

Proposed by W. Van der Kevie, 1970
Revised by:
1. C. Changprai, 1987
2. S. Udomsri, 2004

DON RAI SERIES

Field Symbol: Dr

Distribution: Occupies moderate extent in the southeastern region mainly in Changwat Chachoengsao and Prachinburi.

Setting: Don Rai soils are formed from alluvium and occur on the coalescing fan or terrace. Relief is nearly flat to slightly undulating. Slopes range from 1-5 %. Elevation ranges from 10-20 m above sea level. The climate is Tropical Savanna (Köppen 'Aw'). Mean annual precipitation is about 1,400 mm. Mean annual temperature is 27°C.

Drainage, Permeability and Surface Runoff: Well drained to moderately well drained. Permeability and runoff are moderate. Groundwater level is below 1.5 m for most of the year.

Vegetation and Land Use: Originally mixed deciduous forest, now mainly cleared for upland crops such as cassava, castor, beans and fruit crops.

Characteristic Profile Features: Don Rai series is a member of the Fine-loamy, kaolinitic, isohyperthermic Typic Kandistults. They are deep, slightly acid to medium acid over medium acid to strongly acid soils. They are characterized by a grayish brown or dark grayish brown sandy loam or loam A horizon overlying a pale brown or light yellowish brown sandy clay loam B horizon and sandy clay or clay in the lower B which contains common distinct yellowish red and strong brown mottles.

Typifying Pedon: Profile code number is Code SE-14/38

Location: Ban Rai Don, Tambon Ko Khanun, Amphoe Phanom Sarakham Changwat Chachoengsao.

Sheet Name: Amphoe Phanom Sarakham

No.: 5236 II

Coordinate: 592205

Elevation: 38 m (MSL)

Relief: slightly undulating

Slope: 2-3 %

Physiography: coalescing fan

Parent material: alluvium

Drainage: well drained

Permeability: moderate

Runoff: moderate

Ground water depth: >1.5 m

Flooding depth: - cm

Duration: - month

Frequency: every year

Annual rainfall: 1,716.7 mm

Mean temp: 27.7 °C

Climate type: Tropical Savannah

Natural vegetation and/or land use: cassava with some mango trees. Cleared land with low trees shrubs and grasses.

Other:

Described by: W. Van der Kevie, 1970

Date: 17 March, 1970

Revised by: S. Udomsri

Horizon	Depth (cm)	Description
Ap	0-11	Brown (10YR 5/3) sandy loam; moderate coarse and medium subangular blocky structure; slightly hard, non-sticky; many very fine interstitial and very few very fine tubular pores; common very fine roots; strongly acid (field pH 5.5); clear, smooth boundary.
Bt1	11-41	Yellowish brown (10YR 5/4) sandy clay loam to sandy clay; very weak coarse subangular blocky structure; slightly hard, slightly sticky; few clay bridges in some parts and thin continuous clay coatings in some pores; many very fine interstitial pores and common very fine tubular pores; common fine and very fine roots; very strongly acid (field pH 5.0); gradual, smooth boundary.

Bt2 41-140+ Reddish yellow to brownish yellow (7.5YR-10YR 6/6) sandy clay; weak coarse subangular blocky; slightly hard, friable, slightly sticky, slightly plastic; few clay bridges in some parts and thin continuous clay coatings in some pores; many very fine interstitial pores and common very fine and few fine tubular pores; few medium and many very fine and fine roots; very strongly acid; (field pH 5.0)

Type Location: Name of village, Ban Rai Don, Tambon Ko Khanun, Amphoe Phanom Sarakham Changwat Chachoengsao.

Range of Profile Features:

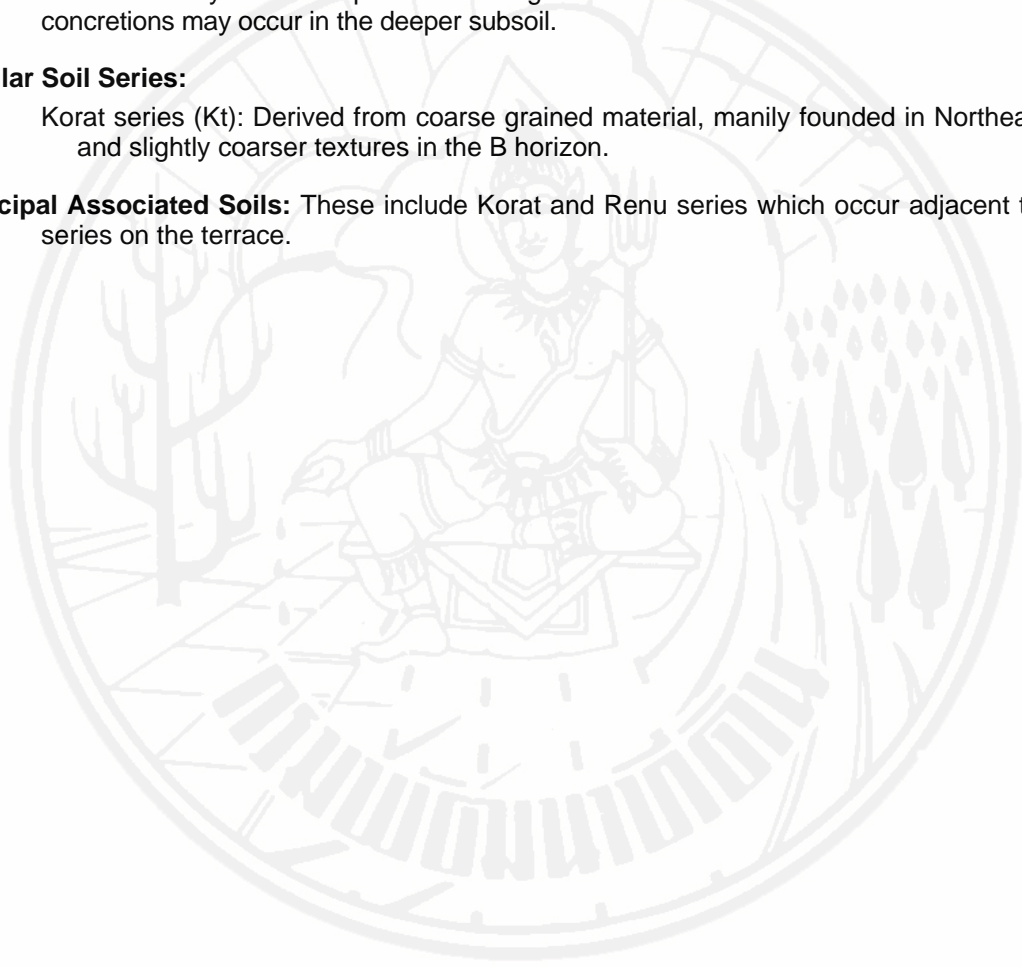
The A horizon is from 10-20 cm thick, has 10YR hue, values of 3 through 5 and chromas of 2 or 3. Structure is weak medium blocky and field pH values range from 5.5 to 6.5.

The B horizon has 10YR hue, values of 5 through 7 and chromas of 3 to 6. Structure is weak medium blocky and field pH values range from 5.0 to 6.0. Few scattered iron/manganese concretions may occur in the deeper subsoil.

Similar Soil Series:

Korat series (Kt): Derived from coarse grained material, mainly founded in Northeast Plateau and slightly coarser textures in the B horizon.

Principal Associated Soils: These include Korat and Renu series which occur adjacent to Don Rai series on the terrace.



ANALYSIS RESULTS
(oven dry basis)

Profile code No.: SE-14/9
Soil series : Don Rai (Dr)

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			
Pa-273	0-11	Ap	70.0	13.0	17.0						sl	sl	5.1	4.4	0.0	5.1	39
Pa-274	11-41	Bt1	62.0	16.0	22.0						scl	scl	5.2	4.2	0.0	3.4	16
Pa-275	41-140	Bt2	56.0	13.0	31.0						scl	sc	4.5	4.0	0.0	4.1	13

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)				
				0-11	0.5	0.46	0.07	0.60	2.30	0.10	0.10	3.10	3.10	6.20	3.20			
11-41	0.2	0.26	0.05	0.80	0.20	0.03	0.10	1.13	3.00	4.13	3.40	15.5	33	27			0.02	
41-140	0.8	0.08	0.03	0.30	0.10	0.03	0.10	0.53	3.40	3.93	3.70	11.9	14	13			0.04	