

Proposed by:
 S. Thongplaeu and M. Chuertongdee, 1975
 Revised by:
 1. B. Bhubharuang, 1988
 2. A. Potichan, 2004

SAN SAI SERIES

Field Symbol: Sai

Distribution: Occupies small extent in the North and Central Highland.

Setting: San Sai soils are developed from alluvium and occur on level to slightly undulating low terrace. Slopes are 3% or less. The climate is Tropical Savanna (Koppen 'Aw') with average annual precipitation of 1,100 to 1,800 mm.

Drainage, Permeability and Runoff: Poorly drained. Permeability is moderate. Surface runoff is slow They are normally flooded by impounded rain water and frequently by irrigates water for 4 to 5 months during the rainy season.

Vegetation and Land Use: Used for transplanted rice in the wet season and for some upland crops in the dry season.

Characteristic Profile Features: San Sai series is a member of coarse-loamy, siliceous, subactive, isohyperthermic Aeric Endoaqualfs. They are deep soils and characterized by a dark grayish brown, brown or grayish brown to pinkish gray loamy sand or sandy loam A horizon overlying a light gray, gray or pinkish gray sandy loam or sandy clay loam argillic B horizon with distinct brownish and yellowish mottles throughout the profile. reaction is medium acid to neutral over slightly acid to mildly alkaline.

Typifying Pedon: Profile code no. is N-35/110 (moist colour unless otherwise stated).

Location: Ban Pa Bong, Tambon Nong Harn, Amphoe San Sai, Changwat Chiang Mai.

Sheet Name: Changwat Chiang Mai

Sheet No.: 4746 I

Coordinate: 928990

Elevation: 316 m (MSL)

Relief: nearly level

Slope: 1-2 %

Physiography: low terrace

Parent material: alluvium

Drainage: somewhat poorly drained

Permeability: moderate

Runoff: slow

Ground water depth: 1.2 m

Flooding depth: 20-30 cm

Duration: 1-2 month

Frequency: every year

Annual rainfall: 1,183.5 mm

Mean temp.: 25.4 °C

Climate type: Tropical Savannah (Aw)

Natural vegetation or land use: rice

Described by: Preecha

Date: 18 January, 1974

Revised by: Aniruth Potichan

Date: 26 May, 2004

Horizon	Depth (cm)	Description
Apg	0-11	Dark grayish brown (10YR4/2) fine sandy loam; many medium dark yellowish brown (10YR4/4) mottles; weak fine subangular blocky structure and single grains; very friable, nonsticky and nonplastic; many fine roots; moderately acid (field pH 6.0); clear and smooth boundary.
ABg	11-18	Grayish brown (10YR5/2) fine sandy loam; many fine distinct dark grayish brown (10YR4/4) mottles; weak fine subangular blocky structure; very friable, nonsticky and nonplastic; common fine roots; moderately acid (field pH 6.0); clear and smooth boundary.
Bg	18-25/30	Pinkish gray (7.5YR6/2) fine sand clay loam; many fine distinct strong brown (7.5YR5/6) mottles; weak coarse subangular blocky structure; firm, slightly sticky and slightly plastic; few very fine roots; moderately acid (field pH 6.0); clear and wavy boundary.

Btg1	25-30-44	Pinkish gray (7.5YR6/2) fine sandy clay loam; many fine and medium distinct strong brown (7.5YR5/6-5/8) mottles; weak coarse subangular blocky structure; firm, slightly sticky and slightly plastic; patchy thin cutans (clay coating) in pores; few very fine roots; slightly acid (field pH 6.5); clear and smooth boundary.
Btg2	44-57/68	Pinkish gray (7.5YR7/2) fine sandy clay loam; many coarse distinct strong brown (7.5YR5/6) mottles; moderate medium subangular blocky structure; firm, slightly sticky and slightly plastic; patchy thin cutans in pores and on ped faces; very few very fine roots; neutral (field pH 7.0); clear and wavy boundary.
Btg3	57/68-100+	Pinkish gray (7.5YR6/2) gravelly sandy clay loam; many coarse distinct strong brown (7.5YR5/8) mottles; moderate medium subangular blocky structure; firm, sticky and nonplastic; continuous moderately thin clay coatings in pores; many small and large hard irregular red and black Fe&Mn nodules (8-15 mm 80% by volume); very few very fine roots; neutral (field pH 7.0).

Type Location:

Ban Peh, Amphoe San Sai, Changwat Chiang Mai. The site is at 060888 coordinate in the sheet no. is 4867 IV.

Range of Profile Feature:

The A horizon is from 10 to 20 cm thick and has 10YR to 5YR, values of 4 to 7 and chromas of 1 or 4. Structure is weak blocky. Field pH ranges from 5.0 to 7.0 but pH 8.0 may occur.

The B horizon has the same hues and chromas as the above horizon but values of 6 to 7. Sandy clay loam or clay loam with discernable sand fraction may occur at very deep subsoil. structure is weak to moderate blocky. Reaction range is 6.0 to 8.0. Plinthite may be found in subsoil but less than 5 % by volume.

These soils may have features of stratification within the profile.

Similar Soil Series:

Khao Yoi series (Ky): is a member of the fine-loamy particle size class family.

Lampang series (Lp): is a member of the fine-silty particle size class family.

Principle Associated Soils:

These include Lampang and Hang Dong fine-loamy variant.

ANALYSIS RESULTS
(oven dry basis)

Profile code no.: N-35/110

Soil series: San Sai (Sai)

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 ⁿ	water			
Pe-1156	0-11	Apg	62.0	30.5	7.5						sl	fsl	4.7	4.2	6.7	41
Pe-1157	11-18	ABg	64.0	28.0	8.0						sl	fsl	5.3	4.4	6.7	67
Pe-1158	18-25/30	Bg	59.0	32.0	9.0						sl	fsl	5.1	4.4	8.0	47
Pe-1159	25/30-44	Btg1	57.0	33.0	10.0						sl	fsl	5.8	4.6	3.3	21
Pe-1160	44-57/68	Btg2	53.5	37.0	9.5						sl	fsl	6.1	5.0	1.7	32
Pe-1161	57/68-100+	Btg3	53.0	33.5	13.5						sl	gscl	6.7	5.7	3.9	53

Depth (cm)	Air dried to oven dried	C %	N %	Exchange capacity and cations (cmol _(c) kg ⁻¹)									Base satur ⁿ (%)		ECEC cmol _(c) kg ⁻¹ (B+D)	AI KCl extr. cmol _(c) 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)			
				0-11	0.7	0.75		2.40	0.40	0.10	0.40	3.30	3.40	6.70			
11-18	0.5	0.46		2.40	0.40	0.10	0.40	3.30	1.60	4.90	3.6	45.0	92	67			0.35
18-25/30	0.2	0.20		1.30	0.20	0.10	0.20	1.80	1.90	3.70	1.9	21.1	95	49			0.38
25/30-44	0.6	0.15		1.40	0.30	0.10	0.40	2.20	1.20	3.40	2.3	23.0	96	65			0.05
44-57/68	0.4	0.13		1.60	0.40	0.10	0.40	2.50	0.50	3.00	2.9	30.5	86	83			0.09
57/68-100+	0.9	0.07		1.90	0.40	0.10	0.40	2.80	1.00	3.80	2.5	18.5	100	74			0.16

Surveyor: Preecha

Date: 18 January, 1974