

Proposed by: C. Changprai - 1969
 Revised by: 1. B. Boonsompopphan,
 P. Hemsrichart, 1988
 2. S. Sukchan, 2004

CHOK CHAI SERIES

Field Symbol: Ci

Distribution: Occupies moderate extent in Northeast Plateaus, particularly in the southern part.

Setting: Chok Chai soils are residual soil formed from basalt and occur on dissected lava flow. Relief is undulating which a range of slope is 2 to 5 percent. Elevation varies from 180 to 280 m above sea level. The climate is Tropical Savanna (Köppen 'Aw'). Average annual precipitation varies from 1,100 to 1,400 mm. Mean air temperature is 26 to 28°C.

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

Vegetation and Land Use: Originally mixed deciduous forest. Parts are cleared for upland crops such as chili, corn, castor bean, cassava and some fruit crops pineapple, jack fruit, banana, mango etc.

Characteristic Profile Features: The Chok Chai series is a member of the very fine, kaolinitic, isohyperthermic Rhodic Kandistox. They are deep soils and are characterized by a dark reddish brown or reddish brown silty clay or clay A horizon, overlying a red or dark red clay oxic B horizon. Reaction is medium acid to neutral over medium to very strongly acid.

Typifying Pedon: Profile code no. is NE-S-20/48. (moist colors unless otherwise stated).

Location: at km 18.5, about 30 m south of Chok Chai to Det Udom road, Amphoe Chok Chai Changwat Nakhon Ratchasima.

Sheet Name:

Sheet No.: 5455 III

Coordinate: 206/1631-2

Elevation: 180-280 m

Relief: gently undulating

Slope: 2-5%

Physiography: upper part of basaltic terrain

Parent material: residuum and colluvium from basalt

Drainage: well drained

Permeability: moderate

Runoff: medium to rapid

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: original mixed deciduous forest. Parts are cleared for upland crops and some fruit trees

Described by: C. Changprai

Date: 1969

Revised by:

Horizon	Depth(cm)	Description
A	0-7/11	Dark reddish brown (2.5YR 3/4) clay; moderate coarse subangular blocky structure and moderate fine and medium granular structure; slightly firm, sticky, plastic; common very fine and fine interstitial pores and common fine tubular pores; few fine and medium animal holes; common soft charcoal pieces; many very fine and fine roots; medium acid (field pH 6.0); clear, wavy boundary.
Bt1	7/11-34	Dark red (10R 3/6) clay; moderate coarse subangular blocky structure; friable, sticky, plastic; patchy thin and in places moderately thick clay coating on ped faces; common very fine and few fine interstitial and tubular pores; few fine animal holes: common very fine and few fine roots; very strongly acid (field pH 5.0); gradual, smooth boundary.
Bt2	34-80	Dark red (10R 3/6) clay; weak coarse subangular blocky breaking into moderate medium and fine subangular blocky structure; friable, slightly sticky, slightly plastic; patchy thin and in places moderately thick clay coating on ped faces; common very fine and fine interstitial and tubular

		pores; very strongly acid (field pH 5.0); gradual, smooth boundary.
Bt3	80-150+	Dark red (10R 3/6) clay; weak coarse subangular blocky breaking into moderate fine and medium subangular blocky structure; friable, slightly sticky, slightly plastic; patchy moderately thick clay coating on ped faces; common very fine and fine interstitial pores and many fine tubular pores; common soft basalt fragments, few very fine roots; very strongly acid (field pH 5.0).

Type Location: The pedon were first described and initiated at Amphoe Chok Chai Changwat Nakhon Ratchasima

Range of Profile Features:

The thickness of an A horizon varies from 10 to 20 cm and has 2.5YR or 5YR hues, values of 2 to 4, chromas of 3 or 4. The texture of clay loam or silty clay may occur. Structure is moderate fine and medium granular at upper most and moderate fine to coarse blocky. The pH values vary from 6.0 to 7.0.

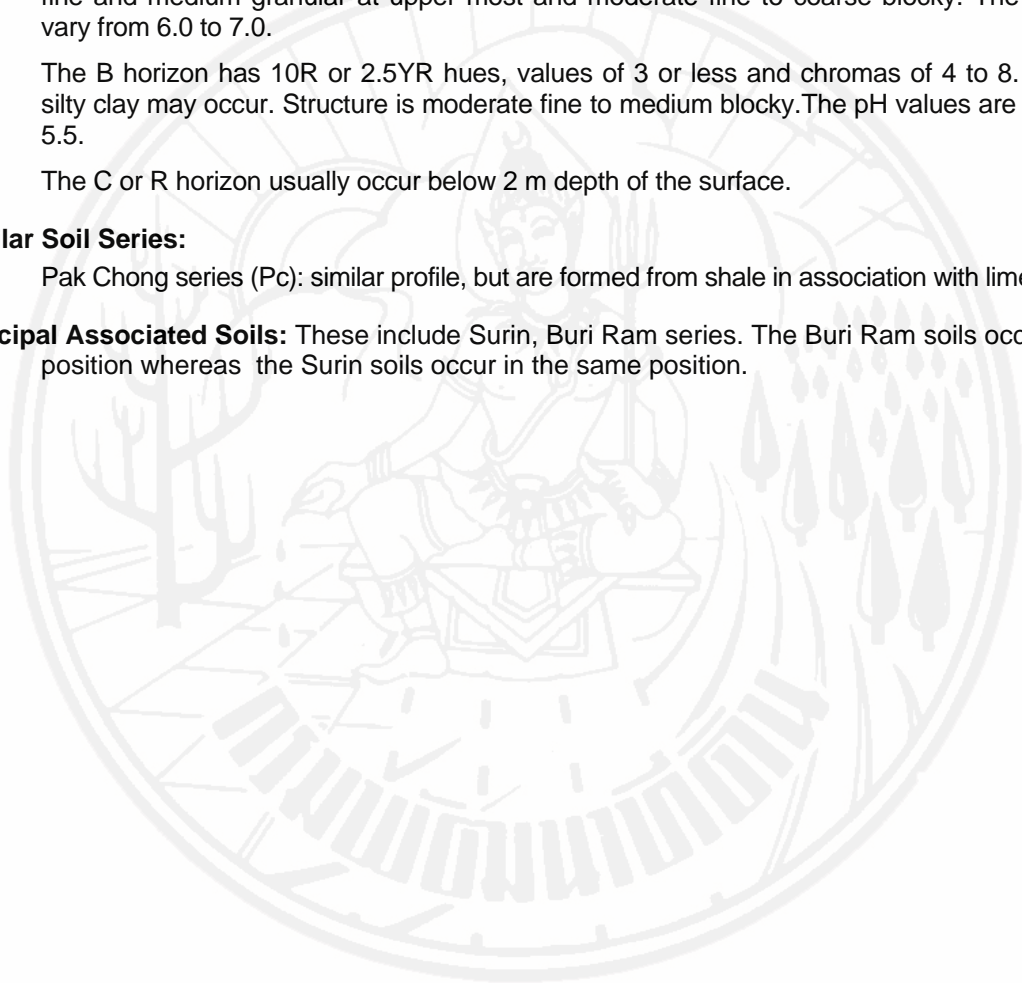
The B horizon has 10R or 2.5YR hues, values of 3 or less and chromas of 4 to 8. Texture of silty clay may occur. Structure is moderate fine to medium blocky. The pH values are from 4.5 to 5.5.

The C or R horizon usually occur below 2 m depth of the surface.

Similar Soil Series:

Pak Chong series (Pc): similar profile, but are formed from shale in association with limestone.

Principal Associated Soils: These include Surin, Buri Ram series. The Buri Ram soils occur in lower position whereas the Surin soils occur in the same position.



ANALYSIS RESULTS
(oven dry basis)

Profile code no.:NE-S-20/48
Soil series : Chok Chai (Ci)

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 ^f	water				KCl
	0-7/11	A	19.0	30.5	50.5						c	c	5.7	4.9	0.3	10.5	102
	11/7/1934	Bt1	19.5	14.5	66.0						c	c	4.9	4.0	0.3	8.9	21
	34-80	Bt2	19.0	9.0	72.0						c	c	4.9	4.0	0.8	7.5	15
	80-150+	Bt3	17.0	13.5	69.5						c	c	5.3	3.9	0.6	6.4	21

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 ² (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)				
0-7/11	2.0	1.81		4.90	1.40	0.20	0.20	6.70	9.60	16.30	12.90	25.5	52	41			0.05	
11/7/1934	2.0	0.66		1.10	0.40	0.03	0.30	1.83	9.80	11.63	9.60	14.5	19	16			0.05	
34-80	2.1	0.37		0.60	0.20	0.03	0.30	1.13	9.50	10.63	9.00	12.5	13	11			0.01	
80-150+	1.9	0.23		0.50	0.30	0.04	0.30	1.14	8.70	9.84	8.60	12.4	13	12			0.01	