

CHEMICAL CHARACTERISTICS OF PROFILE SAMPLES OF SOILS OF FLUVANNA COUNTY, VIRGINIA



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CHEMICAL CHARACTERISTICS OF PROFILE SAMPLES
OF THE SOILS OF FLUVANNA COUNTY*

Introduction

To get the greatest value from the county soil surveys, studies are made of the physical and chemical properties of the soils.

The soil survey map shows the extent and location of the various kinds of soil in the county. The soil survey report classifies these kinds of soils or groups them according to use and management classes for specific purposes. These groupings are based upon interpretations of their morphological, genetic, and physico-chemical properties.

As a help in classifying the different soils and in making interpretations for use and management, laboratory studies were made and are included in the soil survey report of Fluvanna County. On completion of the field mapping soil samples were collected for chemical and physical analysis. The chemical data presented here supplement that included in the soil survey report and related publications.

Explanation of Tables

When a proper balance of plant food and organic matter is maintained in the surface 7 inches of a well drained soil, optimum plant growth may be expected. Certain properties of the soil profile such as effective depth, structure, texture, and consistency are also quite important. These characteristics largely determine water storage and movement, and

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crop adaptation to the soil. The parent material, designated by the C horizon in table 1 is in some cases quite important as a source of plant nutrients. Examples of this are found in some of the younger soils such as Bremono, Louisburg, and Wilkes.

In table 1 the A₀ horizon is not true soil but consists of partly decomposed plant remains. The A horizon includes the portion of the soil which is plowed and, in Virginia, is that layer of the soil which is affected most by leaching and erosion. The B horizons represent layers of subsoil, the B₂ ordinarily being finer than the rest of the soil. Soil parent material is the C horizon, and where this is layered, C₁, C₂, etc., are used.

Degree of soil acidity is expressed by pH. The following descriptive designations have been applied to pH values:

Extremely acid.....	Below 4.5
Very strongly acid.....	4.5 - 5.0
Strongly acid.....	5.1 - 5.5
Medium acid.....	5.6 - 6.0
Slightly acid.....	6.1 - 6.5
Neutral (Essentially).....	6.6 - 7.3
Mildly alkaline.....	7.4 - 7.8
Moderately alkaline.....	7.9 - 8.4
Strongly alkaline.....	8.5 - 9.0
Very strongly alkaline.....	9.1 and higher

Truog phosphorus which is dilute acid soluble phosphorus, is an estimate of the amount of phosphorus readily available to plants in acid soils. Generally, it is considered that 25 ppm. (50 lbs./acre) is adequate for most crops grown in Virginia.

Calcium, magnesium, and potassium, which are exchangeable cations, are important plant nutrients. When these elements are in exchangeable form, they are available to plants to varying degrees. Potassium is generally more available and calcium less available than magnesium. As these bases are removed by plants, aluminum and hydrogen ions take their place. Because aluminum acts as an acid like hydrogen, the exchangeable hydrogen reported includes exchangeable aluminum. The percent base saturation is the proportion of the total cations that is made up of exchangeable calcium, magnesium, and potassium. For Virginia conditions a fertile soil usually has a high percent base saturation.

The sum of the exchangeable cations, including aluminum and hydrogen, is equal to the total cation exchange capacity of the soil. The value is usually high when there is higher clay or organic matter content in the soil. Certain types of clay yield a higher value than others, but with few exceptions, humus or organic matter give a higher value, pound for pound, than clay. The higher the cation exchange capacity, the greater the nutrient holding capacity of the soil. When a soil contains few plant nutrients, these are more readily available to plants grown on a soil with a low exchange capacity. It is much easier to raise the pH of a low exchange capacity soil.

The notation milli-equivalents per 100 grams of soil can be converted to pounds/acre of soil on the basis that an acre of soil 6 or 7 inches deep weighs approximately 2,000,000 pounds. One m.e./100 gms. is equal to 940 pounds of potash or 1,000 pounds of limestone (CaCO_3) or 840 pounds of magnesium carbonate.

In Virginia a condition of at least 50 percent base saturation is desired in the surface 6 to 7 inches. These bases should be present in a proportion of about ten times as much calcium and two times as much magnesium as potassium as long as there is a minimum of 0.3 m.e. of potassium. A soil with a total of 10 m.e. of exchangeable cations would have a good nutrient condition if there were 5 m.e. hydrogen, 4 m.e. calcium, 0.7 m.e. magnesium, and 0.3 m.e. potassium. If the soil has a high cation exchange capacity, it would be important to have much more calcium and slightly more potassium and magnesium. If the soil has a smaller cation exchange capacity, the calcium requirement is less, but the magnesium and, most important, the potassium level should be the same. Many cultivated soils in parts of Virginia contain a high proportion of magnesium as a result of the widespread use of dolomitic limestone. This may be unfavorable if the build-up of magnesium continues.

Table 1 gives chemical characteristics of 52 soil types mapped in the Soil Survey of Fluvanna County. These soils are important throughout the southern Piedmont area of Virginia as well as in Fluvanna County.

TABLE 1

Hor- izon:	Depth (in.)	pH	Truog P (ppm)	Organic Matter (%)	Mn ^{1/} ppm	Exchangeable Cations ^{2/}					Base Satura- tion (%)
						Ca	Mg	K	H	Total*	
<u>ALTAVISTA SILT LOAM (94)</u>											
A	0-8	6.69	35.2	2.03	15.49	4.30	1.14	0.28	4.90	10.62	53.86
B	8-18	5.71	18.3	1.32	10.49	4.60	1.62	0.20	7.36	13.78	46.59
<u>APPLING FINE SANDY LOAM (29)</u>											
A ₀	3/4-0	4.86	24.9	28.29	N.R.	3.60	1.02	1.17	23.46	29.25	19.79
A	0-13	4.77	1.3	1.08	N.R.	0.04	0.03	0.12	3.18	3.37	5.64
B ₁	13-16	4.59	1.1	0.58	N.R.	0.11	0.14	0.12	3.68	4.05	9.14
B ₂	16-24	4.61	0.7	0.60	N.R.	0.14	0.87	0.21	11.48	12.70	9.61
C	24-34	4.75	0.7	0.39	N.R.	0.08	0.85	0.18	12.92	14.03	7.91
<u>APPLING GRITTY FINE SANDY LOAM (31)</u>											
A ₀	3/4-0	4.59	46.6	28.08	N.R.	4.53	0.87	1.10	28.83	35.33	18.40
A ₁	0-2	4.89	3.7	4.80	N.R.	0.26	0.14	0.29	8.35	9.04	7.63
A ₂	2-10	5.00	1.5	1.20	N.R.	0.20	0.08	0.16	4.27	4.71	9.34
B ₁	10-15	4.81	1.3	0.72	N.R.	0.23	1.40	0.23	7.06	8.92	20.85
B ₂	15-26	4.70	0.9	0.52	N.R.	0.04	0.78	0.17	16.70	17.69	5.60
C	26-40	4.86	0.4	0.25	N.R.	0.04	1.00	0.30	16.70	17.94	7.47
<u>APPLING GRITTY FINE SANDY LOAM (31)</u>											
A	0-7	4.95	3.9	2.55	2.46	0.06	0.08	0.26	5.51	5.91	6.77
<u>APPLING SANDY LOAM (30)</u>											
A	0-8	4.32	4.8	1.92	4.23	0.24	0.16	0.12	6.27	6.79	7.66
<u>APPLING SANDY LOAM (30)</u>											
A	0-10	5.28	2.9	1.89	1.03	0.06	0.12	0.36	4.28	4.82	11.20
B	10 f	4.67	2.4	2.48	Ins.	Ins.	Ins.	Ins.	4.85	Ins.	Ins.
<u>BREMO SILT LOAM (107)</u>											
A ₀	1/4-0	6.01	Ins.	48.37	N.R.	61.68	3.42	1.06	17.14	83.30	79.42
A	0-7	5.01	2.6	2.62	N.R.	4.01	0.47	0.11	7.50	12.09	37.97
C ₁	7-15	5.43	0.9	0.37	N.R.	2.99	2.93	0.03	4.37	10.32	57.66
C ₂	15-20	5.29	0.9	0.67	N.R.	0.88	1.22	0.05	3.93	6.08	35.36

Hor- izon:	Depth (in.)	pH	Truog P (ppm)	Organic Matter (%)	Mn ^{1/} ppm	Exchangeable Cations ^{2/}					Base Satura- tion (%)
					Ca	Mg	K	H	Total*		

CECIL FINE SANDY LOAM (20)

A ₀	3/4-0	4.54	40.4	37.33	N.R.	6.83	1.11	1.07	24.65	33.66	26.77
A	0-6	4.72	3.9	2.95	N.R.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
B ₁	6-10	4.83	1.7	1.58	N.R.	1.34	0.67	0.27	6.56	8.84	25.79
B ₂	10-26	4.82	1.3	0.66	N.R.	0.64	0.94	0.41	12.62	14.61	13.62
C	26-32	4.70	1.3	0.75	N.R.	0.18	0.72	0.29	13.42	14.61	8.15

CECIL FINE SANDY LOAM (20)

B	20-28	4.94	1.4	0.80	0.26	0.12	1.00	0.28	11.23	12.63	11.08
B	22-28	5.27	1.0	0.60	0.00	0.00	1.08	0.34	10.18	11.60	12.24

CECIL FINE SANDY LOAM (20)

A ₁	0-4	5.38	2.4	3.82	N.R.	2.78	0.49	0.29	8.63	12.19	29.20
A ₂	4-8	5.42	1.4	1.91	N.R.	1.10	0.25	0.17	6.21	7.73	19.66
B ₁	8-10	5.10	1.0	0.73	N.R.	0.66	0.29	0.12	5.25	6.32	16.93
B ₂	10-26	4.86	1.4	0.41	N.R.	0.38	1.15	0.28	12.51	14.32	12.64
B ₃	26-36	5.07	2.2	0.12	N.R.	0.12	0.35	0.14	11.26	11.87	5.14
C ₁	36-76	4.77	1.7	0.06	N.R.	0.02	0.11	0.07	8.54	8.74	2.29
C ₂	76-112	4.83	1.4	0.05	N.R.	0.04	0.09	0.07	6.21	6.41	3.12
C ₃	112-120	4.70	1.7	0.00	N.R.	0.20	0.13	0.06	5.26	5.65	6.90

CHEWACLA SILT LOAM (4)

A ₂	0-9	5.54	10.7	1.95	N.R.	3.23	0.84	0.13	6.36	10.56	39.77
A ₃	9-16	5.32	3.5	1.30	N.R.	2.89	0.56	0.07	6.51	10.03	35.09
B ₁	16-40	5.36	3.9	0.52	N.R.	2.60	1.15	0.10	7.65	11.50	33.48
C	40-58	5.62	4.8	0.48	N.R.	3.26	2.96	0.10	7.55	13.87	45.57

COLFAX SANDY LOAM (34)

A ₀	1/2-0	5.43	43.5	46.51	N.R.	16.68	3.19	1.90	14.91	36.68	59.35
A ₁	0-1	4.49	5.0	3.53	N.R.	1.19	0.08	0.30	5.52	7.09	22.14
A ₂	1-10	4.72	2.2	1.20	N.R.	3.29	0.06	0.25	3.18	6.78	53.10
B ₁	10-14	4.54	1.3	0.44	N.R.	1.17	0.17	0.17	5.27	6.78	22.27
B ₂	14-26	4.59	1.3	0.51	N.R.	0.21	0.78	0.16	9.69	10.84	10.61
C ₁	26-50	4.68	1.1	0.37	N.R.	0.04	2.01	0.20	14.81	17.06	13.19
C ₂	50-60	4.54	1.1	0.29	N.R.	0.18	2.61	0.17	11.88	14.84	19.95

CONGAREE FINE SANDY LOAM (3)

--	-----	5.41	10.6	1.52	12.99	2.32	0.58	0.16	5.96	9.02	33.92
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Hor- izon:	Depth (in.)	pH	Truog P (ppm)	Organic Matter (%)	Mn ^{1/} ppm	Exchangeable cations ^{2/}					Base Satura- tion (%)
						Ca	Mg	K	H	Total*	

CONGAREE SILT LOAM (2)

A ₂	0-14	5.26	11.8	1.39	N.R.	2.48	0.39	0.08	5.02	7.97	37.01
A ₃	14-50	5.44	7.9	0.85	N.R.	3.43	0.80	0.11	7.01	11.35	38.24
C ³	50-63	5.45	14.4	0.19	N.R.	2.77	1.19	0.11	6.16	10.23	39.78

DURHAM FINE SANDY LOAM (32)

A ₀	1/2-0	5.31	51.4	32.49	N.R.	16.09	2.02	1.97	19.28	39.36	51.02
A ₁	0-1	4.79	4.8	2.98	N.R.	0.27	0.11	0.30	4.77	5.45	12.48
A ₂	1-10	5.18	1.5	0.72	N.R.	0.04	0.02	0.12	2.78	2.96	6.08
A ₃	10-14	5.10	1.3	0.32	N.R.	0.12	0.08	0.18	2.34	2.72	13.97
B	14-30	4.82	1.5	0.22	N.R.	0.38	0.35	0.20	3.33	4.26	21.83
C	30-52	4.88	1.5	0.07	N.R.	0.36	0.31	0.20	2.53	3.40	25.59

DURHAM FINE SANDY LOAM (32)

A _p	0-8	5.50	6.8	2.97	15.01	0.44	0.18	0.20	6.31	7.13	11.50
B ₁	8-18	5.52	1.4	0.35	0.04	0.38	0.34	0.08	4.31	5.11	15.66
B ₂	18 /	4.90	1.2	0.50	0.04	0.86	1.24	0.18	9.49	11.77	19.37

ELBERT SILT LOAM (18)

A _p	0-6	4.51	8.9	4.41	0.00	2.38	0.30	0.60	9.63	12.91	25.41
B	10 /	4.40	3.9	1.41	0.07	1.44	1.02	0.26	17.74	20.46	13.29

FLUVANNA FINE SANDY LOAM (140)

A ₁	0-4	6.72	16.4	1.40	5.52	2.54	0.26	0.52	1.66	4.98	66.67
B	12 /	5.93	2.7	0.84	0.37	4.78	1.50	0.20	4.47	10.95	59.18

FLUVANNA SILT LOAM (40)

A ₀	1/4-0	4.89	35.6	43.88	N.R.	7.62	1.58	1.15	20.68	31.03	33.35
A ₁	0-3	4.97	2.4	2.16	N.R.	0.10	0.04	0.20	1.44	1.78	19.10
A ₂	3-7	4.99	1.7	1.27	N.R.	0.09	0.06	0.21	3.98	4.34	8.29
B ₁	7-10	5.01	1.1	0.51	N.R.	0.85	0.72	0.13	5.86	7.56	22.49
B ₂	10-30	5.00	0.9	0.38	N.R.	0.64	0.76	0.19	10.74	12.33	12.90
C	30-40	4.90	0.7	0.15	N.R.	0.10	0.36	0.13	10.14	10.73	5.50

Hor- izon:	Depth (in.)	pH	Truog P (ppm)	Organic Matter (%)	Mn ^{1/} ppm	Exchangeable Cations ^{2/}					Base Satura- tion (%)
						Ca	Mg	K	H	Total*	

GOLDVEIN GRITTY SILT LOAM (160)

A ₀	1/2-0	3.98	56.4	50.37	N.R.	5.61	0.81	1.38	42.34	50.14	15.56
A ₁	0-1	3.95	9.6	7.73	N.R.	0.43	0.16	0.15	8.75	9.49	7.80
A ₂	1-11	4.85	2.6	1.55	N.R.	0.02	0.03	0.21	4.67	4.93	5.27
B	11-14	4.70	1.5	0.69	N.R.	0.08	0.04	0.08	2.04	2.24	8.93
C ₁	14-21	4.87	1.3	0.26	N.R.	0.09	0.33	0.19	5.07	5.68	10.74
C ₂	21-31	4.80	0.4	0.39	N.R.	0.07	0.15	0.15	4.72	5.09	7.27

HELENA FINE SANDY LOAM (39)

A ₀	1/2-0	5.68	57.1	28.70	N.R.	15.49	3.43	0.99	19.68	39.59	50.29
A ₁	0-4	4.33	3.3	2.19	N.R.	0.27	0.10	0.16	5.27	5.80	9.14
A ₂	4-9	4.79	2.0	0.97	N.R.	0.13	0.11	0.13	3.58	3.95	9.37
B ₁	9-16	4.78	1.7	0.25	N.R.	0.43	0.27	0.09	4.77	5.56	14.21
B ₂	16-27	4.35	1.1	0.39	N.R.	2.16	3.41	0.13	8.35	14.05	40.57
C ₁	27-33	4.50	0.7	0.26	N.R.	2.63	3.85	0.14	23.26	29.88	22.16
C ₂	33-39	4.60	0.7	0.22	N.R.	3.48	3.66	0.13	7.36	14.63	49.69

HIWASSEE FINE SANDY LOAM (Light colored phase) (90)

A ₀	1-0	4.24	56.6	44.09	N.R.	3.89	4.83	0.68	17.61	27.01	34.80
A ₁	0-2	4.19	5.0	6.38	N.R.	0.09	0.07	0.11	6.16	6.43	4.20
A ₂	2-12	4.75	2.0	2.44	N.R.	0.15	0.11	0.09	6.94	7.29	4.80
B ₁	12-15	4.61	1.3	0.79	N.R.	0.52	0.43	0.08	6.05	7.08	14.55
B ₂	15-68	4.93	1.3	0.35	N.R.	0.09	0.31	0.05	10.18	10.63	4.23
C	68-78	5.02	2.0	0.12	N.R.	0.45	0.31	0.05	5.41	6.22	13.02

HIWASSEE SILT LOAM (97)

A	0-7	5.35	3.7	1.28	N.R.	0.99	0.30	0.26	5.07	6.62	23.41
B ₁	7-10	5.36	3.9	0.72	N.R.	2.05	0.61	0.19	2.58	5.43	52.49
B ₂	10-56	5.07	4.8	0.22	N.R.	0.52	2.37	0.25	6.61	9.75	32.21
C	56-60	4.98	3.9	0.19	N.R.	0.19	1.24	0.22	11.78	13.43	12.29

LIGNUM SILT LOAM (61)

A ₀	1/2-0	4.61	64.9	22.22	N.R.	4.61	0.79	1.27	10.53	17.20	38.78
A ₁	0-1	4.50	4.8	3.89	N.R.	0.47	0.22	0.23	7.53	8.45	10.89
A ₂	1-9	4.78	1.7	1.01	N.R.	0.21	0.15	0.18	4.33	4.87	11.09
B	9-22	4.84	1.3	0.41	N.R.	0.92	1.29	0.18	6.49	8.88	26.91
C	22-36	4.60	1.1	0.19	N.R.	0.25	2.66	0.25	9.20	12.36	25.57

Hor- izon:	Depth (in.)	pH	Truog P (ppm)	Organic Matter (%)	Mn ^{1/} ppm	Exchangeable Cations ^{2/}					Base Satura- tion (%)
						Ca	Mg	K	H	Total*	

LIGNUM SILT LOAM (61)

--- --- 4.47 2.9 1.85 0.59 0.10 0.08 0.06 4.67 4.91 4.89

LLOYD SILT LOAM (147)

A₀ 3/4-0 4.98 50.1 41.19 N.R. 0.14 0.18 0.06 12.92 13.30 2.86
A 0-7 5.16 3.7 4.15 N.R. 0.28 0.23 0.37 6.66 7.54 11.67
B₁ 7-10 5.00 2.0 1.34 N.R. 0.12 0.74 0.20 1.89 2.95 35.93
B₂ 10-38 5.03 2.0 0.68 N.R. 0.24 0.14 0.12 10.24 10.74 4.66
C⁻ 38-54 5.15 1.3 0.15 N.R. 0.08 0.30 0.12 11.43 11.93 4.19

LLOYD SILT LOAM (47)

B 18-26 5.03 1.9 0.66 6.36 2.90 1.14 0.20 5.70 9.94 42.66
B 22-28 4.75 1.0 0.90 0.04 0.16 1.74 0.26 12.09 14.25 15.16
B 26-28 5.46 1.9 0.76 0.40 0.00 1.42 0.16 13.54 15.12 10.45

LLOYD SILT LOAM (47)

A₁ 0-1 4.40 23.9 18.22 30.39 2.60 0.76 0.28 25.80 29.44 12.36
A₂ 1-7 4.75 2.9 2.65 0.04 0.34 0.12 0.12 6.58 7.16 8.10
B₁ 7-11 4.78 1.7 0.72 2.21 0.76 0.60 0.26 6.16 7.78 20.82
B₂ 11-36 5.06 3.1 0.97 0.18 0.80 1.48 0.30 14.72 17.30 14.91
C⁻ 36 / 4.92 3.1 0.17 0.11 0.96 0.40 0.16 16.29 17.81 8.53

LOUISA LOAM (159)

A₀ 1/2-0 4.46 35.6 25.25 N.R. 3.02 1.53 0.88 22.96 28.39 19.13
A 0-7 5.07 2.8 2.62 N.R. 0.20 0.07 0.15 4.67 5.09 8.25
C₁ 7-15 5.18 1.3 0.77 N.R. 0.24 0.24 0.08 2.49 3.05 18.36
C₂ 15-18 5.31 1.3 0.29 N.R. 0.20 0.42 0.09 2.73 3.44 20.64

LOUISBURG SANDY LOAM (44)

A₀ 1/4-0 6.30 106.0 31.19 N.R. 31.15 5.84 0.90 14.11 52.00 72.87
A₁ 0-4 6.66 15.5 4.33 N.R. 9.69 1.70 0.14 3.88 15.41 74.82
A₂ 4-8 5.58 5.5 0.88 N.R. 7.42 1.66 0.14 5.47 14.69 62.76
C₁ 8-18 5.12 1.7 0.40 N.R. 7.76 2.38 0.18 5.07 15.39 67.06
C₂ 18-30 5.39 1.5 0.17 N.R. 6.51 3.02 0.16 3.68 13.37 72.48

Hor-izon	Depth (in.)	pH	Truog P (ppm)	Organic Matter (%)	Mn ^{1/} ppm	Exchangeable Cations ^{2/}					Base Saturation (%)
						Ca	Mg	K	H	Total*	

MADISON LOAM (255)

A ₀	1/2-0	4.07	46.6	38.43	N.R.	3.45	1.77	1.11	29.62	35.95	17.61
A ₁	0-1	4.32	5.0	8.06	N.R.	1.96	0.28	0.20	10.09	12.53	19.47
A ₂	1-8	4.82	2.2	2.67	N.R.	0.21	0.10	0.09	3.73	4.13	9.69
B ₁	8-13	4.89	1.3	0.96	N.R.	0.27	0.73	0.13	5.32	6.45	17.52
B ₂	13-31	5.13	1.3	0.43	N.R.	0.10	0.65	0.23	7.70	8.68	11.29
C	31-38	5.22	1.1	0.26	N.R.	0.09	0.09	0.10	4.72	5.00	5.60

MANTEO SILT LOAM (59)

A ₀	1-0	4.20	Ins.	Ins.	N.R.	2.02	0.95	0.87	22.17	26.01	14.76
A ₁	0-7	4.80	2.8	2.37	N.R.	0.13	0.31	0.24	6.66	7.34	9.26
C	7-15	4.91	1.7	1.15	N.R.	0.12	0.34	0.30	8.65	9.41	8.08

MANTEO SILT LOAM (59)

A ₀	1-0	4.39	45.8	20.98	57.02	1.52	1.32	0.84	28.57	32.25	11.41
A	0-12	5.05	5.3	3.27	3.02	0.64	0.22	0.14	6.87	7.87	12.71
C ₁	12-18	4.96	2.4	0.59	0.07	0.90	1.02	0.16	8.62	10.70	19.44
C ₂	18 /	5.04	2.4	0.40	0.04	0.18	0.74	0.34	10.26	11.52	10.94

MASADA FINE SANDY LOAM (98)

A ₁	0-7	5.40	5.0	1.34	N.R.	0.55	0.09	0.09	2.34	3.07	23.78
A ₂	7-14	5.31	1.1	0.36	N.R.	0.57	0.12	0.11	0.70	1.50	53.33
B ₁	14-18	5.25	0.9	0.38	N.R.	5.68	0.45	0.20	4.72	11.05	57.29
B ₂	18-30	4.87	1.3	0.36	N.R.	7.69	1.14	0.17	5.62	14.62	61.56
C	30-38	4.94	3.5	0.16	N.R.	7.16	0.39	0.14	9.79	17.48	43.99

NASON LOAM (158)

A ₀	3/4-0	3.96	16.0	20.56	N.R.	1.37	0.39	0.66	68.98	71.40	3.39
A	0-12	4.69	1.7	2.29	N.R.	0.05	0.05	0.13	3.68	3.91	5.88
B ₁	12-15	4.82	1.3	0.92	N.R.	0.47	0.38	0.28	6.66	7.79	14.51
B ₂	15-27	4.95	0.7	0.19	N.R.	0.06	0.10	0.11	2.83	3.10	8.71
C	27-38	4.92	0.9	0.59	N.R.	10.72	0.96	0.27	10.69	22.64	52.78

NASON LOAM (158)

--	----	4.61	4.1	2.22	0.04	0.12	0.10	0.06	4.47	4.75	5.89
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Hor- izon:	Depth (in.)	pH	Truog P (ppm)	Organic Matter (%)	Mn ^{1/} ppm	Ca	Mg	K	H	Exchangeable Cations ^{2/} Total*	Base Satura- tion (%)
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NASON SILT LOAM (58)

A ₀	1/2-0	4.50	52.2	37.33	N.R.	5.48	1.33	1.82	27.93	36.56	23.61
A	0-9	4.82	3.1	3.06	N.R.	0.17	0.12	0.30	5.17	5.76	10.24
B ₁	9-13	4.82	1.3	0.61	N.R.	0.10	0.35	0.17	5.91	6.53	9.49
B ₂	13-22	4.96	1.1	0.48	N.R.	0.09	1.05	0.20	16.05	17.39	7.71
C	22-34	5.00	1.1	0.30	N.R.	0.47	0.82	0.20	17.99	19.48	7.65

NASON SILT LOAM (58)

A	----	4.76	5.1	2.51	3.86	0.84	0.18	0.12	7.62	8.76	13.01
B	----	4.95	1.4	1.05	0.11	0.42	0.98	0.26	11.73	13.39	12.40
C	----	5.04	1.9	0.83	0.07	0.86	0.42	0.22	9.36	10.86	13.81

ORANGE SILT LOAM (53)

A ₀	1/4-0	6.49	31.3	36.92	N.R.	32.12	4.62	1.26	13.42	51.42	73.90
A ₁	0-1	5.12	8.5	5.80	N.R.	3.64	0.33	0.27	6.31	10.55	40.19
A ₂	1-7	4.65	4.8	3.13	N.R.	0.75	2.08	0.13	6.91	9.87	29.99
B ₁	7-13	4.92	1.1	0.71	N.R.	1.95	1.51	0.09	7.46	11.01	32.24
B ₂	13-34	4.81	1.1	0.94	N.R.	7.65	8.92	0.14	13.22	29.93	55.83
C	34-44	5.49	19.9	0.45	N.R.	7.21	9.17	0.11	7.50	23.99	68.74

ORANGE SILT LOAM (53)

A	----	4.87	4.1	1.41	15.08	0.20	0.16	0.30	2.74	3.40	19.41
B	----	4.51	0.7	1.21	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.

ROANOKE SILT LOAM (99)

A	0-7	5.30	11.1	3.17	N.R.	3.76	1.18	0.13	6.01	11.08	45.76
B ₁	7-18	4.81	1.7	0.90	N.R.	0.95	0.30	0.11	15.06	16.42	8.28
B ₂	18-30	4.72	1.3	0.58	N.R.	0.40	0.42	0.13	14.81	15.76	6.03
B ₃ -C ₁	30-50	4.59	0.2	0.31	N.R.	0.09	0.31	0.10	5.52	6.02	8.31

ROANOKE SILT LOAM (99)

A ₁	0-3	5.17	19.8	3.26	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
B ₂	----	5.21	7.5	0.97	13.43	1.32	0.76	0.60	3.70	6.38	42.01

Hor- izon:	Depth (in.)	pH	Truog P (ppm)	Organic Matter (%)	Mn ^{1/} ppm	Ca	Mg	K	H	Exchangeable Cations ^{2/} Total*	Base Satura- tion (%)
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SENECA FINE SANDY LOAM (14)

A	0-16	5.77	4.6	1.62	N.R.	1.70	0.06	0.07	16.15	17.98	10.18
B	16-28	5.75	4.8	0.28	N.R.	3.10	0.35	0.09	2.19	5.73	61.78
C	28-44	5.59	3.7	0.25	N.R.	4.22	0.92	0.13	2.24	7.51	70.17

STARR LOAM (13)

A ₁	0-2	6.60	5.0	7.34	N.R.	4.22	1.13	0.14	8.20	13.69	40.10
A ₂	2-16	5.91	1.1	2.13	N.R.	2.10	0.67	0.41	6.71	9.89	32.15
B	16-30	5.42	1.5	0.43	N.R.	0.77	0.56	0.20	4.42	5.95	25.71
C	30-54	5.29	1.1	0.19	N.R.	0.16	0.34	0.05	6.21	6.76	8.14

TATUM LOAM (155)

A ₀	1-0	4.29	87.7	68.86	N.R.	5.08	2.12	2.28	30.81	40.29	23.53
A	0-12	4.98	3.3	2.44	N.R.	0.09	0.08	0.41	4.32	4.90	11.84
B ₁	12-16	4.80	0.7	0.90	N.R.	0.30	0.95	0.34	6.21	7.80	20.38
B ₂	16-48	4.93	0.4	0.60	N.R.	0.05	0.30	0.23	8.75	9.33	6.22
C	48-54	4.95	1.7	0.26	N.R.	0.00	0.18	0.12	8.70	9.00	3.33

TATUM SILT LOAM (55)

A ₀	1/2-0	5.09	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
A ₁	0-3	4.58	6.3	6.96	N.R.	0.39	0.27	0.29	10.04	10.99	8.64
A ₂	3-8	4.73	2.8	2.27	N.R.	0.34	0.16	0.54	16.60	17.64	5.90
B ₁	8-13	4.61	0.4	1.44	N.R.	0.05	0.18	0.33	14.71	15.27	3.67
B ₂	13-32	4.92	0.9	0.57	N.R.	0.06	0.43	0.38	9.84	10.71	8.12
C	32-41	4.78	0.7	0.29	N.R.	0.03	0.81	0.42	12.67	13.93	9.05

TATUM SILT LOAM (55)

B	18-24	4.77	1.4	0.86	0.07	0.10	1.40	0.40	16.22	18.12	10.49
B	20-26	5.08	2.4	1.38	0.37	0.32	1.28	0.40	16.56	18.56	10.78

VANCE FINE SANDY LOAM (129)

A ₀	1/4-0	4.70	36.7	28.01	N.R.	0.14	1.27	0.79	28.05	30.25	7.27
A ₁	0-1	4.38	5.7	3.92	N.R.	1.29	0.76	0.44	7.11	9.60	25.94
A ₂	1-7	4.62	2.2	1.47	N.R.	0.10	0.27	0.20	4.52	5.09	11.20
B ₁	7-10	4.39	1.5	1.09	N.R.	0.54	0.24	0.12	7.85	8.75	10.29
B ₂	10-21	4.56	1.3	0.72	N.R.	1.02	0.87	0.16	13.82	15.87	12.92
C	21-34	4.63	0.9	0.41	N.R.	0.33	0.42	0.16	15.11	16.02	5.68

Hor- izon	Depth (in.)	pH	Truog P (ppm)	Organic Matter (%)	Mn ^{1/} ppm	Exchangeable Cations ^{2/}					Base Satura- tion (%)
						Ca	Mg	K	H	Total*	

WEHADKEE SILT LOAM (5)

A ₂	0-10	5.38	10.7	2.50	N.R.	3.12	0.78	0.20	8.45	12.55	32.67
B ₁	10-36	5.26	5.2	0.81	N.R.	2.87	0.90	0.08	6.06	9.91	38.85
C	36-48	5.17	4.6	0.48	N.R.	3.55	2.26	0.09	6.66	12.56	46.97

WICKHAM LOAM (91)

A	0-9	5.29	6.1	1.78	N.R.	1.86	0.33	0.06	5.27	7.52	29.92
B ₁	9-28	5.14	13.3	0.41	N.R.	3.53	1.18	0.10	7.07	11.88	40.49
B ₂	28-34	5.09	7.0	0.21	N.R.	1.94	1.57	0.12	9.64	13.27	27.35
C	34-48	4.82	3.9	0.18	N.R.	0.40	0.23	0.37	11.53	12.53	7.98

WORSHAM SILT LOAM (37)

A _p	0-4	6.18	9.9	2.81	14.72	4.54	0.22	0.10	3.67	8.53	56.98
A _p	0-6	5.09	7.2	2.71	9.34	0.88	0.22	0.12	5.48	6.70	18.21
A _p	0-6	5.22	2.2	1.43	4.05	0.80	0.16	0.14	3.26	4.36	25.23
B ₂	10-18	5.11	1.2	0.61	0.66	0.46	2.82	0.12	11.37	14.77	23.02
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1/ - The exchangeable manganese is reported in parts per million and is not included in the total and percent base saturation columns.

2/ - Milli-equivalents per 100 grams of soil.

N.R. - Analyses not run.

* - Summation of exchangeable cations.

Ins. - Insufficient sample for analysis.