

Proposed by S. Charoenpong, 1973
Revised by :
P. Vijarnsorn and staffs, 1988
W. Sirichuaychoo, 2004

LAM KAEN SERIES

Field Symbol: Lam

Distribution: Occupies a small extent in Peninsular Thailand and some area in Southeast Coast of Thailand.

Setting: Lam Kaen soils are formed from alluvium and occurred on alluvial plain and river levee. The relief is nearly level to gently undulating. Slope ranges from 1 to 5 percent. Elevation is from 10 to 30 m above mean sea level. The climate is Tropical Monsoon (Koppen 'Am') or Tropical Rain Forest (Koppen 'Af'). Average annual precipitation is above 2,000 mm. Average annual air temperature is from 26 °C to 28 °C.

Drainage, Permeability and Surface Runoff: Drainage is well drained, permeability is estimated to be rapid and surface runoff is slow. Ground water level is below 1 meter throughout the year. Flooding commonly occur as a flash flood from the stream or river.

Vegetation and Land Use: Mostly used for fruit trees and para rubber growing. Also, vegetables are grown in some parts.

Characteristic Profile Features: The Lam Kaen series is a member of the fine-silty, mixed, semiactive, isohyperthermic Typic Haplohumults (soil taxonomy, 2003). They are very deep soils and are characterized by a dark grayish brown or brown silt loam surface or A horizon overlying a strong brown or yellowish brown silt loam to silty clay loam argillic B horizon. These inturn overly a sandy loam or sandy horizon which commonly occurs below 80 cm but within 1.5 m from the soil surface. Very strongly acid, reaction values range from 4.5 to 5.0 in the surface horizon and very strongly acid to strongly acid, reaction values range from 5.0 to 5.5 in subsoil.

Typifying Pedon: Lam Kaen silt loam – para rubber plantation, from Ban Lam Kaen, Amphoe Thai Mueang, Changwat Phangnga, 4 m above mean sea level, 1 to 3 percent slopes (sheet name Ban Thung Maphrao, sheet number 4636I).

Profile Code Number: S-60/17, described by S. Luangsirorat, 15 December 1973 (moist colors unless otherwise stated).

Horizon Depth (cm)	Description
A1 0-14	Grayish brown (10YR5/2) silt loam; weak fine and medium granular structure; friable, slightly sticky and slightly plastic; many very fine and medium and few coarse roots; many visible mica flakes; strongly acid (field pH 5.5); clear smooth boundary.
A2 14-24	Mixed dark grayish brown (10YR4/2) and light yellowish brown (10YR6/4) silt loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; common very fine and fine roots; many visible mica flakes; very strongly acid (field pH 5.0); clear smooth boundary.
Bt1 24-73	Brownish yellow (10YR6/6) silty clay loam; weak fine and medium subangular blocky structure; friable, sticky and plastic; patchy thin clay coating on ped faces and along root channels; abundant very fine interstitial and tubular pores; few very fine roots; many visible mica flakes; very strongly acid (field pH 5.0); clear smooth boundary.
Bt2 73-96	Brownish yellow (10YR6/6) silty clay loam; weak fine and medium subangular blocky structure; friable, sticky and plastic; patchy thin clay coating on ped faces and along root channels; abundant very fine interstitial and tubular pores; few very fine roots; many visible mica flakes; very strongly acid (field pH 5.0); clear smooth boundary.

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| C1 | 96-130 | Light yellowish brown (10YR6/4) sandy loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; few very fine and fine roots; many visible mica flakes; very strongly acid (field pH 5.0); abrupt smooth boundary. |
| C2 | 130-200 | Light gray (2.5Y7/2) sand; common fine distinct yellowish brown (10YR5-6/6-8) mottles; single grain; loose; nonsticky and nonplastic; saturated with water; moderately acid (field pH 6.0). |

Type Location:

Name of village, Ban Lam Kaen, Amphoe Thai Mueang, Changwat Phangnga.

Range of Profile Features:

The surface or A horizon silt loam or loam, is from 10 to 15 cm in thickness and has 10YR or 7.5YR hues, values 3 to 5 and chromas 2 to 4. Texture of fine sandy loam may occur. Structure is weak and moderate fine subangular blocky. Very strongly acid to moderately acid, reaction values range from 5.0 to 6.0.

The argillic B horizon silty clay loam, has 10YR or 7.5YR hues, values 5 to 6 and chromes 6 to 8. Structure is weak and moderate fine and medium subangular blocky. Very strongly acid to moderately acid, reaction values range from 5.0 to 6.0.

The BC or C horizon at some depth between 80 to 150 cm from the soil surface, texture become much lighter varying from sandy loam to sand. The soil color is commonly pale with 10YR or 2.5Y hues, values 6 or 7 and chromas 2 to 4. Structure is weak subangular blocky to structureless. Very strongly acid to moderately acid, reaction values range from 5.0 to 6.0.

Normally in agriculture area , low organic carbon content (Typic Hapludults).

Similar Soil Series:

Rueso series (Ro): fine-silty, mixed, semiactive, isohyperthermic Typic Palehumults, has more developed argillic B horizon down deeper than 150 cm of the soil surface.

Tha Khun series (Tkn): coarse-loamy, mixed, superactive, acid, isohyperthermic Typic Udifluvents, stratified soils.

Principal Associated Soils:

These include Rueso series on higher position and Sai Buri series on lower position adjacent to flood plain or low terrace.

Sai Buri series (Bu): fine-silty, kaolinitic, isohyperthermic Aquic Kandudults.

ANALYSIS RESULTS

Profile code No.: S-60/17

(oven dry basis)

Soil series: Lam Kaen series (Lam)

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 water	1:1 KCl				
			sand	silt	clay	vc	c	m	f	vf	result	estim ⁿ					
Pe-28	0-14	A1	41.5	49.5	9.0						l	sil	4.4	3.7	0.6	9.6	59
Pe-29	14-24	A2	45.5	42.0	12.5						l	sil	5.0	4.1	0.6	5.6	64
Pe-30	24-73	BT1	25.5	43.5	31.0						cl	sicl	5.2	4.2	0.6	6.6	50
Pe-31	73-96	BT2	19.5	51.0	29.5						sicl	sicl	5.2	4.2	0.9	9.6	44
Pe-32	96-130	C1	39.0	40.0	21.0						l	sl	5.2	4.2	0.3	8.3	29

Depth (cm)	Air dried to oven dried	C %	N %	Exchange capacity and cations (cmol ₍₊₎ kg ⁻¹)										Base satur ⁿ (%)		ECEC cmol ₍₊₎ kg ⁻¹ (B+D)	Al KCl extr. cmol ₍₊₎ 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)				
				0-14	6.6	3.78		0.50	0.40	0.20	0.20	1.30	16.50	17.80	13.2			
14-24	6.4	2.23		0.20	0.20	0.20	0.20	0.80	11.50	12.30	7.3	58.4	11	7			0.03	
24-73	2.2	1.07		0.30	0.20	0.10	0.20	0.80	11.60	12.40	7.2	23.2	11	6			0.01	
73-96	0.3	1.18		0.10	0.10	0.10	0.20	0.50	10.60	11.10	7.1	24.1	7	5			0.01	
96-130	1.6	0.50		0.10	0.10	0.10	0.20	0.50	7.80	8.30	5.4	25.7	9	6			0.02	

Surveyor: S. Luangsirorat

Reported by: W. Sirichuaychoo

Date: Dec. 15, 1973

Date: Nov. 24, 1998