

Proposed by: R.L. Pendleton-1929
Revised by: 1.P. Hemsrichart, 1988
B. Boonsompophan,
2. A. Suchinai,
S. Sukchan, 2004

PAK CHONG SERIES

Field Symbol: Pc

Distribution: Occupies moderate extent in Central Highlands and small extent in North Thailand.

Setting: Pak Chong soils are formed from residuum and local colluvium from limestone and occur on the karst topography. Relief is undulating which slopes range from 2 to 8 percent. Elevation is variable above sea level, but mainly not above 400 m. The climate is Tropical Savanna (Köppen 'Aw'). Average annual precipitation varies from 1,100 to 1,400 mm. Mean annual air temperature is from 26 to 28°C.

Drainage, Permeability and Runoff: Well drained soils. Permeability is moderate. Runoff is rapid to medium.

Vegetation and Land Use: Originally mixed deciduous forest, but mainly cleared for upland crop cultivation such as corn, cotton, beans, sorghum, castor bean and some fruit crops.

Characteristic Profile Features: The Pak Chong series is a member of the very fine, kaolinitic, isohyperthermic Rhodic Kandustox; They are very deep soils and are characterized by a dark reddish brown clay or silty clay A horizon overlies red or dark red clay lower kandic B horizon. Reaction is slightly acid to neutral over strongly to very strongly acid.

Typifying Pedon: Profile from International Soil Classification Work Shop 1978. (moist colors unless otherwise stated).

Location: km 154, on the left side of Mitraparp highway, near Training Farm, Ban Pang Soke, Amphoe Pak Chong Changwat Nakhon Ratchasima.

Sheet Name:

Sheet No.:

Coordinate:

Elevation: <400 m

Relief: gently undulating to undulating

Slope: 2-8%

Physiography: dissected erosion surface (karst erosion Plain) karst topography

Parent material: residuum and colluvium from limestone

Drainage: well drained

Permeability: moderate

Runoff: rapid to medium

Ground water depth: >2.0 m

Flooding depth: -

Duration:-

Frequency: -

Annual rainfall: 1,100-1,400 mm

Mean temp: 26-28 °C

Climate type: Tropical Savannah

Natural vegetation and/or land use: upland crops and some fruit trees

Other:

Described by: P. Vijarnsorn, et. al.

Date: 3 September 1978

Revised by:

Horizon	Depth(cm)	Description
Ap	0-12	Dark reddish brown (2.5YR 3/4) silty clay, dark red (2.5YR 3/6) dry; moderate fine subangular blocky breaking to granular structure; slightly hard, friable, sticky, plastic; many fine roots; slightly acid (field pH 6.5); clear, smooth boundary.
Bt1	12-53	Dusky red (10R 3/4) clay, dark red (2.5YR 3/6) dry; moderate medium subangular blocky structure; hard, friable sticky, plastic; broken moderately thick cutans on ped faces; common fine roots: very strongly acid (field pH 4.5); diffuse, smooth boundary.

Bt2	53-137	Dusky red (10R 3/4) clay, dark red (2.5YR 3/6) dry; moderate medium subangular blocky structure; hard, friable, sticky, plastic; patchy moderately thick cutans on ped faces; common fine roots; very strongly acid (field pH 4.5); diffuse, smooth boundary.
Bt3	137-200	Dark red (10R 3/6) clay; weak fine subangular blocky structure; friable, sticky, plastic; patchy thin cutans on ped faces; few fine roots; very strongly acid (field pH 4.5).

Remark: colors are for fully moist soil unless otherwise stated.

Type Location: The Pak Chong series was named for Amphoe Pak Chong in which soils of this series were first described by R.L. Pendleton in 1929 and shown on the map as "Pak Chong loam". Then these soils were revised by F.R. Moormann et.al. in 1964 and were called "Pak Chong series".

Range of Profile Feather:

The thickness of the A horizon ranges from 10 to 25 cm and has 2.5YR or 5YR hues, values of 3 to 4 and chroma of 3 or 4 in 5YR hue and 2 to 6 in 2.5YR hue. Structure is moderate fine to medium granular at upper most of layer and moderate medium blocky at lower parts of the horizon. Field pH value is from 6.0 to 7.0.

The B horizon has 2.5YR or 10R hues, values of 3 or less and chromas of 4 to 6. Few fine hard subrounded and/or rounded iron-manganese nodules may occur. Field pH value is from 4.5 to 5.5.

Similar Soil Series:

Chok Chai series (Ci): similar profile, but are derived from basalt and some andesite.

Ao Luk series (Ao): similar profile, but have udic moisture regimes.

Loei series (Lo): similar profile, but are derived from granite and contain lower clay fraction.

Principal Association: These include Muak Lek, Ban Chong and Tha Khli soils. The Muak Lek and Tha Khli soils occupy on the higher topography while the Ban Chong soils occupy on slightly lower topography.

ANALYSIS RESULTS
(oven dry basis)

Profile code no.: Profil from inter soil
classification workshop.1978
Soil series : Pak Chong (Pc)

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
	0-12	Ap	5.6	40.6	53.8						sic	sic	6.2	5.3	10.0	6.0	78
	12-53	Bt1	5.4	19.1	75.5						c	c	4.7	4.0	0.8	3.0	18
	53-137	Bl2	2.8	13.3	83.9						c	c	4.4	3.7	1.2	4.0	12
	137-200	Bl3	2.3	13.1	84.6						c	c	4.1	3.7	0.8	2.0	12

Depth (cm)	Air dried to oven dried	C %	N %	Exchange capacity and cations (cmol ₍₊₎ kg ⁻¹)									Base satur ¹ (%)		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)			
0-12		2.10	0.16	7.78	2.02	0.22	0.10	10.12	9.36	19.48	13.18	24.5	77	52			0
12-53		0.88	0.05	3.45	0.94	0.05	0.06	4.50	10.36	15.15	9.33	12.4	48	30			0
53-137		0.39	0.02	0.50	0.38	0.03	0.04	0.95	11.80	12.75	8.75	10.4	11	7			0
137-200		0.35	0.14	1.54	0.87	0.04	0.05	2.50	12.50	15.00	8.65	10.2	29	17			0