Proposed by: F.R. Moormann
Revised by: K. Malairotsiri, 2004

DAN KHUN THOT SERIES **Field Symbol: Dk**

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

Setting: Dan Khun Thot soils are formed from washed deposit of sandstone and occur on upper part of peneplain. Relief is undulating which slopes range from 3 to 10 percent. Elevation ranges from 100 to 350 m above sea level. Climate is Tropical Savanna (Köppen 'Aw'). The average annual precipitation is 1,100 to 1,500 mm. The mean annual temperature is from 25 to 28^{o}C.

Drainage, Permeability and Runoff: Well drained to somewhat excessively drained. Permeability and runoff are rapid.

Vegetation and Land Use: Mainly low open dipterocarp forest; Parts are cleared for upland crops. Those crops are kenaf, cassava, water melon, sugarcane and corn.

Characteristic Profile Features: The Dan Khun Thot series is a member of sandy, siliceous, isohyperthermic coated Ustic Quartzipsamments.They are deep sandy soils and are characterized by a dark grayish brown or grayish brown loamy sand or sand A horizon overlying a grayish brown, brown, very pale brown loamy sand C horizon. Common to many brownish yellow and/or yellow mottles occur at some depth below 80 cm of the soil surface. Few to common iron-manganese concretion occur in the subsoil. Reaction is strongly acid to medium acid and over very strongly acid.

Typifying pedon: Profile code no.: NE-S-24/35 (colors are for moist soil unless otherwise noted).

Location: 150 m northeast of Ban Sawang, Tambon Ta Muang, Amphoe Mueang Changwat Ubon Ratchathani

Sheet Name: - **Sheet No.:** 6039 IV
Coordinate: 019079 **Elevation:** 100-350 m
Relief: gently undulating to undulating **Slope:**: 3-10%
Physiography: upper part of peneplain
Parent material: washed deposit from sandstone
Drainage: well drained to somewhat excessively drained **Permeability:** rapid
Runoff: rapid **Ground water depth:** >2.0m
Flooding depth: - **Duration: -** **Frequency: -**
Annual rainfall: 1,00-1,500 mm **Mean temp:** 26-28 ^{o}C **Climate type:** Tropical Savannah
Natural vegetation and/or land use: mainly low open dipterocarp forest. Parts are cleared for upland crops.
Other:
Described by: F. R. Moormann et. Al **Date:** 1961
Revised by:

Horizon	Depth (cm)	Description
A1	0-18	Black (10YR2/1) sand; weak fine and medium subangular blocky structure breaking to single grains; very friable, nonsticky, nonplastic; many very fine and fine roots; strongly acid (field pH 5.5); clear, smooth boundary.
A2	18-45/56	Dark grayish brown (10YR4/2) loamy sand; weak fine and medium subangular blocky structure breaking to single grains; very friable, nonsticky, nonplastic; common very fine and medium roots; medium acid (field pH 6.0); clear, wavy boundary
C1	45/56-83	Brown (10YR5/3) loamy sand; weak fine and medium subangular blocky structure breaking to single grains; very friable, nonsticky, nonplastic; common fine, few medium and coarse roots; strongly acid (field pH 5.0); clear, smooth boundary.

C2	83-130	Very pale brown (10YR7/3) loamy sand; common fine and medium distinct brownish yellow (10YR6/8) and few fine prominent yellowish red (5YR5/8) mottles; weak medium and coarse subangular blocky structure; friable, nonsticky, nonplastic; few fine roots; few iron-manganese concretions; medium acid (field pH 6.0); gradual, smooth boundary.
C3	130-194	Very pale brown (10YR7/3) loamy sand; many coarse distinct yellow (10YR7/6) and common medium distinct reddish yellow (7.5YR7/8) mottles; weak medium and coarse subangular blocky structure; friable, nonsticky, nonplastic; few very fine roots; common iron-manganese concretions; very strongly acid (field pH 5.0).

Type Location: The initiated pedon were described approximately 150 m northeast of Ban Sawang Tambon Ta Muang Amphoe Mueang Changwat Ubon Ratchathani

Range of Profile Features:

The thickness of an A or Ap horizon vary from 10 to 30 cm and has 7.5YR or 10 YR hues, values of 2 to 5 and chroma of 1 to 4. Structure is weak fine to medium blocky and/or single grain Field pH values vary from 4.5 to 6.5 The C horizon has 10YR, 7.5YR or 5YR hues value from 5 to 7 and chroma of 2 to 4. Structure is the same as above.Field pH value range from 4.5 to 5.5

Similar soil series

Chan Thuk series(Cu); is a member of Typic Ustipsamment is derived from granite.

Nam Phong series(Ng); is Grossarenic (Oxyaquic) Haplustalfs.

Principal Associated soils: This include Huai Thalaeng. Chakkarat,Khorat and Ubon soils. The Ubon soils are used for paddy field and occupy on the lower physiographic position.

ANALYSIS RESULTS **Profile code no.: NE-S-24/35**

(oven dry basis) **Soil series : Dan Khun Thot (Dk)**

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_4OAc
			USDA grading			Sand-fraction grading					Lab	Field	1:1	1:1			
			sand	silt	clay	vc	c	m	f	vf	result	estim[n]	water	KCl			
	0-18	A1	87.2	10.8	2.0	0.1	4.4	33.2	0.5	49.0	s	sl	4.9	3.5		3.7	34
	18-45/56	A2	83.3	11.7	4.5	0.2	3.1	29.2	41.7	9.6	sl	sl	4.8	3.8		8.7	17
	45/56-83	C1	85.1	12.5	2.4	0.0	3.9	31.7	0.5	49.0	sl	sl	4.8	3.8		4.6	15
	83-125/135	C2	86.4	11.1	2.5	0.3	3.8	31.3	38.3	12.7	sl	sl	5.0	4.1		7.4	7
	125/135-194	C3	85.8	7.2	7.0	0.2	3.7	30.3	0.9	50.7	sl	sl	5.2	4.9		6.7	6

Depth (cm)	Air dried to oven dried	C %	N %	Exchange capacity and cations ($cmol_{(+)}$ kg^{-1})									Base satur[n] (%)		ECEC	Al	Electrical condut[y]
				Ca	Mg	K	Na	SUM cations (B)	Extr. acidity (A)	SUM (B+A)	CEC NH_4OAc (C)	CEC 100g Clay	B/Cx100	(Bx100)/ (B+A)	$cmol_{(+)}$ kg^{-1} (B+D)	KCl extr. $cmol_{(+)}$ kg^{-1} (D)	(ECx10^6) dS m^{-1}
0-18	0.1	0.24		0.40	0.05	0.10	0.30	0.85	0.17	2.55	1.58	75.0	57	33			0.01
18-45/56	0.1	0.17		0.30	0.04	0.04	0.20	0.58	11.20	11.78	1.50	33.3	39	5			0.02
45/56-83	0.1	0.13		0.30	0.05	0.03	0.20	0.58	6.30	6.88	1.70	70.8	34	8			0.01
83-125/135	0.1	0.06		0.30	0.05	0.03	0.20	0.58	5.90	6.64	0.90	36.0	64	9			0.00
125/135-194	0.1	0.04		0.20	0.05	0.03	0.20	0.48	5.50	5.98	0.70	10.0	69	8			0.01