid
fine, montmorillonitic
semiarid zone
calcareous loam till
Hill Co.

A2 horizon	A2 horizon
B slope	B slope
well drained	well drained
loam	silt loam
28ZS 48ZS1 24ZC	32ZS 53ZS1 15ZC
10YR 4/2 (moist)	10YR 4/2 (moist)
10YR 6/3 (dry)	10YR 5/3 (dry)
4.36% O.M.	3.56% O.M.
22.4 meq/100g CEC	18.4 meq/100g CEC
0.72% Fe ₂ O ₃	0.61% Fe ₂ O ₃

42.2 M4Z* ——— 37.0 M4Z* - - - -

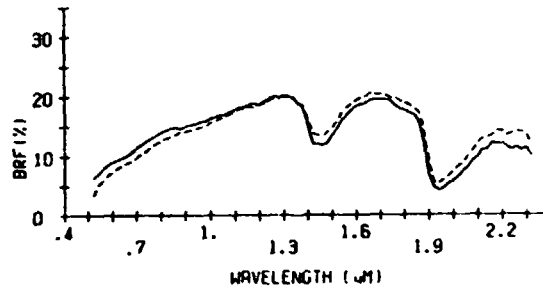


ETHRIDGE (MT)

Aridic Argiboroll
fine, montmorillonitic
semiarid zone
lacustrine sediments
Liberty Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
clay loam	silty clay loam
29ZS 34ZS1 37ZC	16ZS 50ZS1 34ZC
2.5Y 4/2 (moist)	10YR 3/3 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
1.77% O.M.	3.48% O.M.
23.3 meq/100g CEC	28.0 meq/100g CEC
0.46% Fe ₂ O ₃	0.98% Fe ₂ O ₃

36.0 M4Z* ——— 38.0 M4Z* - - - -

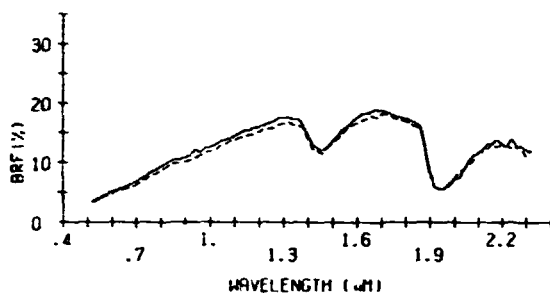


LIHEN(MT)

Entic Haploboroll
sandy, mixed
semiarid zone
wind or water deposited sands
Roosevelt Co.

Ap horizon	Al horizon
A slope	A slope
well drained	well drained
loamy sand	sandy loam
86% Si 9% S _i 5% C	74% Si 16% S _i 10% C
10YR 4/2 (moist)	7.5YR 3/2 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
1.25% O.M.	1.45% O.M.
7.2 meq/100g CEC	9.2 meq/100g CEC
0.64% Fe ₂ O ₃	0.80% Fe ₂ O ₃

20.4 MW% — 16.0 MW% - - - -

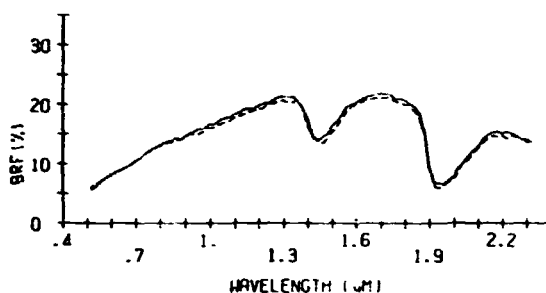


JOPLIN(MT)

Aridic Argiboroll
fine-loamy, mixed
semiarid zone
loamy glacial till
Toole Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loam	loam
31% Si 50% S _i 19% C	35% Si 46% S _i 19% C
10YR 4/2 (moist)	10YR 4/2 (moist)
10YR 6/3 (dry)	10YR 6/3 (dry)
1.94% O.M.	2.06% O.M.
18.4 meq/100g CEC	17.7 meq/100g CEC
1.00% Fe ₂ O ₃	1.17% Fe ₂ O ₃

27.8 MW% — 28.6 MW% - - - -

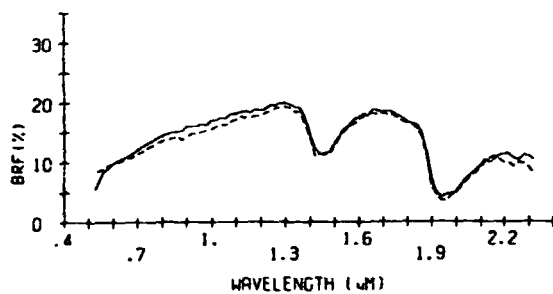


MARIAS(MT)

Ustertic Torriorthent
fine, montmorillonitic, calcareous,
frigid
semiarid zone
clay residuum
Valley Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
clay	clay
14% Si 37% S _i 49% C	32% Si 34% S _i 63% C
10YR 5/2 (moist)	2.5Y 4/2 (moist)
2.5Y 6/2 (dry)	2.5Y 5/2 (dry)
2.08% O.M.	1.60% O.M.
40.7 meq/100g CEC	46.3 meq/100g CEC
1.05% Fe ₂ O ₃	0.98% Fe ₂ O ₃

43.4 MW% — 43.8 MW% - - - -

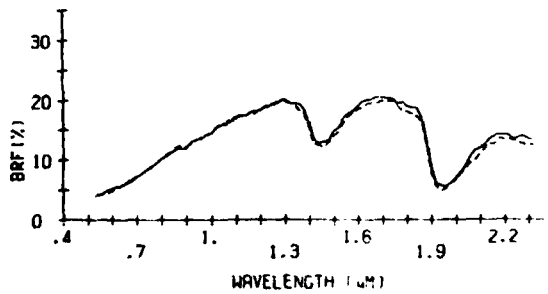


ABSAROKEE(MT)

Typic Argiboroll
fine, montmorillonitic
semiarid zone
calcareous clay loam residuum
Yellowstone Co.

Al horizon	Al horizon
A slope	A slope
well drained	well drained
v. fine sandy loam	silt loam
54% Si 33% S _i 14% C	26% Si 54% S _i 20% C
10YR 3/1 (moist)	10YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/2 (dry)
5.42% O.M.	5.60% O.M.
15.0 meq/100g CEC	22.3 meq/100g CEC
0.84% Fe ₂ O ₃	0.79% Fe ₂ O ₃

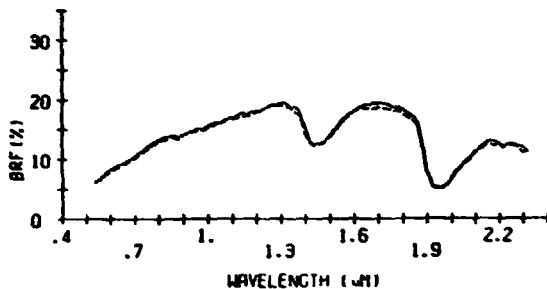
39.2 MW% — 49.2 MW% - - - -



KEISER (MT)

Ustollic Haplargid
fine-silty, mixed, mesic
semiarid zone
calcareous silt loam material
Yellowstone Co.

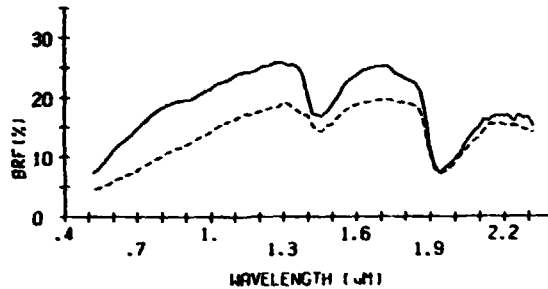
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loam	loam
38ZS 37ZS1 25ZC	34ZS 42ZS1 24ZC
10YR 4/3 (moist)	10YR 4/2 (moist)
10YR 4/3 (dry)	10YR 5/3 (dry)
1.14% O.M.	1.23% O.M.
28.0 meq/100g CEC	21.1 meq/100g CEC
0.81% Fe ₂ O ₃	0.89% Fe ₂ O ₃
26.8 MWZ	29.6 MWZ



GREENOUGH (MT)

Typic Entroboralf
fine-silty, mixed
subhumid zone
thin glacial till over bedrock
Missoula Co.

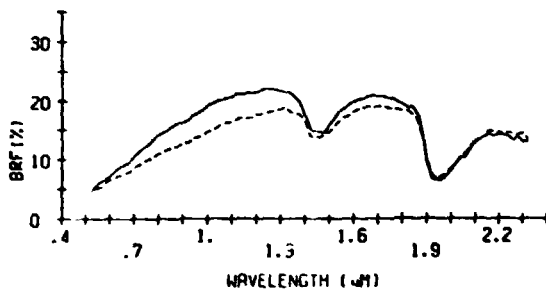
A2 horizon	A2 horizon
B slope	B slope
well drained	well drained
loamy sand	silty clay
84ZS 92ZS1 7ZC	1ZS 52ZS1 47ZC
10YR 5/4 (moist)	5YR 3/1 (moist)
10YR 6/3 (dry)	10YR 5/1 (dry)
1.13% O.M.	5.37% O.M.
10.1 meq/100g CEC	27.2 meq/100g CEC
1.23% Fe ₂ O ₃	1.16% Fe ₂ O ₃
25.3 MWZ	42.8 MWZ



TARKIO (MT)

Typic Entroboralf
very-fine, mixed
subhumid zone
glacial lake terrace deposits
Missoula Co.

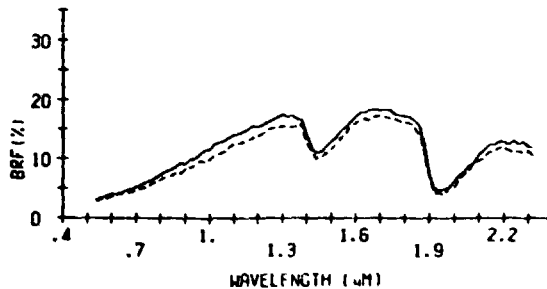
A2 horizon	A2 horizon
A slope	A slope
well drained	well drained
clay loam	silty clay loam
34ZS 33ZS1 33ZC	2ZS 58ZS1 39ZC
5YR 4/2 (moist)	7.5YR 4/2 (moist)
7.5YR 6/2 (dry)	10YR 6/2 (dry)
3.00% O.M.	4.43% O.M.
20.7 meq/100g CEC	25.7 meq/100g CEC
0.86% Fe ₂ O ₃	1.20% Fe ₂ O ₃
36.6 MWZ	47.7 MWZ



HORD (NE)

Pachic Haplustoll
fine-silty, mixed, mesic
subhumid zone
calcareous silt loam
Buffalo Co.

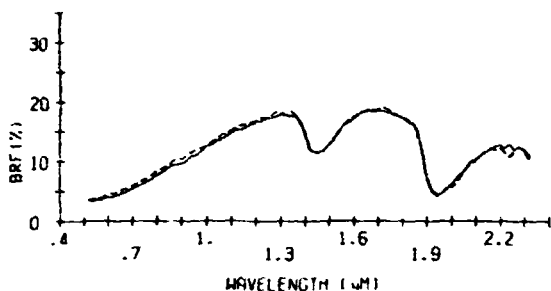
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
21ZS 59ZS1 20ZC	15ZS 64ZS1 21ZC
10YR 3/1 (moist)	10YR 2/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
2.37% O.M.	2.85% O.M.
23.8 meq/100g CEC	26.4 meq/100g CEC
0.49% Fe ₂ O ₃	0.41% Fe ₂ O ₃
36.2 MWZ	37.9 MWZ



HASTINGS(NE)

Udic Argiustoll
fine, montmorillonitic, mesic
subhumid zone
loess
Clay Co.

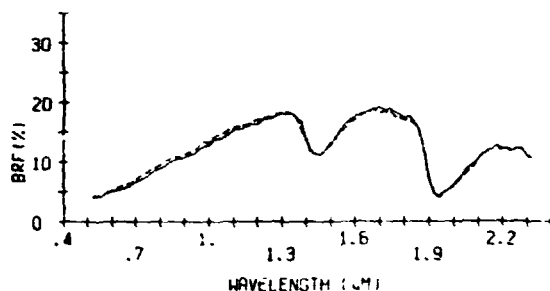
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
5ZS 74ZSi 22ZC	10ZS 65ZSi 25ZC
5YR 3/1 (moist)	10YR 2/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
3.05% O.M.	2.58% O.M.
22.1 meq/100g CEC	20.8 meq/100g CEC
0.67% Fe ₂ O ₃	0.59% Fe ₂ O ₃
38.7 MW% —	37.0 MW% - - -



ALLIANCE(NE)

Aridic Argiustoll
fine-silty, mixed, mesic
semiarid zone
loess and calcareous residuum
Davies Co.

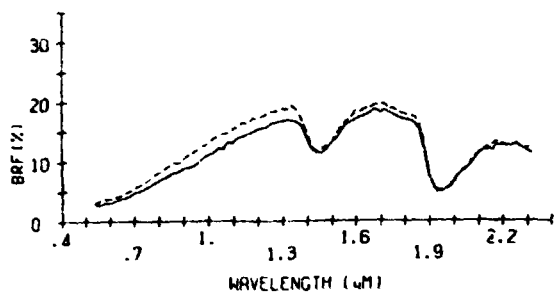
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loam	loam
38ZS 45ZSi 17ZC	38ZS 47ZSi 15ZC
7.5YR 3/2 (moist)	10YR 3/1 (moist)
10YR 4/2 (dry)	10YR 5/2 (dry)
1.94% O.M.	1.75% O.M.
22.9 meq/100g CEC	19.5 meq/100g CEC
0.35% Fe ₂ O ₃	0.42% Fe ₂ O ₃
30.6 MW% —	39.5 MW% - - -



JANSEN(NE)

Typic Argiustoll
fine-loamy over sandy or sandy-
skeletal, mixed, mesic
subhumid zone
loamy alluvium or loess over sand
Holt Co.

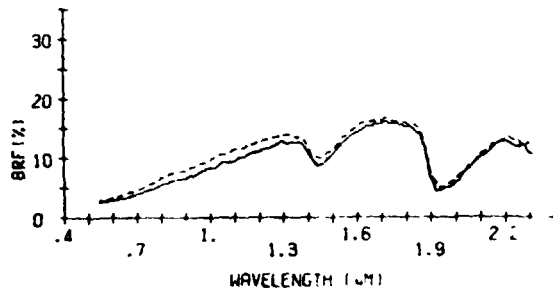
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loam	loam
38ZS 34ZSi 19ZC	44ZS 42ZSi 14ZC
10YR 2/1 (moist)	5YR 3/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
3.31% O.M.	2.12% O.M.
17.8 meq/100g CEC	19.9 meq/100g CEC
0.57% Fe ₂ O ₃	0.46% Fe ₂ O ₃
31.5 MW% —	39.9 MW% - - -



LOUP(NE)

Typic Haplaquoll
sandy, mixed, mesic
subhumid zone
sandy alluvium
Thomas Co.

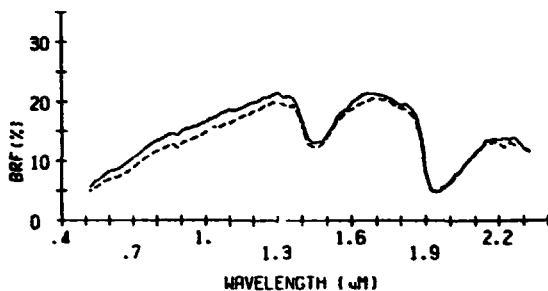
All horizon	All horizon
A slope	A slope
poorly drained	poorly drained
loamy fine sand	fine sandy loam
78ZS 14ZSi 8ZC	72ZS 18ZSi 10ZC
7.5Y 2/0 (moist)	10YR 2/1 (moist)
10YR 4/1 (dry)	10YR 4/1 (dry)
5.51% O.M.	9.51% O.M.
30.5 meq/100g CEC	35.2 meq/100g CEC
0.07% Fe ₂ O ₃	0.07% Fe ₂ O ₃
31.8 MW% - - -	39.0 MW% —



CROFTON(NE)

Typic Ustorthent
fine-silty, mixed, calcareous, mesic
subhumid zone
silty loess
Thurston Co.

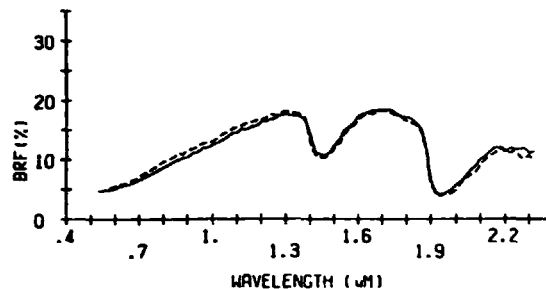
Ap horizon	Ap horizon
D slope	D slope
well drained	well drained
silt loam	silt loam
2ZS 71ZSi 27ZC	4ZS 70ZSi 26ZC
10YR 4/3 (moist)	7.5YR 4/2 (moist)
10YR 5/4 (dry)	10YR 5/3 (dry)
1.98% O.M.	2.75% O.M.
39.2 meq/100g CEC	40.6 meq/100g CEC
1.17% Fe ₂ O ₃	1.01% Fe ₂ O ₃
38.7 MWZ*	36.8 MWZ*



GIBBON(NE)

Fluvaquentic Haplaquoll
fine-silty, mixed, calcareous, mesic
subhumid zone
calcareous alluvium
Webster Co.

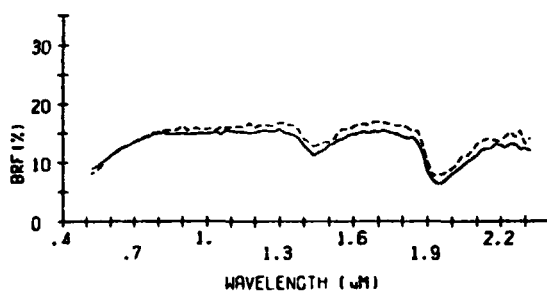
Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
silty clay loam	silty clay loam
12ZS 55ZSi 33ZC	7ZS 65ZSi 28ZC
10YR 3/1 (moist)	10YR 3/2 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
2.73% O.M.	3.00% O.M.
42.2 meq/100g CEC	32.5 meq/100g CEC
0.41% Fe ₂ O ₃	0.54% Fe ₂ O ₃
46.4 MWZ*	43.2 MWZ*



APPIAN(NV)

Typic Natrargid
fine-loamy over sandy or sandy-
skeletal, mixed, mesic
arid zone
loamy alluvium over lacustrine sands
Churchill Co.

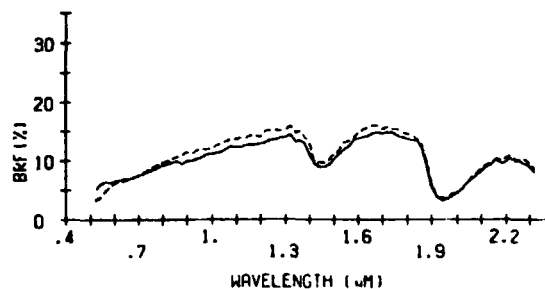
All-A12 horizon	All-A12 horizon
A slope	A slope
well drained	well drained
sandy loam	loamy sand
76ZS 18ZSi 7ZC	36ZS 92Si 5ZC
10YR 5/2 (moist)	10YR 4/2 (moist)
10YR 6/3 (dry)	10YR 6/3 (dry)
0.13% O.M.	0.0% O.M.
8.5 meq/100g CEC	10.5 meq/100g CEC
0.34% Fe ₂ O ₃	0.26% Fe ₂ O ₃
16.1 MWZ*	9.3 MWZ*



CARSON(NV)

Vertic Haplaquoll
very-fine, montmorillonitic, mesic
arid zone
clayey mixed alluvium
Churchill Co.

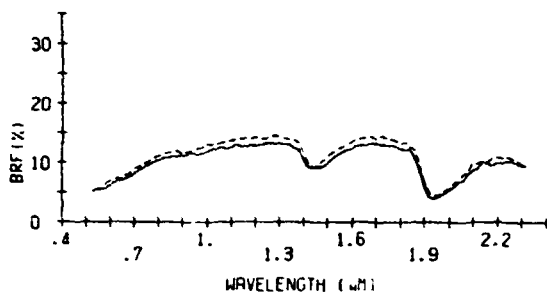
Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
clay	clay
10ZS 24ZSi 65ZC	15ZS 27ZSi 58ZC
10YR 4/1 (moist)	10YR 4/1 (moist)
10YR 5/1 (dry)	10YR 4/1 (dry)
1.93% O.M.	1.88% O.M.
54.4 meq/100g CEC	52.1 meq/100g CEC
0.48% Fe ₂ O ₃	0.43% Fe ₂ O ₃
56.7 MWZ*	51.6 MWZ*



DIA(NV)

Fluvaquentic Haploxeroll
fine-loamy over sandy-skeletal, mixed,
mesic
arid zone
loamy over sandy alluvium
Churchill Co.

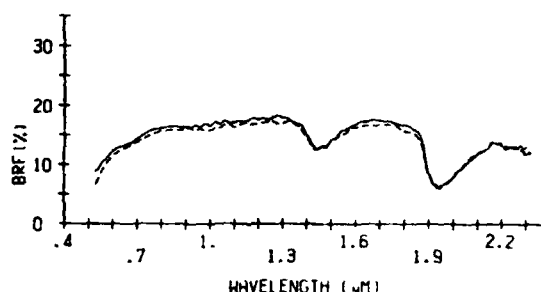
Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
loam	fine sandy loam
50ZS 32ZSi 18ZC	59ZS 24ZSi 16ZC
10YR 4/2 (moist)	10YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/3 (dry)
2.16% O.M.	1.18% O.M.
23.1 meq/100g CEC	26.7 meq/100g CEC
0.67% Fe ₂ O ₃	0.51% Fe ₂ O ₃
30.9 MWZ	29.2 MWZ



PIROUETTE(NV)

Typic Nadurargid
loamy-skeletal, mixed, mesic
arid zone
residuum from tuffs and basalts
Churchill Co.

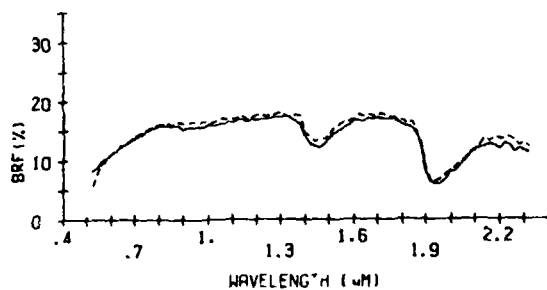
Al horizon	Al horizon
B slope	B slope
well drained	well drained
loam	fine sandy loam
49ZS 35ZSi 15ZC	65ZS 26ZSi 9ZC
10YR 4/2 (moist)	10YR 5/3 (moist)
10YR 7/2 (dry)	10YR 7/2 (dry)
0.90% O.M.	0.64% O.M.
32.4 meq/100g CEC	30.4 meq/100g CEC
0.49% Fe ₂ O ₃	0.42% Fe ₂ O ₃
21.2 MWZ	3.1 MWZ



BLACKHAWK(NV)

Entic Durorothid
loamy, mixed, mesic, shallow
arid zone
loess over mixed alluvium
Pershing Co.

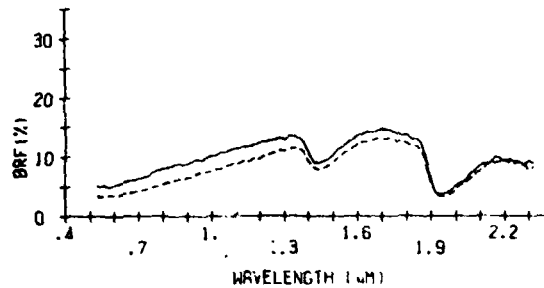
Al horizon	Al horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
33ZS 58ZSi 9ZC	31ZS 59ZSi 10ZC
10YR 5/4 (moist)	10YR 4/2 (moist)
10YR 6/3 (dry)	10YR 6/3 (dry)
0.74% O.M.	0.40% O.M.
17.3 meq/100g CEC	20.0 meq/100g CEC
0.44% Fe ₂ O ₃	0.51% Fe ₂ O ₃
26.8 MWZ	26.2 MWZ



HUMBOLDT(NV)

Fluvaquentic Haplaquoll
fine, montmorillonitic, calcareous,
mesic
arid zone
silty mixed alluvium with volcanic ash
Pershing Co.

Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
silty clay	clay
3ZS 47ZSi 50ZC	6ZS 38ZSi 56ZC
10YR 3/1 (moist)	10YR 3/1 (moist)
10YR 5/1 (dry)	10YR 4/1 (dry)
4.48% O.M.	4.83% O.M.
47.8 meq/100g CEC	72.4 meq/100g CEC
0.25% Fe ₂ O ₃	0.26% Fe ₂ O ₃
56.0 MWZ	66.0 MWZ



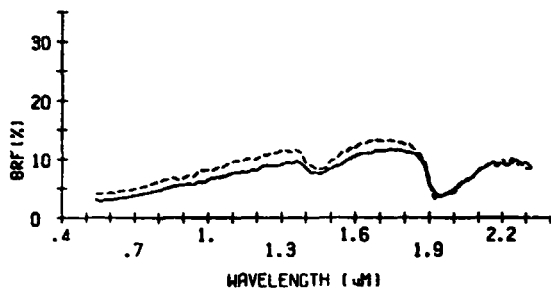
LOVELOCK(NV)

Aquic Natrimoroll
fine, montmorillonitic, calcareous,
mesic

arid zone
calcareous loamy alluvium
Pershing Co.

Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
silty clay	silty clay
12YS 42YSi 46ZC	14YS 42YSi 44ZC
10YR 2/1 (moist)	10YR 3/1 (moist)
10YR 4/1 (dry)	10YR 5/1 (dry)
7.91% O.M.	6.96% O.M.
88.0 meq/100g CEC	72.9 meq/100g CEC
0.30% Fe ₂ O ₃	0.25% Fe ₂ O ₃

86.6 MWZ: ——— 71.1 MWZ: - - - -



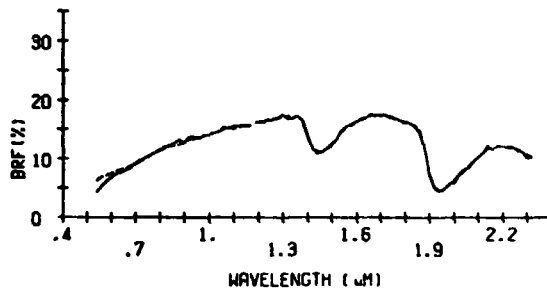
PLACERITOS(NV)

Aquic Xerofluvent
fine-silty, mixed, calcareous, mesic
arid zone

mixed alluvium
Pershing Co.

Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
silt loam	sandy clay loam
26YS 54YSi 20ZC	49YS 27YSi 24ZC
10YR 4/2 (moist)	10YR 4/1 (moist)
10YR 6/2 (dry)	10YR 6/2 (dry)
1.36% O.M.	1.13% O.M.
34.9 meq/100g CEC	28.9 meq/100g CEC
0.22% Fe ₂ O ₃	0.19% Fe ₂ O ₃

37.6 MWZ: ——— 32.4 MWZ: - - - -



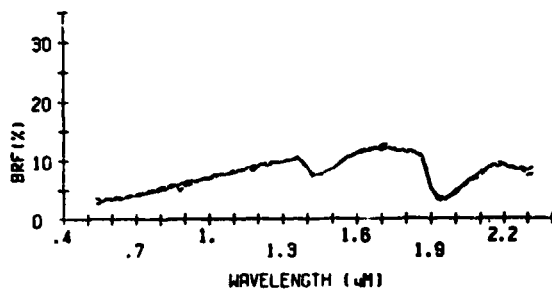
RYEPATCH(NV)

Vertic Haplaquoll
very-fine, montmorillonitic,
calcareous, mesic

arid zone
calcareous mixed alluvium
Pershing Co.

Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
clay	silty clay
7YS 31YSi 62ZC	3YS 45YSi 22ZC
10YR 3/1 (moist)	7.5YR 3/0 (moist)
10YR 5/1 (dry)	10YR 5/1 (dry)
4.99% O.M.	6.40% O.M.
77.3 meq/100g CEC	66.2 meq/100g CEC
0.27% Fe ₂ O ₃	0.26% Fe ₂ O ₃

59.9 MWZ: ——— 58.6 MWZ: - - - -



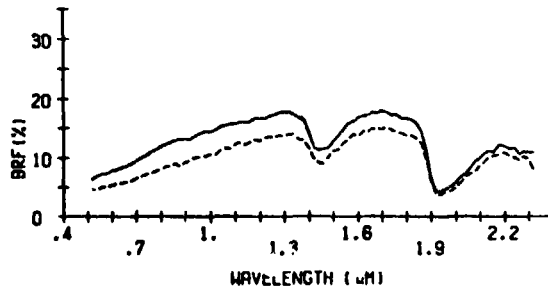
SONOMA(NV)

Aeric Fluvaquent
fine-silty, mixed, calcareous
arid zone

calcareous mixed alluvium
Pershing Co.

Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
clay loam	silty clay
20YS 43YSi 36ZC	9YS 46YSi 45ZC
10YR 4/1 (moist)	10YR 4/1 (moist)
10YR 6/1 (dry)	10YR 5/1 (dry)
2.80% O.M.	2.70% O.M.
44.9 meq/100g CEC	53.9 meq/100g CEC
0.23% Fe ₂ O ₃	0.26% Fe ₂ O ₃

42.0 MWZ: ——— 52.8 MWZ: - - - -



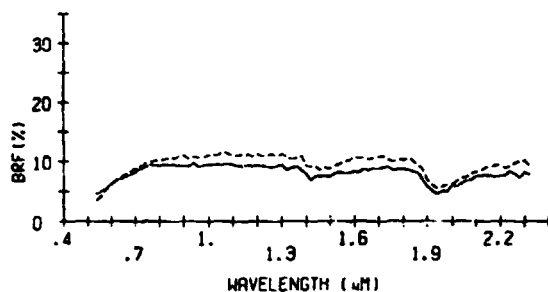
INDIAN CREEK (NV)

Xerollic Durargid
clayey, montmorillonitic, mesic,
shallow

semiarid zone
mixed alluvium
Douglass Co.

All-A12 horizon B slope well drained loam	All-A12 horizon B slope well drained sandy loam
27% Si 26% C	55% Si 38% C
7.5YR 3/2 (moist)	5YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/2 (dry)
2.4% O.M.	0.8% O.M.
20.3 meq/100g CEC	8.9 meq/100g CEC
1.37% Fe ₂ O ₃	1.19% Fe ₂ O ₃

33.6 MW% — 18.8 MW% - - - -

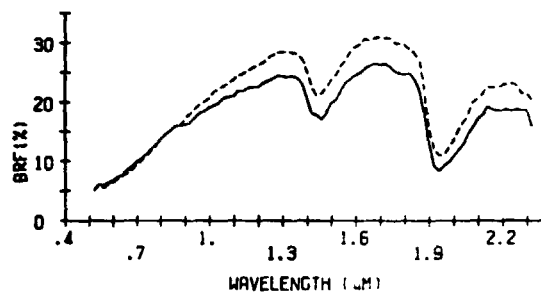


MOTTSVILLE (NV)

Torrripsan xerollic Haploxeroll
sandy, mixed, mesic
semiarid zone
sandy alluvium from granitic sources
Douglass Co.

All horizon C slope excessively drained coarse sand	All horizon C slope excessively drained coarse sand
90% Si 2% C	89% Si 12% C
10YR 4/2 (moist)	10YR 4/1 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
1.59% O.M.	2.87% O.M.
6.6 meq/100g CEC	6.5 meq/100g CEC
0.37% Fe ₂ O ₃	0.32% Fe ₂ O ₃

12.1 MW% — 10.0 MW% - - - -



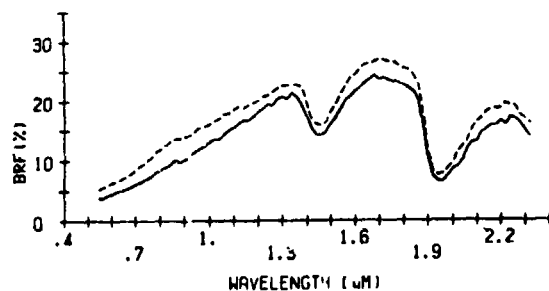
OPHIR (NV)

Typic Haplaquoll
sandy, mixed, mesic

semiarid zone
mixed alluvium
Douglass Co.

A1p-A12 horizon B slope poorly drained sand	A1p-A12 horizon B slope poorly drained loamy coarse sand
89% Si 3% C	83% Si 14% C
7.5YR 3/0 (moist)	10YR 3/2 (moist)
1YR 4/2 (dry)	10YR 5/3 (dry)
3.72% O.M.	1.33% O.M.
11.9 meq/100g CEC	9.7 meq/100g CEC
0.34% Fe ₂ O ₃	0.74% Fe ₂ O ₃

21.6 MW% — 17.0 MW% - - - -



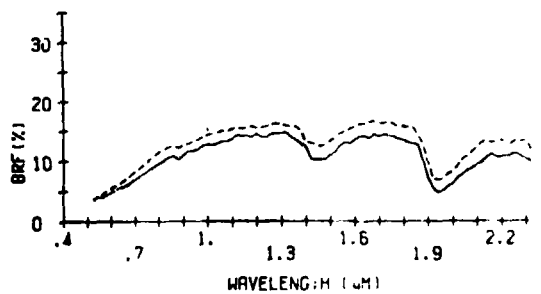
ORMSBY (NV)

Aquic Durorthidic Xeropsamment
mixed, mesic

semiarid zone
mixed sandy alluvium
Douglass Co.

Ap horizon A slope s. poorly drained sandy loam	Ap horizon A slope s. poorly drained loamy sand
66% Si 6% C	82% Si 5% C
5YR 2.5/2 (moist)	10YR 3/3 (moist)
10YR 5/2 (dry)	10YR 4/2 (dry)
2.25% O.M.	0.65% O.M.
11.6 meq/100g CEC	7.7 meq/100g CEC
0.77% Fe ₂ O ₃	0.67% Fe ₂ O ₃

20.4 MW% — 9.5 MW% - - - -

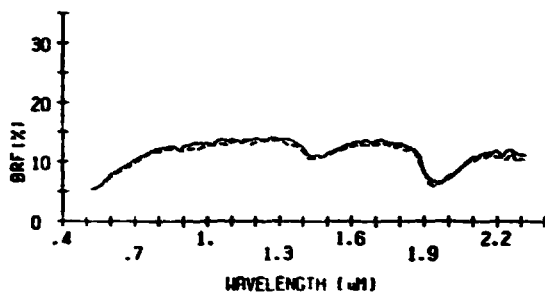


RENO(NV)

Abruptic Xerollic Durargid
fine, montmorillonitic, mesic
semiarid zone
mixed pediments and
fluvial sediments
Douglass Co.

Al-A2 horizon	Al-A2 horizon
B slope	B slope
well drained	well drained
sandy loam	sandy loam
75ZS 19YSi 6ZC	70ZS 24YSi 7ZC
7.5YR 4/2 (moist)	10YR 3/3 (moist)
10YR 6/2 (dry)	10YR 6/3 (dry)
0.54Z O.M.	1.26Z O.M.
9.1 meq/100g CEC	10.4 meq/100g CEC
1.08Z Fe ₂ O ₃	1.41Z Fe ₂ O ₃

15.9 MZ* — 20.7 MZ* ----

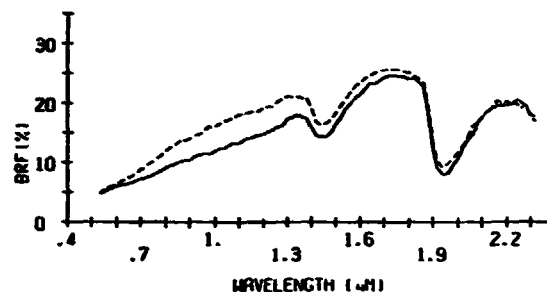


TOIYABE(NV)

Typic Xeropsamment
mixed, frigid, shallow
subhumid zone
residuum from granite and granodiorite
Douglass Co.

Al horizon	Al horizon
E slope	E slope
excessively drained	excessively drained
loamy sand	loamy coarse sand
76ZS 21ZSi 3XC	82ZS 16ZSi 2XC
10YR 3/1 (moist)	10YR 3/2 (moist)
10YR 5/1 (dry)	10YR 4/2 (dry)
1.57Z O.M.	2.85Z O.M.
10.7 meq/100g CEC	7.3 meq/100g CEC
0.26Z Fe ₂ O ₃	0.22Z Fe ₂ O ₃

13.4 MZ* — 13.2 MZ* ----

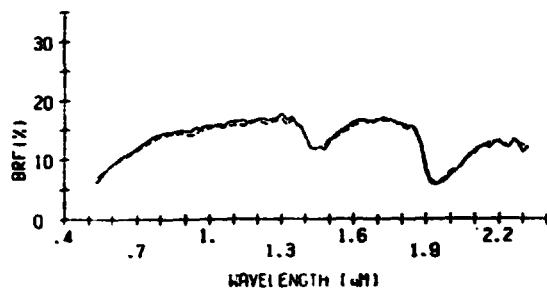


TURRIA(NV)

Xerollic Haplargid
fine-loamy, mixed, mesic
semiarid zone
mixed alluvium
Douglass Co.

Al horizon	Al horizon
A slope	A slope
well drained	well drained
fine sandy loam	v. fine sandy loam
59ZS 26ZSi 15ZC	56ZS 30ZSi 14ZC
10YR 5/3 (moist)	10YR 5/3 (moist)
10YR 6/3 (dry)	10YR 7/2 (dry)
0.52Z O.M.	0.42Z O.M.
13.7 meq/100g CED	12.6 meq/100g CEC
0.75Z Fe ₂ O ₃	0.79Z Fe ₂ O ₃

25.2 MZ* — 23.5 MZ* ----

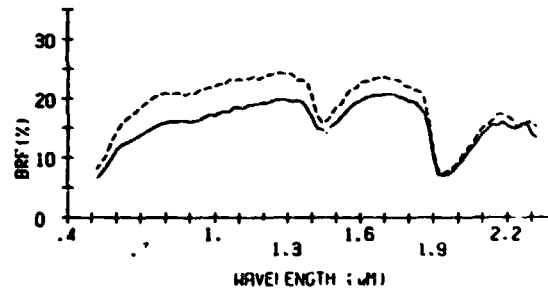


BITTER SPRING(NV)

Typic Haplargid
loamy-skeletal, mixed, thermic
arid zone
mixed alluvium
Clark Co.

Al horizon	Al horizon
A slope	A slope
well drained	well drained
fine sandy loam	loam
57ZS 37ZSi 5ZC	29ZS 48ZSi 23ZC
7.5YR 4/4 (moist)	7.5YR 4/6 (moist)
7.5YR 6/4 (dry)	7.5YR 6/4 (dry)
0.44Z O.M.	0.10Z O.M.
15.9 meq/100g CEC	27.4 meq/100g CEC
0.72Z Fe ₂ O ₃	0.97Z Fe ₂ O ₃

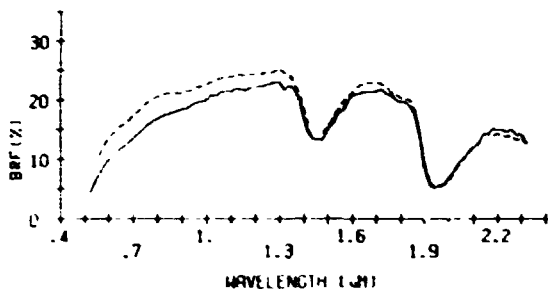
17.4 MZ* — 19.6 MZ* ----



CALICO(NV)

Aquic Xerofluvent
coarse-loamy over clayey, mixed,
calcareous, thermic
arid zone
alluvium
Clark Co.

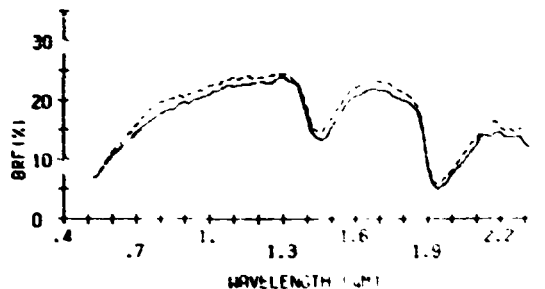
Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
v. fine sandy loam	fine sandy loam
54ZS 34ZS1 122C	54ZS 32ZS1 142C
7.5YR 4/2 (moist)	10YR 5/3 (moist)
10YR 6/3 (dry)	7.5YR 6/4 (dry)
1.10% O.M.	1.25% O.M.
25.0 meq/100g CEC	169.0 meq/100g CEC
0.55% Fe ₂ O ₃	0.39% Fe ₂ O ₃
31.9 Mhz	31.8 Mhz



LAND(NV)

Typic Salorthid
fine-loamy, gypsic, thermic
arid zone
alluvium
Clark Co.

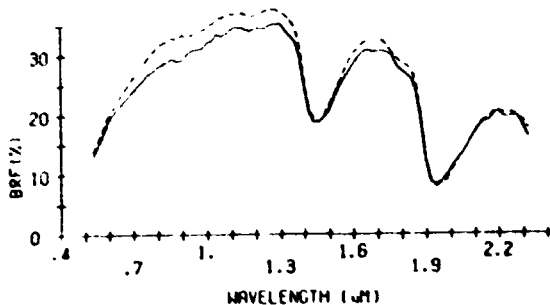
Al horizon	Al horizon
A slope	A slope
mod. well drained	mod. well drained
fine sandy loam	loam
66ZS 62S1 152C	42ZS 62S1 222C
10YR 7/3 (moist)	7.5YR 4/2 (moist)
7.5YR 7/4 (dry)	7.5YR 7/4 (dry)
1.21% O.M.	0.40% O.M.
99.2 meq/100g CEC	55.6 meq/100g CEC
0.46% Fe ₂ O ₃	0.56% Fe ₂ O ₃
27.4 Mhz	29.3 Mhz



MC CARRAN(NV)

Typic Salorthid
coarse-loamy, gypsic, thermic
arid zone
gypsfiferous, calcareous valley fill
Clark Co.

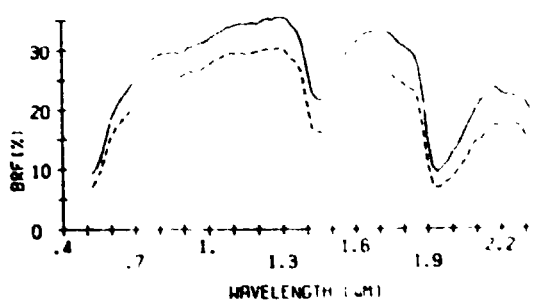
All-A12 horizon	All-A12 horizon
B slope	B slope
mod. well drained	mod. well drained
fine sand	fine sand
91ZS 52S1 22C	91ZS 62S1 32C
10YR 6/4 (moist)	7.5YR 5/4 (moist)
7.5YR 7/4 (dry)	7.5YR 7/4 (dry)
0.16% O.M.	0.30% O.M.
12.9 meq/100g CEC	30.1 meq/100g CEC
0.10% Fe ₂ O ₃	0.09% Fe ₂ O ₃
14.4 Mhz	17.8 Mhz



MORMAN MESA(NV)

Typic Paleorthid
loamy, carbonatic, thermic, shallow
arid zone
limestone valley fill
Clark Co.

Al horizon	Al horizon
A slope	A slope
well drained	well drained
loamy fine sand	loamy fine sand
87ZS 9.5S1 42C	84ZS 102S1 62C
7.5YR 4/6 (moist)	5YR 5/8 (moist)
7.5YR 7/6 (dry)	7.5YR 7/6 (dry)
0.23% O.M.	0.08% O.M.
18.2 meq/100g CEC	15.9 meq/100g CEC
0.32% Fe ₂ O ₃	0.32% Fe ₂ O ₃
12.1 Mhz	17.4 Mhz

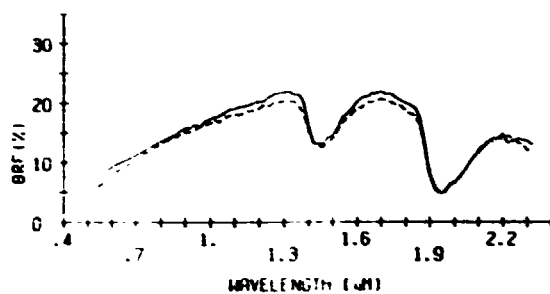


OVERTON (NV)

Aeric Haplaquapt
fine, montmorillonitic, calcareous,
thermic

arid zone
clayey alluvium
Clark Co.

Ap horizon	Ap horizon
A slope	A slope
v. poorly drained	v. poorly drained
silty clay	loam
102S 4XSi 47ZC	332S 462Si 19ZC
10YR 4/2 (moist)	10YR 4/2 (moist)
10YR 6/2 (dry)	10YR 6/3 (dry)
2.58% O.M.	2.21% O.M.
51.0 meq/100g CEC	34.4 meq/100g CEC
0.66% Fe ₂ O ₃	0.52% Fe ₂ O ₃
45.9 MZ%	38.5 MZ%

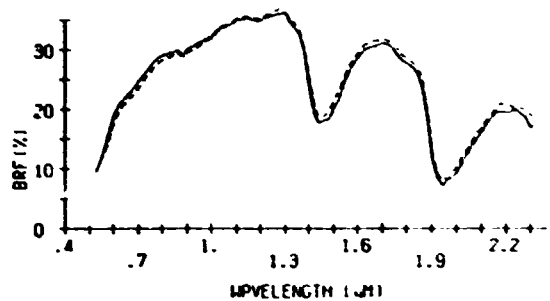


TOQUOP (NV)

Typic Torripsamment
mixed, thermic

arid zone
deep sandy alluvium
Clark Co.

Al horizon	Al horizon
A slope	A slope
excessively drained	excessively drained
fine sand	fine sand
922S 52Si 33C	942S 33Si 33C
5YR 6/6 (moist)	7.5YR 5/6 (moist)
7.5YR 7/6 (dry)	7.5YR 7/6 (dry)
0.0% O.M.	0.2% O.M.
9.0 meq/100g CEC	4.9 meq/100g CEC
0.20% Fe ₂ O ₃	0.30% Fe ₂ O ₃
11.9 MZ%	14.5 MZ%

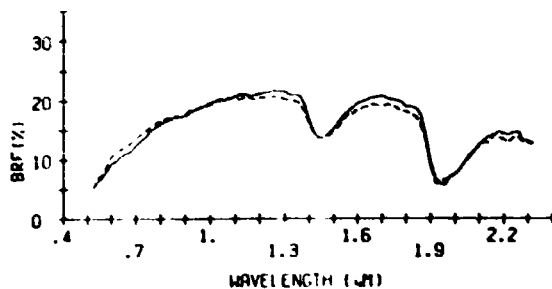


VIRGIN RIVER (NV)

Aquic Vertorthent
fine, mixed, calcareous, thermic

arid zone
clayey alluvium
Clark Co.

Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
silty clay loam	silty clay
192S 542Si 28ZC	82S 492Si 43ZC
7.5YR 4/6 (moist)	5YR 3/4 (moist)
7.5YR 6/4 (dry)	7.5YR 6/4 (dry)
4.04% O.M.	2.16% O.M.
31.1 meq/100g CEC	35.8 meq/100g CEC
1.19% Fe ₂ O ₃	1.50% Fe ₂ O ₃
35.6 MZ%	36.8 MZ%



CORTEZ (NV)

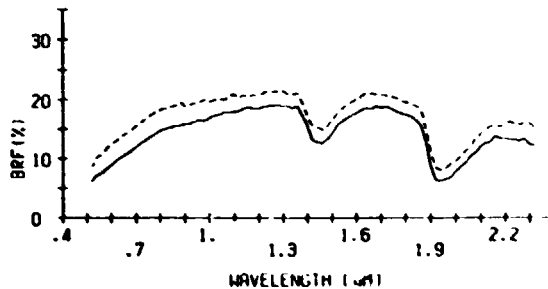
Xerollic Nadurargid
fine, montmorillonitic, mesic

arid zone
thin loess high in volcanic ash over
alluvium

Eureka Co.

Elko Co.

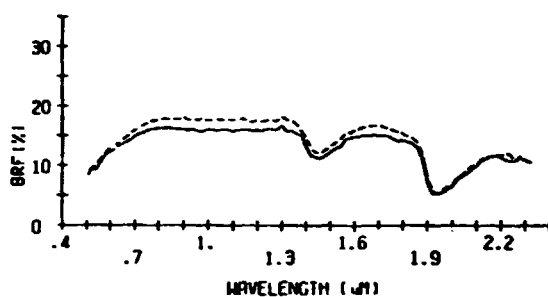
All-A12 horizon	All-A12 horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
172S 722Si 112C	182S 742Si 92C
10YR 4/2 (moist)	10YR 5/3 (moist)
10YR 6/3 (dry)	10YR 7/3 (dry)
1.24% O.M.	1.08% O.M.
14.6 meq/100g CEC	14.4 meq/100g CEC
0.74% Fe ₂ O ₃	0.70% Fe ₂ O ₃
35.4 MZ%	31.1 MZ%



BLOOR(NV)

Typic Natrarg.
fine-loamy, micaceous, mesic
arid zone
lacustrine sediments
Humboldt Co.

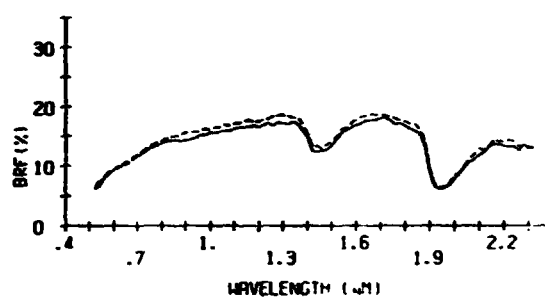
A2 horizon	A2 horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
22YS 65ZSi 13ZC	19YS 63ZSi 18ZC
10YR 5/3 (moist)	10YR 6/3 (moist)
10YR 7/2 (dry)	10YR 7/2 (dry)
0.81% O.M.	1.95% O.M.
30.5 meq/100g CEC	32.8 meq/100g CEC
0.33% Fe ₂ O ₃	0.29% Fe ₂ O ₃
35.6 Mhz	35.3 Mhz



NINCH(NV)

Xeric Torrifluent
sandy, mixed, mesic
arid zone
sandy eolian materials
Humboldt Co.

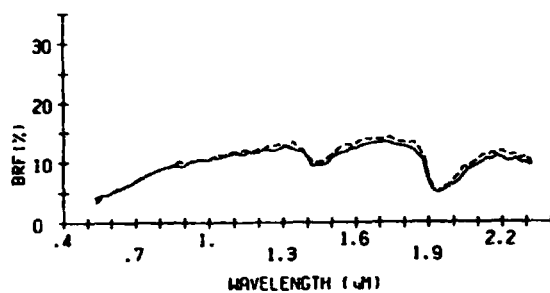
Al horizon	Al horizon
C slope	C slope
s. excess. drained	s. excess. drained
fine sand	loamy fine sand
90YS 52Si 2ZC	86YS 72Si 6ZC
10YR 4/1 (moist)	10YR 4/3 (moist)
10YR 6/3 (dry)	10YR 6/3 (dry)
0.45% O.M.	0.34% O.M.
9.2 meq/100g CEC	11.1 meq/100g CEC
0.26% Fe ₂ O ₃	0.20% Fe ₂ O ₃
19.3 Mhz	16.6 Mhz



RIO KING(NV)

Entic Haplustoll
coarse-loamy, micaceous, mesic
semiarid zone
alluvium from granite, rhyolite,
basalt
Humboldt Co.

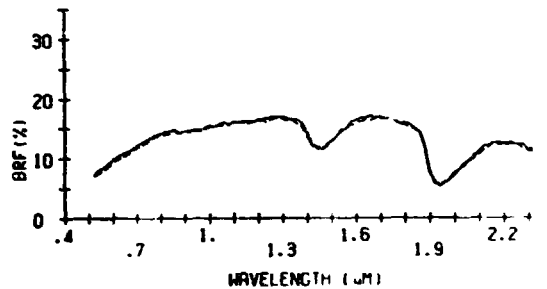
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
sandy loam	sandy loam
52YS 38ZSi 9ZC	61YS 29ZSi 10ZC
10YR 3/2 (moist)	10YR 3/1 (moist)
10YR 5/2 (dry)	10YR 5/2 (dry)
0.90% O.M.	1.05% O.M.
19.5 meq/100g CEC	18.8 meq/100g CEC
0.95% Fe ₂ O ₃	1.00% Fe ₂ O ₃
18.6 Mhz	18.2 Mhz



VALMY(NV)

Durorthidic Torriorthent
coarse-loamy, mixed, calcareous, mesic
arid zone
thin loess over loamy alluvium
Humboldt Co.

Al horizon	Al horizon
A slope	A slope
well drained	well drained
sandy loam	fine sandy loam
46YS 48ZSi 6ZC	54YS 40ZSi 6ZC
10YR 4/3 (moist)	10YR 4/3 (moist)
10YR 7/2 (dry)	10YR 7/2 (dry)
0.53% O.M.	0.87% O.M.
16.2 meq/100g CEC	14.6 meq/100g CEC
0.36% Fe ₂ O ₃	0.36% Fe ₂ O ₃
29.2 Mhz	28.5 Mhz

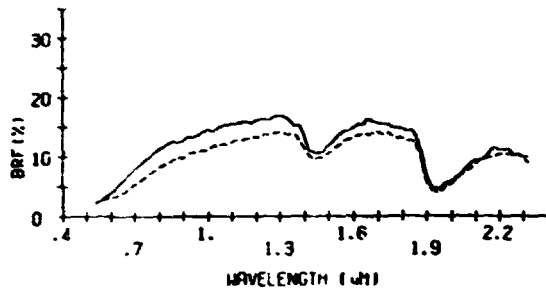


ACTON (NH)

Entic Haplorthod
coarse-loamy, mixed, mesic
humid zone
sandy granitic till
Hillsboro Co.

Ap horizon	Ap horizon
B slope	B slope
mod. well drained	mod. well drained
sandy loam	fine sandy loam
702S 252Si 52C	592S 362Si 52C
10YR 2/2 (moist)	10YR 2/2 (moist)
10YR 3/3 (dry)	10YR 4/3 (dry)
8.30% O.M.	14.98% O.M.
30.6 meq/100g CEC	37.9 meq/100g CEC
0.97% Fe ₂ O ₃	1.00% Fe ₂ O ₃

42.6 MμZ* ——— 61.8 MμZ* - - - -

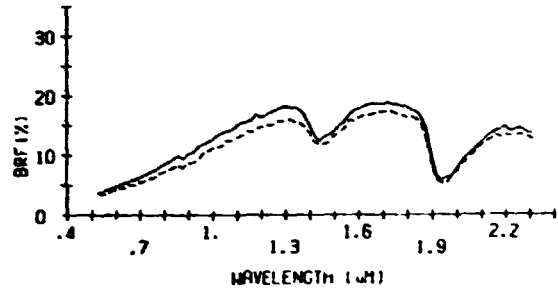


FORTWINGATE (NM)

Typic Entroboralf
fine, montmorillonitic, frigid
semiarid zone
residuum from sandstone
McKinley Co.

Al horizon	Al horizon
B slope	B slope
well drained	well drained
loam	silt loam
462S 402Si 142C	252S 562Si 202C
10YR 3/1 (moist)	5YR 2.5/2 (moist)
10YR 4/2 (dry)	7.5YR 4/2 (dry)
2.93% O.M.	3.14% O.M.
15.6 meq/100g CEC	33.9 meq/100g CEC
0.70% Fe ₂ O ₃	1.03% Fe ₂ O ₃

33.1 MμZ* ——— 35.1 MμZ* - - - -

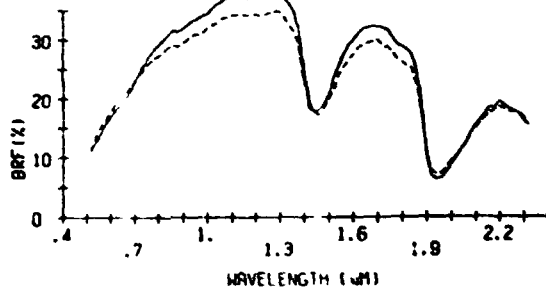


JAL (NM)

Typic Calcicorthid
fine-loamy, carbonatic, thermic
semiarid zone
alluvial or lacustrine fine
textured material
Lea Co.

All horizon	All horizon
A slope	A slope
well drained	well drained
fine sandy loam	loamy fine sand
682S 182Si 132C	812S 102Si 92C
10YR 5/3 (moist)	10YR 5/3 (moist)
10YR 7/3 (dry)	7.5YR 7/2 (dry)
1.02% O.M.	0.59% O.M.
25.1 meq/100g CEC	17.1 meq/100g CEC
0.06% Fe ₂ O ₃	0.03% Fe ₂ O ₃

28.0 MμZ* ——— 17.0 MμZ* - - - -

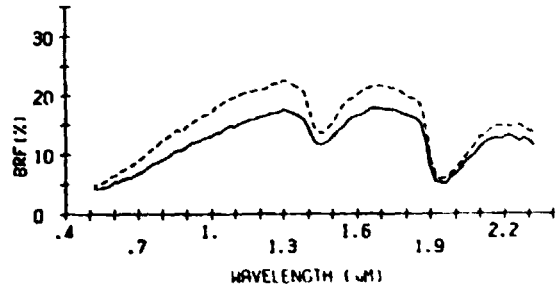


KIMBROUGH (NM)

Petrocalcic Calcicustoll
loamy, mixed, thermic, shallow
semiarid zone
coarse textured material over an
indurated layer
Lea Co.

Al horizon	Al horizon
A slope	A slope
well drained	well drained
fine sandy loam	fine sandy loam
562S 252Si 192C	622S 252Si 132C
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 4/2 (dry)	10YR 5/3 (dry)
3.14% O.M.	3.28% O.M.
29.4 meq/100g CEC	26.7 meq/100g CEC
0.46% Fe ₂ O ₃	0.32% Fe ₂ O ₃

32.3 MμZ* ——— 34.4 MμZ* - - - -

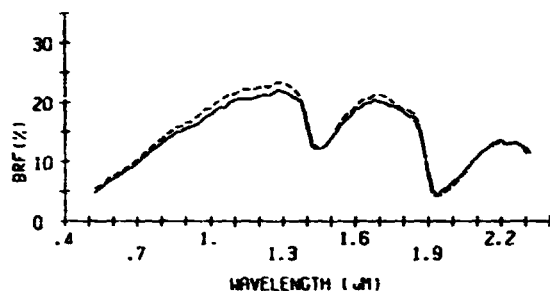


PORTALES(NM)

Aridic Calcustoll
fine-loamy, mixed thermic
semiarid zone
mixed sediments
Roosevelt Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
fine sandy loam	sandy clay loam
69YS 16ZSi 14ZC	55YS 23ZSi 22ZC
7.5YR 3/2 (moist)	7.5YR 4/2 (moist)
7.5YR 4/2 (dry)	10YR 5/3 (dry)
0.74% O.M.	0.93% O.M.
24.9 meq/100g CEC	29.7 meq/100g CEC
0.33% Fe ₂ O ₃	0.32% Fe ₂ O ₃

28.2 MWZ* ——— 35.0 MWZ* - - - -

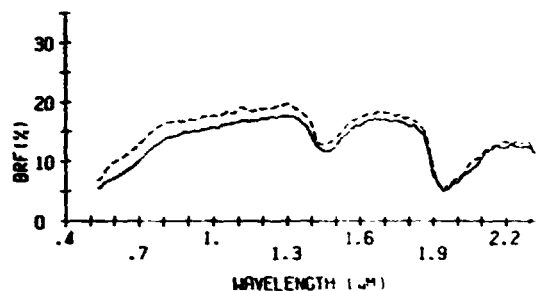


NORWICH(NY)

Typic Fragiaquept
fine-loamy, mixed, mesic
humid zone
glacial till
Chenango Co.

Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
silt loam	silt loam
27YS 59ZSi 14ZC	22YS 61ZSi 18ZC
10YR 4/2 (moist)	10YR 3/3 (moist)
10YR 6/2 (dry)	10YR 6/3 (dry)
5.41% O.M.	4.90% O.M.
13.1 meq/100g CEC	15.9 meq/100g CEC
1.03% Fe ₂ O ₃	1.48% Fe ₂ O ₃

49.0 MWZ* ——— 50.1 MWZ* - - - -

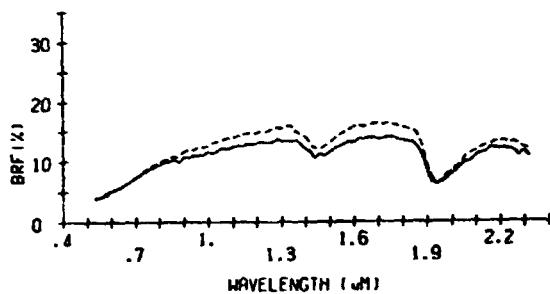


ADAMS(NY)

Typic Haplorthod
sandy, mixed, frigid
humid zone
outwash sand
Lewis Co.

A2 horizon	A2 horizon
A slope	A slope
excessively drained	excessively drained
sand	loamy sand
90YS 9ZSi 1ZC	86YS 13ZSi 2ZC
10YR 3/3 (moist)	7.5YR 3/2 (moist)
10YR 4/3 (dry)	10YR 4/3 (dry)
2.20% O.M.	2.88% O.M.
10.3 meq/100g CEC	13.7 meq/100g CEC
0.54% Fe ₂ O ₃	0.53% Fe ₂ O ₃

11.3 MWZ* ——— 17.1 MWZ* - - - -

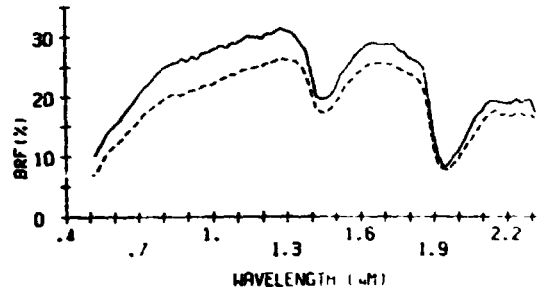


APPLING(NC)

Typic Hapludult
clayey, kaolinitic, thermic
humid zone
residuum from acid igneous rocks
Alamance Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
sandy loam	coarse sandy loam
52YS 42ZSi 7ZC	68YS 23ZSi 9ZC
2.5Y 5/4 (moist)	2.5Y 5/4 (moist)
10YR 7/3 (dry)	10YR 7/4 (dry)
0.86% O.M.	0.87% O.M.
2.6 meq/100g CEC	4.6 meq/100g CEC
0.39% Fe ₂ O ₃	0.55% Fe ₂ O ₃

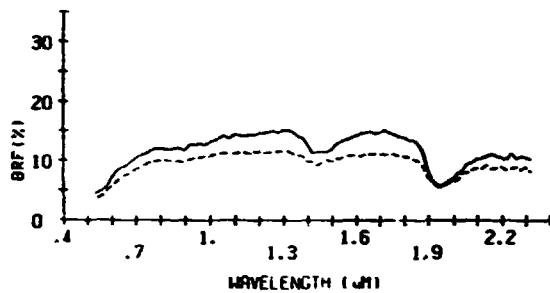
11.1 MWZ* ——— 15.3 MWZ* - - - -



MECKLENBURG (NC)

Ultic Hapludalf
fine, mixed, thermic
humid zone
moderately fine basic rock residuum
Cabarrus Co.

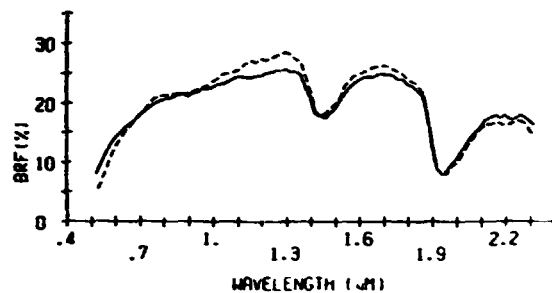
Ap horizon B slope well drained clay loam 36ZS 34ZSi 30BC 5YR 3/4 (moist) 7.5YR 4/4 (dry) 2.71Z O.M. 14.3 meq/100g CEC 3.92Z Fe ₂ O ₃	Ap horizon B slope well drained fine sandy loam 53ZS 27ZSi 20ZC 5YR 3/3 (moist) 7.5YR 4/4 (dry) 1.11Z O.M. 13.4 meq/100g CEC 5.27Z Fe ₂ O ₃
28.2 MZ% —	19.9 MZ% - - - -



CECIL (NC)

Typic Hapludult
clayey, kaolinitic, thermic
humid zone
acid igneous and metamorphic rocks
Catauba Co.

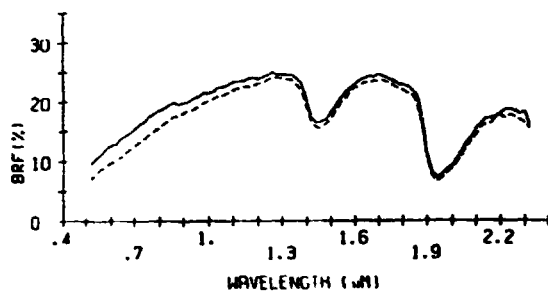
Ap horizon B slope well drained sandy loam 70ZS 23ZSi 7ZC 10YR 5/4 (moist) 10YR 6/4 (dry) 2.12Z O.M. 8.8 meq/100g CEC 0.64Z Fe ₂ O ₃	Ap horizon B slope well drained loam 51ZS 28ZSi 21ZC 10YR 4/6 (moist) 7.5YR 6/6 (dry) 2.24Z O.M. 10.0 meq/100g CEC 2.64Z Fe ₂ O ₃
15.9 MZ% —	11.2 MZ% - - - -



CRAVEN (NC)

Aquic Hapludult
clayey, mixed, thermic
humid zone
clayey coastal plain sediments
Craven Co.

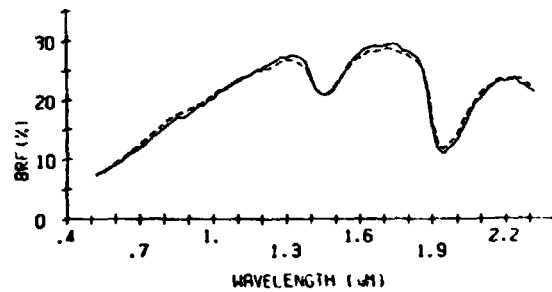
Ap horizon A slope mod. well drained silt loam 23ZS 71ZSi 6ZC 10YR 5/2 (moist) 10YR 7/2 (dry) 2.26Z O.M. 9.8 meq/100g CEC 0.56Z Fe ₂ O ₃	Ap horizon A slope mod. well drained silt loam 18ZS 76ZSi 6ZC 10YR 5/3 (moist) 10YR 7/1 (dry) 1.60Z O.M. 8.8 meq/100g CEC 0.35Z Fe ₂ O ₃
29.5 MZ% —	33.6 MZ% - - - -



WAGRAM (NC)

Arenic Paleudult
loamy, siliceous, thermic
humid zone
loamy coastal plain sediments
Scotland Co.

Ap horizon A slope well drained loamy sand 84ZS 13ZSi 3ZC 10YR 4/2 (moist) 10YR 7/2 (dry) 0.87Z O.M. 3.4 meq/100g CEC 0.20Z Fe ₂ O ₃	Ap horizon A slope well drained loamy sand 88ZS 10ZSi 21ZC 10YR 5/3 (moist) 10YR 7/2 (dry) 0.95Z O.M. 4.4 meq/100g CEC 0.18Z Fe ₂ O ₃
8.2 MZ% —	5.6 MZ% - - - -

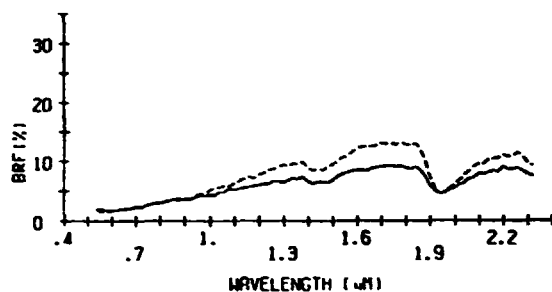


PONZER (NC)

Terric Madisaprist
loamy, mixed, dysic, thermic
humid zone
loamy mineral material
Washington Co. Hyde Co.

Gap horizon	Os ₁ horizon
A slope	A slope
v. poorly drained	v. poorly drained
muck	muck
12S 67ZS1 21XC	12S 91ZS1 8XC
7.5YR 2/0 (moist)	7.5YR 2/0 (moist)
10YR 3/1 (dry)	10YR 3/1 (dry)
36.18% O.M.	38.58% O.M.
49.0 meq/100g CEC	61.8 meq/100g CEC
0.80% Fe ₂ O ₃	0.75% Fe ₂ O ₃

76.4 M%^a — 95.3 M%^b - - - -

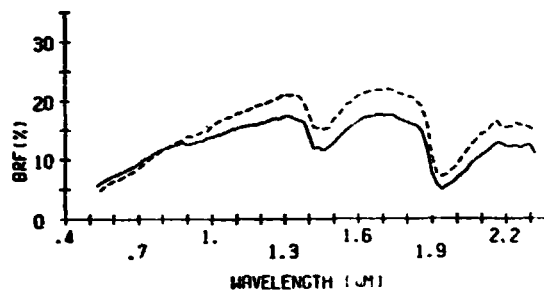


EKALAKA-DESART (ND)

Typic Natriboroll
coarse-loamy, mixed
semiarid zone
stratified alkaline alluvium or
soft sandstone
Bowman Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	fine sandy loam
36ZS 56ZS1 8XC	70ZS 20ZS1 11XC
10YR 4/2 (moist)	10YR 3/3 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
1.42% O.M.	0.64% O.M.
9.9 meq/100g CEC	10.3 meq/100g CEC
0.99% Fe ₂ O ₃	1.05% Fe ₂ O ₃

27.6 M%^a — 15.3 M%^b - - - -

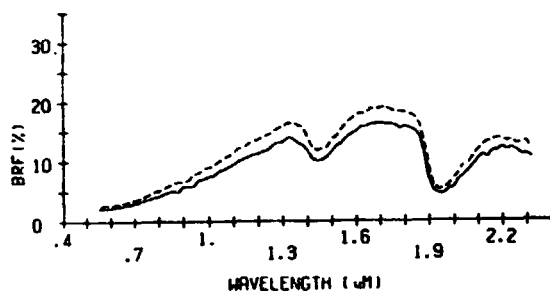


SVEA (ND)

Pachic Udic Haploboroll
fine-loamy, mixed
subhumid zone
calcareous glacial till
LaMoore Co.

Ap horizon	Ap horizon
A slope	A slope
mod. well drained	mod. well drained
clay loam	clay loam
28ZS 45ZS1 27XC	25ZS 48ZS1 28XC
10YR 3/1 (moist)	7.5YR 2/0 (moist)
10YR 3/1 (dry)	10YR 3/1 (dry)
4.33% O.M.	5.20% O.M.
33.0 meq/100g CEC	32.0 meq/100g CEC
0.46% Fe ₂ O ₃	0.78% Fe ₂ O ₃

36.2 M%^a — 37.5 M%^b - - - -

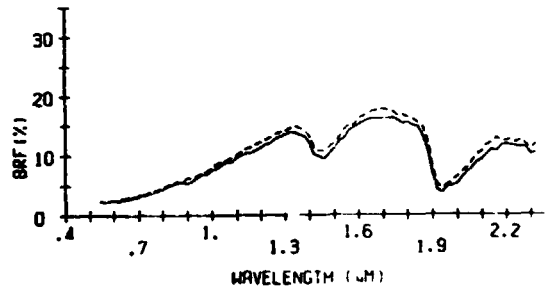


TONKA (ND)

Argiaquic Argialboll
fine, montmorillonitic, frigid
subhumid zone
local alluvium over glacial till
Ransom Co.

Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
silt loam	silty clay loam
16ZS 59ZS1 754C	15ZS 54ZS1 31XC
7.5YR 2/0 (moist)	2.5 YR 7/0 (moist)
10YR 4/1 (dry)	10YR 4/2 (dry)
6.67% O.M.	6.11% O.M.
34.9 meq/100g CEC	44.8 meq/100g CEC
0.32% Fe ₂ O ₃	0.60% Fe ₂ O ₃

51.8 M%^a — 42.8 M%^b - - - -

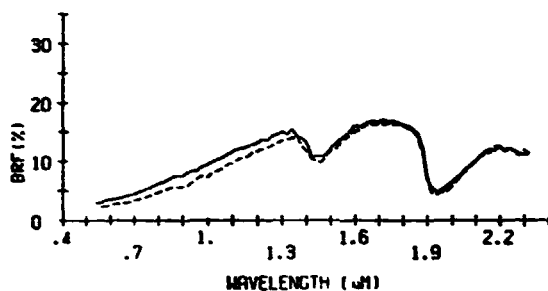


DIVIDE (ND)

Aeric Calcisquoll
fine-loamy over sandy or sandy-
skeletal, frigid
subhumid zone
loamy sediment over sand and gravel
Wells Co.

Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
coarse sandy loam	sandy loam
64ZS 22ZSi 14ZC	55ZS 27ZSi 18ZC
10YR 2/1 (moist)	7.5YR 2/0 (moist)
10YR 4/1 (dry)	10YR 3/1 (dry)
2.21Z O.M.	2.84Z O.M.
24.4 meq/100g CEC	28.2 meq/100g CEC
0.14Z Fe ₂ O ₃	0.27Z Fe ₂ O ₃

23.4 MIZ* — 26.8 MIZ* ----

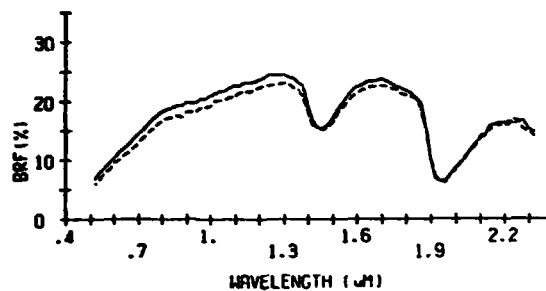


CINCINNATI (OH)

Typic Fragludalf
fine-silty, mixed, mesic
humid zone
loose over till
Highland Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
8ZS 75ZSi 17ZC	11ZS 68ZSi 21ZC
10YR 4/4 (moist)	10YR 4/3 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
2.33Z O.M.	2.44Z O.M.
12.8 meq/100g CEC	14.2 meq/100g CEC
1.48Z Fe ₂ O ₃	1.58Z Fe ₂ O ₃

37.6 MIZ* — 33.6 MIZ* ----

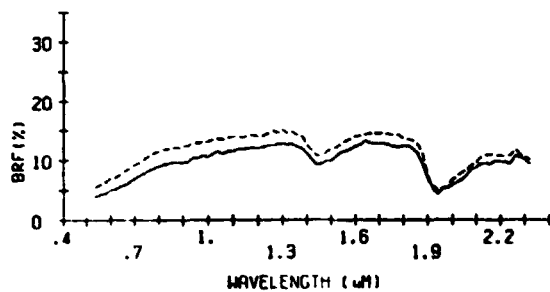


HOLLY (OH)

Typic Fluvaquent
fine-loamy, mixed, nonacid, mesic
humid zone
alluvium from glacial drift,
sandstone and shale
Summit Co. Medina Co.

Al horizon	Al horizon
A slope	A slope
poorly drained	poorly drained
loam	silty clay loam
40ZS 38ZSi 22ZC	9ZS 60ZSi 31ZC
10YR 3/2 (moist)	10YR 4/3 (moist)
10YR 5/2 (dry)	10YR 5/3 (dry)
7.56Z O.M.	6.87Z O.M.
29.9 meq/100g CEC	33.6 meq/100g CEC
2.27Z Fe ₂ O ₃	2.33Z Fe ₂ O ₃

40.3 MIZ* — 44.6 MIZ* ----

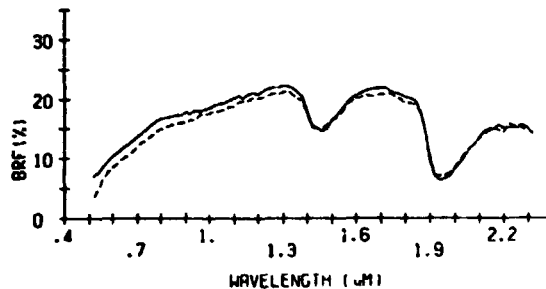


KEENE (OH)

Aquic Hapludalf
fine-silty, mixed, mesic
humid zone
silty residuum from sedimentary rock
Tuscarawas Co.

Ap horizon	Ap horizon
B slope	B slope
mod. well drained	mod. well drained
silt loam	silt loam
6ZS 75ZSi 20ZC	10ZS 76ZSi 14ZC
10YR 5/4 (moist)	10YR 4/3 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
1.49Z O.M.	2.46Z O.M.
15.9 meq/100g CEC	15.4 meq/100g CEC
2.19Z Fe ₂ O ₃	2.21Z Fe ₂ O ₃

34.8 MIZ* — 34.1 MIZ* ----

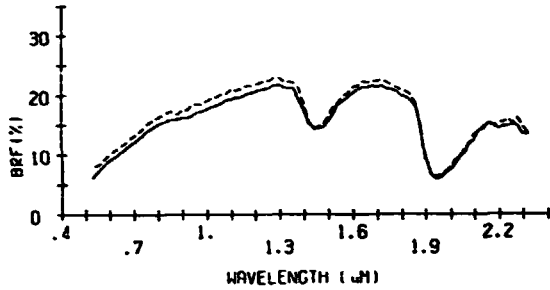


CANFIELD(OH)

Aquic Fragluudalf
fine-loamy, mixed, mesic
humid zone
glacial till with thin loess cap
Wayne Co.

Ap horizon	Ap horizon
B slope	B slope
mod. well drained	mod. well drained
silt loam	silt loam
18ZS 64ZSi 17ZC	12ZS 75ZSi 13ZC
10YR 4/3 (moist)	10YR 4.5/4 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
2.9Z O.M.	2.58Z O.M.
11.5 meq/100g CEC	10.5 meq/100g CEC
2.33Z Fe ₂ O ₃	1.56Z Fe ₂ O ₃

34.8 MWZ* — 38.4 MWZ* ----

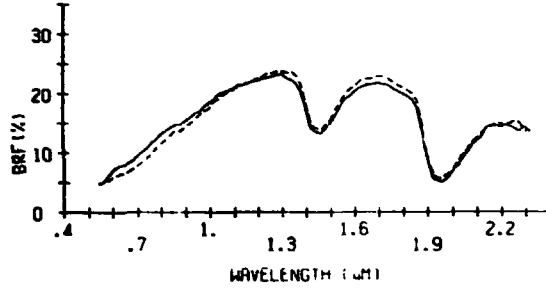


FOARD(OK)

Typic Natrustoll
fine, montmorillonitic, thermic
subhumid zone
old alluvium or red bed material
Cotton Co.

Ap horizon	Ap horizon
A slope	A slope
mod. well drained	mod. well drained
silt loam	silt loam
22ZS 61ZSi 17ZC	21ZS 59ZSi 20ZC
5YR 3/4 (moist)	7.5YR 3/2 (moist)
7.5YR 5/6 (dry)	7.5YR 5/4 (dry)
0.89Z O.M.	1.90Z O.M.
14.8 meq/100g CEC	10.5 meq/100g CEC
0.69Z Fe ₂ O ₃	0.79Z Fe ₂ O ₃

27.6 MWZ* — 30.4 MWZ* ----

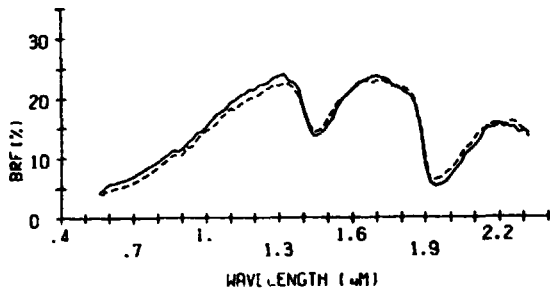


PORT(OK)

Cumulic Haplustoll
fine-silty, mixed, thermic
subhumid zone
loamy alluvial sediments
Grady Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loam	silt loam
41ZS 44ZSi 15ZC	21ZS 61ZSi 19ZC
5YR 3/3 (moist)	7.5YR 3/2 (moist)
5YR 4/4 (dry)	7.5YR 3/2 (dry)
0.77Z O.M.	2.11Z O.M.
11.5 meq/100g CEC	8.3 meq/100g CEC
0.80Z Fe ₂ O ₃	0.75Z Fe ₂ O ₃

30.4 MWZ* — 29.3 MWZ* ----

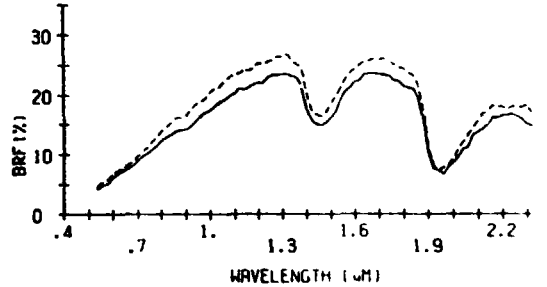


DARNELL(OK)

Udic Ustochrept
loamy, siliceous, thermic, shallow
subhumid zone
sandstone residuum
Lincoln Co. Payne Co.

A horizon	A horizon
B slope	B slope
s. excess. drained	s. excess. drained
loamy fine sand	fine sandy loam
83ZS 13ZSi 4ZC	74ZS 19ZSi 7ZC
7.5YR 3/2 (moist)	7.5YR 3/4 (moist)
7.5YR 5/4 (dry)	7.5YR 5/4 (dry)
2.23Z O.M.	1.89Z O.M.
7.7 meq/100g CEC	5.4 meq/100g CEC
0.34Z Fe ₂ O ₃	0.51Z Fe ₂ O ₃

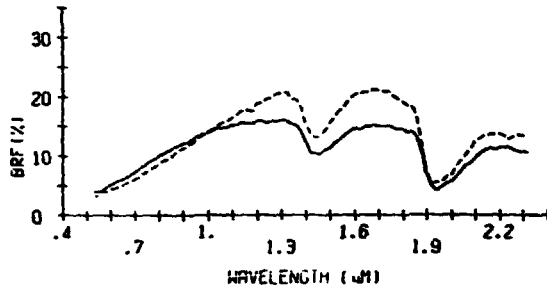
28.2 MWZ* — 18.2 MWZ* ----



RENFROW(OK)

Udertic Paleustoll
fine, mixed, thermic
subhumid zone
clay and shale residuum
Kay Co.

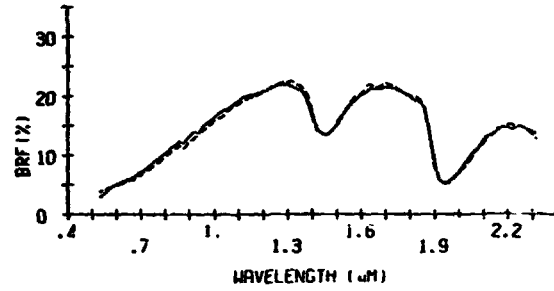
Al horizon	Al horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
11ZS 66ZS1 23ZC	22ZS 58ZS1 20ZC
7.5YR 3/2 (moist)	10YR 2/2 (moist)
10YR 4/3 (dry)	10YR 4/2 (dry)
4.18Z O.M.	3.22Z O.M.
21.9 meq/100g CEC	17.4 meq/100g CEC
1.20Z Fe ₂ O ₃	0.84Z Fe ₂ O ₃
36.5 MWZ	29.8 MWZ



BETHANY(OK)

Pachic Paleustoll
fine, mixed, thermic
subhumid zone
loess, alluvium, and red bed residuum
Oklahoma Co.

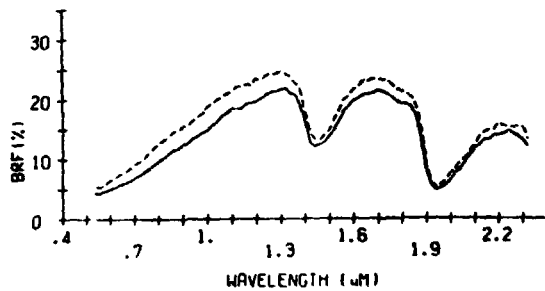
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
16ZS 67ZS1 17ZC	14ZS 68ZS1 18ZC
7.5YR 3/2 (moist)	5YR 2.5/2 (moist)
1.5YR 4/2 (dry)	7.5YR 4/2 (dry)
0.69Z O.M.	1.85Z O.M.
12.1 meq/100g CEC	16.8 meq/100g CEC
0.68Z Fe ₂ O ₃	0.61Z Fe ₂ O ₃
33.3 MWZ	32.4 MWZ



CANADIAN(OK)

Udic Haplustoll
coarse-loamy, mixed, thermic
subhumid zone
loamy sediments
Oklahoma Co.

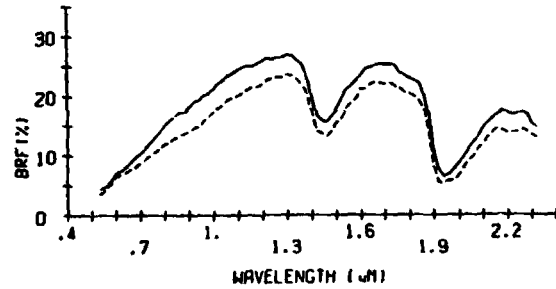
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
v. fine sandy loam	v. fine sandy loam
69ZS 24ZS1 8ZC	52ZS 41ZS1 7ZC
7.5YR 3/2 (moist)	10YR 3/2 (moist)
10YR 4/3 (dry)	10YR 5/3 (dry)
1.05Z O.M.	0.82Z O.M.
5.9 meq/100g CEC	7.1 meq/100g CEC
0.36Z Fe ₂ O ₃	0.23Z Fe ₂ O ₃
30.1 MWZ	27.0 MWZ



ZANEIS(OK)

Udic Argiustoll
fine-loamy, mixed, thermic
subhumid zone
residuum from sandstone and shale
Oklahoma Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
fine sandy loam	loam
54ZS 32ZS1 14ZC	37ZS 44ZS1 20ZC
5YR 3/4 (moist)	5YR 3/3 (moist)
7.5YR 4/4 (dry)	7.5YR 4/6 (dry)
1.02Z O.M.	2.19Z O.M.
6.9 meq/100g CEC	15.7 meq/100g CEC
0.83Z Fe ₂ O ₃	1.09Z Fe ₂ O ₃
25.4 MWZ	30.3 MWZ

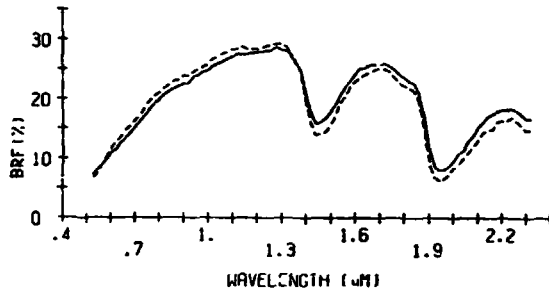


DOUGHERTY (OK)

Arenic Haplustalf
loamy, mixed, thermic
subhumid zone
sandy or loamy sediments
Payne Co.

Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
loamy fine sand	fine sand
85ZS 12XS1 3XC	88ZS 8XS1 3XC
10YR 5/4 (moist)	5YR 5/6 (moist)
7.5YR 6/4 (dry)	7.5YR 6/4 (dry)
0.84% O.M.	0.26% O.M.
3.0 meq/100g CEC	3.2 meq/100g CEC
0.17% Fe ₂ O ₃	0.21% Fe ₂ O ₃

15.9 MWZ' ——— 19.0 MWZ' - - - -

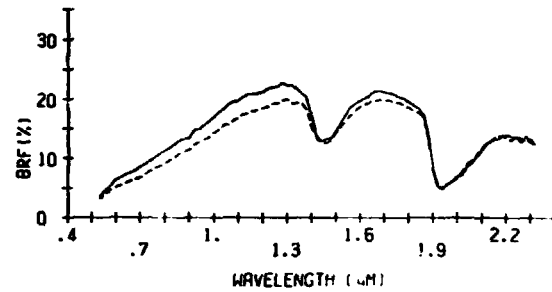


ST. PAUL (OK)

Pachic Argiustoll
fine-silty, mixed, thermic
subhumid zone
silty red bed sediments
Roger Mills Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
19ZS 56ZS1 26ZC	16ZS 59ZS1 25ZC
10YR 3/3 (moist)	5YR 3/2 (moist)
5YR 4/4 (dry)	7.5YR 4/4 (dry)
1.39% O.M.	2.12% O.M.
14.2 meq/100g CEC	21.0 meq/100g CEC
1.07% Fe ₂ O ₃	1.03% Fe ₂ O ₃

33.5 MWZ' ——— 33.2 MWZ' - - - -

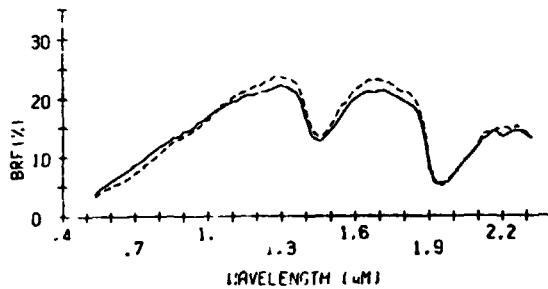


NEWTONIA (OK)

Typic Paleudoll
fine-silty, mixed, thermic
humid zone
limestone residuum
Tulsa Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
13ZS 72XS1 14XC	31ZS 58XS1 11XC
5YR 3/3 (moist)	7.5YR 3/2 (moist)
7.5YR 5/4 (dry)	10YR 4/3 (dry)
2.15% O.M.	2.10% O.M.
9.9 meq/100g CEC	10.5 meq/100g CEC
0.91% Fe ₂ O ₃	0.76% Fe ₂ O ₃

30.8 MWZ' ——— 28.8 MWZ' - - - -

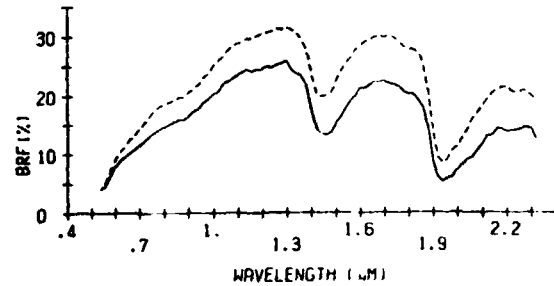


DILL (OK)

Udic Ustochrept
coarse-loamy, mixed, thermic
subhumid zone
red sandstone
Washita Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
v. fine sandy loam	loamy fine sand
7ZS 16ZS1 11XC	83ZS 7XS1 9XC
10YR 3/4 (moist)	2.5YR 3/6 (moist)
2.5YR 4/6 (dry)	2.5YR 4/6 (dry)
0.0% O.M.	0.60% O.M.
6.5 meq/100g CEC	6.5 meq/100g CEC
1.00% Fe ₂ O ₃	0.85% Fe ₂ O ₃

26.0 MWZ' ——— 11.9 MWZ' - - - -

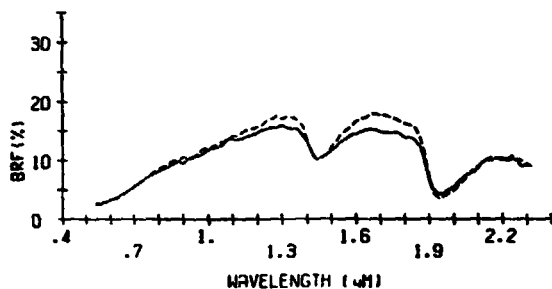


ASTORIA(OR)

Andic Haplumbrept
medial, mesic
perhumid zone
residuum from fine grained sediments
Tillamook Co.

All horizon	All horizon
D slope	D slope
well drained	well drained
clay	silty clay
20ZS 39XS1 41XC	14ZS 52XS1 35XC
5YR 2/2 (moist)	10YR 3/2 (moist)
10YR 3/3 (dry)	10YR 3/3 (dry)
26.47% O.M.	21.18% O.M.
46.7 meq/100g CEC	57.4 meq/100g CEC
5.35% Fe ₂ O ₃	2.84% Fe ₂ O ₃

71.4 MWZ: ——— 67.4 MWZ: - - - -

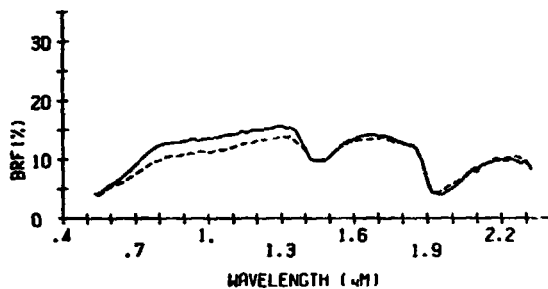


BRENNER(OR)

Fluvaquentic Humaquept
fine, mixed, acid, mesic
perhumid zone
fine mixed alluvium
Tillamook Co.

Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
silt loam	silt loam
27ZS 58XS1 15XC	3ZS 80XS1 17XC
10YR 3/4 (moist)	7.5YR 3/4 (moist)
10YR 5/4 (dry)	10YR 5/4 (dry)
10.62% O.M.	11.15% O.M.
53.1 meq/100g CEC	58.3 meq/100g CEC
3.80% Fe ₂ O ₃	2.88% Fe ₂ O ₃

77.1 MWZ: ——— 73.4 MWZ: - - - -

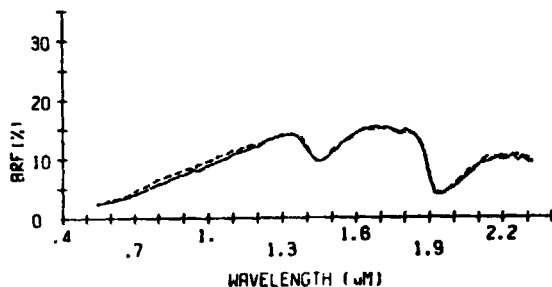


HEBO(OR)

Typic Humaquept
very-fine, mixed, mesic
perhumid zone
silty and clayey alluvium
Tillamook Co.

Apg horizon	Apg horizon
A slope	A slope
poorly drained	poorly drained
silty clay	silty clay
6ZS 39XS1 55XC	6ZS 43XS1 51XC
2.5Y 2/0 (moist)	10YR 2/2 (moist)
10YR 3/2 (dry)	10YR 3/2 (dry)
11.40% O.M.	12.28% O.M.
42.1 meq/100g CEC	43.9 meq/100g CEC
2.46% Fe ₂ O ₃	2.84% Fe ₂ O ₃

56.4 MWZ: ——— 60.4 MWZ: - - - -

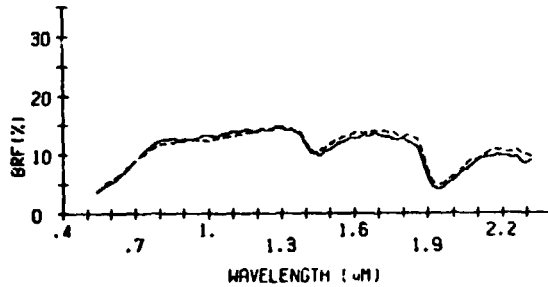


NEHALEM(OR)

Fluventic Haplumbrept
fine-silty, mixed, mesic
perhumid zone
medium textured recent alluvium
Tillamook Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
18ZS 60XS1 22XC	17XS 62XS1 21XC
5YR 3/3 (moist)	7.5YR 4/4 (moist)
10YR 4/4 (dry)	10YR 5/4 (dry)
10.66% O.M.	6.41% O.M.
60.0 meq/100g CEC	58.3 meq/100g CEC
4.03% Fe ₂ O ₃	3.38% Fe ₂ O ₃

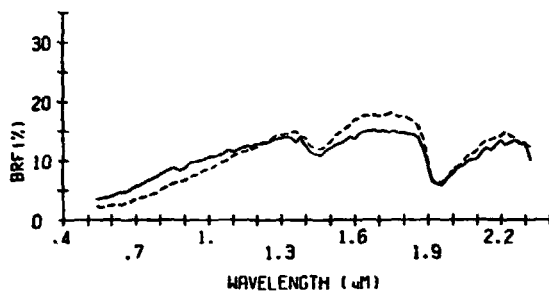
58.3 MWZ: ——— 46.9 MWZ: - - - -



BLACKLOCK (OR)

Typic Sideraquod
sandy, mixed, mesic, orthstein
perhumid zone
sandy marine terrace
Curry Co.

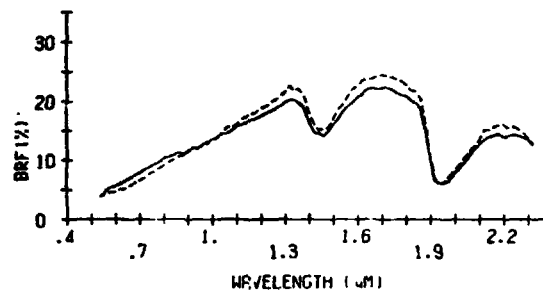
Al horizon	Al horizon
B slope	B slope
poorly drained	poorly drained
fine sandy loam	loam
44ZS 50ZSi 6XC	44ZS 40ZSi 17XC
2.5YR 2.5/0 (moist)	7.5YR 2/0 (moist)
10YR 4/1 (dry)	10YR 3/1 (dry)
13.34% O.M.	18.05% O.M.
24.3 meq/100g CEC	42.2 meq/100g CEC
trace Fe ₂ O ₃	trace Fe ₂ O ₃
35.6 MWZ	47.7 MWZ



ORFORD (OR)

Typic Haplohumult
clayey, mixed, mesic
perhumid zone
residuum from arkose sandstones and
siltstones
Curry Co.

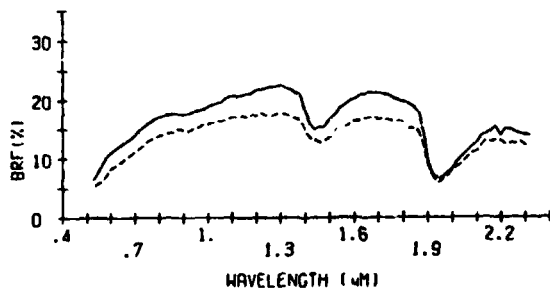
Al horizon	Al horizon
E slope	E slope
well drained	well drained
silty clay	silty clay loam
11ZS 47ZSi 42XC	17ZS 50ZSi 33XC
10YR 3/3 (moist)	7.5YR 3/2 (moist)
10YR 5/3 (dry)	10YR 4/3 (dry)
6.34% O.M.	5.94% O.M.
37.6 meq/100g CEC	36.4 meq/100g CEC
3.30% Fe ₂ O ₃	2.44% Fe ₂ O ₃
42.2 MWZ	39.8 MWZ



DUFFIELD (PA)

Ultic Hapludalf
fine-loamy, mixed, mesic
humid zone
residuum from impure limestone
Lancaster Co.

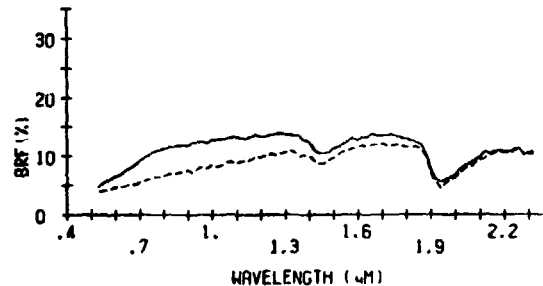
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
13ZS 64ZSi 23XC	17ZS 65ZSi 19XC
10YR 5/6 (moist)	7.5YR 4/4 (moist)
10YR 6/4 (dry)	10YR 5/4 (dry)
2.97% O.M.	2.45% O.M.
17.0 meq/100g CEC	13.8 meq/100g CEC
2.89% Fe ₂ O ₃	2.06% Fe ₂ O ₃
37.2 MWZ	30.0 MWZ



EDGEMONT (PA)

Typic Hapludult
fine-loamy, mixed, mesic
humid zone
quartzite, quartz schist conglomerate
Lancaster Co.

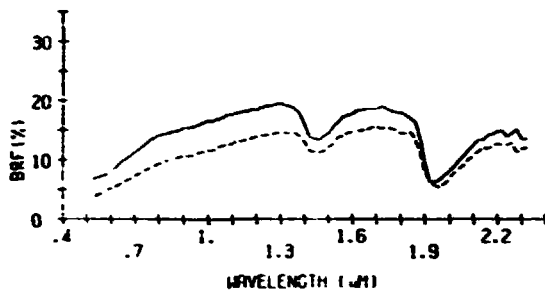
Al-A2 horizon	Al-A2 horizon
D slope	D slope
well drained	well drained
fine sandy loam	loam
50ZS 44ZSi 6XC	44ZS 45ZSi 11XC
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 5/3 (dry)	10YR 4/2 (dry)
3.12% O.M.	4.98% O.M.
13.5 meq/100g CEC	22.4 meq/100g CEC
0.52% Fe ₂ O ₃	0.93% Fe ₂ O ₃
26.4 MWZ	23.2 MWZ



ELLIBER(PA)

Typic Hapludult
loamy-skeletal, mixed, mesic
humid zone
loamy material from cherty limestone
Ferry Co.

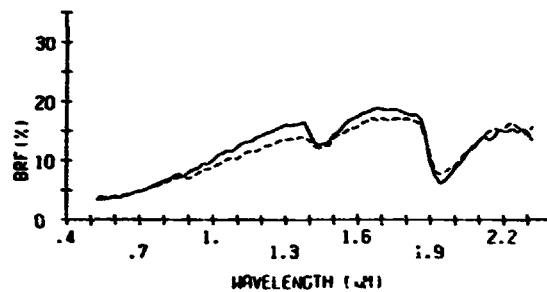
Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
silt loam	loam
382S 522S1 102C	442S 452S1 111C
10YR 4/2 (moist)	10YR 3/3 (moist)
10YR 6/3 (dry)	10YR 5/3 (dry)
3.17% O.M.	4.97% O.M.
12.7 meq/100g CEC	18.1 meq/100g CEC
0.96% Fe ₂ O ₃	1.18% Fe ₂ O ₃
41.5 MWZ°	40.4 MWZ°



RAINS(SC)

Typic Paleaquult
fine-loamy, siliceous, thermic
humid zone
loamy coastal plain sediments
Florence Co.

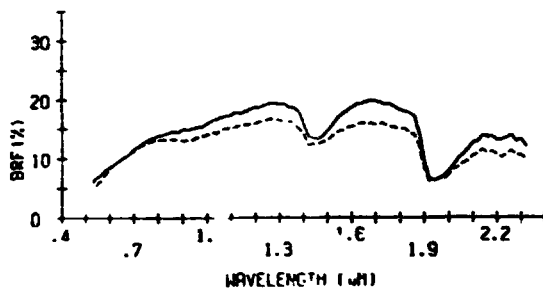
Al horizon	Al horizon
A slope	A slope
poorly drained	poorly drained
loamy coarse sand	loamy fine sand
782S 182S1 42C	782S 152S1 72C
7.5YR 2/7 (moist)	7.5YR 2/0 (moist)
10YR 5/1 (dry)	10YR 5/1 (dry)
4.51% O.M.	6.33% O.M.
16.9 meq/100g CEC	20.0 meq/100g CEC
0.00% Fe ₂ O ₃	0.16% Fe ₂ O ₃
19.5 MWZ°	21.0 MWZ°



PACOLET(SC)

Typic Hapludult
clayey, kaolinitic, thermic
humid zone
residue from acid crystalline rock
Spartanburg Co.

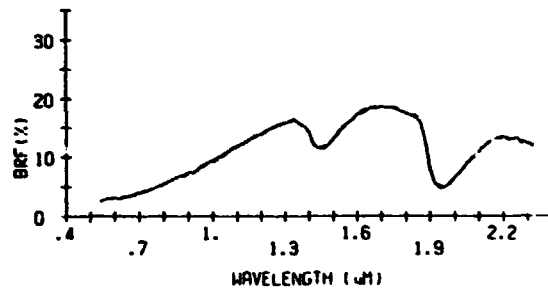
Al-A2 horizon	Al-A2 horizon
D slope	D slope
well drained	well drained
fine sandy loam	fine sandy loam
712S 192S1 102C	532S 282S1 192C
10YR 4/3 (moist)	7.5YR 4/4 (moist)
10YR 6/3 (dry)	7.5YR 5/4 (dry)
2.44% O.M.	4.77% O.M.
9.9 meq/100g CEC	14.8 meq/100g CEC
0.77% Fe ₂ O ₃	1.62% Fe ₂ O ₃
20.1 MWZ°	27.0 MWZ°



BEOTIA(SD)

Pachic Udic Hapl. oroll
fine-silty, mixed
subhumid zone
glaciolacustrine stratified deposits
Brown Co.

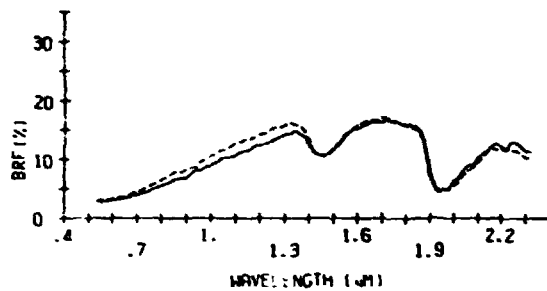
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
92S 662S1 252C	82S 662S1 262C
10YR 2/1 (moist)	10YR 2/1 (moist)
10YR 3/2 (dry)	10YR 3/2 (dry)
4.64% O.M.	5.63% O.M.
31.4 meq/100g CEC	31.5 meq/100g CEC
0.73% Fe ₂ O ₃	0.65% Fe ₂ O ₃
44.5 MWZ°	42.5 MWZ°



EXLINE (SD)

Leptic Natriboroll
fine, montmorillonitic
subhumid zone
calcareous lacustrine deposits
Brown Co.

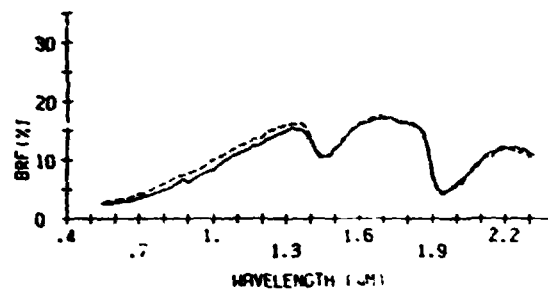
Al-A2 horizon	A2 horizon
A slope	A slope
s. poorly drained	s. poorly drained
silty clay loam	silty clay loam
7S 66ZS1 28ZC	10CS 6ZS1 29ZC
7.5YR 2/0 (moist)	10YR 2/1 (moist)
10YR 4/1 (dry)	10YR 4/1 (dry)
7.50Z O.M.	10.12Z O.M.
30.7 meq/100g CEC	37.6 meq/100g CEC
0.37Z Fe ₂ O ₃	0.43Z Fe ₂ O ₃
57.7 MZ% ———	64.4 MZ% - - - -



FORDVILLE (SD)

Fehic Udic Haploboroll
fine-loamy over sandy or sandy-
skeletal, mixed
subhumid zone
loamy alluvium over stratified sand
and gravel
Codington Co.

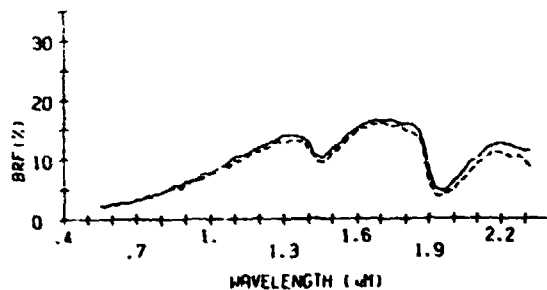
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loam	loam
31ZS 50ZS1 20ZC	44ZS 37ZS1 18ZC
7.5YR 2/0 (moist)	10YR 2/1 (moist)
10YR 3/2 (dry)	10YR 3/2 (dry)
5.16Z O.M.	4.54Z O.M.
27.1 meq/100g CEC	23.8 meq/100g CEC
0.70Z Fe ₂ O ₃	0.72Z Fe ₂ O ₃
38.5 MZ% ———	37.6 MZ% - - - -



RENSHAW (SD)

Udic Haploboroll
fine-loamy over sandy or sandy-
skeletal, mixed
subhumid zone
loamy alluvium over thick sand and
gravel
Codington Co.

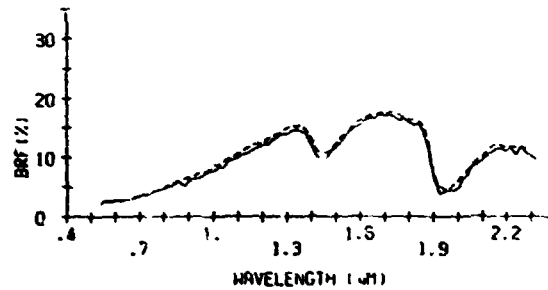
Ap horizon	Ap horizon
B slope	A slope
s. excess. drained	s. excess. drained
loam	loam
40ZS 46ZS1 14ZC	42ZS 37ZS1 21ZC
10YR 2/1 (moist)	10YR 2/1 (moist)
10YR 3/1 (dry)	10YR 3/1 (dry)
5.32Z O.M.	5.05Z O.M.
28.5 meq/100g CEC	30.5 meq/100g CEC
0.81Z Fe ₂ O ₃	0.64Z Fe ₂ O ₃
40.3 MZ% ———	39.8 MZ% - - - -



PEEVER (SD)

Udic Argiboroll
fine, montmorillonitic
subhumid zone
clay loam glacial till
Roberts Co.

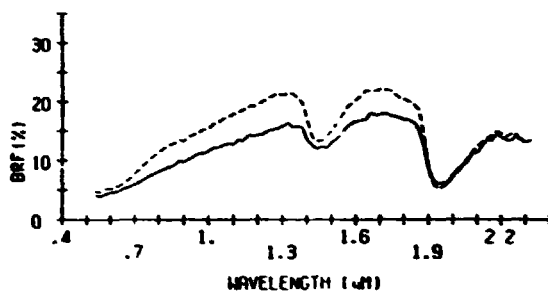
Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
clay loam	clay loam
22ZS 38ZS1 40ZC	28ZS 39ZS1 32ZC
7YR 2/1 (moist)	10YR 2/1 (moist)
10YR 3/1 (dry)	10YR 3/1 (dry)
7.31Z O.M.	5.33Z O.M.
38.7 meq/100g CEC	35.4 meq/100g CEC
1.27Z Fe ₂ O ₃	1.15Z Fe ₂ O ₃
45.4 MZ% ———	36.3 MZ% - - - -



BETTS(SD)

Typic Ustorthent
fine-loamy, mixed, calcareous, mesic
subhumid zone
glacial till
Davison Co.

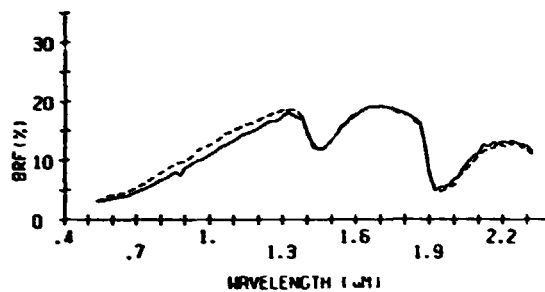
Al horizon	Al horizon
E slope	E slope
excess. drained	excess. drained
loam	loam
45ZS 34ZSi 21ZC	43ZS 34ZSi 23ZC
10YR 3/1 (moist)	10YR 4/2 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
4.53% O.H.	3.78% O.H.
27.0 meq/100g CEC	26.8 meq/100g CEC
0.86% Fe ₂ O ₃	1.01% Fe ₂ O ₃
30.2 MZ% ———	32.7 MZ% - - - -



STICKNEY(SD)

Classic Mentrustoll
fine, montmorillonitic, mesic
subhumid zone
calcareous clay loam glacial till
Davison Co.

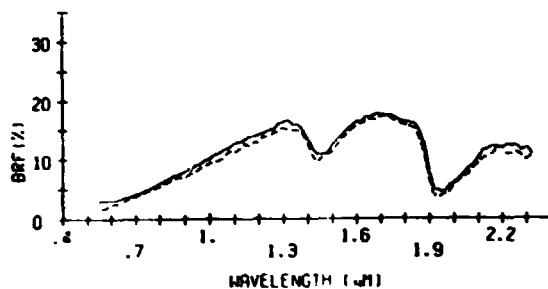
Ap horizon	Ap horizon
A slope	A slope
mod. well drained	mod. well drained
loam	loam
30ZS 47ZSi 23ZC	27ZS 48ZSi 25ZC
10YR 2/1 (moist)	5YR 3/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
2.85% O.H.	2.70% O.H.
22.6 meq/100g CEC	25.7 meq/100g CEC
0.72% Fe ₂ O ₃	0.68% Fe ₂ O ₃
32.3 MZ% ———	34.4 MZ% - - - -



TETONKA(SD)

Argiaque Argialboll
fine, montmorillonitic, mesic
subhumid zone
local alluvial deposits over
glacial till
Davison Co.

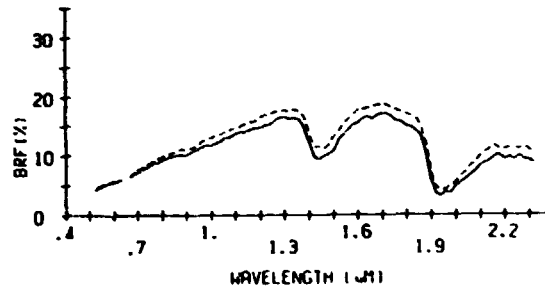
Al horizon	Al horizon
A slope	A slope
poorly drained	poorly drained
silt loam	silty clay loam
12ZS 6:2Si 27ZC	12ZS 57ZSi 31ZC
10YR 3/1 (moist)	10YR 3/1 (moist)
10YR 4/1 (dry)	10YR 4/1 (dry)
5.11% O.H.	6.47% O.H.
30.8 meq/100g CEC	38.8 meq/100g CEC
0.42% Fe ₂ O ₃	0.43% Fe ₂ O ₃
47.4 MZ% ———	52.5 MZ% - - - -



BOYD(SD)

Vertic Haplustoll
fine, montmorillonitic, mesic
subhumid zone
residium from clay shales
Gregory Co.

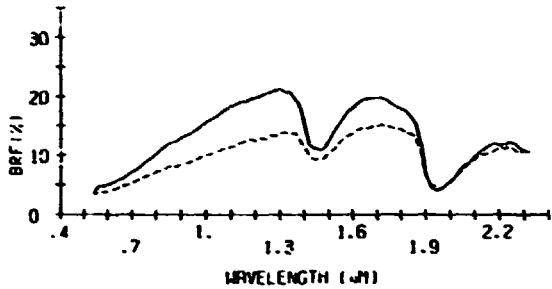
Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
clay	silty clay
2ZS 30ZSi 68ZC	4ZS 42ZSi 54ZC
10YR 4/2 (moist)	10YR 3/2 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
3.12% O.H.	2.69% O.H.
63.8 meq/100g CEC	56.8 meq/100g CEC
1.66% Fe ₂ O ₃	1.85% Fe ₂ O ₃
49.6 MZ% ———	41.6 MZ% - - - -



TUTHILL(SD)

Aridic Argiustoll
 fine-loamy over sandy or sandy-skeletal, mixed, mesic semiarid zone
 mixed sandy and loamy materials
 Todd Co.

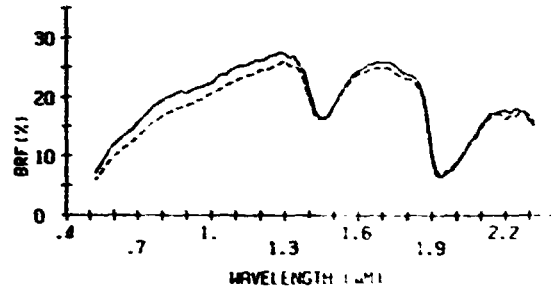
Ap horizon	Al horizon
B slope	B slope
well drained	well drained
fine sandy loam	fine sandy loam
75XS 15XS1 10XC	63XS 23XS1 14XC
10YR 3/1 (moist)	10YR 2/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
1.18% O.M.	3.88% O.M.
11.3 meq/100g CEC	18.5 meq/100g CEC
0.26% Fe ₂ O ₃	0.33% Fe ₂ O ₃
28.6 MZ	39.3 MZ



DICKSON(IN)

Glossic Fragisudult
 fine-silty, siliceous, thermic humid zone
 thick silt over limestone residuum
 Coffee Co.

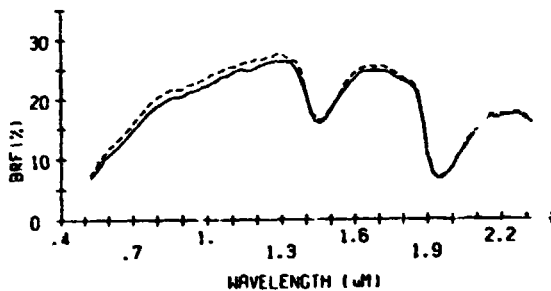
Ap horizon	Ap horizon
C slope	C slope
mod. well drained	mod. well drained
silt loam	silt loam
19XS 67XS1 14XC	9XS 73XS1 18XC
10YR 5/6 (moist)	10YR 5/4 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
1.36% O.M.	2.17% O.M.
10.7 meq/100g CEC	14.2 meq/100g CEC
1.63% Fe ₂ O ₃	1.86% Fe ₂ O ₃
27.3 MZ	33.9 MZ



MOUNTVIEW(TN)

Typic Paleudult
 fine-silty, siliceous, thermic humid zone
 loess over limestone residuum
 Coffee Co.

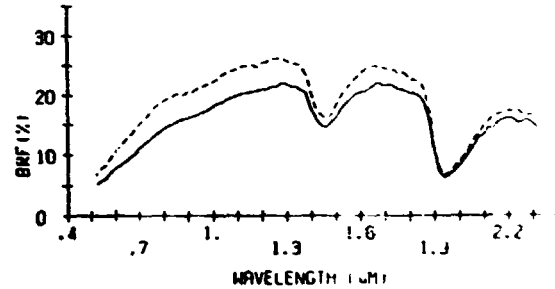
Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
silt loam	silt loam
27AS 60XS1 13XC	8XS 75XS1 17XC
10YR 4/4 (moist)	10YR 5/4 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
2.23% O.M.	2.33% O.M.
9.2 meq/100g CEC	13.5 meq/100g CEC
1.45% Fe ₂ O ₃	1.51% Fe ₂ O ₃
33.9 MZ	35.0 MZ



BODINE(IN)

Typic Paleudult
 loamy-skeletal, siliceous, thermic humid zone
 residuum from cherty limestone
 Humphreys Co.

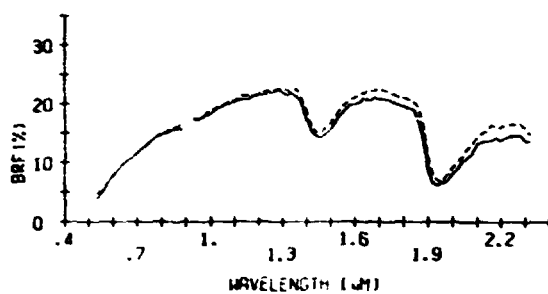
Ap horizon	Ap horizon
E slope	E slope
s. excess. drained	s. excess. drained
silt loam	silt loam
8XS 76XS1 14XC	15XS 73XS1 12XC
10YR 4/3 (moist)	10YR 4/3 (moist)
10YR 6/3 (dry)	10YR 6/4 (dry)
4.42% O.M.	2.49% O.M.
17.1 meq/100g CEC	10.0 meq/100g CEC
0.99% Fe ₂ O ₃	0.99% Fe ₂ O ₃
38.3 MZ	34.8 MZ



CUMBERLAND (TN)

Rhodic Paleudalf
fine, mixed, thermic
humid zone
old alluvium over limestone residuum
Rutherford Co.

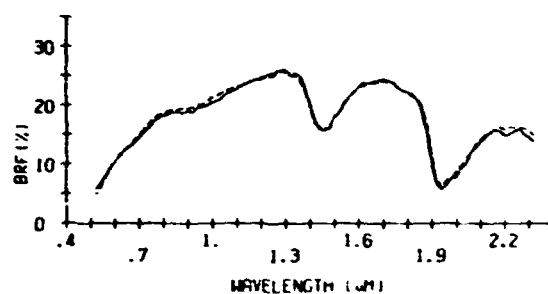
Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
silty clay loam	silt loam
72S 662Si 282C	32S 772Si 202C
2.5YR 3/4 (moist)	7.5YR 4/6 (moist)
7.5YR 4/6 (dry)	7.5YR 5/6 (dry)
1.74% O.M.	1.91% O.M.
15.4 meq/100g CEC	10.6 meq/100g CEC
3.25% Fe ₂ O ₃	2.27% Fe ₂ O ₃
29.6 M42°	31.9 M42°



TALBOT (TN)

Typic Hapludalf
fine, mixed, thermic
humid zone
clayey limestone residuum
Rutherford Co.

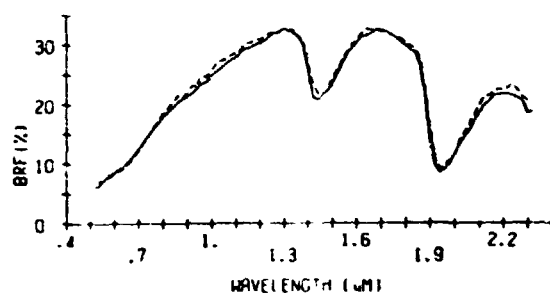
Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
silty clay loam	silt loam
142S 582Si 282C	112S 672Si 232C
7.5YR 4/6 (moist)	7.5YR 4/6 (moist)
10YR 6/6 (dry)	10YR 6/6 (dry)
1.84% O.M.	2.50% O.M.
15.6 meq/100g CEC	13.8 meq/100g CEC
3.68% Fe ₂ O ₃	3.34% Fe ₂ O ₃
28.2 M42°	30.2 M42°



BRACKETT (TX)

Typic Ustrochrept
loamy, carbonatic, thermic, shallow
subhumid zone
interbedded soft limestones and
marly earth
Bell Co.

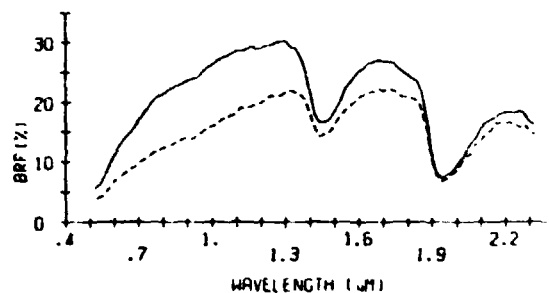
Al horizon	horizon
C slope	C slope
well drained	well drained
loam	clay loam
402S 492Si 212C	262S 462Si 282C
10YR 4/2 (moist)	10YR 4/2 (moist)
10YR 6/2 (dry)	10YR 6/2 (dry)
3.20% O.M.	6.61% O.M.
23.7 meq/100g CEC	26.7 meq/100g CEC
1.02% Fe ₂ O ₃	0.49% Fe ₂ O ₃
22.6 M42°	32.0 M42°



ELROSE (TX)

Typic Paleudalf
fine-loamy, siliceous, thermic
subhumid zone
stratified marine sediments
Anderson Co.

Ap horizon	All horizon
A slope	A slope
well drained	well drained
fine sandy loam	v. fine sandy loam
622S 322Si 62C	672S 282Si 52C
7.5YR 4/6 (moist)	5YR 3/4 (moist)
7.5YR 6/6 (dry)	5YR 5/4 (dry)
0.91% O.M.	2.57% O.M.
4.4 meq/100g CEC	8.6 meq/100g CEC
0.65% Fe ₂ O ₃	2.59% Fe ₂ O ₃
20.2 M42°	25.3 M42°

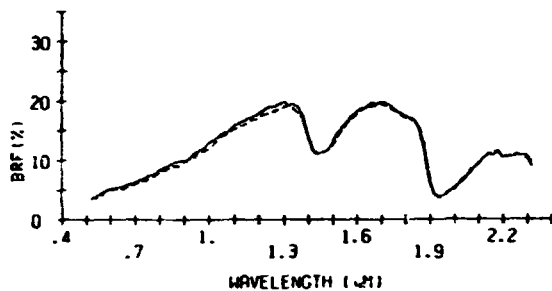


DENTON(TX)

Vertic Calcicustoll
fine, montmorillonitic, thermic
subhumid zone
clayey materials over limestones and
marls
Coryell Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silty clay	clay
4ZS 41ZSi 56ZC	3ZS 36ZSi 60ZC
7.5YR 3/2 (moist)	7.5YR 3/2 (moist)
10YR 3/2 (dry)	10YR 3/2 (dry)
3.21Z O.M.	2.91Z O.M.
60.9 meq/100g CEC	57.2 meq/100g CEC
1.81Z Fe ₂ O ₃	1.86Z Fe ₂ O ₃

48.0 M4Z° ——— 45.7 M4Z° - - - -

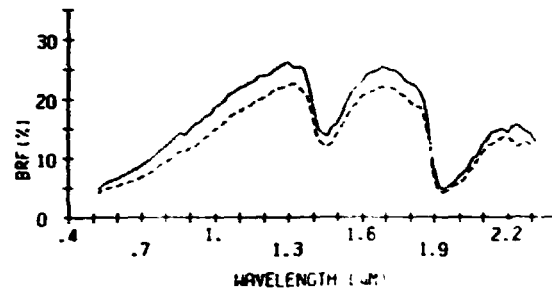


FRIO(TX)

Cumelic Haplustoll
fine, mixed, thermic
subhumid zone
calcareous silty clay loam alluvium
Coryell Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
clay loam	silty clay loam
29ZS 40ZSi 31ZC	18ZS 44ZSi 37ZC
10Ya 4/2 (moist)	10YR 3/2 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
2.16Z O.M.	2.20Z O.M.
29.7 meq/100g CEC	35.4 meq/100g CEC
0.66Z Fe ₂ O ₃	0.82Z Fe ₂ O ₃

36.1 M4Z° ——— 41.9 M4Z° - - - -

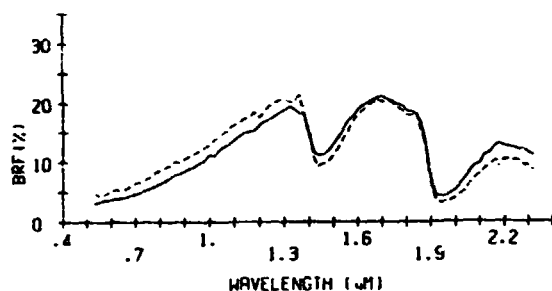


TRINITY(TX)

Typic Pelludert
very-fine, montmorillonitic, thermic
subhumid zone
calcareous clayey alluvium
Kaufman Co.

Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
silty clay loam	clay
18ZS 46ZSi 35ZC	1ZS 29ZSi 70ZC
7.5YR 3/0 (moist)	10YR 3/1 (moist)
10YR 4/1 (dry)	10YR 4/1 (dry)
3.53Z O.M.	3.17Z O.M.
38.9 meq/100g CEC	92.8 meq/100g CEC
0.47Z Fe ₂ O ₃	0.77Z Fe ₂ O ₃

43.1 M4Z° ——— 62.9 M4Z° - - - -

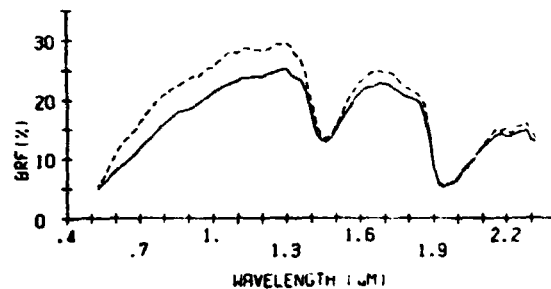


WINDHORST(TX)

Udic Paleustalf
fine, mixed, thermic
subhumid zone
stratified clay and loamy materials
Parker Co.

Al horizon	Al horizon
B slope	B slope
mod. well drained	mod. well drained
v. fine sandy loam	v. fine sandy loam
59ZS 32ZSi 10ZC	68ZS 25ZSi 7ZC
7.5YR 4/4 (moist)	7.5YR 4/6 (moist)
7.5YR 5/4 (dry)	7.5YR 6/6 (dry)
1.77Z O.M.	1.09Z O.M.
12.2 meq/100g CEC	8.1 meq/100g CEC
0.34Z Fe ₂ O ₃	0.45Z Fe ₂ O ₃

29.2 M4Z° ——— 29.4 M4Z° - - - -

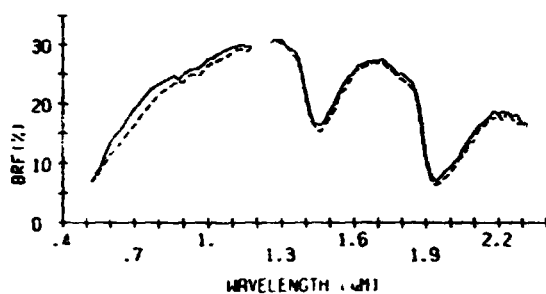


KIRVIN(TX)

Typic Hapludult
clayey, mixed, thermic
humid zone
acid sandstone and loamy and
clayey sediments
Smith Co.

Al horizon	Ap horizon
B slope	B slope
well drained	well drained
v. fine sandy loam	silt loam
64XS 30XS1 5ZC	45XS 51XS1 3ZC
7.5YR 5/4 (moist)	7.5YR 5/4 (moist)
7.5YR 6/4 (dry)	7.5YR 7/4 (dry)
0.41% O.M.	0.95% O.M.
2.7 meq/100g CEC	4.6 meq/100g CEC
0.57% Fe ₂ O ₃	0.85% Fe ₂ O ₃

26.6 MWZ* — 28.8 MWZ* - - - -

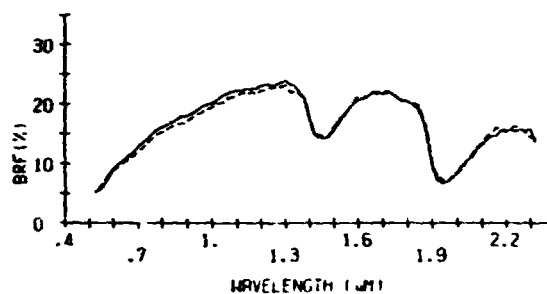


TRIOMAS(TX)

Ustalfic Haploregid
fine-loamy, mixed, thermic
semiarid zone
sandy eolian materials
Andrews Co.

All horizon	All horizon
A slope	A slope
well drained	well drained
loamy fine sand	loamy fine sand
85XS 10XS1 4ZC	87XS 6XS1 7ZC
7.5YR 4/4 (moist)	7.5YR 3/4 (moist)
7.5YR 5/6 (dry)	7.5YR 5/6 (dry)
0.94% O.M.	0.28% O.M.
5.2 meq/100g CEC	9.3 meq/100g CEC
0.32% Fe ₂ O ₃	0.28% Fe ₂ O ₃

21.2 MWZ* — 17.7 MWZ* - - - -

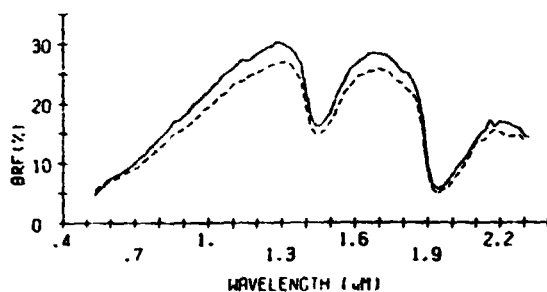


MONTELL(TX)

Entic Pellustert
fine, montmorillonitic, hyperthermic
semiarid zone
calcareous, clayey alluvium
Kinney Co.

All horizon	All horizon
A slope	A slope
mod. well drained	mod. well drained
clay	clay loam
20XS 39XS1 41ZC	21XS 43XS1 36ZC
10YR 4/1 (moist)	10YR 4/1 (moist)
10YR 5/1 (dry)	10YR 5/1 (dry)
2.58% O.M.	2.18% O.M.
41.4 meq/100g CEC	45.2 meq/100g CEC
0.19% Fe ₂ O ₃	0.18% Fe ₂ O ₃

40.9 MWZ* — 42.7 MWZ* - - - -

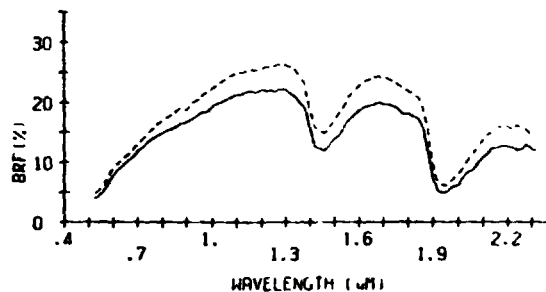


AMARILLO(TX)

Aridic Paleustalf
fine-loamy, mixed, thermic
semiarid zone
old eolian deposits or alluvium
Lamb Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loam	fine sandy loam
43XS 44XS1 14ZC	77XS 10XS1 13ZC
5YR 3/4 (moist)	7.5YR 4/6 (moist)
5YR 5/6 (dry)	7.5YR 4/6 (dry)
0.73% O.M.	0.56% O.M.
10.5 meq/100g CEC	13.6 meq/100g CEC
0.80% Fe ₂ O ₃	0.51% Fe ₂ O ₃

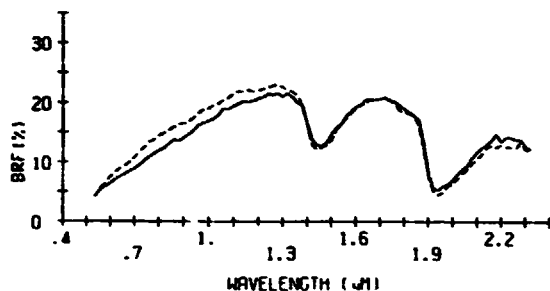
26.1 MWZ* — 20.3 MWZ* - - - -



ACUFF (TX)

Aridic Paleustoll
fine-loamy, mixed, thermic
semiarid zone
sandy outwash or old alluvium
Lubbock Co.

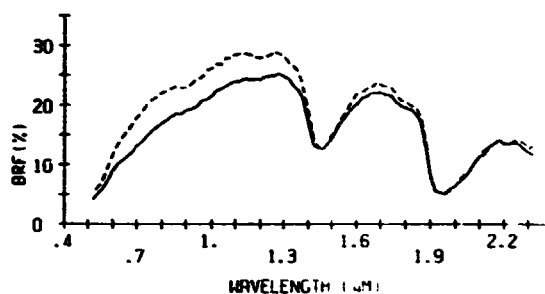
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
fine sandy loam	fine sandy loam
61ZS 22XS1 16XC	65ZS 20XS1 15ZC
7.5YR 3/2 (moist)	7.5YR 3/4 (moist)
7.5YR 4/4 (dry)	7.5YR 4/6 (dry)
1.12% O.M.	0.75% O.M.
16.2 meq/100g CEC	12.0 meq/100g CEC
0.58% Fe ₂ O ₃	0.59% Fe ₂ O ₃
26.4 MWZ°	27.4 MWZ°



PATRICIA (TX)

Aridic Paleustalf
fine-loamy, mixed, thermic
semiarid zone
sandy eolian sediments
Lynn Co.

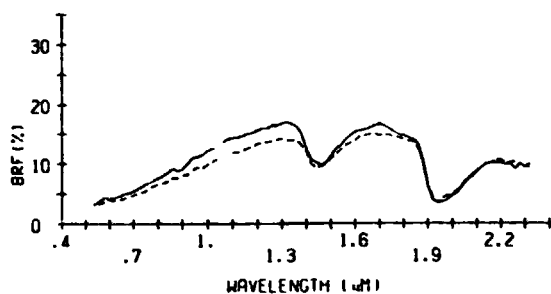
Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
loamy fine sand	fine sand
80ZS 11XS1 9ZC	89ZS 4ZS1 7ZC
5YR 4/4 (moist)	5YR 4/4 (moist)
7.5YR 5/6 (dry)	7.5YR 5/6 (dry)
0.56% O.M.	0.11% O.M.
6.4 meq/100g CEC	6.3 meq/100g CEC
0.40% Fe ₂ O ₃	0.33% Fe ₂ O ₃
24.5 MWZ°	20.4 MWZ°



TARRANT (TX)

Lithic Calcicustoll
clayey-skeletal, montmorillonitic,
thermic
subhumid zone
residuum from limestone
Menard Co.

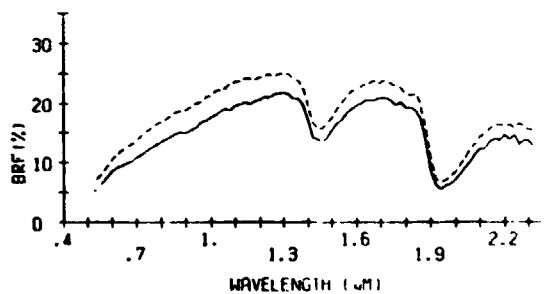
All horizon	All horizon
A slope	A slope
well drained	well drained
silty clay	silty clay
2ZS 41ZS1 57ZC	4ZS 46ZS1 49ZC
5YR 3/1 (moist)	10YR 2/1 (moist)
10YR 3/2 (dry)	10YR 3/2 (dry)
4.61% O.M.	5.62% O.M.
59.0 meq/100g CEC	50.4 meq/100g CEC
0.94% Fe ₂ O ₃	0.87% Fe ₂ O ₃
51.9 MWZ°	50.1 MWZ°



REAGAN (TX)

Ustollic Calcicorthid
fine-silty, mixed, thermic
semiarid zone
eolian material
Upton Co.

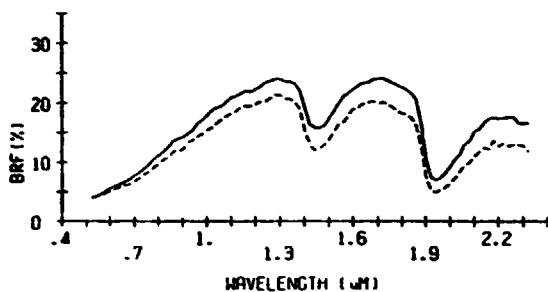
All horizon	All horizon
A slope	A slope
well drained	well drained
loam	loam
38ZS 47ZS1 15ZC	44ZS 41ZS1 16ZC
10YR 3/3 (moist)	10YR 4/4 (moist)
7.5YR 6/4 (dry)	7.5YR 6/4 (dry)
0.82% O.M.	0.90% O.M.
31.8 meq/100g CEC	29.3 meq/100g CEC
0.69% Fe ₂ O ₃	0.58% Fe ₂ O ₃
28.9 MWZ°	26.2 MWZ°



WILLACY(TX)

Udic Argiustoll
fine-loamy, mixed, hyperthermic
subhumid zone
alkaline loamy sediments
Cameron Co.

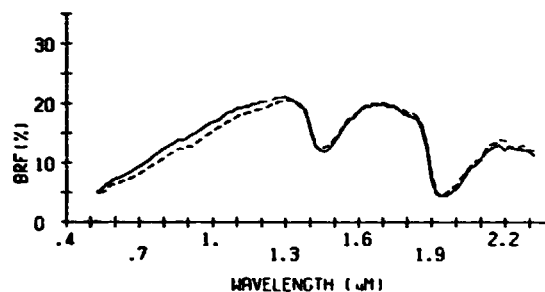
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loamy fine sand	fine sandy loam
8ZS 10ZS1 8ZC	76ZS 12ZS1 12ZC
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
0.55Z O.M.	0.80Z O.M.
5.4 meq/100g CEC	7.8 meq/100g CEC
0.25Z Fe ₂ O ₃	0.29Z Fe ₂ O ₃
16.0 MWZ	27.3 MWZ



HIDALGO(TX)

Typic Haplustoll
fine-loamy, mixed, hyperthermic
semiarid zone
fine textured calcareous sediments
Hidalgo Co.

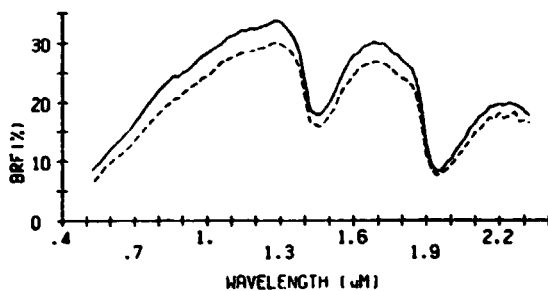
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
sandy clay loam	cl. y loam
50ZS 22ZS1 28ZC	42ZS 24ZS1 34ZC
7.5YR 4/2 (moist)	10YR 3/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
1.48Z O.M.	2.46Z O.M.
26.4 meq/100g CEC	31.5 meq/100g CEC
0.33Z Fe ₂ O ₃	0.16Z Fe ₂ O ₃
33.2 MWZ	35.0 MWZ



SARITA(TX)

Urossaromic Paleustalf
loamy, mixed, hyperthermic
semiarid zone
sandy and loamy deposits
Hidalgo Co.

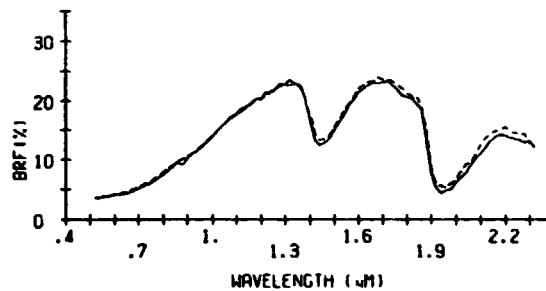
Al horizon	Al horizon
A slope	A slope
well drained	well drained
fine sand	fine sand
95ZS 3ZS1 2ZC	96ZS 2ZS1 2ZC
10YR 4/3 (moist)	10YR 4/3 (moist)
10YR 6/3 (dry)	10YR 7/3 (dry)
3.52Z O.M.	0.19Z O.M.
4.3 meq/100g CEC	3.0 meq/100g CEC
0.07Z Fe ₂ O ₃	0.06Z Fe ₂ O ₃
14.5 MWZ	18.6 MWZ



CLAREVILLE(TX)

Pachic Argiustoll
fine, montmorillonitic, hyperthermic
semiarid zone
calcareous clayey marine sediments
Jim Wells Co.

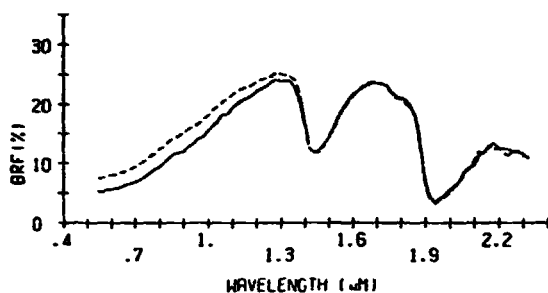
Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
loam	sandy clay loam
48ZS 28ZS1 24ZC	56ZS 19ZS1 24ZC
10YR 3/1 (moist)	10YR 3/1 (moist)
10YR 3/1 (dry)	10YR 3/1 (dry)
2.09Z O.M.	1.66Z O.M.
30.5 meq/100g CEC	36.6 meq/100g CEC
0.18Z Fe ₂ O ₃	0.18Z Fe ₂ O ₃
38.2 MWZ	30.9 MWZ



VICTORIA(TX)

Udic Pellustert
fine, montmorillonitic, hyperthermic
subhumid zone
calcareous clayey marine sediments
Nueces Co.

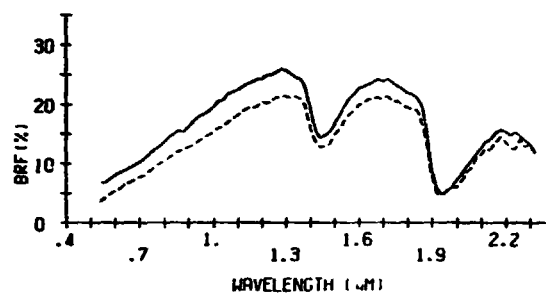
Ap horizon A slope s. poorly drained clay	Ap horizon A slope s. poorly drained clay
20XS 27XS1 54XC	16XS 27XS1 57XC
7.5YR 3/0 (moist)	7.5YR 4/0 (moist)
10YR 4/1 (dry)	10YR 5/1 (dry)
2.07% O.M.	1.76% O.M.
59.2 meq/100g CEC	61.3 meq/100g CEC
0.23% Fe ₂ O ₃	0.61% Fe ₂ O ₃
45.4 MMZ ^a ———	47.3 MMZ ^a - - - -



UVALDE(TX)

Aridic Calcicustoll
fine-silty, mixed, hyperthermic
semiarid zone
alluvium from limestone
Zavala Co.

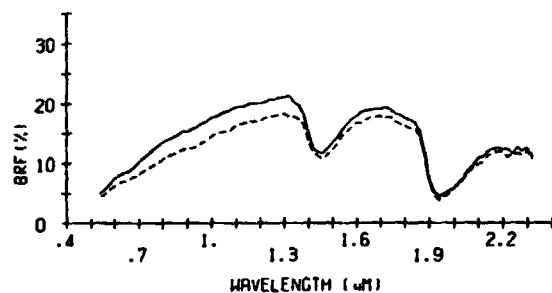
Ap horizon A slope well drained clay loam	Ap horizon A slope well drained clay loam
27XS 42XS1 31XC	38XS 30XS1 32XC
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 5/3 (dry)	10YR 4/2 (dry)
1.50% O.M.	2.91% O.M.
38.7 meq/100g CEC	36.6 meq/100g CEC
0.60% Fe ₂ O ₃	0.68% Fe ₂ O ₃
37.2 MMZ ^a ———	39.1 MMZ ^a - - - -



SHERM(TX)

Torrertic Paleustoll
fine, mixed, mesic
semiarid zone
eolian sediments
Sherman Co.

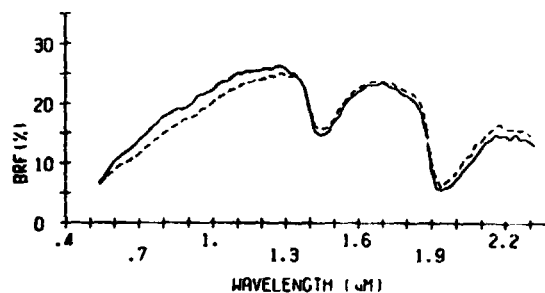
Ap horizon A slope well drained loam	Ap horizon A slope well drained clay loam
39XS 36XS1 25XC	22XS 46XS1 32XC
7.5YR 3/4 (moist)	10YR 3/3 (moist)
7.5YR 5/4 (dry)	10YR 4/3 (dry)
1.65% O.M.	1.89% O.M.
18.1 meq/100g CEC	28.7 meq/100g CEC
0.76% Fe ₂ O ₃	0.84% Fe ₂ O ₃
36.6 MMZ ^a ———	39.0 MMZ ^a - - - -



HODGINS(TX)

Ustollic Camborthid
fine-silty, mixed, thermic
arid zone
calcareous loamy alluvium
Pecos Co.

All-A12 horizon A slope well drained silty clay	All-A12 horizon A slope well drained silty clay loam
7XS 49XS1 44XC	6XS 66XS1 28XC
10YR 4/3 (moist)	10YR 4/2 (moist)
7.5YR 6/4 (dry)	10YR 5/3 (dry)
2.09% O.M.	2.82% O.M.
48.1 meq/100g CEC	48.5 meq/100g CEC
0.78% Fe ₂ O ₃	0.77% Fe ₂ O ₃
44.8 MMZ ^a ———	41.7 MMZ ^a - - - -



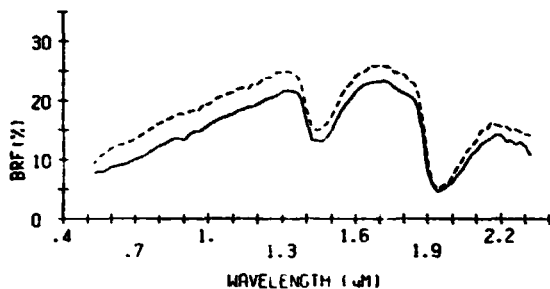
ABBOTT (UT)

Vertic Fluvaquent
fine, montmorillonitic, calcareous,
mesic

arid zone
mixed alluvium
Millard Co.

Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
silty clay	clay
2XS 41ZSi 57XC	3XS 37ZSi 61XC
5YR 4/1 (moist)	10YR 6/1 (moist)
10YR 5/1 (dry)	10YR 5/1 (dry)
1.79% O.M.	0.74% O.M.
49.8 meq/100g CEC	44.4 meq/100g CEC
0.30% Fe ₂ O ₃	0.36% Fe ₂ O ₃

49.2 MWZ* — 34.8 MWZ* ----

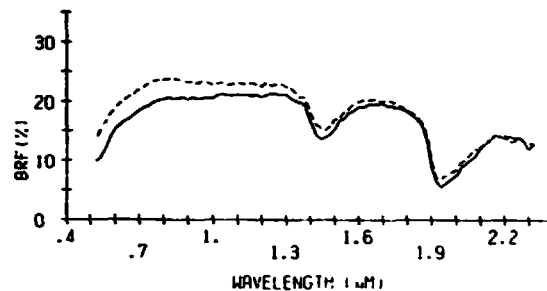


HARDING (UT)

Xerollic Natrargid
fine, mixed, mesic
arid zone
mixed sediments
Millard Co.

A2 horizon	A2 horizon
A slope	A slope
well drained	well drained
loam	sandy clay loam
41XS 34ZSi 25XC	54XS 27ZSi 24XC
10YR 6/4 (moist)	10YR 5/3 (moist)
10YR 6/3 (dry)	10YR 7/2 (dry)
0.13% O.M.	0.61% O.M.
33.0 meq/100g CEC	28.0 meq/100g CEC
0.51% Fe ₂ O ₃	0.46% Fe ₂ O ₃

26.1 MWZ* — 19.4 MWZ* ----

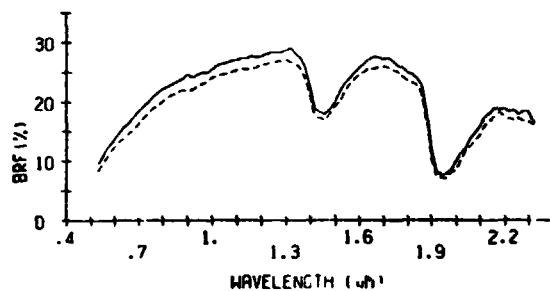


PALISADE (UT)

Typic Calciorthid
coarse-loamy, mixed, mesic
semiarid zone
calcareous glacial outwash
Millard Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
v. fine sandy loam	silt loam
66ZS 25ZSi 9XC	26ZS 56ZSi 18XC
10YR 5/4 (moist)	10YR 5/3 (moist)
10YR 6/3 (dry)	10YR 6/3 (dry)
0.75% O.M.	1.99% O.M.
26.8 meq/100g CEC	30.7 meq/100g CEC
0.41% Fe ₂ O ₃	0.58% Fe ₂ O ₃

23.5 MWZ* — 33.9 MWZ* ----

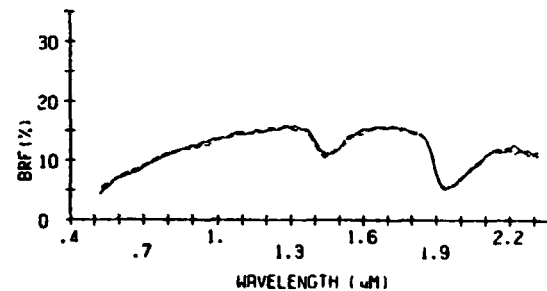


PHARO (UT)

Aridic Calcixeroll
loamy-skeletal, carbonatic, mesic
semiarid zone
gravelly alluvium
Millard Co.

All-A12 horizon	All-A12 horizon
B slope	B slope
s. excess. drained	s. excess. drained
loam	sandy loam
52ZS 35ZSi 13XC	54ZS 34ZSi 12XC
10YR 3/2 (moist)	7.5YR 3/2 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
1.42% O.M.	1.29% O.M.
25.9 meq/100g CEC	25.8 meq/100g CEC
0.48% Fe ₂ O ₃	0.48% Fe ₂ O ₃

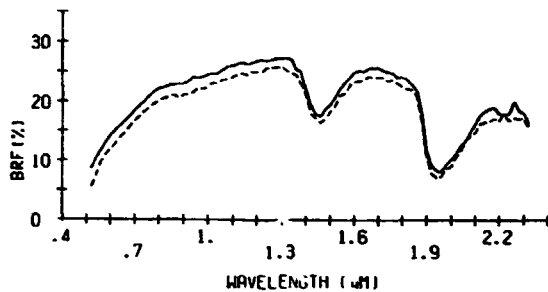
23.2 MWZ* — 22.4 MWZ* ----



FREDERICK(VA)

Typic Paleudult
 clayey, mixed, mesic
 humid zone
 clayey residuum from dolomitic
 limestone
 Rockingham Co.

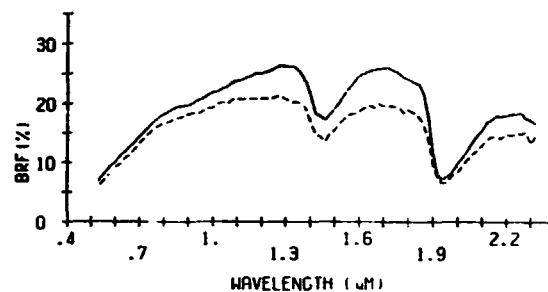
Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
silt loam	silt loam
21ZS 62ZSi 17ZC	20ZS 65ZSi 15ZC
10YR 4/4 (moist)	10YR 5/4 (moist)
10YR 7/4 (dry)	10YR 7/4 (dry)
1.16% O.M.	2.47% O.M.
7.2 meq/100g CEC	10.1 meq/100g CEC
1.30% Fe ₂ O ₃	1.23% Fe ₂ O ₃
27.1 MW% —	33.6 MW% - - - -



MURRILL(WV)

Typic Hapludult
 fine-loamy, mixed, mesic
 humid zone
 colluvial acid material
 Monroe Co.

Ap horizon	Ap horizon
C slope	D slope
well drained	well drained
silt loam	loam
28ZS 56ZSi 17ZC	48ZS 44ZSi 11ZC
10YR 5/4 (moist)	7.5YR 4/4 (moist)
10YR 6/4 (dry)	10YR 6/3 (dry)
2.24% O.M.	2.58% O.M.
10.3 meq/100g CEC	9.2 meq/100g CEC
1.48% Fe ₂ O ₃	1.23% Fe ₂ O ₃
27.3 MW% —	29.6 MW% - - - -

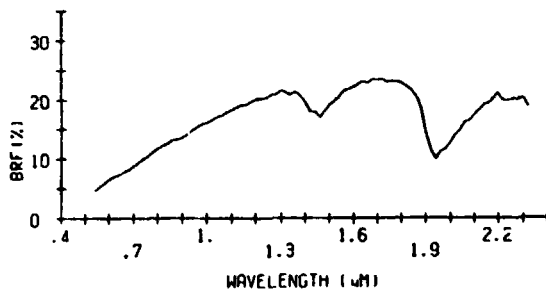


VILAS(WI)

Entic Haplorthod
 sandy, mixed, frigid
 humid zone
 alluvium or outwash
 Bayfield Co.

Al-A2 horizon
A slope
excess. drained
sand
91ZS 8ZSi 1ZC
7.5YR 3/2 (moist)
7.5YR 5/2 (dry)
1.95% O.M.
8.7 meq/100g CEC
0.29% Fe ₂ O ₃

8.8 MW% —

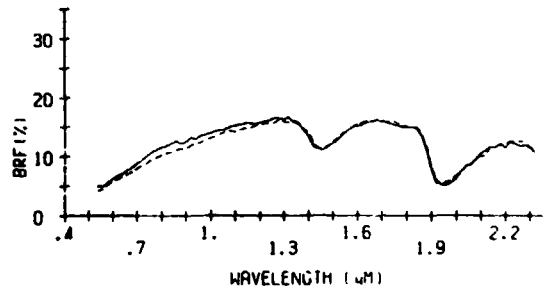


PENCE(WI)

Typic Haplorthod
 coarse-loamy, mixed, frigid
 humid zone
 sandy loam drift over acid sand outwash
 Florence Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
sandy loam	silt loam
53ZS 40ZSi 7ZC	31ZS 63ZSi 6ZC
10YR 3/3 (moist)	7.5YR 3/2 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
2.56% O.M.	2.79% O.M.
13.1 meq/100g CEC	12.3 meq/100g CEC
1.05% Fe ₂ O ₃	1.08% Fe ₂ O ₃

28.1 MW% — 25.7 MW% - - - -

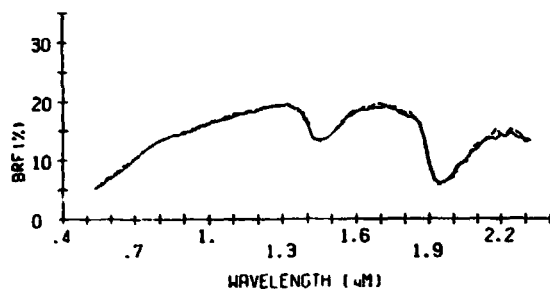


ANTIGO(WI)

Typic Glossoboralf
fine-silty over sandy or sandy-
skeletal, mixed
humid zone
silty sediments over glacial sand
Langlade Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
182S 71ZS1 11ZC	182S 73ZS1 9ZC
10YR 4/3 (moist)	10YR 3/3 (moist)
10YR 6/3 (dry)	10YR 7/4 (dry)
3.28Z O.M.	2.86Z O.M.
12.9 meq/100g CEC	16.3 meq/100g CEC
1.24Z Fe ₂ O ₃	1.12Z Fe ₂ O ₃

33.1 MWZ* — 31.2 MWZ* ----

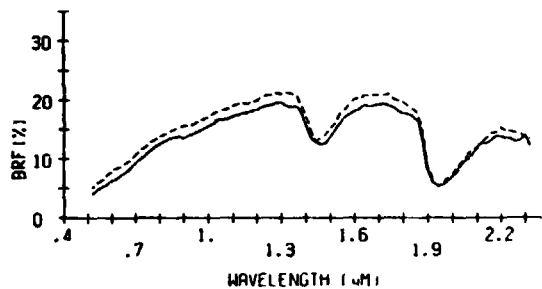


FENWOOD(WI)

Typic Glossoboralf
fine-loamy, mixed
humid zone
silty sediments and residuum from
granitic rocks
Marathon Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
30ZS 61ZS1 9ZC	27ZS 68ZS1 5ZC
10YR 3/2 (moist)	10YR 4/3 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
2.82Z O.M.	2.96Z O.M.
17.6 meq/100g CEC	18.6 meq/100g CEC
1.35Z Fe ₂ O ₃	1.16Z Fe ₂ O ₃

36.2 MWZ* — 37.2 MWZ* ----

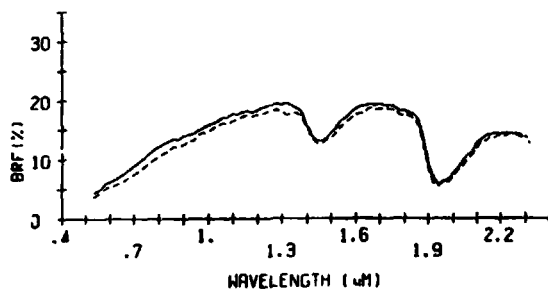


CAMPIA(WI)

Typic Glossoboralf
fine-silty, mixed
humid zone
silty eolian or lacustrine deposits
Polk Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
13ZS 76ZS1 10ZC	31ZS 59ZS1 10ZC
7.5YR 3/2 (moist)	10YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/3 (dry)
3.58Z O.M.	2.28Z O.M.
16.8 meq/100g CEC	15.3 meq/100g CEC
0.73Z Fe ₂ O ₃	0.85Z Fe ₂ O ₃

52.0 MWZ* — 39.9 MWZ* ----

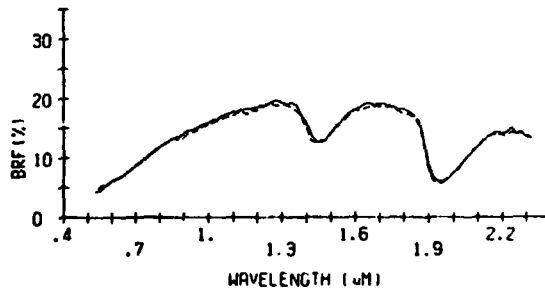


CUSHING(WI)

Glossic Entrobtoralf
fine-loamy, mixed
humid zone
loam till with a silty mantle
Polk Co.

Ap horizon	Ap horizon
B slope	B slope
mod. well drained	mod. well drained
fine sandy loam	fine sandy loam
54ZS 40ZS1 7ZC	54ZS 39ZS1 7ZC
7.5YR 3/2 (moist)	7.5YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/2 (dry)
1.96Z O.M.	2.55Z O.M.
11.0 meq/100g CEC	12.7 meq/100g CEC
0.55Z Fe ₂ O ₃	0.59Z Fe ₂ O ₃

28.7 MWZ* — 29.1 MWZ* ----

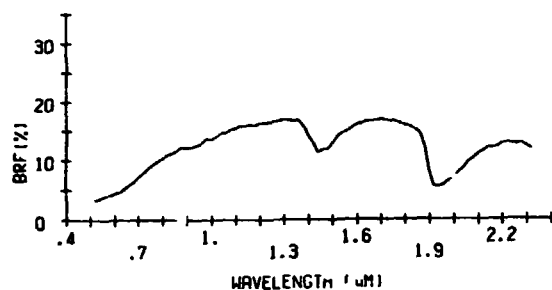


GOODMAN (WI)

Afic Haplorthod
coarse-silty, mixed, frigid
humid zone
silty sediments over acid till
Price Co.

Al horizon
A slope
mod. well drained
silt loam
6XS 82XS1 12XC
7.5YR 3/2 (moist)
10YR 6/2 (dry)
7.44% O.M.
30.0 meq/100g CEC
1.04% Fe₂O₃

41.5 MW% ———

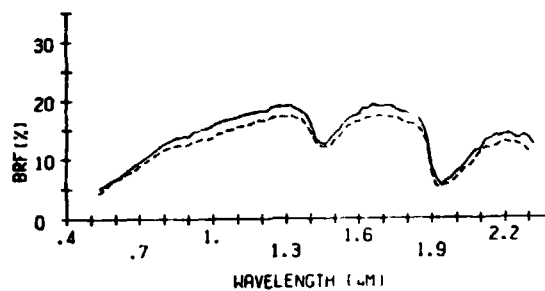


FOX (WI)

Typic Hapludalf
fine-loamy over sandy or sandy-
skeletal, mixed, mesic
humid zone
loamy outwash over calcareous sand
Ozaukee Co.

Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
silt loam	loam
28XS 61XS1 12XC	50XS 35XS1 15XC
10YR 3/3 (moist)	10YR 3/3 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
2.78% O.M.	3.75% O.M.
17.0 meq/100g CEC	17.9 meq/100g CEC
1.05% Fe ₂ O ₃	2.01% Fe ₂ O ₃

32.0 MW% ——— 28.4 MW% - - - -

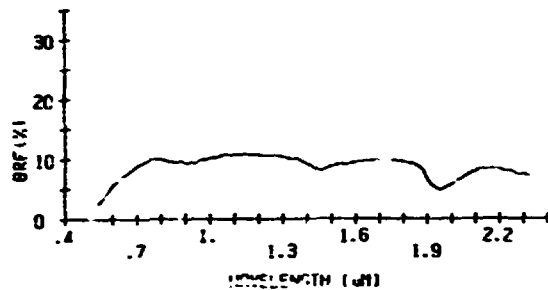


CASCAVEL (PR, BRASIL)

Haplic Acrorthox
very-fine, oxidic, thermic
humid zone
basalt
Município of Cascavel

Al horizon
B slope
excess. drained
clay
15S 182S1 67C
2.5YR 3/3 (moist)
2.5YR 3/6 (dry)
3.55Z O.H.
19.8 meq/100g CEC
23.1% Fe₂O₃

ORTHOX —

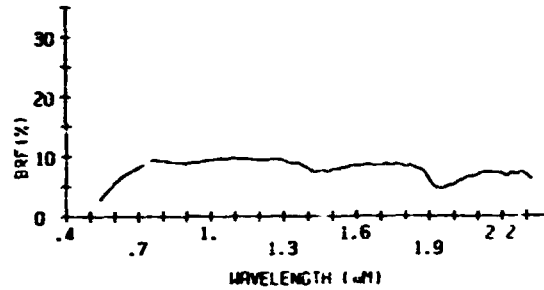


PATO BRANCO (PR, BRASIL)

Haplic Acrorthox
very-fine, kaolinitic, thermic
humid zone
basalt
Município of Pato Branco

Ap horizon
B slope
excess. drained
clay
9YS 232S1 68C
5YR 3/2 (moist)
5YR 4/6 (dry)
3.70Z O.H.
20.2 meq/100g CEC
11.2% Fe₂O₃

ORTHOX —

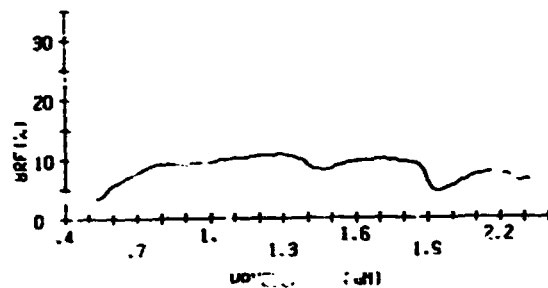


GUARAPUAVA (PR, BRASIL)

Typic Acrorthox
very-fine, oxidic, thermic
humid zone
andesite
Município of Guarapuava

Al horizon
B slope
excess. drained
clay
62S 462S1 48C
7.5YR 3/2 (moist)
7.5YR 4/4 (dry)
9.2Z O.H.
41.6 meq/100g CEC
14.0% Fe₂O₃

HAPLOX —

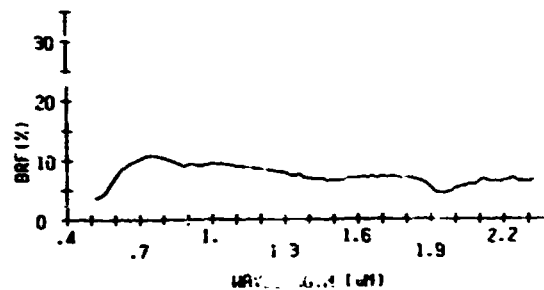


LONDRIINA (PR, BRASIL)

Typic Haploorthox
very-fine, kaolinitic, hyperthermic
humid zone
basalt
Município of Londrina

Allp horizon
C slope
excess. drained
clay
9YS 142S1 77C
2.5YR 3/6 (moist)
2.5YR 4/6 (dry)
2.28Z O.H.
22.1 meq/100g CEC
25.6% Fe₂O₃

ORTHOX —



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