

Proposed by: Correlator Staff,-1971
 Revised by: 1. P. Hemsrichart, 1988
 B. Boonsompopphan,
 2. A. Suchinai,
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SATUEK SERIES

Field Symbol: Suk

Distribution: Occupies moderate extent in Northeast Thailand and small extent in Western part of Central Plain and in North Thailand.

Setting: Satuek soils are formed from wash deposit from sandstone and occur on the middle part of peneplain. Relief is undulating which range of slope is 2 to 8 percent. Elevation above sea level is 160 to 220 m. The climate is Tropical Savanna (Köppen 'Aw'). Average annual precipitation is from 1,100 mm up to 2,200 mm. Mean annual air temperature varies from 26 to 28°C.

Drainage Permeability and Runoff: Well drained. Ground water table falls below 1.50 m most of the years. Permeability is moderate and surface runoff is medium to rapid.

Vegetation and Land Use: Mainly dipterocarp and mixed deciduous forest with parts cleared for the cultivation of upland crops such as kenaf, water melon, cassava, beans corn, etc.

Characteristic Profile Features: Satuek series is a member of the fine-loamy, siliceous, subactive, isohyperthermic Typic Paleustults. They are very deep soils and are characterized by a very dark grayish brown, dark grayish brown or dark brown sandy loam A horizon overlying a strong brown or yellowish brown or reddish yellow sandy clay loam or clay loam argillic B horizon. Reaction is slightly acid to medium over strongly acid to very strongly acid.

Typifying Pedon: Profile code no. is NE-N-30/157. (moist colors unless otherwise stated).

Location: Northeast Regional Office of Agriculture, Tambon Ta Pra, Amphoe Mueang Changwat Khon Kaen.

Sheet Name: Changwat Khon Kaen

Sheet No.: 5541 I

Coordinate: 072665

Elevation: 160-220 m

Relief: gently undulating to undulating

Slope: 2-8%

Physiography: middle part of peneplain

Parent material: washed deposit from sandstone

Drainage: well drained

Permeability: moderate

Runoff: medium to rapid

Ground water depth: <1.5 m

Flooding depth: -

Duration: -

Frequency: -

Annual rainfall: 1,207.6 mm

Mean temp: 26.7 °C

Climate type: Tropical Savannah

Natural vegetation and/or land use: mainly dipterocarp and mixed deciduous forest with parts cleared for upland crops such as kenaf, cassava etc

Other:

Described by: P. Hemsrichart B. Boonsompopphan

Date: 20 June 1981

Revised by:

Horizon	Depth (cm)	Description
Ap	0-26	Dark brown to brown (7.5YR 4/2) sandy loam; weak fine and medium subangular blocky structure; friable, slightly sticky, slightly plastic; many very fine roots; some pieces of charcoal; strongly acid (field pH 5.5); clear, smooth boundary.
E	26-40	Brown (7.5YR 5/4) with dark grayish brown (10YR 4/2) sandy loam; weak fine and medium subangular blocky structure; friable, slightly sticky, slightly plastic; common very fine roots; organic coating in some parts of horizon with some charcoal pieces; slightly acid (field pH 6.5); clear, smooth boundary.

Bt1	40-70	Strong brown (7.5YR 5/6) sandy loam; moderate medium and coarse subangular blocky structure; firm, sticky, plastic; patchy thin cutan on ped faces and in pores; common very fine roots; some krotovinas and few animal activities; very strongly acid (field pH 4.5); gradual, smooth boundary.
Bt2	70-145	Strong brown (7.5YR 5/8) sandy clay loam; strong medium and coarse subangular blocky structure; firm, sticky, plastic; broken thin cutan on ped faces and in pores; few very fine roots; few pieces of charcoal; very strongly acid (field pH 4.5); gradual, smooth boundary.
Bt3	145-200	Strong brown (7.5YR 5/8) with some spot of yellow (10YR 7/6) sandy clay loam; strong medium and coarse subangular blocky structure; firm, sticky, plastic; broken thin cutan on ped faces and in pores; few very fine and fine roots; very strongly acid (field pH 5.0).

Type Location: The Satuek series was named for Amphoe Satuek, Changwat Buri Ram, in which soils of this series were first described as a series in 1971. Before this time, they were separated out as a phase of Khorat series (Khorat series, high phase) and then later called as Khorat-yellow variant.

Range of Profile Features:

The thickness of an A horizon varies from 10 to 30 cm and has 7.5YR or 10YR hues, values of 3 to 5 and chromas of 2 to 4. Texture of loamy sand may occur. Structure is weak fine and/or medium blocky. Field pH values is from 5.5 to 6.5.

The B horizon has 7.5YR or 10YR hues, values of 5 to 6 and chromas 6 to 8. Texture of sandy clay or clay loam may occur in deep subsoil. Structure is weak to moderate medium to coarse blocky. It may contain some ironstone nodule in places. The matrix color may become paler and mottled in very deep subsoil. Field pH values vary from 4.5 to 5.0.

Similar Soil Series:

Khorat series (Kt): has chromas 4 or less in the same hue.

Warin series (Wn): has redder color in the subsoil usually in 5YR hue.

Yasothon series (Yt): has redder color in the subsoil, usually in 5YR hue grading to 2.5YR hue.

Principal Associated Soils: These include Khorat, Phon Phisai, Warin and Yasothon series.

Remark: Mainly of Satuek soils that have a field pH value 5.5 or more in lower part of B horizon or in deeper subsoil, are usually base saturation falling >35% and then classified as Paleustalfs. (normally called Satuek-high base variant).

ANALYSIS RESULTS Profile code no.:NE-N-30/157
(oven dry basis) Soil series : Satuek (Suk)

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			
73167	0-26	Ap	73.7	21.8	4.5	0.0	0.7	10.8	3.7	58.5	sl	sl	4.8	4.0		18.2	37
73168	26-40	E	70.2	29.3	0.5	0.0	0.7	10.7	18.5	40.3	sl	sl	4.6	4.0		18.0	32
73169	40-70	B11	60.8	20.7	18.5	0.0	1.2	10.2	2.5	46.9	sl	sl	4.6	3.8		4.4	34
73170	70-145	B12	58.1	20.4	21.5	0.1	0.8	8.9	18.0	30.3	scl	scl	4.6	3.7		20.5	30
73171	145-200	B13	63.5	14.0	22.5	0.3	1.3	8.8	3.8	49.3	scl	scl	4.8	3.7		25.6	32

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	Extr.	SUM	CEC	CEC	B/Cx100				(Bx100)/(B+A)
								cations (B)	acidity (A)	(B+A)	NH ₄ OAc (C)	100g Clay					
0-26	0.1	0.27	0.02	0.80	0.30	0.10	0.20	1.40	1.20	2.60	1.20	26.70	100	54		0.22	
26-40	6.0	0.11	0.01	0.90	0.20	0.10	0.20	1.40	1.70	3.10	1.70	340.0	82	45		0.06	
40-70	1.4	0.18	0.02	1.00	0.90	0.10	0.20	2.20	4.40	6.60	4.30	23.20	51	33		0.04	
70-145	1.0	0.05	0.01	0.50	0.90	0.10	0.20	1.70	5.00	6.70	4.60	21.40	37	25		0.02	
145-200	1.6	0.04	0.01	0.01	0.50	0.10	0.20	0.81	4.50	5.31	4.40	19.60	18	15		0.02	