

Proposed by:
 C. Changprai and F.R. Moormann, 1966
 Revised by:
 1. N. Chorhaka, 1988
 2. P. Wiwatwongwana, 2004

THA LI SERIES

Field Symbol: TI

Distribution: Occupies moderate extent in Central Highlands.

Setting: Tha Li soils are formed from residuum and colluvium from andesite and equivalent igneous rocks and occur on (dissected) erosion surface and footslope. Relief is undulating to hilly which slopes range from 3 to 20 percent. Elevation, above sea level, is from 180 to 400 m. The climate is Tropical Savanna (Koppen 'Aw'). average annual precipitation varies from 1,100 mm to 1,500 mm. Mean annual air temperature is from 26 to 28 °C.

Drainage, Permeability and Runoff: Well drained. Permeability is moderate. Surface runoff is rapid. Ground water table is very deep even in the rainy season.

Vegetation and Land Use: Originally mixed deciduous forest. Parts are cleared for shifting cultivation.

Characteristic Profile Features: Tha Li series is a member of the clayey-skeletal, mixed, semiactive isohyperthermic Ultic Haplustalfs. They are gravelly and moderately deep soils and are characterized by a very dark grayish brown, dark reddish brown (gravelly) loam or clay loam A horizon overlying a reddish brown or yellowish red very gravelly clay loam or very gravelly clay argillic B horizon. Weathered and/or partly weathered rock fragments usually occur throughout the profile, increasing with depth. The C horizon occurs at some deep below 80 cm. Reaction is medium acid to neutral over strongly acid to medium acid.

Typifying Pedon: Profile code no. is NE-N-26/22 (colors are for moist unless otherwise stated).

Location: Approximately 1 km south-east of Ban Khok Yai, on left side of Ban Sam Yaek-Tha Li road, Amphoe Tha Li Changwat Loei.

Sheet Name: Ban That

Sheet No.: 5344 III

Coordinate: -

Elevation: 80-400 m (MSL)

Relief: gently undulating to rolling

Slope: 33-12 %

Physiography: dissected erosion surfaces

Parent material: residuum and colluvium derived from andesite and equivalent igneous rocks

Drainage: well drained

Permeability: moderate

Runoff: rapid

Ground water depth: >2 m

Flooding depth: -

Duration: -

Frequency: -

Annual rainfall: 1,238.1 mm

Mean temp.: 25.5 °C

Climate type: Tropical Savannah (Aw)

Natural vegetation or land use: mixed deciduous forest

Described by: Chaleao and Mana

Date:

Revised by: Phusit Wiwatwongwana

Date: 26 May, 2004

| Horizon | Depth (cm) | Description |
|---------|------------|---|
| A | 0-12 | Dark brown (7.5YR3/2) loam; moderate fine and medium subangular blocky and moderate fine and medium granular structure at the uppermost; slightly hard, slightly firm, slightly sticky, plastic; few fine and medium animal holes; common termite holes; many fine, common medium, few coarse roots; few scatters small and medium partly weathered andesite fragments; neutral (field pH 7.0); gradual, smooth boundary. |
| BA | 12-31 | Reddish brown (5YR4/4) gravelly sandy clay loam; moderate fine and medium subangular blocky structure; slightly hard, friable, sticky, plastic; moderate broken clay coatings on ped faces, moderately thick continuous clay coatings in pores; fine and medium animal holes; common fine, medium |

and few large roots; coarse fraction consists of about 15 to 20 percent of partly weathered andesite fragments; moderately acid (field pH 6.0); gradual, smooth boundary.

Bt 31-80+ Reddish brown (2.5YR4/4) very gravelly clay; moderate coarse and medium subangular blocky structure; slightly hard, friable, sticky, plastic; moderately thick broken clay coatings on ped faces, thick continuous clay coatings in pores; common fine and medium roots; coarse fraction consists of 60 to 70 percent partly weathered andesite fragments and few slightly hard iron-manganese concretions; strongly acid (field pH 5.5).

Range of Profile Features:

The thickness of an A horizon varies from 10 to 20 cm and has 10YR or 7.5YR or 5YR hues, values of 2 to 4 and chromas of 1 to 3. Textures of silt loam or silty clay loam may occur. structure is moderate fine to medium blocky and granular, Field pH value is from 6.0 to 7.0.

The argillic B horizon has 7.5YR, 5YR or 2.5YR hues, values of 3 to 5 and chromas of 3 to 8 in 2.5YR and 5YR and of 4 to 6 in 7.5YR. Structure is fine to moderate blocky. Field pH value is from 5.0 to 6.0.

The C horizon mainly contain, highly and/or partly weathered parent rock fragments and occurs at some depth between 80 to 125 cm.

Similar Soil Series:

Surin series (Su): are derived from basalt, and very deep soils.

Chiang Khan series (Ch): are derived from shale.

Principal Associated Soils:

These include Chai Badan, Loei series and Slope Complex.

ANALYSIS RESULTS
(oven dry basis)

Profile code no.: NE-N-26/22
Soil series: Tha Li (TI)

| 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 result | Field estim ⁿ | 1:1 water | 1:1 KCl | | | | |
| | | | sand | silt | clay | vc | c | m | f | vf | | | | | | | |
| 53676 | 0-12 | A | 34.3 | 43.6 | 22.1 | | | | | | l | l | 6.2 | 5.4 | | 51.1 | |
| 53677 | 12-31 | BA | 48.2 | 27.7 | 24.1 | | | | | | scl | gscl | 5.4 | 4.1 | | 4.7 | |
| 53678 | 31-80 | Bt | 34.0 | 20.1 | 45.9 | | | | | | c | vgc | 4.9 | 4.0 | | 2.4 | |

| Depth (cm) | Air dried to oven dried | C % | N % | Exchange capacity and cations (cmol ₍₊₎ kg ⁻¹) | | | | | | | | | | Base satur ⁿ (%) | | 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 | 17.0 | 2.54 | | 7.95 | 3.11 | 0.63 | 0.16 | 11.85 | 7.74 | 19.59 | 16.4 | 74.2 | 72 | 60 | | | 0 | |
| 12-31 | 14.4 | 0.53 | | 1.42 | 2.08 | 0.45 | 0.16 | 4.11 | 7.74 | 11.85 | 10.7 | 44.4 | 38 | 35 | | | 0 | |
| 31-80 | 19.6 | 0.55 | | 4.29 | 3.24 | 0.27 | 0.58 | 8.38 | 9.34 | 17.72 | 15.5 | 33.8 | 54 | 47 | | | 0 | |

Surveyor: Chaleao and Mana