

Proposed by: C. Changprai-1967
Revised by: 1. P. Hemsrichart, 1988
B. Boonsompopphan,
2. A. Suchinai,
S. Sukchan, 2004

RENU SERIES

Field Symbol: Rn

Distribution: Occupies small extent in Northeast plateau.

Setting: Renu soils are formed from wash deposit from sandstone and occur on the lower parts of peneplain. Relief is nearly level to undulating which slopes range from 1 to 4 percent. Elevation is variable, but in the Northeast varies from 130 to 180 m above sea level. The climate is Tropical Savanna (Köppen 'AW'). Average annual precipitation varies from 1,100 to 2,200 mm. Mean annual temperature is from 26 to 28°C.

Drainage Permeability and Runoff: Somewhat poorly drained soils. Permeability is moderate. Runoff is moderate to slow.

Vegetation and Land Use: mainly used for transplanted rice in the wet season and some parts cleared for upland crop such as kenaf, bean, sweet potatoes and corn after rice harvesting.

Characteristic Profile Features: The Renu series is a member of the fine-loamy, mixed, semiactive isohyperthermic (Aeric) Plinthic Paleaquults. They are deep soils and are characterized by a brown, grayish brown or dark grayish brown sandy loam or loamy sand A horizon overlying light brown or pinkish gray sandy clay loam B horizon which in turn overlies a light gray clay loam or clay lower B and C horizon. Common to many fine strong brown and/or yellowish brown mottles occur at the surface and yellowish red or red (plinthite) in the subsoil. Reaction is medium acid over strongly acid to very strongly acid.

Typifying Pedon: Profile code no. is NE-N-19/58 (moist colors unless otherwise stated).

Location: south of Ban Nong Kung Kao about 2 km west of high way, Amphoe Phu Khieo Changwat Chaiyaphum.

Sheet Name: Ban Phu Din

Sheet No.: 5441 III

Coordinate: 007984

Elevation: 238 m

Relief: level

Slope: <1%

Physiography: lower part of peneplain

Parent material: washed deposit from sandstone

Drainage: somewhat poorly drained

Permeability: moderate

Runoff: slow

Ground water depth: 1.5 m

Flooding depth: up to 30 cm

Duration: 3-4 month

Frequency: every year

Annual rainfall: 1,141.3 mm

Mean temp: 27.7 °C

Climate type: Tropical Savannah

Natural vegetation and/or land use: transplanted rice

Other:

Described by: A Suchinai

Date: 22 July, 1981

Revised by:

Horizon **Depth (cm)**

Description

Ap	0-11	Gray (5YR6/1) sandy loam; common medium distinct reddish yellow (7.5YR6/8) and common fine distinct yellowish red (5YR5/8) mottles; weak fine and medium subangular blocky structure; very friable, nonsticky, nonplastic; many very fine and common fine roots; light reddish brown (5YR6/4) sand coating on ped faces; very strongly acid (field pH 5.0); abrupt, smooth boundary.
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A	11-24	Light reddish brown (5YR6/3) sandy loam; many fine distinct strong brown (7.5YR5/8) and common fine distinct yellowish red (5YR5/8) mottles; moderate fine and medium subangular blocky structure; very friable, slightly sticky, slightly plastic; common very fine roots; very strongly acid (field pH 5.0); clear, smooth boundary.
Bt1	24-36	Light brown (7.5YR6/4) sandy clay loam; common medium distinct yellowish red (5YR5/8) and many medium distinct strong brown (7.5YR5/8) mottles; moderate fine and medium subangular blocky structure; friable, slightly sticky, slightly plastic; patchy thin cutan in pores; few very fine roots; very strongly acid (field pH 5.0); clear, smooth boundary.
Bt2	36-79	Light reddish brown (5YR6/2) sandy clay loam; common medium prominent red (2.5YR4/8) and common fine distinct yellowish red (5YR5/8) mottles; moderate fine and medium subangular blocky structure; friable, slightly sticky, plastic; patchy thin clay coating in pores; very strongly acid (field pH 5.0); clear, smooth boundary.
Bt3	79-110	Pinkish gray (5YR6/2) clay loam; common medium prominent dark red (2.5YR3/8) and common fine distinct strong brown (7.5YR5/8) mottles; strong medium subangular blocky structure; firm, sticky, plastic; broken moderately thick clay coating on ped faces and in pores; plinthite consisted of 30% by volume; very strongly acid (field pH 4.5); clear, smooth boundary.
Bt4	110-140	Pinkish gray (7.5YR6-7/2) clay loam; common coarse prominent red (10R4/6), common medium distinct yellowish red (5YR5/8) mottles; strong medium and coarse subangular blocky structure; firm, sticky, plastic; continuous moderately thick clay coating on ped faces and broken thick in pores; plinthite forming as a continuous phase within the soil matrix; very strongly acid (field pH 5.0).

Type Location: The Renu series was named for Tambon Renu, Amphoe That Phanom, Changwat Nakhon Phanom in which soils of this series were first described.

Range of Profile Features:

The thickness of the A horizon varies from 10 to 30 cm and has 7.5YR or 10YR hues, values of 3 to 6 and chromas of 2 to 4. Texture of loam may occur. Structure is weak fine to moderate blocky. Field pH value is from 5.0 to 6.0.

The B horizon has 7.5YR or 10YR hues, values of 5 to 7 and chromas of 2 to 4, but the upper B horizon mainly has chroma of 3 or 4. Structure is moderate medium and/or coarse blocky. Field pH value is from 4.5 to 5.0.

The lower part of the B and the C horizon have 5YR or 7.5YR or 10YR hues, values of 6 to 7 and chroma of 1 for 5YR and 7.5YR hues and 2 or less for 10YR hue. Structure is massive to weak coarse blocky. Common to many soft and hard iron concretions occur in the lower part of the C horizon. Field pH value is from 4.5 to 5.5.

Similar Soil Series:

Roi Et series (Re): is somewhat poorly drained soils and occur on the lower topography. flooded by impounded rain water for 3 to 4 months.

Tha Tum series (Tt): is poorly drained soils and occur on the lower topography and subject to river water and rain water for 4 to 5 month each year.

Principal Associated Soils: These include the Khorat and Roi Et soils. The Khorat soils occupy on the higher topography, whereas the Roi Et soils occupy on the lower topography.

ANALYSIS RESULTS **Profile code no.:NE-S-19/58**
(oven dry basis) **Soil series : Renu (Rn)**

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				
4/17630	0-11	Ap	45.3	52.2	2.5	0.0	0.1	3.7	22.5	19.0	sil	sl	4.7	3.8		1.3	14	
4/17631	11-24	A	41.9	49.4	8.7	0.0	0.1	5.5	19.6	16.7	sil-l	sl	4.7	3.8		1.1	17	
4/17632	24-36	B1	36.9	47.2	15.9	0.0	0.2	5.9	18.8	12.0	l	scl	5.0	3.7		1.6	26	
4/17633	36-79	B2	40.4	40.2	19.4	0.0	0.0	5.8	20.4	14.2	l	scl	4.8	3.6		1.8	30	
4/17634	79-110	B3	33.5	32.6	33.9	0.0	0.4	4.4	16.2	12.3	cl	cl	5.2	3.5		1.6	59	
4/17635	110-140	B4	34.9	40.8	24.3	0.0	1.1	5.7	14.7	13.4	l	cl	5.4	3.5		1.9	31	

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 ¹ (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	0.5	0.38		0.90	0.20	0.03	0.20	1.33	1.90	3.23	2.40	96.0	55	41			0.08	
11-24	0.9	0.14		1.10	0.30	0.03	0.20	1.63	2.30	3.93	2.80	32.2	58	41			0.08	
24-36	1.6	0.19		1.10	0.50	0.05	0.40	2.05	5.60	7.65	6.40	40.3	32	27			0.04	
36-79	1.4	0.13		0.60	0.20	0.10	0.40	1.30	6.40	7.70	5.80	29.9	22	17			0.03	
79-110	3.7	0.09		0.50	0.10	0.10	0.40	1.10	12.80	13.90	11.40	33.6	10	8			0.02	
110-140	2.3	0.07		0.40	0.10	0.10	0.40	1.00	9.90	10.90	8.60	35.4	12	9			0.03	