

Proposed by: F.R. Moormann, 1967
Revised by:
1. N. Chorhaka, 1987
2. P. Wiwatwongwana, 2004

LOM SAK SERIES

Field Symbol: La

Distribution: Occupies large extent in Pa Sak valley of the Central Highland.

Setting: Lom Sak soils are formed from recent alluvial on the flood plain of the Pa Sak River and its major tributaries. Relief is level or nearly level slopes are 1% or less. Elevation is variable between 110 to 180 m above sea level. Climate is Tropical Savanna (Koppen 'Aw'). Annual precipitation ranges from 1,100 to 1,600 mm. Mean annual air temperature is range from 26 to 28 °C.

Drainage, Permeability and Runoff: Somewhat poorly drained. Permeability and runoff are slow. Flooded by river water up to 50 cm for a period of 4 to 5 months during the rainy season. Ground water, however, is below 2 m during the dry season.

Vegetation and Land Use: Most areas are under transplanted rice cultivation and some parts, in the dry season, are used for upland crops such as mung bean, maize, tobacco.

Characterized Profile Features: Lom Sak series is a member of the fine-silty, mixed, superactive, nonacid, isohyperthermic Fluvaquentic Endoaquepts. They are very deep soil and are characterized by a brown to dark brown, very dark grayish brown, or very dark gray silty loam or silty clay loam A horizon overlying a dark brown or brown or very dark grayish brown silty clay loam or silty clay in the deeper B horizon. Mottles are yellowish and brownish along root channels in the surface and brown or brownish in the subsoil. The reaction is medium acid to neutral and tend to increase to neutral or mildly alkaline in the subsoil.

Typifying Pedon: Profile code no. is NC-47/116 (moist colours unless otherwise stated).

Location: Ban Nam Duk Klang, Amphoe Lom Sak Changwat Phetchabun.

Sheet Name: Ban Nam Duk Nua

Sheet No.: 5242 II

Coordinate:

Elevation: 140-160 m (MSL)

Relief: nearly level

Slope: 0-1 %

Physiography: flood plain

Parent material: recent alluvium

Drainage: somewhat poorly drained

Permeability: slow

Runoff: slow

Ground water depth: >2 m

Flooding depth: 50 cm

Duration: 4-5 month

Frequency: every year

Annual rainfall: 1,124.7 mm

Mean temp.: 27.2 °C

Climate type: Tropical Savannah (Aw)

Natural vegetation or land use: paddy field

Described by: N. Chorhaka

Date:

Revised by: Phusit Wiwatwongwana

Date: 23 May, 2004

Horizon	Depth (cm)	Description
Ap	0-22	Brown to dark brown (7.5YR4/2) silty clay loam; few fine distinct strong brown (7.5YR4/6) mottles; moderate fine and medium subangular blocky structure; hard, friable, sticky, plastic; common fine and many very fine roots; mildly alkaline (field pH 7.5); abrupt, smooth boundary.
BA	22-59	Brown (7.5YR5/2) silt loam; common fine distinct brown (7.5YR4/4) and few fine distinct yellowish red (5YR5/8) mottles; moderate medium and coarse subangular blocky structure; hard, friable, sticky, plastic; common very fine and few fine roots; neutral (field pH 7.0); gradual, smooth boundary.

Bw1	59-97	Brown (7.5YR5/2) silty clay loam; common fine distinct yellowish red (5YR5/6) mottles; weak coarse angular blocky structure; friable, sticky, plastic; few very fine roots; neutral (field pH 7.0); gradual, smooth boundary.
Bw2	97-132	Brown to dark brown (7.5YR4/2) silty clay loam; common fine distinct strong brown (7.5YR4/6) mottles; weak coarse angular blocky structure; friable, sticky, plastic; few very fine roots; neutral (field pH 7.0) gradual, smooth boundary.
Bw3	132-156	Brown (7.5YR5/2) silty clay loam; many medium distinct strong brown (7.5YR4/6) mottles; friable, sticky, plastic; mildly alkaline (field pH 7.5); clear, smooth boundary.
Bw4	156-180+	Brown to dark brown (7.5YR4/2) silty clay loam; common fine distinct yellowish red (5YR4/6) mottles; weak coarse angular blocky structure; firm, sticky, plastic; mildly alkaline (field pH 7.5).

Type Location:

Lom Sak series was named for Amphoe Lom Sak, Changwat Phetchabun in which soils of this series was first described.

Range of Profile Feature:

The A horizon ranges from 20 to 30 cm in thickness and may be clay in texture. The pH values are 6.0 to 7.0 over 6.5 to 8.0. These soils have 10YR and 7.5YR hues throughout but values of 3 to 4 and chromas of 1 to 2 in the surface and values of 3 to 5 and chromas of 2 to 3 in the subsoil. Their structure is moderate medium and coarse blocky. Few to common fine to medium manganese nodules may occur in the subsurface and subsoils.

Similar Soil Series:

Ratchaburi series (Rb): has heavier textures. They are clay or heavy clay, especially in the subsoil.

Mae Sai series (Ms): Developed on lower part of the levee and have argillic horizon.

Saraburi series (Sb): has heavier textures and color or dark yellowish brown or olive brown.

Principal Associated Soils:

These include Tha Phon and Ratchaburi series occupying similar positions on the alluvial plain.

ANALYSIS RESULTS
(oven dry basis)

Profile code no.: NC-47/116
Soil series: Lom Sak (La)

Lab No.	Depth (cm)	Horizon	Particle size distribution analysis (% by weight)								Texture		pH		CaCO ₃ %	P, mg kg ⁻¹ Bray 2	K, mg kg ⁻¹ NH ₄ OAc
			USDA grading			Sand-fraction grading					Lab	Field	1:1	1:1			
			sand	silt	clay	vc	c	m	f	vf	result	estim ⁿ	water	KCl			
6-15209	0-22	Ap	6.3	54.6	39.1	0.8	0.3	0.2	0.4	4.6	sicl	sicl	6.5	5.2		101.8	112
6-15210	22-59	BA	14.1	60.8	25.1	0.2	0.2	0.2	0.1	18.4	sil	sil	6.6	5.0		5.7	41
6-15211	59-97	Bw1	7.1	63.5	29.4	0.2	0.3	0.7	0.5	5.4	sicl	sicl	6.3	4.8		3.2	41
6-15212	97-132	Bw2	9.9	58.1	32.0	0.0	0.3	0.5	0.1	9.0	sicl	sicl	6.9	6.3		18.5	50
6-15213	132-156	Bw3	2.7	58.2	39.1	0.0	0.1	0.2	0.4	2.0	sicl	sicl	6.5	5.0		5.4	45
6-15214	156-180	Bw4	4.9	59.0	36.1	0.1	0.4	0.7	0.1	3.6	sicl	sicl	6.5	4.6		14.8	47

Depth (cm)	Air dried to oven dried	C %	N %	Exchange capacity and cations (cmol _(c) kg ⁻¹)										Base satur ⁿ (%)		ECEC cmol _(c) kg ⁻¹ (B+D)	Al KCl extr. cmol _(c) kg ⁻¹ (D)	Electrical conduct ^y (ECx10 ⁶) dS m ⁻¹
				Ca	Mg	K	Na	SUM cations (B)	Extr. acidity (A)	SUM (B+A)	CEC NH ₄ OAc (C)	CEC 100g Clay	B/Cx100	(Bx100)/(B+A)				
				0-22	7.2	2.41		24.70	5.60	0.10	1.10	31.50	11.90	43.40	35.1			
22-59	5.1	0.73		15.20	4.10	0.10	0.60	20.00	6.50	26.50	21.1	84.1	95	75			0.32	
59-97	6.3	0.55		17.30	4.40	0.10	0.60	22.40	8.50	30.90	24.7	84.0	91	72			0.29	
97-132	5.3	1.00		18.70	4.50	0.10	0.60	23.90	7.30	31.20	26.5	82.8	90	77			0.32	
132-156	6.0	0.59		19.80	5.20	0.10	0.60	25.70	7.50	33.20	26.6	68.0	97	77			0.27	
156-180	6.9	0.86		22.50	6.00	0.10	0.70	29.30	7.20	36.50	31.1	86.1	94	80			0.35	

Surveyor: N. Chorphaka