

Proposed by S. Charoenphong, 1971  
Revised by :  
P. Vijarnsorn and staffs, 1988  
W. Sirichuaychoo, 2004

## LA HAN SERIES

Field Symbol: Lh

**Distribution:** Occupies moderate extent in Peninsular Thailand and some areas in Southeast Coastal of Thailand.

**Setting:** La Han soils derived from granite or equivalent rocks and occurred on granitic terrains. Relief is nearly level to gently undulating. Slope ranges from 2 to 5 percent. Elevations ranges from 30 to 60 m above mean sea level. The climate is Tropical Monsoon (Koppen 'Am'). Average annual air temperature is 26°C. Average annual precipitation is 1,800 to 3,000 mm.

**Drainage, Permeability and Surface Runoff:** Drainage is well drained, permeability is estimated to be moderate and surface runoff is medium to rapid. Ground water level falls below 1.5 m during the peak of dry season.

**Vegetation and Land Use:** Mainly used for para rubber, coconut and fruit trees. Some areas are in low secondary shrubs.

**Characteristic Profile Features:** La Han series is a member of the fine-loamy, siliceous, subactive, isohyperthermic Typic Paleudults (soil taxonomy, 2003). They are very deep soils and are characterized by a dark grayish brown or dark brown sandy loam A horizon overlying a light brownish gray sandy clay loam subsurface of argillic B horizon. Coarse fraction is composed of angular quartz sand. Strongly acid to moderately acid, reaction values range from 5.5 to 6.0.

**Typifying Pedon:** La Han sandy loam – para rubber and coconut, from Moo Ban La Han, Amphoe Rueso, Changwat Narathiwat, 2 to 5 percent slopes.

**Profile Code Number:** S 71/4, described by F. J. Dent and S. Charoenpong, 18 December 1968 (moist colors unless otherwise stated).

Horizon	Depth (cm)	Description
Ap	0-16	Dark grayish brown (10YR4/2) sandy loam; moderate medium subangular blocky structure; friable, slightly sticky and slightly plastic; few tubular and many interstitial pores; many fine and very fine roots; moderately acid (field pH 6.0); gradual, smooth boundary.
Bw	16-32	Brown (10YR5/3) coarse sandy clay loam; moderate medium subangular blocky structure; friable, slightly sticky and slightly plastic; few tubular and many interstitial pores; few medium and many fine roots; moderately acid (field pH 6.0); gradual smooth boundary.
Bt1	32-60	Light brownish gray to pale brown (10YR6/2-3) coarse sandy clay loam; strong medium subangular blocky structure; friable, slightly sticky and slightly plastic; patchy thin cutans; many interstitial pores; strongly acid (field pH 5.5); diffuse smooth boundary.
Bt2	60-100 <sup>+</sup>	Light brownish gray to pale brown (10YR6/2-3) coarse sandy clay loam; strong medium subangular blocky structure; friable, slightly sticky and slightly plastic; patchy thin cutans; many interstitial pores; common medium, fine and very fine roots; strongly acid (field pH 5.5).

### Type Location:

Name of village, Ban La Han, Amphoe Rueso, Changwat Narathiwat.

### Range of Profile Features:

The A horizon sandy loam is 10 to 20 cm in thickness and has 10YR or 7.5YR hues, values 3 to 5 and chromas 1 or 2. The structure is moderate medium blocky. Moderately acid to slightly acid, reaction values range from 6.0 to 6.5.

The argillic B horizon sandy clay loam (sandy clay may occurred in the deeper subsoil) and has 10YR or 7.5YR hues, values 5 to 7 and chromas 1 to 3. The structure is moderate fine blocky. Few visible mica flakes may occur through the profile. Strongly acid to moderately acid, reaction values range from 5.5 to 6.0. in 10YR hue.

**Similar Soil Series:**

Huai Pong series (Hp): fine, kaolinitic, isohyperthermic Typic Kandiuults, has 10YR or 7.5YR hues, values 5 to 6 and chromas 3 or 4 in the kandic horizon.

Khlong Nok Krathung series (Knk): fine-loamy, kaolinitic, isohyperthermic Typic Kandiuults, brown colors.

**Principal Associated Soils:**

These include Thung Wa, Khok Khain and Su-ngai Padi series.

Khok Khain series (Ko): fine-loamy, kaolinitic, isohyperthermic Typic Kandiaquults, formed in lower positions and used for paddy rice.

Su-ngai Padi series (Pi): fine-loamy, siliceous, subactive, isohyperthermic Aeric Paleaquults, lower positions.

Thung Wa series (Tg): coarse-loamy, siliceous, subactive, isohyperthermic Typic Paleuults, formed in higher positions, solum contains a coarse fraction which increases in size with depth.

ANALYSIS RESULTS  
(oven dry basis)

Profile code No.: S-71/4

Soil series: Lahan series (Lh)

Lab No.	Depth (cm)	Horizon	Particle size distribution analysis (% by weight)								Texture		pH		CaCO <sub>3</sub> %	P, mg kg <sup>-1</sup> Bray 2	K, mg kg <sup>-1</sup> NH <sub>4</sub> OAc
			USDA grading			Sand-fraction grading					Lab	Field	1:1	1:1			
			sand	silt	clay	vc	c	m	f	vf	result	estim <sup>n</sup>	water	KCl			
P-102	0-16	Ap	76.8	8.5	14.7						sl	sl	5.1	4.1	0.0	5.3	31
P-103	16-32	Bw	70.2	7.8	22.0						scl	coscl	4.9	4.0	0.0	4.0	16
P-104	32-60	Bt1	73.1	7.4	19.5						sl-scl	coscl	4.9	4.0	0.0	5.6	13
P-105	60-100	Bt2	72.5	7.3	20.2						scl	coscl	4.9	4.0	0.0	7.4	10

Depth (cm)	Air dried to oven dried	C %	N %	Exchange capacity and cations (cmol <sub>(+)</sub> kg <sup>-1</sup> )										Base satur <sup>n</sup> (%)		ECEC cmol <sub>(+)</sub> kg <sup>-1</sup> (B+D)	Al KCl extr. cmol <sub>(+)</sub> kg <sup>-1</sup> (D)	Electrical conduct <sup>y</sup> (ECx10 <sup>6</sup> ) dS m <sup>-1</sup>
				Ca	Mg	K	Na	SUM cations (B)	Extr. acidity (A)	SUM (B+A)	CEC NH <sub>4</sub> OAc (C)	CEC 100g Clay	B/Cx100	(Bx100)/(B+A)				
				0-16	0.7	0.73		0.20	0.20	0.05	0.20	0.65	4.10	4.75	3.3			
16-32	0.3	0.23		0.20	0.20	0.02	0.20	0.62	3.90	4.52	3.4	15.5	18	14			0.00	
32-60	0.4	0.13		0.20	0.20	<.02	0.20	0.60	3.50	4.10	3.2	16.4	19	15			0.00	
60-100	0.7	0.15		0.30	0.10	<.02	0.20	0.60	3.30	3.90	3.7	18.3	16	15			0.01	

Surveyor: F. J. Dent & S. Charorenpong

Reported by: W. Sirichuaychoo

Date: Dec. 18, 1968

Date: Nov. 4, 1998