

Classification: Aquic Argiudoll, fine, montmorillonitic, mesic.  
 Location: Logan County, Ill., 260 m N. along pasture fence line from center of road and 2 m W. SE 1/4 NW 1/4 SW 1/4 SE 1/4 sec. 25, T. 21 N., R. 4 W., about 250 km (155 mi.) SW. of Chicago.

Physiographic position: Elevation about 200 m.

Topography: 1 percent slope, south aspect.

Drainage: Somewhat poor.

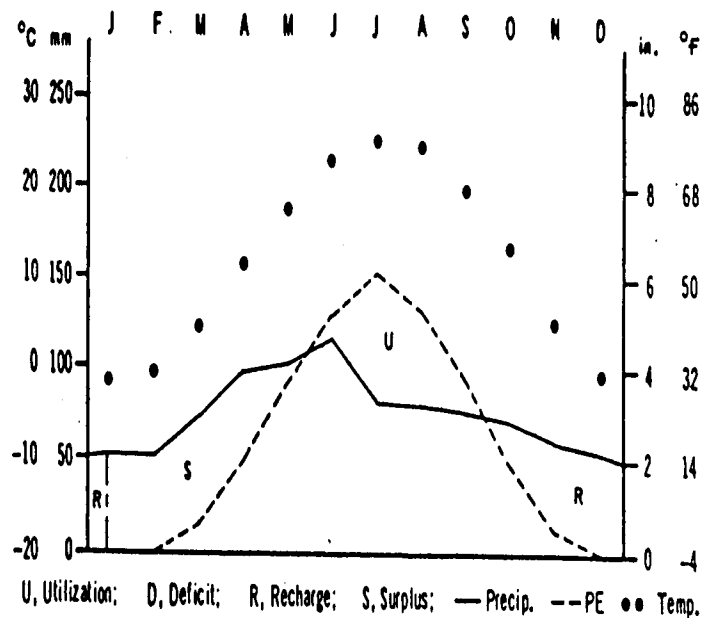
Vegetation: Cultivated, corn.

Parent material: Loess.

Sampled by: R. E. Bourland, L. Esworthy, J. B. Fehrenbacher, C. J. Frazee, R. B. Grossman, G. W. Hudelson, W. C. Lynn, D. R. Mapes, J. Thompson, L. E. Tyler and G. O. Walker, June 29, 1966.

Soil No.: S66Ill-54-5.

### Climatic data and soil water balance



Colors are for the moist soil unless otherwise indicated.

0-18 cm (0-7 in.). Black (10YR 2/1) heavy silt loam, very dark brown (10YR 2/2) crushed, dark gray or gray (10YR 4/1-5/1) dry; moderate very fine granular structure; friable (moist); abrupt smooth boundary.

18-38 cm (7-15 in.). Black (10YR 2/1) light silty clay loam, black or very dark gray (10YR 2/1-3/1) crushed, dark gray (10YR 4/1) dry; moderate fine granular structure; friable (moist); clear smooth boundary.

38-51 cm (15-20 in.). Brown or dark brown (10YR 4/3) heavy silty clay loam with black (10YR 2/1) and very dark gray (10YR 3/1) ped coatings, dark grayish brown (2.5Y 4/2) crushed; moderate fine and medium subangular blocky structure; clear smooth boundary.

51-66 cm (20-25 in.). Olive brown (2.5Y 4/4) silty clay with thin continuous very dark grayish brown (10YR 3/2) clay skins, grayish brown to light olive brown (2.5Y 5/2-5/4) crushed; few fine faint yellowish brown (10YR 5/6) mottles; few black (5YR 2/1) iron-manganese concretions; moderate medium angular blocky structure; firm (moist); clear smooth boundary.

66-94 cm (26-37 in.). Olive brown (2.5Y 4/4) heavy silty clay loam with thin continuous very dark grayish brown to very dark gray (10YR 3/2-3/1) clay skins, dark grayish brown or olive brown (2.5Y 4/2-4/4) crushed; common fine distinct yellowish brown (10YR 5/6) mottles; weak medium prisms break to moderate coarse angular blocks; firm (moist); clear smooth boundary.

94-130 cm (37-51 in.). Mixed yellowish brown (10YR 5/6-5/8) and light olive gray (5Y 6/2) heavy silt loam with thin continuous very dark grayish brown (10YR 3/2) and very dark gray (10YR 3/1) clay skins, dark grayish brown or olive brown (2.5Y 4/2-4/4) crushed; weak coarse prismatic structure; firm (moist); clear smooth boundary.

130-160 cm (51-63 in.). Mixed yellowish brown (10YR 5/6-5/8) and light olive gray (5Y 6/2) light silt loam, light olive brown (2.5Y 5/4) crushed; massive; friable (moist); calcareous; diffuse smooth boundary.

160-190 cm (63-75 in.). Mixed yellowish brown (10YR 5/6-5/8) and light olive gray (5Y 6/2) silt, dark grayish brown or light olive brown (2.5Y 4/2-5/4) crushed; massive; friable (moist); calcareous.

Pedon 2

Aquic Argiudoll

SOIL

SOIL Nos. S66111-54-5

LOCATION

Logan County, Ill.

SOIL SURVEY LABORATORY Lincoln, Nebr.

LAB. Nos. 66L271-66L278

General Methods: 1A, 1B1b, 2A1, 2B

Depth (cm)	Horizon	Size class and particle diameter (mm)													Coarse fragments 2A2
		Total			Sand					Silt					
		Sand (2-0.05)	Silt (0.05-0.002)	Clay (< 0.002)	Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	0.05-0.02	int. III (0.02-0.002)	int. II (0.2-0.02)	(2-0.1)	< 0.074	
Pct. of < 2 mm														3B1	
0-18		2.5	72.3	25.2	0.1	0.5	0.4	0.4	1.1	29.3	43.0	30.6	1.4	98.5	2-20
18-38		2.8	68.7	28.5	0.3	0.7	0.5	0.5	0.8	22.6	46.1	23.6	2.0	97.9	Pct.
38-51		2.4	61.2	36.4	0.2	0.5	0.4	0.5	0.8	19.9	41.3	21.0	1.6	98.2	< 20
51-66		1.6	55.9	42.5	tr	0.1	0.1	0.3	1.1	19.7	36.2	21.0	0.5	99.3	-
66-94		2.6	60.3	37.1	0.1	0.2	0.2	0.3	1.8	24.9	35.4	26.9	0.8	99.0	-
94-130		2.3	72.8	24.9	tr	0.1	0.1	0.3	1.8	35.6	37.2	37.6	0.5	99.3	-
130-160		5.1	80.9	14.0	-	0.1	0.1	0.2	4.7	48.9	32.0	53.7	0.4	99.3	-
160-190		5.1	85.9	9.0	-	tr	tr	0.3	4.8	56.2	29.7	61.2	0.3	99.4	-
Depth (cm)	6A1a Organic carbon b/ Pct.	Nitrogen Pct.	C/N	Carbonate as CaCO <sub>3</sub>		6C2a Ext. iron as Fe Pct.	Bulk density			4DL COLE	Water content			pH	
				6E1b < 2 mm Pct.	3A1a < 0.002 mm Pct.		4A1d 1/3-bar g/cc	4A1b Oven-dry g/cc	4B1c 1/3-bar Pct.		4B2 15-bar Pct.	4C1 1/3-to 15-bar cm/cm	8C1a (1:1) H <sub>2</sub> O		
				tr	0.9		1.21	1.30	0.024		24.1	10.7		0.16	
0-18	2.17			tr	0.9		1.21	1.30	0.024	24.1	10.7	0.16		6.7	
18-38	1.21			-	1.0		1.32	1.44	0.028	26.1	12.3	0.18		5.6	
38-51	0.92				1.1		1.33	1.53	0.047	26.3	15.2	0.15		5.7	
51-66	0.56				1.4		1.33	1.65	0.073	29.9	18.9	0.15		5.8	
66-94	0.39			-	1.6		1.39	1.60	0.047	28.8	17.6	0.16		6.4	
94-130	0.21			4	1.4		1.45	1.61	0.036	24.4	12.8	0.17		7.5	
130-160	0.08			12	1.2		1.55	1.60	0.010	23.3	7.4	0.25		7.8	
160-190	0.04			23	1.0		1.54	1.54	-	22.6	5.5	0.26		7.9	
Depth (cm)	Extractable bases 5B1a					6H1a Ext. acidity	Cat. exch. cap.		8E1 Resistivity ohms-cm	8B1a Elec. cond. mmhos/cm	8B Water at sat. Pct.	8D5 Total sol. salts in soil ppm	8D3 Ca/Mg	Base saturation	
	6N2a Ca d/	6O2a Mg e/	6P2a Na	6Q2a K	Sum		5A3a Sum cations	5A1a NH <sub>4</sub> OAc						5C3 Sum cations	5C1 NH <sub>4</sub> OAc
	meq/100 g						4.7	25.4						20.2	
0-18	17.1	3.1	0.1	0.4	20.7	4.7	25.4	20.2					5.5	81	102
18-38	12.6	4.7	0.1	0.3	17.7	8.2	25.9	20.9					2.7	68	85
38-51	14.4	7.9	0.1	0.4	22.8	8.9	31.7	24.3					1.8	72	94
51-66	17.3	11.3	0.1	0.6	29.3	6.5	35.8	30.1					1.5	82	97
66-94	15.9	10.9	0.1	0.5	27.4	5.1	32.5	27.3					1.5	84	100
94-130	11.3	7.5	0.2	0.3	23.2			18.7		1,900	0.71	50.0	230		
130-160	6.4	3.8	0.1	0.2	14.8			10.2					1.4		
160-190	4.4	2.8	0.1	0.1	13.4			6.6					1.3		
Depth (cm)	Ratios to clay 8D1			Clay fraction f/mineralogy 7A1											
	NH <sub>4</sub> OAc CEC	Ext. iron	15-bar water	7A2 X-ray g/											
	0-18	0.80	0.04	0.42											
18-38	0.73	0.04	0.43												
38-51	0.67	0.03	0.42												
51-66	0.71	0.03	0.44	MT5, VR2, MI2, KK2											
66-94	0.74	0.04	0.47												
94-130	0.75	0.06	0.51												
130-160	0.73	0.09	0.53												
160-190	0.73	0.11	0.61												

a/ Iron-manganese nodules comprise more than 50 percent of the very coarse, coarse, and medium sand above 130 cm. Carbonate comprises 5 to 25 percent of the sand below 130 cm.

b/ 1/3 kg/m<sup>2</sup> to 150 cm (method 6A).

c/ Value of 22.5 percent obtained for the E22t horizon when determined on field-moist sample, LSL 67L259 (method 4B2a).

d/ KCl-TEA extraction (method 6N4b) used below 94 cm.

e/ KCl-TEA extraction (method 6O4b) used below 94 cm.

f/ Mineral code:

MT = montmorillonite

VR = vermiculite

MI = mica

KK = kaolinite

g/ Approximate weight fractions:

5 = more than one-half

2 = one-twentieth to one-fifth