

Proposed by A. Pittayarak, 1974
Revised by :
P. Vijarnsorn and staffs, 1988
W. Sirichuaychoo, 2004

FANG DAENG SERIES

Field Symbol: Fd

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

Setting: Fang Daeng soils are formed from sandstone on denudation surface (stable landscape). They occurred on gently undulating to undulating. Slope ranges from 2 to 12 percents. Elevation is approximately 20 to 60 m above mean sea level. The climate is Tropical Monsoon (Koppen 'Am') or Tropical Rain Forest (Koppen 'Af'). Average annual precipitation is from 1,500 to 3,000 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 rapid especially on sloping land. The ground water level is below 2 m throughout the year.

Vegetation and Land Use: Mainly used for para rubber, oil palm, coconut and fruit trees growing.

Characteristic Profile Features: Fang Daeng series is a member of the fine-loamy, kaolinitic, isohyperthermic Rhodic Kandudults (soil taxonomy, 2003). They are very deep soils and are characterized by a sandy loam surface or A horizon overlying a sandy clay loam kandic B horizon. The color is fairly uniform down the profile with dark reddish brown to dark red or red surface horizon and dark red or red subsoil. Very strongly acid to strongly acid reaction values range from 4.5 to 5.5.

Typifying Pedon: Fang Daeng sandy clay loam – para rubber, Ban Nongkok, Tambon Sai Thai, Amphoe Muang, Changwat Krabi, 20 m above mean sea level, 3 to 4 percent slopes (sheet name Changwat Krabi, sheet number 4735 I, coordinate 864978).

Profile Code Number: S-64/24, described by Piboon Pramojane, 16 January 1974 (moist colors unless otherwise stated).

Horizon	Depth (cm)	Description
Ap	0-9	Dark reddish brown (2.5YR3/4) sandy clay loam; strong fine subangular blocky breaking to granular structure; friable, slightly sticky and slightly plastic; common tubular pores; common fine and medium roots; strongly acid (field pH 5.5); clear wavy boundary.
Bt1	9-36	Dark reddish brown to reddish brown (2.5YR3-4/4) sandy clay loam; weak coarse subangular blocky structure; friable, slightly sticky and slightly plastic; common thin cutan on ped faces and in pores; common fine to fine tubular pores; few medium roots; strongly acid (field pH 5.5); diffuse wavy boundary.
Bt2	36-65	Dark red (2.5YR3/6) sandy clay loam; weak coarse subangular blocky structure; friable, sticky and plastic; common thin cutan on ped faces; many fine to medium tubular pores; few medium roots; very strongly acid (field pH 5.0); diffuse wavy boundary.
Bt3	65-110	Dark reddish brown to dark red (2.5YR3/4-6) sandy clay loam; moderate coarse subangular blocky structure; friable, sticky and plastic; common thin cutan on ped faces; many very fine interstitial and very fine to fine tubular pores; very strongly acid (field pH 5.0).

Type Location:

Name of village, Ban Fang Daeng, Amphoe Muang, Changwat Chumphon.

Range of Profile Features:

The surface or A horizon sandy loam (sandy clay loam may occurred) ranges from 8 to 15 cm in thickness and has 5YR or 2.5YR hues, values 3 to 4 and chromas 4 to 8. Strongly acid to moderately acid, reaction values range from 5.5 to 6.0.

The kandic B horizon sandy clay loam has 2.5 YR to 10R hues, values 3 or less (values of 4 when dry) and chromas 6 through 8. The structure is weak fine and medium subangular blocky. Although some subsurface horizon do not show well developed cutan on ped faces, their thin sections show strong argillan which should be argillic horizon. Very strongly acid to strongly acid, reaction values range from 4.5 to 5.5.

Similar Soil Series:

Sadao series (Sd): coarse-loamy, kaolinitic, isohyperthermic Typic Kandiuults.

Pathio series (Ptu): fine, kaolinitic, isohyperthermic Typic Kandiuults.

Principal Associated Soils:

Fang Daeng series are found in the association with Khlong Thom, Sadao and Na Thawi series, but in the area of sandstone associated with limestone may be found in association with Pathio series.

Na Thawi series (Nat): coarse-loamy, kaolinitic, isohyperthermic Typic Kandiuults, brown colors.

Khlong Thom series (Km): coarse-loamy, kaolinitic, isohyperthermic Typic Kandiuults, reddish brown or yellowish red (5YR hues).

ANALYSIS RESULTS (oven dry basis)

Profile code No.: S-64/24
Soil series: Fang Daeng series (Fd)

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						
Pc-336	0-9	Ap	59.0	20.0	21.0							scl	scl	5.7	4.5	0.3	3.0	53
Pc-337	9-36	Bt1	59.5	17.0	23.5							scl	scl	5.3	4.4	0.0	2.6	50
Pc-338	36-65	Bt2	51.5	17.0	31.5							scl	clws	5.6	4.5	0.0	1.9	41
Pc-339	65-110	Bt3	53.5	13.5	33.0							scl	clws	5.5	4.5	0.0	1.9	24

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)
0-9	1.0	1.09		0.60	0.40	0.10	0.20	1.30	3.70	5.00	4.2	20.0	31	26		0.10	
9-36	0.8	0.85		0.10	0.10	0.10	0.20	0.50	5.90	6.40	4.2	17.9	12	8		0.23	
36-65	1.2	0.68		0.20	0.10	0.07	0.20	0.57	5.50	6.07	2.8	8.9	20	9		0.06	
65-110	1.1	0.34		0.20	0.10	0.05	0.20	0.55	4.80	5.35	2.4	7.3	23	10		0.05	

Surveyor: P. Pramojanee

Reported by: W. Sirichuaychoo

Date: Jan. 16, 1974

Date: Nov. 24, 1998