

Proposed by: C. Changprai, 1968
 Revised by:
 1. N. Chorphaka, 1987
 2. P. Wiwatwongwana, 2004

LAM SONTHI SERIES

Field Symbol: Ls

Distribution: Occupies small extent in the Central Highlands, mainly in the southern part of the Pa Sak valley and in Amphoe Pak Chong.

Setting: Lam Sonthi soils are formed from alluvium and occur on coalescing alluvial fans. Relief is nearly level to gently undulating. Slopes range from 1 to 3%. Climate is Tropical Savanna (Koppen 'Aw'). Annual precipitation ranges from 1,100 to 1,400 mm.

Drainage, Permeability and Runoff: Moderately well drained. Permeability is moderate and runoff is medium.

Vegetation and Land Use: Thorny shrubs and low open dipterocarp forest used mainly for poor natural pasture.

Characteristic Profile Features: Lam Sonthi series is a member of the fine, mixed, active, isohyperthermic Oxyaquic (Ultic) Haplustalfs. They are deep, medium to slightly acid over neutral to mildly alkaline soils. They are characterized by a very dark grayish brown to dark brown loam or clay loam A horizon, overlying a brown to dark brown clay loam or clay argillic B horizon. Color becomes grayish brown in the deeper B horizon which in turn overlies a grayish brown clay C horizon. Yellowish red and red mottles, secondary lime concretions and iron/manganese nodules occur in the deeper subsoil.

Typifying Pedon: Profile code no. is NE-S-20/28 (moist colors unless otherwise stated).

Location: Ban Kaeng Hip, Amphoe Pak Chong Changwat Nakhon Ratchasima.

Sheet Name: Ban Sap Noi

Sheet No.: 5355 III

Coordinate: 731301

Elevation: 300 m (MSL)

Relief: nearly level to gently undulating

Slope: 1-3 %

Physiography: coalescing alluvial fans

Parent material: alluvium

Drainage: moderately well drained

Permeability: moderate

Runoff: moderate

Ground water depth: >2 m

Flooding depth: -

Duration: -

Frequency: -

Annual rainfall: 1,070.5 mm

Mean temp.: 26.7 °C

Climate type: Tropical Savannah (Aw)

Natural vegetation or land use: Thorny shrubs

Described by: Chaleao and Thamnoon

Date: 23 July, 1970

Revised by: Phusit Wiwatwongwana

Date: 23 May, 2004

Horizon	Depth (cm)	Description
A	0-10	Brown (10YR4/3) clay loam; weak coarse subangular blocky structure; firm, slightly sticky, slightly plastic; common fine roots; moderately acid (field pH 6.0); clear, smooth boundary.
Bt1	10-35	Dark yellowish brown to yellowish brown (10YR4-5/4) clay; many medium prominent mottles of red (2.5YR4/6); moderate medium subangular blocky breaking to moderate fine subangular blocky structure; friable, sticky, plastic; patchy thin clay coatings on ped faces; few fine and common medium roots; strongly acid (field pH 5.5); gradual, smooth boundary.
Bt2	35-72	Brown (10YR5/3) clay; many medium prominent mottles of red (2.5YR4/6); weak coarse subangular blocky breaking to moderate medium and fine subangular blocky structure; hard, firm, slightly sticky, slightly plastic; common pressure faces; few fine and medium roots; moderately acid (field pH 6.0); clear, smooth boundary.

C 72-110+ Very dark grayish brown to dark grayish brown (10YR3-4/2) clay; weak coarse subangular blocky breaking to fine and medium subangular blocky structure; slightly sticky, slightly plastic; common lime concretions; moderately alkaline (field pH 8.0).

Type Location:

Close to Lam Sonthi river, Moo Bhan Klam Mao Chan, Amphoe Chai Badan, Changwat Lop Buri. AMS Series L 708, Map no. is 5257 II, coordinates 540998).

Range of Profile Features:

The A horizon is from 10 to 20 cm thick, has 10YR hue, values of 3 or 4 and chromas of 2 through 4. Structure is weak coarse to medium and few fine mottles may occur as coatings along root channels and pores. Field pH values range from 5.5 to 6.5.

The B horizon has its lower boundary between 80 cm and 1 m from the soil surface. Colors are in 10YR and 7.5YR hues with values of 4 and 5 and chromas of 2 through 4. Structure is moderate medium and coarse blocky. Field pH values from 6.5 to 8.0.

The C horizon has massive or weak structure, 10YR hue, values of 4 through 6 and chromas of 2 or 1. Field pH values range from 7.0 to 8.0. This horizon may be a lithological discontinuity.

Similar Soil Series:

Dong Yang En series (Don): is better drained, mottle are only found in the deeper subsoil and fine-silty family.

Principal Associated Soils:

These include Na Chaleang and Lom Kao series on coalescing alluvial fans.

ANALYSIS RESULTS
(oven dry basis)

Profile code no.: NE-S-20/28
Soil series: Lam Sonthi (Ls)

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
Pa-1266	0-10	A	43.0	30.0	27.0						cl	cl	5.8	4.5	0.9	2.8	232
Pa-1267	10-35	Bt1	29.0	26.0	45.0						c	c	5.6	3.9	1.0	2.9	193
Pa-1268	35-72	Bt2	15.0	20.0	65.0						c	c	6.1	4.2	1.2	2.6	152
Pa-1269	72-110+	C	12.0	29.0	59.0						c	c	8.0	6.8	2.5	4.1	244

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)
0-10	1.3	1.20		3.60	2.20	0.60	0.30	6.70	7.70	14.40	12.4	45.9	54	47			0.03
10-35	2.8	0.57		3.90	2.60	0.50	0.60	7.60	11.50	19.10	17.6	39.1	43	40			0.02
35-72	3.3	0.18		7.20	5.90	0.40	1.90	15.40	12.20	27.60	27.9	42.9	55	56			0.02
72-110+	4.7	0.20		18.10	8.20	0.70	2.80	29.80	2.30	32.10	28.0	47.5	100	93			0.14

Surveyor: Chaleao and Thamnoon

Date: 23 July, 1970