Proposed by C.Pintip, 1973
Revised by :
P. Vijarnsorn and staffs, 1988
W. Sirichuaychoo, 2004

KHLONG TENG SERIES **Field Symbol: Klt**

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

Setting: Khlong Teng soils derived from fine grain clastic rocks namely shale, phyllite or equivalent rocks and occurred on denudation surface. Relief is undulating to rolling with slopes ranging from 2 to 20 percent. Elevation ranges from 30 to 80 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 ^{o}C to 28^{o}C.

Drainage, Permeability and Surface Runoff: Drainage is well to moderately well drained, permeability is estimated to be moderate and surface runoff is medium to rapid depending upon slope and surface mulching.

Vegetation and Land Use: Originally, under Tropical Evergreen Forest, now, many areas have been cleared for para rubber and oil palm growing.

Characteristic Profile Features: The Khlong Teng series is a member of the fine-loamy, mixed, semiactive, isohyperthermic, shallow Typic Haplohumults (soil taxonomy, 2003). They are shallow soils to bed rocks and are characterized by a dark brown or brown clay loam surface or A horizon overlying a yellowish brown or strong brown argillic B horizon. These in turn overlying a mixed yellowish or brownish and reddish clay or silty clay C horizon or layer of weathering shale within 50 cm from the soil surface. Thin gravelly band of ironstones or rock fragments may be found in or above argillic horizon. Strongly acid, reaction values range from 4.5 to 5.0 in subsoil.

Typifying Pedon: Khlong Teng silt loam - para rubber plantation, from Ban Khlong Teng, Amphoe Muang, Changwat Trang, 8 to 10 percent slopes (sheet name Changwat Trang, sheet number 4933 IV).

Profile Code Number: S-65/27, described by C. Pintip and staffs, 24 January 1973 (moist colors unless otherwise stated).

Horizon	Depth (cm)	Description
A	0-12	Dark grayish brown to dark brown (10YR4/2-3) clay loam; strong very fine and fine subangular blocky structure; hard, slightly sticky and slightly plastic; common fine tubular pores; many very fine and common fine roots; strongly acid (field pH 5.5); abrupt wavy boundary.
Bt	12-21	Strong brown (7.5YR5/6) clay loam; common fine distinct yellowish red (5YR5/8) and few fine faint brownish yellow (10YR6/6) mottles; moderate fine and medium subangular blocky structure; firm, slightly sticky and slightly plastic; common moderately thin cutan in pores and few thin cutan on ped faces, animal holes and root channels; many fine roots; strongly acid (field pH 5.5); clear smooth boundary.
BC	21-37	Mixed brownish yellow (10YR6/6) and yellowish red (5YR5/8) slightly gravelly clay; gravels composed of loose ironstones and shale fragments about 10-20% by volume of the soil matrix; strongly acid (field pH 5.5); gradual smooth boundary.
Cr	37-100	Mixed yellowish red (5YR5/6) and brownish yellow (10YR6/6); weathered shale; strongly acid (field pH 5.5).

Type Location:

Name of village, Ban Khlong Teng, Amphoe Muang, Changwat Trang.

Range of Profile Features:

The surface or A horizon loam or clay loam varies from 10 to 15 cm in thickness. Color is 10YR or 7.5YR hues, values 3 to 5 and chromas 3 or 5. Structure is weak fine and medium subangular blocky. Very strongly acid to moderately acid, reaction values range from 5.0 to 6.0.

The argillic B horizon has 7.5YR or 10YR hues, values 5 or 6 and chromas 6 or 8. Noted that this argillic B horizon is rather thin and has 25 to 40 cm in thickness. Structure is moderate fine and medium subangular blocky. Very strongly acid to moderately acid, reaction values range from 5.0 to 6.0.

The C horizon has a mixed color of yellowish or brownish and reddish (10YR, 7.5YR 5-6/6-8. 5-YR, 2.5YR 4-6/6-8) due to weathering stage of shale or phyllite. Clay or silty clay texture may occur. This horizon is approximately found within 50 cm from the soil surface. Rock fragments commonly scatter within this horizon. Very strongly acid to strongly acid, reaction values range from 4.5 to 5.0.

Normally in agriculture area, high leaching and low organic carbon content (Typic Kanhapludults)

Similar Soil Series:

Huai Yot series (Ho): loamy-skeletal, mixed, semiactive, acid, isohyperthermic, shallow Typic Udorthents, normally bed rocks shallow than 25 cm from the soil surface.

Li series (Li): clayey-skeletal, mixed, semiactive, isohyperthermic, shallow Ultic Haplustalfs, ustic soil moisture regime.

Principal Associated Soils:

These include Huai Yot, Nathon, Khao Khat and Pak Chan series.

Huai Yot series (Ho): loamy-skeletal, mixed, semiactive, acid, isohyperthermic, shallow Typic Udorthents.

Nathon series (Ntn): fine, kaolinitic, isohyperthermic Typic Haplohumults.

Khao Khat series (Kkt): clayey-skeletal, kaolinitic, isohyperthermic Typic (Kandic) Plinthudults.

Pak Chan series (Pac): very-fine, kaolinitic, isohyperthermic Typic Palehumults.

ANALYSIS RESULTS Profile code No.: S-65/27

(oven dry basis) Soil series: Khlong Teng series (Klt)

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_4OAc
			USDA grading			Sand-fraction grading					Lab	Field	1:1	1:1			
			sand	silt	clay	vc	c	m	f	vf	result	estim[n]	water	KCl			
Pd-161	0-12	A	22.5	57.0	20.5						sil	cl	5.8	4.6	0.0	2.8	108
Pd-162	12-21	Bt	21.0	50.5	28.5						cl	cl	5.2	4.4	0.0	1.7	90
Pd-163	21-37	BC	20.5	39.0	40.5						c	slig.c	5.8	3.9	0.0	1.4	64
Pd-164	37-100	Cr	8.0	36.0	56.0						c	-	5.5	4.7	0.3	1.6	53

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_4OAc (C)	CEC 100g Clay	B/Cx100	(Bx100)/ (B+A)			
0-12	1.8	2.23		0.20	0.30	0.20	0.30	1.00	11.10	12.10	9.7	47.3	10	8			0.04
12-21	1.7	1.44		0.10	0.10	0.20	0.20	0.60	10.90	11.50	10.2	35.8	6	5			0.02
21-37	2.3	1.46		0.30	0.10	0.20	0.50	1.10	14.30	15.40	14.2	35.1	8	7			0.02
37-100	2.7	0.88		0.20	0.20	0.10	0.30	0.80	16.20	17.00	8.3	14.8	10	5			0.02

Surveyor: C. Pintip & staff

Date: Jan. 24, 1973

Reported by: W. Sirichuaychoo

Date: Nov. 24, 1998