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 Revised by: 1. B. Boonsompopphan,  
 P. Hemsrichart, 1988  
 2. K. Malairotsiri, 2004

**YASOTHON SERIES**

**Field Symbol: Yt**

**Distribution:** Occupies moderate extent in Northeast and small extent in North Thailand.

**Setting:** Yasothon soils are formed from washed deposit from sandstone and occur on the upper part of peneplain. Relief is undulating which slopes range from 2 to 8 percent. Elevation is from 190 to 280 m above sea level. The climate is Tropical Savanna (Köppen 'Aw'). Average annual precipitation varies from 1,100 to 1,500 mm. Mean annual air temperature is from 26 to 28°C.

**Drainage, Permeability and Runoff:** Somewhat excessively drained. Permeability and surface runoff are rapid. Ground water table falls below 5 meters during the peak of the dry period.

**Vegetation and Land Use:** Originally, dipterocarp and mixed deciduous forests. Parts are cleared for upland crops such as kenaf, corn, castor bean, cotton and some fruit trees - banana, mango, jack fruit.

**Characteristic Profile Features:** The Yasothon series are a member of the fine-loamy, siliceous, semiactive, isohyperthermic, Typic Paleustults. They are deep soils which are characterized by a dark brown or dark reddish brown sandy loam A horizon overlying a yellowish red or red loam or sandy clay loam B horizon which in turn overlies a red or dark red sandy clay loam or sandy clay argillic B horizon. Reaction is slightly acid to medium over strongly acid to very strongly acid.

**Typifying pedon:** Profile code no. is NE-N-30/86 (moist colors unless otherwise stated).

**Location:** Ban Ton, Amphoe Mueang Changwat Khon Kaen.

**Sheet Name:** Changwat Khon Kaen

**Sheet No.:** 5541 I

**Coordinate:**

**Elevation:** 260 m

**Relief:** gently undulating

**Slope:** 2%

**Physiography:** upper part of peneplain

**Parent material:** washed deposit from sandstone

**Drainage:** well drained

**Permeability:** rapid

**Runoff:** rapid

**Ground water depth:**

**Flooding depth:** -

**Duration:** -

**Frequency:** -

**Annual rainfall:** 1,207.3 mm

**Mean temp:** 26.7 °C

**Climate type:** Tropical Savannah

**Natural vegetation and/or land use:** dipterocarp and mixed deciduous forests

**Described by:** S. Cherchot

**Date:** 1971

| Horizon | Depth (cm) | Description                                                                                                                                                                                                                                                                                         |
|---------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ap      | 0-11       | Dark brown (7.5YR 4/2) and reddish brown (5YR 4/3) sandy loam; weak to moderate fine and coarse subangular blocky structure; friable, slightly sticky, slightly plastic; many fine roots; slightly acid (field pH 6.5); clear, smooth boundary.                                                     |
| Bt1     | 11-35      | Reddish brown (5YR 4/4) and dark reddish brown (5YR 3/4) sandy clay loam; weak medium and coarse subangular block structure; friable, slightly sticky, slightly plastic; patchy thin organic matter coating; many fine roots; medium acid (field pH 6.0); gradual, smooth boundary.                 |
| Bt2     | 35-77      | Red (2.5YR 4/6) sandy clay loam; weak fine and coarse subangular blocky structure, friable, slightly sticky, slightly plastic; continuous thick clay coating on ped faces and in pores; many fine, common medium and few coarse roots; very strongly acid (field pH 4.5); gradual, smooth boundary. |

Bt3            77-120            Dark red (2.5YR 3/6) and red (2.5YR 4/6) sandy clay loam; weak to moderate fine and medium subangular blocky structure; friable, slightly sticky, slightly plastic; continuous thick clay coating on ped faces and in pores; few fine, common medium and few coarse roots; very strongly acid (field pH 4.5).

**Type Location:** The Yasothon series was named for Amphoe Yasothon, Changwat Ubon Ratchathani, in which soils of this series were first described in the eastern part of Amphoe.

**Range of Profile Features:**

The thickness of the A horizon varies from 10 to 30 cm and has 7.5YR or 5YR hues, values of 3 or 4 and chromas of 2 to 4. Structure is granular and/or blocky. Field pH value is from 5.5 to 7.0.

The B horizon has 2.5YR or 5YR hues, values of 3 to 5 and chromas of 6 to 8 in the upper part where-as the lower part has 2.5YR or 10R hues, values of 4 to 6 and chromas of 6 to 8. Structure is weak fine and/or medium blocky. Field pH value is from 4.5 to 5.5. They are very porous.

**Similar Soil Series:**

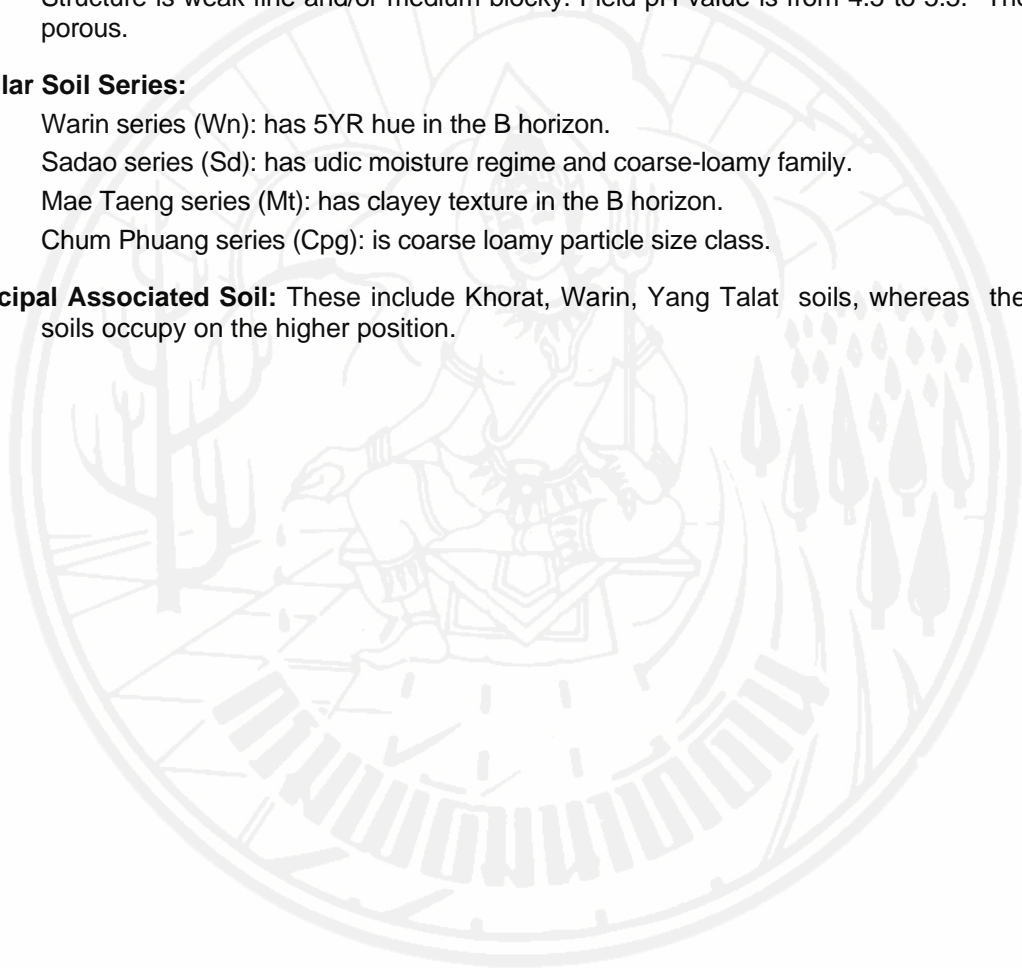
Warin series (Wn): has 5YR hue in the B horizon.

Sadao series (Sd): has udic moisture regime and coarse-loamy family.

Mae Taeng series (Mt): has clayey texture in the B horizon.

Chum Phuang series (Cpg): is coarse loamy particle size class.

**Principal Associated Soil:** These include Khorat, Warin, Yang Talat soils, whereas the Yasothon soils occupy on the higher position.



**ANALYSIS RESULTS**      **Profile code no.:NE-N-30/86**  
**(oven dry basis)**      **Soil series : Yasothon (Yt)**

| Lab No. | Depth (cm) | Horizon | Particle size distribution analysis (% by weight) |      |      |                       |     |     |      |      | Texture |                    | pH        |         | CaCO <sub>3</sub> % | P, mg kg <sup>-1</sup> Bray 2 | K, mg kg <sup>-1</sup> NH <sub>4</sub> OAc |
|---------|------------|---------|---------------------------------------------------|------|------|-----------------------|-----|-----|------|------|---------|--------------------|-----------|---------|---------------------|-------------------------------|--------------------------------------------|
|         |            |         | USDA grading                                      |      |      | Sand-fraction grading |     |     |      |      | Lab     | Field              | 1:1 water | 1:1 KCl |                     |                               |                                            |
|         |            |         | sand                                              | silt | clay | vc                    | c   | m   | f    | vf   | result  | estim <sup>1</sup> |           |         |                     |                               |                                            |
|         | 0-11       | Ap      | 61.2                                              | 33.0 | 5.8  | 0.2                   | 1.4 | 9.8 | 34.5 | 15.3 | sl      | sl                 | 6.0       | 5.3     |                     | 2.8                           | 44                                         |
|         | 11-35      | Bt1     | 51.8                                              | 29.1 | 19.1 | 0.4                   | 1.3 | 9.0 | 15.9 | 25.2 | l       | scl                | 6.0       | 4.9     |                     | 2.8                           | 33                                         |
|         | 35-77      | Bt2     | 50.3                                              | 29.9 | 19.8 | 0.3                   | 1.6 | 9.2 | 27.6 | 11.6 | l       | scl                | 4.9       | 3.7     |                     | 3.3                           | 35                                         |
|         | 77-120     | Bt3     | 49.7                                              | 26.8 | 23.5 | 0.3                   | 1.5 | 9.4 | 15.0 | 23.5 | scl     | scl                | 4.9       | 3.7     |                     | 1.4                           | 29                                         |

| Depth (cm) | Air dried to oven dried | C %  | N % | Exchange capacity and cations (cmol <sub>(+)</sub> kg <sup>-1</sup> ) |      |      |      |                 |                   |           |                             | Base satur <sup>n</sup> (%) |         | ECEC cmol <sub>(+)</sub> kg <sup>-1</sup> (B+D) | Al KCl extr. cmol <sub>(+)</sub> kg <sup>-1</sup> (D) | Electrical conduct <sup>y</sup> (ECx10 <sup>6</sup> ) dS m <sup>-1</sup> |               |
|------------|-------------------------|------|-----|-----------------------------------------------------------------------|------|------|------|-----------------|-------------------|-----------|-----------------------------|-----------------------------|---------|-------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------------|---------------|
|            |                         |      |     | Ca                                                                    | Mg   | K    | Na   | SUM cations (B) | Extr. acidity (A) | SUM (B+A) | CEC NH <sub>4</sub> OAc (C) | CEC 100g Clay               | B/Cx100 |                                                 |                                                       |                                                                          | (Bx100)/(B+A) |
|            |                         |      |     | 0-11                                                                  | 0.5  | 0.80 |      | 4.30            | 1.00              | 0.10      | 0.20                        | 5.60                        | 3.10    |                                                 |                                                       |                                                                          | 8.70          |
| 11-35      | 1.5                     | 0.50 |     | 4.50                                                                  | 1.30 | 0.06 | 0.20 | 6.06            | 3.60              | 9.66      | 6.60                        | 34.6                        | 90      | 63                                              |                                                       | 0.26                                                                     |               |
| 35-77      | 1.2                     | 0.30 |     | 1.90                                                                  | 0.70 | 0.10 | 0.20 | 2.90            | 6.50              | 9.40      | 6.00                        | 30.3                        | 48      | 31                                              |                                                       | 0.11                                                                     |               |
| 77-120     | 1.1                     | 0.20 |     | 2.50                                                                  | 0.70 | 0.06 | 0.20 | 3.46            | 6.20              | 9.66      | 6.30                        | 26.8                        | 55      | 36                                              |                                                       | 0.10                                                                     |               |