

Proposed by F.R. Moormann, 1964
Revised by:
1. C. Changprai, 1987
2. S. Udomsri, 2004

HUP KRAPHONG SERIES

Field Symbol: Hg

Distribution: Occupies small extent in the western part of Central Plain Thailand.

Setting: Hup Kraphong soils are formed from alluvium or colluvium from micaceous gneiss, mica schist and granitic rocks and occur on coalescing fans. Relief is flat to undulating. Slopes are about 1-5%. The climate is Tropical Savanna (Köppen 'Aw') Mean annual precipitation is 900 to 1,200 mm. Mean annual temperature is 27° C.

Drainage, Permeability and Surface Runoff: well drained. Permeability is rapid, runoff is moderate to rapid. Groundwater level remains below 1 m from the soil surface throughout the year, but the soil is influenced by seepage from nearby hills and may be subject to flash floods for brief periods during very heavy rains.

Vegetation and Land Use: Low, mixed deciduous forest, including bamboos, with parts cleared to upland crops, such as maize or sorghum

Characteristic Profile Features: Hup Kraphong series is a member of the Coarse-loamy, mixed, active, isohyperthermic Typic Haplustalfs. They are deep, slightly acid to neutral soils and are characterized by a dark brown to very dark grayish brown sandy loam A horizon overlying a yellowish brown or strong brown sandy loam B argillic horizon, the clay fraction increasing slightly with depth. This in turn overlies a grayish brown coarse sandy loam in the lower part of B horizon. Medium and fine indistinct mottles may occur in the lower B horizon. Mica flakes occur throughout the profile and the sand fraction becomes coarser with depth.

Typifying Pedon: Profile code number is Code SW-56/47

Location: in front of Hup Krapong Co-operative center, Ban Hup Krapong, Tambon Khao Yai, Amphoe Cha-am Changwat Phetchaburi.

Sheet Name: Amphoe Tha Yang

No.: 4934 I

Coordinate: 985132

Elevation: 50 m (MSL)

Relief: nearly level to undulating

Slope: 1-2 %

Physiography: coalescing fan

Parent material: alluvium

Drainage: well drained

Permeability: moderate

Runoff: moderate

Ground water depth: >2 m

Flooding depth: - cm

Duration: - month

Frequency: every year

Annual rainfall: 1,044.1mm

Mean temp: 27.6 °C

Climate type: Tropical Savannah

Natural vegetation and/or land use: corn, water melon and tomato

Other:

Described by: C. Kanjanaserm, S. Udomsri and
K. Malairojsiri

Date: 11 May, 1997

Revised by: S. Udomsri

Horizon	Depth (cm)	Description
Ap	0-10/18	Mixed dark grayish brown (10YR4/2) and brown (10YR5/3) sandy loam; moderate fine and medium subangular blocky structure; slightly hard, friable, nonsticky, nonplastic; many very fine and fine roots; slightly acid (field pH6.5); clear, wavy boundary.
Bt1	10/18-40	Mixed grayish brown (10YR5/2) and brown (10YR5/3) sandy loam; strong very fine, fine and medium subangular blocky structure; slightly hard, friable, nonsticky, nonplastic; patchy thin clay coatings on ped faces and in pores; common very fine and few medium roots; some

		charcoals fragments; moderate alkaline (field pH 8.0); clear, smooth boundary.
Bt2	40-65	Pale brown (10YR6/3) coarse sandy loam; moderate very fine and fine subangular blocky structure; slightly hard, friable, nonsticky, nonplastic; patchy thin clay coatings on ped faces and in pores; common very fine roots; some termite holes activity; moderate alkaline (field pH 8.0); clear, smooth boundary.
Bt3	65-88/90	Pale brown (10YR6/3) coarse sandy loam; moderate to strong very fine and fine subangular blocky structure; hard, friable, nonsticky, nonplastic; patchy thin clay coatings on ped faces and in pores; common very fine roots; common rounded, soft manganese concretion; moderate alkaline (field pH 8.0); clear, smooth boundary.
Bt4	88/90-140	Pale brown (10YR6/3) slightly gravelly coarse loamy sand; moderate fine and medium subangular blocky structure; slightly hard, friable, nonsticky, nonplastic; moderately thick clay coatings on ped faces and in pores; few very fine roots; common rounded soft and hard ferrous and manganese concretion; medium acid (field pH 6.0); clear, smooth boundary.
Bt5	140-180 ⁺	Pale brown (10YR6/3) slightly gravelly coarse loamy sand; weak to moderate very fine and fine subangular blocky structure; slightly hard, friable, nonsticky, nonplastic; patchy thin clay coatings on ped faces and in pores; common rounded soft and hard ferrous and manganese concretion; strongly acid (field pH 5.5).

Type Location: Name of village, Ban Hup Krapong, Tambon Khao Yai, Amphoe Cha-am Changwat Phetchaburi.

Range of Profile Features:

The A horizon is from 10 to 20 cm thick, has 10YR hue, value of 3 to 4 and chromas of 2 or 3. Structure is moderate fine crumb in the upper layers and weak fine blocky below. Field pH values range from 6.0 to 7.0.

The upper B horizon has 10YR and 7.5YR hues, values of 5 or 6 and chromas of 4 or 6. Structure is moderate fine blocky and field pH values range from 6.0 to 7.0.

The lower B horizon has 10YR hue, values of 5 or 6 and chromas of 1 to 3. Structure is weak medium blocky and the horizon may become slightly gravelly with depth, the coarse fraction being mainly quartz. Scattered, soft iron/manganese nodules may occur. Field pH values range from 6.0 to 7.0.

Similar Soil Series:

Sattahip series (Sh): has a sandy soils throughout profile.

Chon Buri series (Cb): has a aquic moisture regime and have a fine-loamy family

Thung Wa series (Tg): has an udic moisture regime and higher colour values in the A horizon, pH values are slightly lower.

Map Bon series (Mb): is a residuum soils and a member of fine-loamy family

Principal Associated Soils: These include Sattahip, Chon Buri and Nong Kae series occupying slightly lower positions on the low terraces.

ANALYSIS RESULTS

Profile code No.: SW-56/47

(oven dry basis)

Soil series : Hup Kraphong (Hg)

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 ¹	water	KCl			
P40-354	0-10/18	Ap	76.8	18.7	4.5	6.0	14.5	18.3	24.1	13.9	ls	sl	5.8	5.0		3.3	0.08
P40-355	10/18-40	Bt1	75.2	20.3	4.5	5.9	12.6	17.2	24.7	14.8	sl-ls	sl	7.2	6.6		2.3	0.08
P40-356	40-65	Bt2	75.1	20.9	4.0	10.6	16.1	17.6	19.5	11.3	sl-ls	cosl	7.1	6.1		1.4	0.04
P40-357	65-88/90	Bt3	75.5	19.5	5.0	14.0	17.4	16.5	17.4	10.2	sl-ls	cosl	7.2	6.2		2.2	0.04
P40-358	88/90-140	Bt4	77.1	16.4	6.5	13.5	18.5	17.6	16.6	10.9	sl-ls	sdcsl	5.5	4.3		2.1	0.08
P40-359	140-180+	Bt5	82.5	10.5	7.0	20.3	21.6	17.8	15.1	7.7	ls	cosl	5.4	4.0		1.8	0.08

Depth (cm)	Air dried to oven dried	C %	N %	Exchange capacity and cations (cmol _(c) kg ⁻¹)										Base satur ¹ (%)		ECEC cmol _(c) kg ⁻¹ (B+D)	Al KCl extr. cmol _(c) kg ⁻¹ (D)	Electrical conduct ¹ (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)				
				0-10/18	0.4	0.34		3.60	0.70	0.20	0.50	5.00	0.90	5.90	2.50			
10/18-40	0.7	0.22		3.00	0.50	0.20	0.60	4.30	0.40	4.70	2.50	55.6	100	91	4.30			
40-65	0.4	0.09		1.90	0.40	0.10	0.60	3.00	0.00	3.00	1.40	35.0	100	100	3.00			
65-88/90	0.5	0.06		1.30	0.10	0.10	0.20	1.70	0.40	2.10	0.80	16.0	100	81	1.70			
88/90-140	0.5	0.03		1.10	0.30	0.20	0.20	1.80	0.50	2.30	1.90	29.2	95	78	1.98	0.18	-	
140-180+	0.4	0.02		1.00	0.20	0.20	0.20	1.60	0.50	2.10	1.40	20.0	100	76	2.02	0.42	-	