

Proposed by P. Pramojanee, 1972  
Revised by :  
P. Vijarnsorn and staffs, 1988  
W. Sirichuaychoo, 2004

## KO YAI SERIES

Field Symbol: **Koy**

**Distribution:** Occupies a small extent in Peninsular Thailand.

**Setting:** Ko Yai soils are lacustrine deposited and occurred on coastal plain or lacustrine beach. Elevation ranges from 2 to 4 m above mean sea level. The relief is level. Slopes is less than 2 percent. The climate is Tropical Monsoon (Koppen 'Am'). Average annual air temperature is from 26 °C to 28°C. Average annual precipitation is from 1,800 to 3,000 mm.

**Drainage, Permeability and Surface Runoff:** Drainage is poorly drained, permeability is estimated to be moderate and surface runoff is slow. The Flooding occurred mainly in the rainy season.

**Vegetation and Land Use:** Used almost exclusively for transplanted rice.

**Characteristic Profile Features:** Ko Yai series is a member of the coarse-silty, mixed, superactive, nonacid, isohyperthermic Humic Endoaquepts (soil taxonomy, 2003). They are very deep soils and are characterized by a very dark grayish brown silt loam surface or A horizon over a light gray silt accompanying with yellowish and/or brownish mottles. Moderately acid to slightly acid, reaction values range from 6.0 to 6.5.

**Typifying Pedon:** Ko Yai silt loam - paddy field, from Tambon Ko Yai, Amphoe Ranot, Changwat Songkhla, 3 m above mean sea level, less than 2 percent slopes (sheet name Ban Sanam Chai, sheet number 5033 I).

**Profile Code Number:** S-68/127, described by P. Pramojanee, 6 June 1972 (moist colors unless otherwise stated).

Horizon Depth (cm)	Description
Apg 0-19	Very dark grayish brown (10YR3/2) silt loam; moderate fine and medium subangular blocky structure; friable, nonsticky and slightly plastic; common fine and medium tubular and vesicular pores; plentiful fine and few coarse roots; strongly acid (field pH 5.5); clear wavy boundary.
Bg1 19-40	Light gray (10YR7/2) silt; many brown (7.5YR5/2) band about 2 to 3 cm in thickness; weak medium subangular blocky structure; friable, nonsticky and nonplastic; many very fine tubular pores; plentiful fine and few coarse roots; moderately acid (field pH 6.0); clear wavy boundary.
Bg2 40-65	Light gray (10YR7/2) silt; few fine distinct yellowish brown (10YR5/6) mottles; many brown (7.5YR5/2) band of 2 to 3 cm in thickness; weak medium subangular blocky structure; firm, nonsticky and nonplastic; common very fine tubular pores; plentiful fine and few coarse roots; moderately acid (field pH 6.0); clear wavy boundary.
Bg3 65-100	Light gray to very pale brown (10YR7/2-3) silt; many fine distinct yellowish brown (10YR5/6) and strong brown (7.5YR5/6) mottles; weak medium subangular blocky structure; firm, nonsticky and nonplastic; strongly acid (field pH 5.5).

### Type Location:

Name of subdistrict, Tambon Ko Yai, Amphoe Ranot, Changwat Songkhla.

### Range of Profile Features:

The surface or A horizon silt loam or silt ranges between 10 to 20 cm in thickness and has 10YR hues, values 3 or 4 and chromas 1 or 2. The structure is moderate fine and medium subangular blocky. Very strongly acid to moderately acid reaction values range from 5.0 to 6.0.

The cambic B horizon silt or silt loam, has 10YR or 7.5YR hues, values 6 or 7 and chromas 1 or 2 and also has mottles of brownish or yellowish color. Structure is massive to weak medium subangular blocky. Strongly acid to neutral, reaction values range from 5.5 to 7.0.

**Similar Soil Series:**

Tak Bai series (Ta): fine-silty, mixed, semiactive, acid, isohyperthermic Typic Endoaquepts.

**Principal Associated Soils:**

These include Tak Bai series mainly. They occur on the same physiographic pattern.

(oven dry basis)

Soil series: Ko Yai series (Koy)

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				
Pe-735	0-19	Apg	1.5	83.5	15.0							sil	sil	5.0	3.9	0.8	7.8	114
Pe-736	19-40	Bg1	1.0	96.0	3.0							si	si	5.9	4.5	0.5	2.0	12
Pe-737	40-65	Bg2	12.0	87.0	1.0							si	si	6.3	4.7	0.5	1.9	9
Pe-738	65-100	Bg3	0.5	94.5	5.0							si	si	5.7	4.2	0.8	2.6	21

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)				
0-19	1.5	2.86		1.40	3.30	0.20	0.80	5.70	13.00	18.70	13.3	88.7	43	30			0.13	
19-40	0.2	2.20		0.10	0.35	0.02	0.40	0.87	1.50	2.37	1.4	46.7	62	37			0.04	
40-65	1.2	0.09		0.20	0.30	0.03	1.00	1.53	0.70	2.23	1.2	120.0	100	69			0.04	
65-100	1.6	0.07		0.10	2.20	0.05	0.50	2.85	1.40	4.25	3.1	62.0	92	67			0.06	

Surveyor: P. Pramojanee

Reported by: W. Sirichuaychoo

Date: June 6, 1972

Date: Nov. 5, 1998