

**REPORT ON THE CLASSIFICATION INTO FAO-UNESCO SOIL UNITS OF
PROFILES SELECTED FROM THE NRCS PEDON DATA BASE
FOR IGBP-DIS**

Prepared for the Global Soil Data Task Group of the
International Geographical and Biosphere Programme (IGBP-DIS)

O.C. Spaargaren and N.H. Batjes
February 1995



INTERNATIONAL SOIL REFERENCE AND INFORMATION CENTRE

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Introduction

The Global Soil Data Task Group of IGBP-DIS proposes to assemble a reliable and readily accessible data set on soil properties for global change research (Ingram, 1993). The principal international custodians of soil data, the Food and Agricultural Organization (FAO), USDA Natural Resources Conservation Service (NRCS) and the International Soil Reference and Information Centre (ISRIC), have agreed to play an active role in this task.

In a separate activity, ISRIC has developed a global soil data set linked to a $\frac{1}{2}^\circ$ by $\frac{1}{2}^\circ$ grid version of FAO's corrected and digitized 1:5,000,000 Soil Map of the World through its project on "World Inventory of Soil Emission Potentials" (Batjes and Bridges, 1994). The international data sets held in WISE have been proposed to serve as the nucleus for this global pedon data set of IGBP-DIS (Scholes *et al.*, 1994).

Following a visit of ISRIC staff to NRCS, at Lincoln, in June 1993, ISRIC was sent a tape with a selection of NRCS profiles from the United States and "other regions of the world". These files were first converted into a dBASE compatible format so that the data sets could be transferred to a WISE compatible database structure. The actual data transfer was done with the "Landslide" facility developed at ISRIC, which inherently encompasses some loss of information (Tempel, 1994; Zunnenberg, *unpublished data*).

During the April 1994 meeting in Washington D.C., Global Soil Data Task Group requested ISRIC to provide all its USDA-NRCS data, transferred into the WISE database format, with the FAO-Unesco 1974 and 1990 soil unit names (see Appendix 2). This re-classification is necessary to establish the linkage of the soil profiles to the soil types shown on FAO's edited and digital Soil Map of the World (FAO, 1991).

From the 1477 pedon data of the NRCS data tape, 664 fulfilled the requirements for inclusion in the WISE database. Selection criteria for inclusion were: presence of geographical reference (latitude-longitude), location/country information, completeness of data, and classifiable in the FAO-Unesco 1974 Legend.

The selected profiles originate from 41 countries, viz.: Botswana (19), Brazil (18), Burundi (12), Cameroon (3), Chile (5), Colombia (9), Costa Rica (16), Ecuador (13), El Salvador (5), Guatemala (11), Honduras (8), India (10), Indonesia (13), Japan (4), Jordan (14), Kenya (32), Korea (15), Lesotho (15), Malaysia (2), Mali (14), Morocco (5), Nepal (5), Nicaragua (10), Niger (11), Pakistan (35), Panama (14), Papua New Guinea (13), Philippines (42), Rwanda (6), Samoa (14), Sudan (25), Syria (6), Taiwan (1), Thailand (23), Tunisia (15), Uganda (12), USA (145), Venezuela (5), Yemen (4), Zambia (20) and Zimbabwe (15). The number of profiles for each country is given between brackets.

Procedure

Originally it was intended to develop a computer facility to translate the US soil classification ("Soil Taxonomy") names into the FAO-Unesco (1974) system. However, there appeared to be no consistency in the US soil coding with respect of the Soil Taxonomy edition used. Soils from Colombia, for example, were classified using the 1992 edition (Soil Survey Staff, 1992), while soils from Chile were still named according to the 1975 edition (Soil Survey Staff, 1975). Moreover, it

was uncertain which file of the NRCS data base contained the right code as two files exist with soil classification codes (SCSOIL and SCLAB). As also a number of data, necessary for an automated classification, are not considered in the global WISE data base, it was decided to classify all selected pedons manually.

Problems

It must be noted that the printouts obtained from the NRCS data after transfer into WISE format sometimes contained distorted soil horizon designations and duplicate horizon depths which made data interpretation for classification somewhat troublesome. When occurring, these problems have been remedied manually with reference to the original data sets. Moreover, the data presented in the WISE format were, in a number of cases, not enough to classify the soils unambiguously. Sufficient data to establish hydromorphy ("gley" and "pseudogley"), cracks in soils (necessary to establish Vertisols), the occurrence of soft calcareous concretions (for Calcic soil units) and the iron and aluminium content in relation to Andosols and Podzols, are not presented, since WISE was never intended to be a soil classification tool. When classifying soils with these suspected characteristics, assumptions had to be made based on the USDA soil classification, on the environmental and/or on soil data present (slope, drainage class, depth of groundwater, parent material, bulk density, type of structure, base saturation in relation to exchangeable calcium content, etc.).

In case of missing latitude-longitude references, approximate coordinates have been derived from the Times Atlas, using information held in the NRCS data set (e.g. Machakos, Kenya).

Results

A total of 664 have been classified according to the FAO-Unesco Legends (1974; 1990). For about 40 percent of the classifications assumptions had to be made, mainly concerning Andosols, Fluvisols, Gleysols, Podzols and Vertisols, and calcic, gleyic, plinthic, stagnic and vertic soil units. Moreover, the soil data profile sets of Brazil, Korea and Zambia were upgraded for WISE using the published data (SMSS 1985; 1986; 1987).

The results are summarized in Table 1. A full account of the classification of the soils per country is given in Appendix 1, showing the WISE identification number, the FAO-Unesco soil unit names according to the 1974 Legend and the 1990 Revised Legend, and the corresponding Soil Taxonomy classification as derived from the NRCS SCSOIL file. The coding protocols used in the WISE data base can be found in ISRIC's Technical Paper 26 (Batjes, 1995).

Literature

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Table 1. Summary of FAO_74 soil units in the WISE/ISRIC data set, derived from the NRCS pedon data base.

A: ACRISOLS		
	Af= 37 Ag= 6 Ah= 22 Ao= 10 Ap= 8	[83]
B: CAMBISOLS		
	Bc= 7 Bd= 16 Be= 26 Bf= 11 Bg= 4 Bh= 12 Bk= 21 Bv= 4 Bx= 0	[101]
C: CHERNOZEMS		
	Cg= 0 Ch= 0 Ck= 1 Cl= 0	[1]
D: PODZOLUVISOLS		
	Dd= 0 De= 3 Dg= 0	[3]
E: RENDZINAS		
	E = 1	[1]
F: FERRALSOLS		
	Fa= 0 Fh= 24 Fo= 9 Fp= 2 Fr= 5 Fx= 2	[42]
G: GLEYSOLS		
	Gc= 1 Gd= 6 Ge= 14 Gh= 1 Gm= 9 Gp= 0 Gx= 3	[34]
H: PHAEZEMS		
	Hc= 8 Hg= 6 Hh= 37 Hl= 18	[69]
I: LITHOSOLS		
	I = 0	[0]
J: FLUVISOLS		
	Jc= 7 Jd= 5 Je= 8 Jt= 3	[23]
K: KASTANOZEMS		
	Kh= 0 Kk= 0 Kl= 0	[0]
L: LUVISOLS		
	La= 2 Lc= 19 Lf= 32 Lg= 4 Lk= 1 Lo= 31 Lp= 3 Lv= 2	[94]
M: GREYZEMS		
	Mg= 0 Mo= 0	[0]
N: NITOSOLS		
	Nd= 1 Ne= 6 Nh= 1	[8]
O: HISTOSOLS		
	Od= 2 Oe= 0 Ox= 0	[2]
P: PODZOLS		
	Pf= 0 Pg= 1 Ph= 3 Pl= 2 Po= 3 Pp= 0	[9]
Q: ARENOSOLS		
	Qa= 1 Qc= 4 Qf= 1 Ql= 1	[7]
R: REGOSOLS		
	Rc= 2 Rd= 4 Re= 9 Rx= 0	[15]
S: SOLONETZES		
	Sg= 3 Sm= 0 So= 15	[18]
T: ANDOSOLS		
	Th= 14 Tm= 7 To= 0 Tv= 15	[36]
U: RANKERS		
	U = 0	[0]
V: VERTISOLS		
	Vc= 42 Vp= 23	[65]
W: PLANOSOLS		
	Wd= 0 We= 0 Wh= 0 Wm= 0 Ws= 2 Wx= 0	[2]
X: XEROSOLS		
	Xh= 5 Xk= 7 Xl= 10 Xy= 3	[25]
Y: YERMOSOLS		
	Yh= 3 Yk= 2 Yl= 8 Yt= 0 Yy= 4	[17]
Z: SOLONCHAKS		
	Zg= 0 Zm= 0 Zo= 9 Zt= 0	[9]
		Total = 664

Appendix 1. List of NRCS profiles held in ISRIC-WISE database and their classification according to the FAO-Unesco Legends (1974; 1990) and the USDA Soil Taxonomy system (1975; 1992).

WISE_id	FAO_74	FAO_90	USDA Soil Taxonomy
BI005	Ws (Solodic Planosol)	SNj (Stagnic Solonetz)	MOLLIC NATRUSTALFS
BI006	Vp (Pellic Vertisol)	VRe (Eutric Vertisol)	UDIC PELLUSTERTS
BI007	Bh (Humic Cambisol)	CMu (Humic Cambisol)	HUMIC TROPORHODS
BI008	Ph (Humic Podzol)	PZc (Carbic Podzol)	UMBRIC TROPORHODS
BI009	Ah (Humic Acrisol)	ALu (Humic Alisol)	HUMIC TROPORHODS
BI010	Fh (Humic Ferralsol)	CMo (Ferralic Cambisol)	HAPLIC ACROTHOX
BI011	Af (Ferric Acrisol)	ACh (Haplic Acrisol)	ORTHOXIC KANHAPLUDULTS
BI012	Fh (Humic Ferralsol)	CMo (Ferralic Cambisol)	TYPIC ACROHUMOX
BI013	Fh (Humic Ferralsol)	CMo (Ferralic Cambisol)	TYPIC ACROHUMOX
BI014	Fh (Humic Ferralsol)	ACh (Haplic Acrisol)	TYPIC ACROHUMOX
BI015	Ah (Humic Acrisol)	ACh (Haplic Acrisol)	MOLLIC HAPLUDALFS
BI016	Af (Ferric Acrisol)	- (--)	TYPIC KANDIUDULTS
BR096	Fh (Humic Ferralsol)	FRu (Humic Ferralsol)	HUMIC HAPLUDOX
BR097	Ah (Humic Acrisol)	FRh (Haplic Ferralsol)	HUMIC KANDIUDOX
BR098	Fh (Humic Ferralsol)	CMo (Ferralic Cambisol)	RHODIC ACRUDOX
BR099	Fr (Rhodic Ferralsol)	LXh (Haplic Lixisol)	HUMIC RHODIC EUTRUDOX
BR100	Fh (Humic Ferralsol)	CMu (Humic Cambisol)	TYPIC ACRUDOX
BR101	Fo (Orthic Ferralsol)	CMo (Ferralic Cambisol)	HAPLIC ACRUDOX
BR102	Fh (Humic Ferralsol)	FRg (Geric Ferralsol)	HUMIC ACRUDOX
BR103	Fp (Plinthic Ferralsol)	PTa (Albic Plinthosol)	TYPIC ACRAQUOX
BR104	Fo (Orthic Ferralsol)	CMo (Ferralic Cambisol)	TYPIC HAPLUSTOX
BR105	Fh (Humic Ferralsol)	LXh (Haplic Lixisol)	HUMIC RHODIC EUTRUSTOX
BR106	Ah (Humic Acrisol)	ACh (Haplic Acrisol)	TYPIC KANDIHUMULTS
BR107	Fh (Humic Ferralsol)	CMo (Ferralic Cambisol)	ACRUSTOX ...
BR108	Fo (Orthic Ferralsol)	LXh (Haplic Lixisol)	HUMIC RHODIC EUTRUSTOX
BR109	Fh (Humic Ferralsol)	CMo (Ferralic Cambisol)	HUMIC ACRUSTOX
BR110	Fh (Humic Ferralsol)	ACu (Humic Acrisol)	HUMIC ACRUSTOX
BR111	Fh (Humic Ferralsol)	CMo (Ferralic Cambisol)	HUMIC ACRUSTOX
BR112	Fh (Humic Ferralsol)	CMo (Ferralic Cambisol)	HUMIC RHODIC HAPLUSTOX
BR113	Fp (Plinthic Ferralsol)	PTa (Albic Plinthosol)	TYPIC HAPLAQUOX
BW869	Vp (Pellic Vertisol)	VRe (Eutric Vertisol)	TYPIC PELLUDERTS
BW870	Yl (Luvic Yermosol)	CLp (Petric Calcisol)	USTOLIC PALEARGIDS
BW871	Yl (Luvic Yermosol)	LVx (Chromic Luvisol)	ARIDIC PALEUSTALFS
BW872	Xl (Luvic Xerosol)	LXh (Haplic Lixisol)	OXIC PALEUSTALFS
BW873	Sg (Gleyic Solonetz)	SNg (Gleyic Solonetz)	MOLLIC OCHRAQUALFS
BW874	Ne (Eutric Nitosol)	LVg (Gleyic Luvisol)	AQUIC ARGIUUSTOLLS
BW875	Gd (Dystric Gleysol)	CMg (Gleyic Cambisol)	AERIC HAPLAQUEPTS
BW876	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	PSAMMENTIC PALEUSTALFS
BW877	Vp (Pellic Vertisol)	VRe (Eutric Vertisol)	TYPIC PELLUSTERTS
BW878	Hl (Luvic Phaeozem)	PHl (Luvic Phaeozem)	TYPIC HAPLARGIDS
BW879	Re (Eutric Regosol)	RGe (Eutric Regosol)	TYPIC CAMBORTHIDS
BW880	Xl (Luvic Xerosol)	LVh (Haplic Luvisol)	TYPIC HAPLARGIDS
BW881	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	UDIC HAPLUSTALFS
BW882	Bf (Ferralic Cambisol)	CMo (Ferralic Cambisol)	OXIC PALEUSTALFS
BW883	Qc (Cambic Arenosol)	ARb (Cambic Arenosol)	TYPIC HAPLARGIDS
BW884	Zo (Orthic Solonchak)	SCn (Sodic Solonchak)	TYPIC TORRIPSAMMENTS
BW885	Zo (Orthic Solonchak)	CLh (Haplic Calcisol)	ABRUPTIC DURARGIDS
BW886	Zo (Orthic Solonchak)	CLp (Petric Calcisol)	USTOLIC CALCIORTHIDS
BW887	Gm (Mollic Gleysol)	GLm (Mollic Gleysol)	TYPIC ARGIAQUOLLS
CL024	Tv (Vitric Andosol)	ANz (Vitric Andosol)	TYPIC DURANDEPTS
CL025	Th (Humic Andosol)	ANz (Vitric Andosol)	TYPIC DURANDEPTS
CL026	Th (Humic Andosol)	ANz (Vitric Andosol)	TYPIC DYSTRANDEPTS
CL027	Tv (Vitric Andosol)	ANz (Vitric Andosol)	TYPIC DURANDEPTS
CL028	Th (Humic Andosol)	ANz (Vitric Andosol)	TYPIC DYSTRANDEPTS
CM053	Lf (Ferric Luvisol)	FRh (Haplic Ferralsol)	TYPIC KANDIUDULTS
CM054	Tv (Vitric Andosol)	ANz (Vitric Andosol)	TYPIC DURANDEPTS
CM055	Th (Humic Andosol)	ANz (Vitric Andosol)	TYPIC DYSTRANDEPT
CO063	Gm (Mollic Gleysol)	PHg (Gleyic Phaeozem)	AQUIC HAPLUDOLL
CO064	Th (Humic Andosol)	ANz (Vitric Andosol)	ACRUDOXIC HYDRIC MELANUDANDS
CO065	Gm (Mollic Gleysol)	PHg (Gleyic Phaeozem)	AQUIC HAPLUDOLL
CO066	Ap (Plinthic Acrisol)	FRp (Plinthic Ferralsol)	PLINTHIC KANDIUDOX
CO067	Gd (Dystric Gleysol)	CMd (Dystric Cambisol)	AERIC TROPAQUEPT
CO068	Bg (Gleyic Cambisol)	CMg (Gleyic Cambisol)	AQUIC DYSTROPEPT
CO069	Fo (Orthic Ferralsol)	CMo (Ferralic Cambisol)	TYPIC HAPLUSTOX
CO070	Bf (Ferralic Cambisol)	CMo (Ferralic Cambisol)	TYPIC HAPLUSTOX
CO071	Fh (Humic Ferralsol)	CMo (Ferralic Cambisol)	TYPIC HAPLUSTOX
CR013	Bd (Dystric Cambisol)	CMd (Dystric Cambisol)	TYPIC HUMITROPEPTS

WISE_id	FAO_74	FAO_90	USDA Soil Taxonomy
CR014	Bd (Dystric Cambisol)	Alh (Haplic Alisol)	ANDEPTIC DYSTROPEPTS
CR015	Th (Humic Andosol)	ANz (Vitric Andosol)	OXIC DYSTRANDEPTS
CR016	Lc (Chromic Luvisol)	LVx (Chromic Luvisol)	TYPIC HAPLUDALFS
CR017	Hl (Luvic Phaeozem)	PHl (Luvic Phaeozem)	PACHIC ARGIUUSTOLLS
CR018	Hl (Luvic Phaeozem)	PHl (Luvic Phaeozem)	TYPIC ARGIUUSTOLLS
CR019	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	UDIC HAPLUSTALFS
CR020	Re (Eutric Regosol)	RGe (Eutric Regosol)	TYPIC USTROPEPTS
CR021	Hg (Gleyic Phaeozem)	PHl (Luvic Phaeozem)	AQUIC HAPLUSTOLLS
CR022	Ag (Gleyic Acrisol)	ALu (Humic Alisol)	HISTIC TROPAQUODS
CR023	Bh (Humic Cambisol)	CMu (Humic Cambisol)	HISTIC TROPAQUODS
CR024	Fh (Humic Ferralsol)	FRu (Humic Ferralsol)	TROPEPTIC UMBRIORTHOX
CR025	Fh (Humic Ferralsol)	CMo (Ferralic Cambisol)	TROPEPTIC HAPLORTHOX
CR026	Ah (Humic Acrisol)	ACH (Haplic Acrisol)	TROPEPTIC HAPLORTHOX
CR027	Bh (Humic Cambisol)	CMu (Humic Cambisol)	AQUENTIC HUMITROPEPTS
CR028	Vp (Pellic Vertisol)	VRe (Eutric Vertisol)	TYPIC PELLUSTERTS
EC022	Th (Humic Andosol)	ANz (Vitric Andosol)	ANDIC HUMITROPEPTS
EC023	Re (Eutric Regosol)	RGe (Eutric Regosol)	TYPIC USTIFLUVENTS
EC024	Tm (Mollic Andosol)	ANz (Vitric Andosol)	ANDIC HUMITROPEPTS
EC025	Tm (Mollic Andosol)	ANz (Vitric Andosol)	CUMULIC HAPLUDOLLS
EC026	Th (Humic Andosol)	ANz (Vitric Andosol)	TYPIC HUMITROPEPTS
EC027	Tm (Mollic Andosol)	ANz (Vitric Andosol)	ANDIC DYSTRANDEPTS
EC028	Tv (Vitric Andosol)	ANz (Vitric Andosol)	ENTIC DYSTRANDEPTS
EC029	Tv (Vitric Andosol)	ANz (Vitric Andosol)	TYPIC ARGIUODOLLS
EC030	Tm (Mollic Andosol)	ANm (Mollic Andosol)	PACHIC PALEUSTOLLS
EC031	Tm (Mollic Andosol)	ANz (Vitric Andosol)	MOLLIC VITRANDEPTS
EC032	Tm (Mollic Andosol)	ANz (Vitric Andosol)	TYPIC HUMITROPEPTS
EC033	Th (Humic Andosol)	ANz (Vitric Andosol)	ANDIC HUMITROPEPTS
EC034	Tv (Vitric Andosol)	ANz (Vitric Andosol)	FLUVENTIC HAPLUDOLLS
GT001	Tm (Mollic Andosol)	ANm (Mollic Andosol)	MOLLIC VITRANDEPT
GT002	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	TYPIC HAPLUDOLLS
GT003	Hh (Haplic Phaeozem)	ALu (Humic Alisol)	TYPIC HUMITROPEPTS
GT004	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	TYPIC HAPLUSTOLLS
GT005	Hh (Haplic Phaeozem)	FLm (Mollic Fluvisol)	CUMULIC HAPLUSTOLLS
GT006	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	UDIC CHROMUSTERTS
GT007	Vp (Pellic Vertisol)	VRe (Eutric Vertisol)	UDIC PELLUSTERTS
GT008	Lc (Chromic Luvisol)	LVx (Chromic Luvisol)	LITHIC ARGIUUSTOLLS
GT009	Hh (Haplic Phaeozem)	FLm (Mollic Fluvisol)	CUMULIC HAPLUSTOLLS
GT010	Bc (Chromic Cambisol)	LVx (Chromic Luvisol)	CUMULIC HAPLUSTOLLS
GT011	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	UDIC ARGIUUSTOLLS
HN001	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	UDERTIC HAPLUSTOLL
HN002	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	VERTIC ARGIUUSTOLLS
HN003	Gm (Mollic Gleysol)	PHj (Stagnic Phaeozem)	FLUVAQUENTIC HAPLUSTOLLS
HN004	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	PACHIC HAPLUSTOLLS
HN005	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	PACHIC UDIC HAPLUSTOLLS
HN006	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	UDERTIC HAPLUSTOLLS
HN007	Je (Eutric Fluvisol)	FLe (Eutric Fluvisol)	CUMULIC HAPLUSTOLLS
HN008	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	CUMULIC HAPLUSTOLLS
ID090	Tv (Vitric Andosol)	ANz (Vitric Andosol)	HYDRIC DYSTRANDEPT
ID091	Ah (Humic Acrisol)	FRx (Xanthic Ferralsol)	ORTHOXIC PALEHUMULT
ID092	Ah (Humic Acrisol)	FRx (Xanthic Ferralsol)	ORTHOXIC PALEHUMULT
ID093	Fo (Orthic Ferralsol)	CMo (Ferralic Cambisol)	TROPEPTIC HAPLORTHOX
ID094	Fh (Humic Ferralsol)	FRh (Haplic Ferralsol)	TROPEPTIC HAPLORTHOX
ID095	Fh (Humic Ferralsol)	FRh (Haplic Ferralsol)	TROPEPTIC HAPLORTHOX
ID096	Fx (Xanthic Ferralsol)	FRx (Xanthic Ferralsol)	TROPEPTIC HAPLORTHOX
ID097	Fo (Orthic Ferralsol)	FRh (Haplic Ferralsol)	TROPEPTIC HAPLORTHOX
ID098	Fo (Orthic Ferralsol)	FRh (Haplic Ferralsol)	TYPIC KANDIUDULTS
ID099	Fx (Xanthic Ferralsol)	FRx (Xanthic Ferralsol)	TROPEPTIC HAPLORTHOX
ID100	Bd (Dystric Cambisol)	CMd (Dystric Cambisol)	TYPIC PALEHUMULTS
ID101	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	FLUVAQUENTIC EUTROPEPTS
ID102	Lv (Vertic Luvisol)	LXh (Haplic Lixisol)	VERTIC PALEUDALF
IN113	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	ENTIC CHROMUSTERTS
IN114	Vc (Chromic Vertisol)	VRE ()	ENTIC CHROMUSTERTS
IN115	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	TYPIC PELLUSTERT
IN116	Lc (Chromic Luvisol)	LVx (Chromic Luvisol)	UDIC RHODUSTALFS
IN117	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	TYPIC CHROMUSTERTS
IN118	Vc (Chromic Vertisol)	VRk (Calcic Vertisol)	ENTIC CHROMUSTERTS
IN119	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	TYPIC HAPLUSTALF
IN120	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	TYPIC HAPLUSTALF
IN121	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	ULTIC HAPLUSTALF
IN122	So (Orthic Solonetz)	SNh (Haplic Solonetz)	AQUIC NATRUSTALF
J0030	Yk (Calcic Yermosol)	CLh (Haplic Calcisol)	TYPIC CALCIORITHID
J0031	So (Orthic Solonetz)	SNk (Calcic Solonetz)	TYPIC CALCIORITHID
J0032	Xh (Haplic Xerosol)	ATc (Cumulic Anthrosol)	USTOLLC CAMBORTHID

WISE_id	FAO_74	FAO_90	USDA Soil Taxonomy
J0033	Xh (Haplic Xerosol)	CMv (Vertic Cambisol)	FLUVENTIC USTOCHREPT
J0034	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	ENTIC CHROMOXERERT
J0035	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	ENTIC CHROMOXERERT
J0036	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	TYPIC CHROMOXERERTS
J0037	Yy (Gypsic Yermosol)	Gyp (Petric Gypsisol)	TYPIC GYPSIORTHIDS
J0038	Bc (Chromic Cambisol)	CLh (Haplic Calcisol)	AQUIC TORRIORITHENTS
J0039	So (Orthic Solonetz)	SNk (Calcic Solonetz)	AQUIC NATRARGIDS
J0040	Zo (Orthic Solonchak)	SCK (Calcic Solonchak)	AQUIC TORRIORITHENTS
J0041	So (Orthic Solonetz)	SNy (Gypsic Solonetz)	TYPIC NATRARGIDS
J0042	Hl (Luvic Phaeozem)	PHl (Luvic Phaeozem)	TYPIC ARGIXEROLLS
J0043	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	TORRERTS
J0043	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	AERIC HAPLAQUEPT
JP032	Ge (Eutric Gleysol)	ALj (Stagnic Alisol)	ANDIC DYSTROCHREPT
JP033	Bd (Dystric Cambisol)	Cmd (Dystric Cambisol)	FLUVAQUENT ...
JP034	Je (Eutric Fluvisol)	Fle (Eutric Fluvisol)	FLUVAQUENT ...
JP035	Je (Eutric Fluvisol)	Fle (Eutric Fluvisol)	FLUVAQUENT ...
KE001	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	OXIC RHODUSTALFS
KE002	Hh (Haplic Phaeozem)	FRr (Rhodic Ferralsol)	OXIC RHODUSTALFS
KE003	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	OXIC HAPLUSTALFS
KE004	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	ULTIC PALEUSTALFS
KE005	Bf (Ferralic Cambisol)	CMo (Ferralic Cambisol)	USTOXIC HUMITROPEPTS
KE006	Bc (Chromic Cambisol)	CMx (Chromic Cambisol)	PALEUSTALFS ...
KE007	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	USTOXIC PALEHUMULTS
KE008	Ah (Humic Acrisol)	FRr (Rhodic Ferralsol)	USTOXIC PALEHUMULTS
KE009	Af (Ferric Acrisol)	FRr (Rhodic Ferralsol)	TYPIC RHODUSTULTS
KE010	Lc (Chromic Luvisol)	LVx (Chromic Luvisol)	TYPIC ARGIUUSTOLLS
KE011	Fo (Orthic Ferralsol)	FRh (Haplic Ferralsol)	TYPIC KANDIUSTALFS
KE012	Lc (Chromic Luvisol)	LVx (Chromic Luvisol)	TYPIC HAPLUSTALFS
KE013	Hg (Gleyic Phaeozem)	PHj (Stagnic Phaeozem)	AQUIC HAPLUSTOLLS
KE014	Bg (Gleyic Cambisol)	CMe (Eutric Cambisol)	AQUIC USTROPEPTS
KE015	Hl (Luvic Phaeozem)	PHl (Luvic Phaeozem)	ARGIUUSTOLLS
KE016	Bc (Chromic Cambisol)	CMx (Chromic Cambisol)	OXIC PALEUSTALFS
KE017	Lc (Chromic Luvisol)	LVx (Chromic Luvisol)	ARIDIC HAPLUSTALFS
KE018	Lf (Ferric Luvisol)	LVx (Chromic Luvisol)	RHODIC PALEUSTALFS
KE019	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	ULTIC HAPLUSTALFS
KE020	Bf (Ferralic Cambisol)	ACH (Haplic Acrisol)	USTOXIC DYSTROPEPTS
KE021	Lc (Chromic Luvisol)	LVx (Chromic Luvisol)	TYPIC RHODUSTALFS
KE022	Af (Ferric Acrisol)	FRr (Rhodic Ferralsol)	TYPIC PALEUSTULTS
KE023	Bh (Humic Cambisol)	FRh (Haplic Ferralsol)	USTOXIC HUMITROPEPTS
KE024	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	PACHIC ARGIUUSTOLLS
KE025	Lf (Ferric Luvisol)	FRh (Haplic Ferralsol)	OXIC PALEUSTALFS
KE026	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	RHODIC PALEUSTALFS
KE027	Bc (Chromic Cambisol)	LVx (Chromic Luvisol)	TYPIC USTROPEPTS
KE028	Fr (Rhodic Ferralsol)	FRr (Rhodic Ferralsol)	TROPEPTIC HAPLUSTOX
KE029	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	OXIC PALEUSTALFS
KE030	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	UDIC PALEUSTOLLS
KE031	Lg (Gleyic Luvisol)	LVj (Stagnic Luvisol)	UDIC PALEUSTALFS
KE032	Tv (Vitric Andosol)	ANh (Haplic Andosol)	TYPIC EUTRANDEPTS
KR003	Bh (Humic Cambisol)	CMu (Humic Cambisol)	TYPIC HAPLUMBREPTS
KR004	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	FLUVENTIC HAPLUDOLLS
KR005	Lc (Chromic Luvisol)	LVx (Chromic Luvisol)	TYPIC HAPLUDALFS
KR006	Re (Eutric Regosol)	ARh (Haplic Arenosol)	TYPIC UDIPSAMMENTS
KR007	Ne (Eutric Nitosol)	LVj (Stagnic Luvisol)	AQUIC HAPLUDALFS
KR008	Lg (Gleyic Luvisol)	LVg (Gleyic Luvisol)	TYPIC OCHRAQUALFS
KR009	Lg (Gleyic Luvisol)	LVg (Gleyic Luvisol)	TYPIC OCHRAQUALFS
KR010	Ao (Orthic Acrisol)	ALh (Haplic Alisol)	TYPIC HAPLUDULTS
KR011	Ao (Orthic Acrisol)	ALh (Haplic Alisol)	TYPIC HAPLUDULTS
KR012	Jt (Thionic Fluvisol)	FLt (Thionic Fluvisol)	TYPIC SULFAQUEPTS
KR013	Hh (Haplic Phaeozem)	ARg (Gleyic Arenosol)	FLUVENTIC HAPLUDOLLS
KR014	Bf (Ferralic Cambisol)	CMo (Ferralic Cambisol)	TYPIC HAPLUDULTS
KR015	Be (Eutric Cambisol)	LPe (Eutric Leptosol)	LITHIC RUPTIC-ALFIC EUTROCHREPTS
KR016	Jd (Dystric Fluvisol)	FLe (Eutric Fluvisol)	AERIC FLUVAQUENTS
KR017	Ao (Orthic Acrisol)	ALh (Haplic Alisol)	ULTIC HAPLUDALFS
LS013	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	OXIC PALEUDALFS
LS014	Hl (Luvic Phaeozem)	PHl (Luvic Phaeozem)	TYPIC ARGIUODOLLS
LS015	Hl (Luvic Phaeozem)	PHl (Luvic Phaeozem)	VERTIC ARGIUODOLLS
LS016	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	DYSTRIC FLUVENTIC EUTROCHREPTS
LS017	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	OXIC HAPLUDALFS
LS018	La (Albic Luvisol)	LVa (Albic Luvisol)	TYPIC ALBAQUALFS
LS019	Lc (Chromic Luvisol)	LVx (Chromic Luvisol)	TYPIC HAPLUDALFS
LS020	Ah (Humic Acrisol)	ACH (Haplic Acrisol)	TYPIC HAPLOHUMULTS
LS021	Ah (Humic Acrisol)	ACH (Haplic Acrisol)	MOLLIC PALEUDALFS
LS022	Vp (Pellic Vertisol)	VRe (Eutric Vertisol)	TYPIC PELLUDERTS
LS023	Bv (Vertic Cambisol)	CMv (Vertic Cambisol)	MOLLIC HAPLUDALFS

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LS024	Ah (Humic Acrisol)	ACh (Haplic Acrisol)	ULTIC HAPLUDALFS
LS025	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	CUMULIC HAPLUDOLLS
LS026	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	ULTIC HAPLUDALFS
LS027	Ah (Humic Acrisol)	ACh (Haplic Acrisol)	TYPIC HAPLOHUMOX
MA021	Bk (Calcic Cambisol)	CLp (Petric Calcisol)	PETROCALCIC PALEXEROLLS
MA022	Hc (Calcaric Phaeozem)	PHc (Calcaric Phaeozem)	TYPIC CALCIXEROLLS
MA023	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	VERTIC ARGIXEROLLS
MA024	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	PALEXEROLLC CHROMXERERT
MA025	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	PALEXEROLLC CHROMOXERERT
ML001	Af (Ferric Acrisol)	ACh (Haplic Acrisol)	TYPIC KANDIUSTULTS
ML002	Af (Ferric Acrisol)	ACh (Haplic Acrisol)	PLINTHUSTULTS ...
ML003	Af (Ferric Acrisol)	ACh (Haplic Acrisol)	RHODIC KANDIUSTULTS
ML004	Lo (Orthic Luvisol)	LVg (Gleyic Luvisol)	AQUIC PALEUSTALFS
ML005	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	TYPIC HAPLUSTALFS
ML006	Lc (Chromic Luvisol)	LVx (Chromic Luvisol)	TYPIC HAPLUSTALFS
ML007	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	ARIDIC PALEUSTALFS
ML008	Bd (Dystric Cambisol)	LPd (Dystric Leptosol)	TYPIC USTROPEPTS
ML009	Ap (Plinthic Acrisol)	PTd (Dystric Plinthosol)	PLINTHIC PALEUSTALF
ML010	Lp (Plinthic Luvisol)	LXp (Plinthic Lixisol)	PLINTHIC KANDIUSTALF
ML011	Ap (Plinthic Acrisol)	ACp (Plinthic Acrisol)	PLINTHIC KANDIUSTALF
ML012	Ap (Plinthic Acrisol)	PTe (Eutric Plinthosol)	PLINTHUSTALF ...
ML013	Bf (Ferralic Cambisol)	PTe (Eutric Plinthosol)	TYPIC HAPLUSTALF
ML014	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	ARIDIC PALEUSTALF
MY027	Ah (Humic Acrisol)	ALh (Haplic Alisol)	TYPIC HAPLOHUMULTS
MY028	Gd (Dystric Gleysol)	ATu (Urbic Anthrosol)	TYPIC HAPLAQUOX
NE006	Jd (Dystric Fluvisol)	FLm (Mollic Fluvisol)	USTIC DYSTROPEPT
NE007	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	ARIDIC HAPLUSTALF
NE008	Af (Ferric Acrisol)	ACh (Haplic Acrisol)	ARIDIC KANDIUSTULT
NE009	Af (Ferric Acrisol)	ACh (Haplic Acrisol)	ARIDIC KANDIUSTULT
NE010	Lp (Plinthic Luvisol)	PTe (Eutric Plinthosol)	ARIDIC KANDIUSTALF
NE011	Lp (Plinthic Luvisol)	LXp (Plinthic Lixisol)	ARIDIC HAPLUSTALF
NE012	Af (Ferric Acrisol)	ACh (Haplic Acrisol)	ARIDIC KANDIUSTULT
NE013	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	TYPIC CHROMUSTERT
NE014	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	ARIDIC HAPLUSTALF
NE015	Je (Eutric Fluvisol)	FLe (Eutric Fluvisol)	VERTIC FLUVAQUENT
NE016	Qf (Ferralic Arenosol)	ARO (Ferralic Arenosol)	TYPIC USTIPSAMMENT
NI012	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	UDIC CHROMUSTERTS
NI013	Hh (Haplic Phaeozem)	CMu (Humic Cambisol)	UDIC HAPLUSTALFS
NI014	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	UDIC CHROMUSTERTS
NI015	Je (Eutric Fluvisol)	FLe (Eutric Fluvisol)	TYPIC USTIFLUVENTS
NI016	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	TYPIC USTROPEPTS
NI017	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	ENTIC CHROMUSTERTS
NI018	Vp (Pellic Vertisol)	VRe (Eutric Vertisol)	UDIC PELLUSTERTS
NI019	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	FLUVENTIC HAPLUSTOLLS
NI020	Vp (Pellic Vertisol)	VRe (Eutric Vertisol)	UDIC PELLUSTERTS
NI021	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	CUMULIC HAPLUSTOLLS
NP007	Hh (Haplic Phaeozem)	CMu (Humic Cambisol)	PACHIC HAPLUMBREPT
NP008	De (Eutric Podzoluvisol)	PDe (Eutric Podzoluvisol)	AQUIC GLOSSUDALF
NP009	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	TYPIC HAPLUDALF
NP010	Jd (Dystric Fluvisol)	FLu (Umbric Fluvisol)	PACHIC HAPLUMBREPT
NP011	Jc (Calcaric Fluvisol)	FLc (Calcaric Fluvisol)	AQUENTIC USTIFLUVENT
PA001	Bd (Dystric Cambisol)	CMd (Dystric Cambisol)	TYPIC HAPLUDALFS
PA002	Hh (Haplic Phaeozem)	PHg (Gleyic Phaeozem)	TYPIC HAPLAQUOLLS
PA003	Gm (Mollic Gleysol)	GLm (Mollic Gleysol)	TYPIC HAPLAQUOLLS
PA004	Af (Ferric Acrisol)	ACh (Haplic Acrisol)	AERIC OCHRAQUALFS
PA005	Lg (Gleyic Luvisol)	LVg (Gleyic Luvisol)	AERIC OCHRAQUALFS
PA006	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	TYPIC USTROPEPTS
PA007	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	TYPIC USTROPEPTS
PA008	Th (Humic Andosol)	ANz (Vitric Andosol)	OXIC DYSTRANDEPTS
PA009	Th (Humic Andosol)	ANz (Vitric Andosol)	TYPIC DYSTRANDEPTS
PA010	Bd (Dystric Cambisol)	CMd (Dystric Cambisol)	TYPIC HUMITROPEPTS
PA011	Bf (Ferralic Cambisol)	CMo (Ferralic Cambisol)	OXIC HUMITROPEPTS
PA012	Ap (Plinthic Acrisol)	ACp (Plinthic Acrisol)	TYPIC PLINTHUDULTS
PA013	Bd (Dystric Cambisol)	CMd (Dystric Cambisol)	TYPIC HAPLOHUMULTS
PA014	Lc (Chromic Luvisol)	LVx (Chromic Luvisol)	ULTIC HAPLUDALFS
PG019	Vp (Pellic Vertisol)	VRe (Eutric Vertisol)	TYPIC PELLUDERTS
PG020	Jd (Dystric Fluvisol)	FLd (Dystric Fluvisol)	AERIC TROPAQUALFS
PG021	Bh (Humic Cambisol)	CMu (Humic Cambisol)	ANDEPTIC HAPLOHUMULTS
PG022	Ah (Humic Acrisol)	ACu (Humic Acrisol)	TYPIC HAPLOHUMULTS
PG023	Th (Humic Andosol)	ANg (Gleyic Andosol)	TYPIC DYSTRANDEPTS
PG024	Ag (Gleyic Acrisol)	ACg (Gleyic Acrisol)	UMBRIC PALEAQUOLLS
PG025	Tv (Vitric Andosol)	ANg (Gleyic Andosol)	TYPIC ANDAQUEPTS
PG026	Bv (Vertic Cambisol)	SNh (Haplic Solonetz)	VERTIC HAPLUSTOLLS

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PG027	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	LITHIC USTROPEPTS
PG028	Fh (Humic Ferralsol)	CMo (Ferralic Cambisol)	TROPEPTIC HAPLORTHOX
PG029	Fh (Humic Ferralsol)	CMo (Ferralic Cambisol)	TYPIC HAPLOHUMULTS
PG030	La (Albic Luvisol)	LVa (Albic Luvisol)	UDIC PALEUSTALFS
PG031	Nh (Humic Nitosol)	NTu (Humic Nitosol)	ORTHOXIC PALEHUMULTS
PH026	Fh (Humic Ferralsol)	FRh (Haplic Ferralsol)	TROPEPTIC HAPLORTHOX
PH027	Gm (Mollic Gleysol)	GLm (Mollic Gleysol)	HAPLAQUOLLS (andaqueptic ?)
PH028	Ge (Eutric Gleysol)	GLE (Eutric Gleysol)	AERIC TROPAQUEPTS
PH029	Gm (Mollic Gleysol)	GLm (Mollic Gleysol)	VERTIC HAPLAQUOLLS
PH030	Ge (Eutric Gleysol)	GLE (Eutric Gleysol)	VERTIC TROPAQUEPTS
PH031	Vp (Pellic Vertisol)	VRE (Eutric Vertisol)	UDORTHENTIC PELLUSTERTS
PH032	Ge (Eutric Gleysol)	GLE (Eutric Gleysol)	AERIC TROPAQUEPTS
PH033	Vp (Pellic Vertisol)	VRE (Eutric Vertisol)	ENTIC PELLUSTERTS
PH034	Ge (Eutric Gleysol)	GLE (Eutric Gleysol)	AERIC TROPAQUEPTS
PH035	Gc (Calcaric Gleysol)	GLE (Eutric Gleysol)	FLUVAQUENTIC HAPLUSTOLLS
PH036	Vc (Chromic Vertisol)	VRE (Eutric Vertisol)	ENTIC Chromustert
PH037	Ge (Eutric Gleysol)	GLE (Eutric Gleysol)	TYPIC HAPLAQUOLLS
PH038	Gm (Mollic Gleysol)	GLm (Mollic Gleysol)	UDIC HAPLUSTOLLS
PH039	Ge (Eutric Gleysol)	GLE (Eutric Gleysol)	VERTIC TROPAQUEPTS
PH040	Ge (Eutric Gleysol)	GLE (Eutric Gleysol)	TYPIC TROPAQUEPTS
PH041	Ge (Eutric Gleysol)	GLE (Eutric Gleysol)	TROPIC FLUVAQUENTS
PH042	Ge (Eutric Gleysol)	GLE (Eutric Gleysol)	FLUVAQUENTIC HAPLUSTOLLS
PH043	Vp (Pellic Vertisol)	VRE (Eutric Vertisol)	UDIC PELLUSTERTS
PH044	Vp (Pellic Vertisol)	VRE (Eutric Vertisol)	UDORTHENTIC PELLUSTERTS
PH045	Ah (Humic Acrisol)	ALu (Humic Alisol)	ANDIC PALEHUMULTS
PH046	Bk (Calcic Cambisol)	CMc (Calcaric Cambisol)	MOLLIC USTIFLUVENTS
PH047	Hc (Calcaric Phaeozem)	PHc (Calcaric Phaeozem)	CUMULIC HAPLUSTOLLS
PH048	Jd (Dystric Fluvisol)	FLe (Eutric Fluvisol)	AQUIC USTIFLUVENTS
PH049	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	TYPIC USTROPEPTS
PH050	Af (Ferric Acrisol)	ACH (Haplic Acrisol)	OXIC HAPLUSTALFS
PH051	Bv (Vertic Cambisol)	CMv (Vertic Cambisol)	UDORTHENTIC ...
PH052	Th (Humic Andosol)	ANz (Vitric Andosol)	UMBRIC VITRANDEPTS
PH053	Ao (Orthic Acrisol)	ALg (Gleyic Alisol)	AQUIC TROPUDALFS
PH054	Th (Humic Andosol)	ANz (Vitric Andosol)	UMBRIC VITRANDEPTS
PH055	Hg (Gleyic Phaeozem)	PHg (Gleyic Phaeozem)	ABRUPTIC ARGIAQUOLLS
PH056	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	AERIC TROPAQUALFS
PH057	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	AERIC TROPAQUALFS
PH058	Bk (Calcic Cambisol)	CMc (Calcaric Cambisol)	FLUVENTIC USTROPEPTS
PH059	Bk (Calcic Cambisol)	CMc (Calcaric Cambisol)	TYPIC USTROPEPTS
PH060	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	TYPIC HAPLAQUOLLS
PH061	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	TYPIC EUTROPEPTS
PH062	Ah (Humic Acrisol)	FRx (Xanthic Ferralsol)	TYPIC KANDIHUMULTS
PH063	Bg (Gleyic Cambisol)	LVj (Stagnic Luvisol)	FLUVENTIC EUTROPEPTS
PH064	Bd (Dystric Cambisol)	ALu (Humic Alisol)	ANDIC HUMITROPEPTS
PH065	Od (Dystric Histosol)	HSS (Terric Histosol)	TYPIC TROPHEMISTS
PH066	Lc (Chromic Luvisol)	LVx (Chromic Luvisol)	TYPIC PALEUSTALFS
PH067	Bv (Vertic Cambisol)	CMv (Vertic Cambisol)	VERTIC EUTROPEPT
PK003	Xk (Calcic Xerosol)	CMc (Calcaric Cambisol)	FLUVENTIC CAMBORTHIDS
PK004	Bk (Calcic Cambisol)	CMc (Calcaric Cambisol)	USTOLIC CAMBORTHIDS
PK005	Zo (Orthic Solonchak)	SCn (Sodic Solonchak)	TYPIC SALORTHIDS
PK006	Jc (Calcaric Fluvisol)	FLc (Calcaric Fluvisol)	TYPIC TORRIFLUVENTS
PK007	So (Orthic Solonetz)	SNk (Calcic Solonetz)	USTALFIC HAPLARGIDS
PK008	Xh (Haplic Xerosol)	SNh (Haplic Solonetz)	USTERTIC CALCIORITHIDS
PK009	Yl (Luvic Yermosol)	CMc (Calcaric Cambisol)	USTALFIC HAPLARGIDS
PK010	Yh (Haplic Yermosol)	CMe (Eutric Cambisol)	USTOCHREPTIC CAMBORTHIDS
PK011	Yh (Haplic Yermosol)	CMc (Calcaric Cambisol)	USTALFIC HAPLARGIDS
PK012	Yh (Haplic Yermosol)	CMc (Calcaric Cambisol)	USTALFIC HAPLARGIDS
PK013	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	USTOLIC HAPLARGIDS
PK014	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	UDIC HAPLUSTALFS
PK015	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	UDIC HAPLUSTALFS
PK016	So (Orthic Solonetz)	SNh (Haplic Solonetz)	UDIC HAPLUSTALFS
PK017	Vc (Chromic Vertisol)	VRE (Eutric Vertisol)	TYPIC NATRUSTALFS
PK018	So (Orthic Solonetz)	SNh (Haplic Solonetz)	ENTIC CHROMUSTERTS
PK019	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	TYPIC NATRARGIDS
PK020	Rc (Calcaric Regosol)	RGc (Calcaric Regosol)	UDIC HAPLUSTALFS
PK021	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	TYPIC USTORTHENTS
PK022	Bk (Calcic Cambisol)	CMc (Calcaric Cambisol)	TYPIC HAPLUDOLLS
PK023	Bk (Calcic Cambisol)	CMc (Calcaric Cambisol)	UDIC HAPLUSTALFS
PK024	Bk (Calcic Cambisol)	CMc (Calcaric Cambisol)	TYPIC USTOCHREPTS
PK025	Bk (Calcic Cambisol)	ATc (Cumulic Anthrosol)	UDIC HAPLUSTALFS
PK026	Bk (Calcic Cambisol)	ATc (Cumulic Anthrosol)	UDIC USTOCHREPTS
PK027	Xh (Haplic Xerosol)	CLh (Haplic Calcisol)	AQUIC HAPLUDOLL
PK028	Zo (Orthic Solonchak)	CMc (Calcaric Cambisol)	FLUVENTIC CAMBORTHID
		SCn (Sodic Solonchak)	TYPIC SALORTHID

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PK029	Jc (Calcaric Fluvisol)	FLc (Calcaric Fluvisol)	TYPIC TROPOFLUVENT
PK030	Yl (Luvic Yermosol)	LVh (Haplic Luvisol)	USTALFIC HAPLARGID
PK031	So (Orthic Solonetz)	SNh (Haplic Solonetz)	TYPIC HAPLUDALF
PK032	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	TYPIC HAPLUSTALF
PK033	Lc (Chromic Luvisol)	LVx (Chromic Luvisol)	TYPIC HAPLUSTALF
PK034	Jc (Calcaric Fluvisol)	FLc (Calcaric Fluvisol)	TYPIC TROPOFLUVENT
PK035	Bk (Calcic Cambisol)	CMc (Calcaric Cambisol)	TYPIC USTOCHREPT
PK036	Xh (Haplic Xerosol)	CMg (Gleyic Cambisol)	TYPIC CAMBORTHID
PK037	Bc (Chromic Cambisol)	ATc (Cumulic Anthrosol)	XERIC TORRIORTHENT
RW007	Af (Ferric Acrisol)	FRh (Haplic Ferralsol)	ULTIC PALEUSTALFS
RW008	Af (Ferric Acrisol)	FRh (Haplic Ferralsol)	TYPIC USTROPEPTS
RW009	Vp (Pellic Vertisol)	VRd (Dystric Vertisol)	TYPIC PELLUSTERTS
RW010	Ah (Humic Acrisol)	FRh (Haplic Ferralsol)	TYPIC PALEUDULTS
RW011	Fh (Humic Ferralsol)	FRh (Haplic Ferralsol)	TROPEPTIC HAPLORTHOX
RW012	Fo (Orthic Ferralsol)	FRh (Haplic Ferralsol)	MOLLIC KANDIUDALFS
SD047	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	ENTIC CHROMUSTERTS
SD048	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	ENTIC CHROMUSTERTS
SD049	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	TYPIC PALEUSTALFS
SD050	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	TYPIC CHROMUSTERTS
SD051	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	TYPIC CHROMUSTERTS
SD052	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	PACHIC HAPLUSTOLLS
SD053	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	TYPIC CHROMUSTERTS
SD054	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	TYPIC CHROMUSTERT
SD055	Vp (Pellic Vertisol)	VRe (Eutric Vertisol)	TYPIC PELLUSTERTS
SD056	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	TYPIC CHROMUSTERTS
SD057	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	UDIC HAPLUSTALFS
SD058	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	TYPIC CHROMUSTERTS
SD059	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	ENTIC CHROMUSTERTS
SD060	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	ENTIC CHROMUSTERTS
SD061	So (Orthic Solonetz)	SNh (Haplic Solonetz)	TYPIC NATRARGIDS
SD062	So (Orthic Solonetz)	SNh (Haplic Solonetz)	TYPIC NATRARGIDS
SD063	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	TYPIC TORRERTS
SD064	So (Orthic Solonetz)	SNk (Calcic Solonetz)	TYPIC NATRARGIDS
SD065	So (Orthic Solonetz)	SNk (Calcic Solonetz)	TYPIC NATRARGIDS
SD066	Vp (Pellic Vertisol)	VRe (Eutric Vertisol)	TYPIC PELLUSTERTS
SD067	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	ENTIC CHROMUSTERTS
SD068	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	TYPIC CHROMUSTERTS
SD069	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	TYPIC CHROMUSTERTS
SD070	Vp (Pellic Vertisol)	VRe (Eutric Vertisol)	TYPIC PELLUSTERTS
SD071	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	TYPIC CHROMUSTERTS
SV001	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	PACHIC ARGIUUSTOLLS
SV002	Hh (Haplic Phaeozem)	PHl (Luvic Phaeozem)	PACHIC ARGIUUSTOLLS
SV003	Hh (Haplic Phaeozem)	PHl (Luvic Phaeozem)	UDIC HAPLUSTOLLS
SV004	Hl (Luvic Phaeozem)	PHl (Luvic Phaeozem)	VERTIC ARGIUUSTOLLS
SV005	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	UDIC ARGIUUSTOLLS
SY005	Yk (Calcic Yermosol)	Clh (Haplic Calcisol)	TYPIC CALCIORITHIDS
SY006	Zo (Orthic Solonchak)	Sck (Calcic Solonchak)	TYPIC SALORTHIDS
SY007	Yy (Gypsic Yermosol)	Gyk (Calcic Gypsisol)	TYPIC CALCIORITHIDS
SY008	Yy (Gypsic Yermosol)	Gyp (Petric Gypsisol)	PETROGYPSIC GYPSIORTHIDS
SY009	Yy (Gypsic Yermosol)	Gyp (Petric Gypsisol)	PETROGYPSIC GYPSIORTHIDS
SY010	Xy (Gypsic Xerosol)	Gyk (Calcic Gypsisol)	XEROLLC CALCIORITHIDS
TH051	Ph (Humic Podzol)	PZc (Carbic Podzol)	TYPIC TROPHUMODS
TH052	Ag (Gleyic Acrisol)	ALg (Gleyic Alisol)	PLINTHIC TROPAQUULT
TH053	Jt (Thionic Fluvisol)	FLt (Thionic Fluvisol)	TYPIC SULFAQUENT
TH054	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	UDIC HAPLUSTULT
TH055	Jt (Thionic Fluvisol)	FLt (Thionic Fluvisol)	SULFIC FLUVAQUENT
TH056	Bg (Gleyic Cambisol)	LVg (Gleyic Luvisol)	AERIC TROPAQUALF
TH057	So (Orthic Solonetz)	SNh (Haplic Solonetz)	TYPIC NATRUSTALF
TH058	Sg (Gleyic Solonetz)	SNg (Gleyic Solonetz)	TYPIC NATRUSTALF
TH059	Vp (Pellic Vertisol)	VRe (Eutric Vertisol)	TYPIC PELLUSTERT
TH060	E (Rendzinas)	LPk (Rendzic Leptosol)	UDORTHENTIC HAPLUSTOLL
TH061	Ag (Gleyic Acrisol)	ACg (Gleyic Acrisol)	TYPIC PALEAQUULT
TH062	Ws (Solodic Planosol)	PLe (Eutric Planosol)	AERIC TROPAQUALF
TH063	Jc (Calcaric Fluvisol)	FLc (Calcaric Fluvisol)	TYPIC USTIFLUVENT
TH064	Bk (Calcic Cambisol)	CMc (Calcaric Cambisol)	FLUVENTIC USTROPEPT
TH065	Qa (Albic Arenosol)	ARA (Albic Arenosol)	TYPIC UDIPSAMMENT
TH066	Ah (Humic Acrisol)	ACH (Haplic Acrisol)	USTOXCIC PALEHUMULT
TH067	Bc (Chromic Cambisol)	LVx (Chromic Luvisol)	ULTIC PALEUSTALF
TH068	Vp (Pellic Vertisol)	VRe (Eutric Vertisol)	TYPIC PELLUDERT
TH069	Lc (Chromic Luvisol)	LVx (Chromic Luvisol)	PSAMMENTIC HAPLUSTALF
TH070	Rd (Dystric Regosol)	ARo (Ferralic Arenosol)	USTIC QUARTZIPSAMMENTS
TH071	Ne (Eutric Nitosol)	LVx (Chromic Luvisol)	TYPIC PALEUSTALFS
TH072	Af (Ferric Acrisol)	ACH (Haplic Acrisol)	TYPIC KANDIUSTULT

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TH073	Je (Eutric Fluvisol)	Fle (Eutric Fluvisol)	FLUVENTIC USTROPEPT
TN001	Lv (Vertic Luvisol)	LVv (Vertic Luvisol)	CALCIC RHODOXERALS
TN002	Hc (Calcaric Phaeozem)	PHc (Calcaric Phaeozem)	VERTIC HAPLOXEROLLS
TN003	Lk (Calcic Luvisol)	CLp (Petric Calcisol)	PETROCALCIC PALEXERALS
TN004	Bk (Calcic Cambisol)	CMc (Calcaric Cambisol)	CALCIC HAPLOXEROLLS
TN005	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	ENTIC CHROMOXERERTS
TN006	Bk (Calcic Cambisol)	CLp (Petric Calcisol)	PETROCALCIC PALEXEROLLS
TN007	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	CHROMOXERERTS
TN008	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	TYPIC XEROCHREPTS
TN009	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	PALEXEROLLIC CHROMOXERERTS
TN010	Vc (Chromic Vertisol)	VRk (Calcic Vertisol)	PALEXEROLLIC CHROMOXERERTS
TN011	Xk (Calcic Xerosol)	CLp (Petric Calcisol)	TYPIC PALEORTHIDS
TN012	Xy (Gypsic Xerosol)	GYk (Calcic Gypsisol)	TYPIC CAMBORTHIDS
TN013	Yl (Luvic Yermosol)	CLl (Luvic Calcisol)	TYPIC CAMBORTHIDS
TN014	Jc (Calcaric Fluvisol)	FLc (Calcaric Fluvisol)	TYPIC TORRIFLUVENTS
TN015	Bk (Calcic Cambisol)	CLh (Haplic Calcisol)	CALCIXEROLLIC XEROCHREPTS
TW001	Af (Ferric Acrisol)	FRh (Haplic Ferralsol)	TYPIC KANDIUDULTS
UG001	Lf (Ferric Luvisol)	FRh (Haplic Ferralsol)	KANDIUDALFIC EUTRUDOX
UG002	Af (Ferric Acrisol)	FRh (Haplic Ferralsol)	KANDIUDALFIC EUTRUDOX
UG003	Hl (Luvic Phaeozem)	PHl (Luvic Phaeozem)	OXIC ARGIUDDOLL
UG004	Af (Ferric Acrisol)	FRh (Haplic Ferralsol)	KANDIUDALFIC EUTRUDOX
UG005	Lf (Ferric Luvisol)	FRh (Haplic Ferralsol)	RHODIC KANDIUDULT
UG006	Gh (Humic Gleysol)	GLu (Umbric Gleysol)	AERIC TROPAQUEPT
UG007	Lc (Chromic Luvisol)	LXh (Haplic Lixisol)	RHODIC PALEUDALF
UG008	Lf (Ferric Luvisol)	FRh (Haplic Ferralsol)	KANDIUDALFIC EUTRUDOX
UG009	Af (Ferric Acrisol)	FRr (Rhodic Ferralsol)	RHODIC PALEUDULT
UG010	Ah (Humic Acrisol)	ACH (Haplic Acrisol)	AERIC PALEAQUULT
UG011	Ah (Humic Acrisol)	ACu (Humic Acrisol)	TYPIC PALEHUMULT
UG012	Ah (Humic Acrisol)	ACu (Humic Acrisol)	TYPIC PALEHUMULT
US009	Re (Eutric Regosol)	ARl (Luvic Arenosol)	TYPIC TORRIPSAMMENT
US010	Hc (Calcaric Phaeozem)	PHc (Calcaric Phaeozem)	TYPIC USTORTHENT
US011	Lf (Ferric Luvisol)	PLe (Eutric Planosol)	AQUIC PALEUSTALF
US012	Vp (Pellic Vertisol)	VRe (Eutric Vertisol)	UDIC PELLUSTERT
US013	Af (Ferric Acrisol)	ACH (Haplic Acrisol)	TYPIC HAPLUDULTS
US014	Af (Ferric Acrisol)	ACH (Haplic Acrisol)	TYPIC HAPLUDULTS
US015	De (Eutric Podzoluvisol)	PDe (Eutric Podzoluvisol)	TYPIC GLOSSOBORALFS
US016	Po (Orthic Podzol)	PZh (Haplic Podzol)	TYPIC HAPLORTHOD
US017	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	LITHIC ARGIXEROLL
US018	Nd (Dystric Nitosol)	NTh (Haplic Nitisol)	TYPIC PALEUDULTS
US019	Lc (Chromic Luvisol)	LVx (Chromic Luvisol)	ULTIC PALEUSTALF
US020	Ao (Orthic Acrisol)	ALh (Haplic Alisol)	TYPIC HAPLUDULTS
US021	So (Orthic Solonetz)	SNk (Calcic Solonetz)	XEROLLIC NADURARGID
US022	Lc (Chromic Luvisol)	LVx (Chromic Luvisol)	ARIDIC HAPLUSTALF
US023	Xk (Calcic Xerosol)	CLl (Luvic Calcisol)	BOROLLIC LITHIC CAMBORTHID
US024	Pg (Gleyic Podzol)	PZg (Gleyic Podzol)	SIDFRIC CRYORTHODS
US025	Xl (Luvic Xerosol)	CLp (Petric Calcisol)	DURIXEROLLIC HAPLARGID
US026	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	TYPIC FRAGIUDALFS
US027	Hg (Gleyic Phaeozem)	PHj (Stagnic Phaeozem)	AQUIC ARGIUDDOLL
US028	Rd (Dystric Regosol)	ARl (Luvic Arenosol)	TYPIC QUARTZIPSAMMENTS
US029	Af (Ferric Acrisol)	ACH (Haplic Acrisol)	PLINTHIC PALEUDULTS
US030	Rc (Calcaric Regosol)	RGc (Calcaric Regosol)	TYPIC CRYORTHENT
US031	Gx (Gelic Gleysol)	GLi (Gelic Gleysol)	HISTIC PERGELIC CRYAQUEPT
US032	Ne (Eutric Nitosol)	NTh (Haplic Nitisol)	ULTIC PALEXERALS
US033	Bf (Ferralic Cambisol)	CMo (Ferralic Cambisol)	TYPIC DYSTROCHREPT
US034	Ap (Plinthic Acrisol)	FRp (Plinthic Ferralsol)	ARENIC PLINTHIC PALEUDULTS
US035	Ck (Calcic Chernozem)	CHK (Calcic Chernozem)	ARIDIC CALCUISTOLL
US036	Ap (Plinthic Acrisol)	ACP (Plinthic Acrisol)	PLINTHIC PALEUDULTS
US037	De (Eutric Podzoluvisol)	PDe (Eutric Podzoluvisol)	GLOSSIC FRAGIUDALF
US038	Af (Ferric Acrisol)	ACH (Haplic Acrisol)	TYPIC HAPLUDULT
US039	Xl (Luvic Xerosol)	LVk (Calcic Luvisol)	BOROLLIC HAPLARGID
US040	Xy (Gypsic Xerosol)	GYh (Haplic Gypsisol)	USTIC TORRIORTHENT
US041	Re (Eutric Regosol)	RGe (Eutric Regosol)	TYPIC USTORTHENT
US042	Hc (Calcaric Phaeozem)	PHc (Calcaric Phaeozem)	CALCIC HAPLOXEROLL
US043	Po (Orthic Podzol)	PZh (Haplic Podzol)	TYPIC FRAGIORTHOD
US044	Qc (Cambic Arenosol)	ARb (Cambic Arenosol)	ENTIC HAPLORTHODS
US045	Pl (Leptic Podzol)	PZb (Cambic Podzol)	ENTIC HAPLORTHODS
US046	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	UDIC CHROMUSTERT
US047	Jt (Thionic Fluvisol)	FLt (Thionic Fluvisol)	TYPIC SULFAQUULTS
US048	Ag (Gleyic Acrisol)	AGc (Gleyic Acrisol)	TYPIC PALEAQUULTS
US049	Ge (Eutric Gleysol)	GLE (Eutric Gleysol)	AERIC HAPLAQUEPT
US050	Gd (Dystric Gleysol)	GLd (Dystric Gleysol)	AQUIC DYSTROCHREPT
US051	Rd (Dystric Regosol)	RGd (Dystric Regosol)	DYSTRIC EUTROCHREPT
US052	Xl (Luvic Xerosol)	LVh (Haplic Luvisol)	USTOLLIC HAPLARGID

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US053	Xl (Luvic Xerosol)	LVk (Calcic Luvisol)	BOROLLIC HAPLARGID
US054	Gx (Gelic Gleysol)	GLi (Gelic Gleysol)	PERGELIC CRYAQUEPT
US055	Af (Ferric Acrisol)	ACH (Haplic Acrisol)	TYPIC KANDIUDULTS
US056	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	TYPIC KANDIUDULTS
US057	Zo (Orthic Solonchak)	SCy (Gypsic Solonchak)	TYPIC GYPSIORTHID
US058	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	TYPIC USTOCHREPT
US059	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	TYPIC HAPLUDALFS
US060	Tv (Vitric Andosol)	ANz (Vitric Andosol)	TYPIC VITRIXERANDS
US061	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	VITRANDIC HAPLOXEROLL
US062	Tv (Vitric Andosol)	ANz (Vitric Andosol)	TYPIC VITRIXERANDS
US063	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	UDIC HAPLUSTOLLS
US064	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	TYPIC CRYOBORALF
US065	Bd (Dystric Cambisol)	CMd (Dystric Cambisol)	DYSTRIC CRYOCHREPT
US066	Po (Orthic Podzol)	PZh (Haplic Podzol)	LITHIC HAPLORHOD
US067	Ge (Eutric Gleysol)	GLE (Eutric Gleysol)	MOLLIC OCHRAQUALFS
US068	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	ABRUPTIC DURIXEROLF
US069	Bd (Dystric Cambisol)	CMd (Dystric Cambisol)	RUPTIC-LITHIC-XEROCHREPTIC HAPLOXERULT
US070	Ah (Humic Acrisol)	ACH (Haplic Acrisol)	XERIC HAPLOHUMULT
US071	Bh (Humic Cambisol)	ALu (Humic Alisol)	TYPIC HAPLUMBREPT
US072	Bh (Humic Cambisol)	CMu (Humic Cambisol)	ANDIC HAPLUMBREPT
US073	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	TYPIC XEROCHREPT
US074	Je (Eutric Fluvisol)	FLe (Eutric Fluvisol)	AERIC FLUVAQUENT
US075	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	TYPIC HAPLUSTOLL
US076	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	DYSTRIC EUTROCHREPTS
US077	Gm (Mollic Gleysol)	PHh (Haplic Phaeozem)	AQUIC ARGIUDDOLLS
US078	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	TYPIC HAPLUDOLLS
US079	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	TYPIC HAPLUDOLLS
US080	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	TYPIC HAPLUDOLLS
US081	Ne (Eutric Nitosol)	LVx (Chromic Luvisol)	TYPIC PALEUDALF
US082	Ge (Eutric Gleysol)	GLE (Eutric Gleysol)	MOLLIC HAPLAQUEPTS
US083	Xl (Luvic Xerosol)	CLl (Luvic Calcisol)	USTOLLIIC HAPLARGID
US084	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	TYPIC USTOCHREPT
US085	Ag (Gleyic Acrisol)	ALg (Gleyic Alisol)	VERTIC HAPLUDALFS
US086	Re (Eutric Regosol)	RGe (Eutric Regosol)	TYPIC CRYOCHREPT
US087	Re (Eutric Regosol)	RGe (Eutric Regosol)	TYPIC CRYOCHREPT
US088	Gx (Gelic Gleysol)	GLi (Gelic Gleysol)	PERGELIC CRYAQUEPT
US089	Ao (Orthic Acrisol)	FRh (Haplic Ferralsol)	ARENIC HAPLUDULTS
US090	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	TYPIC HAPLUDALFS
US091	Hl (Luvic Phaeozem)	PHl (Luvic Phaeozem)	TYPIC ARGIUUSTOLL
US092	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	PACHIC HAPLOXEROLL
US093	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	TYPIC HAPLUDALF
US094	Gd (Dystric Gleysol)	GLd (Dystric Gleysol)	TERRIC CRYOSAPRIST
US095	Vp (Pellic Vertisol)	VRk (Calcic Vertisol)	ENTIC PELLUSTERT
US096	Af (Ferric Acrisol)	ACH (Haplic Acrisol)	TYPIC HAPLUDULT
US097	Zo (Orthic Solonchak)	CLl (Luvic Calcisol)	TYPIC CALCIORTHID
US098	Yl (Luvic Yermosol)	CLl (Luvic Calcisol)	TYPIC HAPLARGID
US099	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	TYPIC TORRERT
US100	Hl (Luvic Phaeozem)	PHl (Luvic Phaeozem)	VERTIC ARGIUUSTOLL
US101	Hl (Luvic Phaeozem)	PHl (Luvic Phaeozem)	AQUIC ARGIUODOLL
US102	Qc (Cambic Arenosol)	ARc (Calcaric Arenosol)	TYPIC TORRIPSAMMENT
US103	Hl (Luvic Phaeozem)	PHl (Luvic Phaeozem)	LITHIC ARGIXEROLL
US104	Hl (Luvic Phaeozem)	PHl (Luvic Phaeozem)	LITHIC ARGIXEROLL
US105	Xk (Calcic Xerosol)	CLh (Haplic Calcisol)	XEROLLIC CAMBORTHID
US106	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	TYPIC HAPLUDALFS
US107	Bk (Calcic Cambisol)	CLl (Luvic Calcisol)	UDIC USTOCHREPT
US108	Hl (Luvic Phaeozem)	PHl (Luvic Phaeozem)	ARIDIC ARGIUUSTOLL
US109	Gd (Dystric Gleysol)	GLd (Dystric Gleysol)	AERIC FRAGIAQUEPT
US110	Yl (Luvic Yermosol)	LVh (Haplic Luvisol)	HAPLIC HAPLARGID
US111	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	LITHIC ARGIXEROLL
US112	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	TYPIC HAPLUDALF
US113	Bk (Calcic Cambisol)	CLh (Haplic Calcisol)	TYPIC USTOCHREPT
US114	Tv (Vitric Andosol)	ANz (Vitric Andosol)	XERIC VITRICRYANDS
US115	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	TYPIC TORRERT
US116	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	ARGIC CRYOBOROLL
US117	Xl (Luvic Xerosol)	LVh (Haplic Luvisol)	USTOLLIIC HAPLARGID
US118	Qc (Cambic Arenosol)	ARh (Haplic Arenosol)	TYPIC USTIPSAMMENT
US119	Ge (Eutric Gleysol)	ARg (Gleyic Arenosol)	AQUIC USTIPSAMMENT
US120	Ao (Orthic Acrisol)	ALh (Haplic Alisol)	TYPIC HAPLUDULT
US121	Hc (Calcaric Phaeozem)	PHc (Calcaric Phaeozem)	TYPIC CALCIUSTOLL
US122	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	ULTIC HAPLOXERALFS
US123	Bk (Calcic Cambisol)	CMc (Calcaric Cambisol)	ARIDIC ARGIBOROLL
US124	Hl (Luvic Phaeozem)	PHl (Luvic Phaeozem)	MOLLIC HAPLUDALF
US125	Hg (Gleyic Phaeozem)	PHg (Gleyic Phaeozem)	TYPIC HAPLAQUOLL

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US126	Hg (Gleyic Phaeozem)	PHg (Gleyic Phaeozem)	AQUIC ARGIUOLL
US127	Xk (Calcic Xerosol)	CLh (Haplic Calcisol)	BOROLLIC CALCIORTHID
US128	Hc (Calcaric Phaeozem)	PHc (Calcaric Phaeozem)	USTIC TORRIORTHENT
US129	Ao (Orthic Acrisol)	ALh (Haplic Alisol)	TYPIC FRAGIUDALF
US130	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	TYPIC HAPLOBOROLLS
US131	Bk (Calcic Cambisol)	CLh (Haplic Calcisol)	UDIC HAPLOBOROLLS
US132	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	UDIC HAPLOBOROLLS
US133	So (Orthic Solonetz)	SNh (Haplic Solonetz)	UDERTIC PALEUSTOLL
US134	Bd (Dystric Cambisol)	CMd (Dystric Cambisol)	TYPIC USTOCHREPT
US135	Xk (Calcic Xerosol)	CLh (Haplic Calcisol)	XEROLLIC DURORTHID
US136	Ao (Orthic Acrisol)	ALh (Haplic Alisol)	TYPIC PALEUDULT
US137	Pl (Leptic Podzol)	PZb (Cambic Podzol)	ANDIC CRYORTHOD
US138	Bf (Ferralic Cambisol)	CMo (Ferralic Cambisol)	RHODIC EUTRUSTOX
US139	Bk (Calcic Cambisol)	LVh (Haplic Luvisol)	ARIDIC HAPLUSTOLL
US140	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	ARIDIC ARGIUOLL
US141	Hl (Luvic Phaeozem)	PHl (Luvic Phaeozem)	UDIC ARGIUOLL
US142	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	ARIDIC ARGIUOLL
US143	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	TYPIC HAPLOBOROLL
US144	Sg (Gleyic Solonetz)	SNj (Stagnic Solonetz)	GLOSSIC NATRAQUALF
US145	Xl (Luvic Xerosol)	GYL (Luvic Gypsisol)	BOROLLIC PALEARGID
US146	Ao (Orthic Acrisol)	ALh (Haplic Alisol)	TYPIC FRAGIUDALF
US147	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	LITHIC CRYOBOROLL
US148	Lc (Chromic Luvisol)	LVx (Chromic Luvisol)	TYPIC HAPLUDALF
US149	Xl (Luvic Xerosol)	LVx (Chromic Luvisol)	USTOLLIC HAPLARGID
US150	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	AERIC OCHRAQUALF
US151	Lo (Orthic Luvisol)	LVh (Haplic Luvisol)	ARIDIC ARGIUOLL
US152	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	AQUULTIC ARGIXEROLL
US153	Xk (Calcic Xerosol)	CLh (Haplic Calcisol)	TYPIC CALCIORTHID
US154	Yl (Luvic Yermosol)	LVh (Haplic Luvisol)	BOROLLIC HAPLARGID
VE020	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	FLUVENTIC USTROPEPTS
VE021	Af (Ferric Acrisol)	ACH (Haplic Acrisol)	TYPIC KANDIUSTULTS
VE022	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	KANDIC PALEUSTALFS
VE023	Jc (Calcaric Fluvisol)	FLc (Calcaric Fluvisol)	MOLLIC USTIFLUVENTS
VE024	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	FLUVAQUENTIC
WS001	Hh (Haplic Phaeozem)	PHh (Haplic Phaeozem)	TYPIC HAPLUDOLLS
WS002	Bh (Humic Cambisol)	CMu (Humic Cambisol)	OXIC HUMITROPEPTS
WS003	Bh (Humic Cambisol)	CMu (Humic Cambisol)	ANDIC HUMITROPEPTS
WS004	Bd (Dystric Cambisol)	CMd (Dystric Cambisol)	ANDIC HUMITROPEPTS
WS005	Bd (Dystric Cambisol)	CMd (Dystric Cambisol)	ANDIC HUMITROPEPTS
WS006	Bf (Ferralic Cambisol)	CMo (Ferralic Cambisol)	TYPIC ACROTHOX
WS007	Bf (Ferralic Cambisol)	CMo (Ferralic Cambisol)	TYPIC ACROTHOX
WS008	Bh (Humic Cambisol)	CMu (Humic Cambisol)	ANDIC HUMITROPEPTS
WS009	Tv (Vitric Andosol)	ANz (Vitric Andosol)	HYDRIC DYSTRANDEPT
WS010	Bh (Humic Cambisol)	CMu (Humic Cambisol)	TYPIC HUMITROPEPTS
WS011	Bd (Dystric Cambisol)	CMd (Dystric Cambisol)	OXIC DYSTRANDEPTS
WS012	Tv (Vitric Andosol)	ANz (Vitric Andosol)	OXIC DYSTRANDEPTS
WS013	Tv (Vitric Andosol)	ANz (Vitric Andosol)	OXIC DYSTRANDEPTS
WS014	Bd (Dystric Cambisol)	CMd (Dystric Cambisol)	TYPIC UMBRIORTHOX
YE297	Je (Eutric Fluvisol)	FLe (Eutric Fluvisol)	TYPIC USTIFLUVENT
YE298	Be (Eutric Cambisol)	CMe (Eutric Cambisol)	TYPIC HAPLUDOLL
YE299	Hc (Calcaric Phaeozem)	PHc (Calcaric Phaeozem)	VERTIC HAPLUSTOLL
YE300	Bk (Calcic Cambisol)	CMc (Calcaric Cambisol)	TYPIC HAPLUSTOLLS
ZM067	Af (Ferric Acrisol)	FRx (Xanthic Ferralsol)	TYPIC KANDIUSTULTS
ZM068	Af (Ferric Acrisol)	FRr (Rhodic Ferralsol)	KANDIUSTULTS ...
ZM069	Af (Ferric Acrisol)	FRh (Haplic Ferralsol)	TYPIC KANDIUSTULTS
ZM070	Af (Ferric Acrisol)	FRr (Rhodic Ferralsol)	TYPIC KANDIUSTULTS
ZM071	Af (Ferric Acrisol)	ACH (Haplic Acrisol)	RHODIC KANHAPLUSTULTS
ZM072	Lf (Ferric Luvisol)	FRx (Xanthic Ferralsol)	TYPIC KANDIUSTALFS
ZM073	Lf (Ferric Luvisol)	FRx (Xanthic Ferralsol)	TYPIC KANDIUSTALFS
ZM074	Lf (Ferric Luvisol)	FRx (Xanthic Ferralsol)	TYPIC KANDIUSTALFS
ZM075	Fr (Rhodic Ferralsol)	CMo (Ferralic Cambisol)	RHODIC KANDIUSTULTS
ZM076	Af (Ferric Acrisol)	ACH (Haplic Acrisol)	ACRUSTOX ...
ZM077	Af (Ferric Acrisol)	FRx (Xanthic Ferralsol)	TYPIC KANDIUSTULTS
ZM078	Fr (Rhodic Ferralsol)	CMo (Ferralic Cambisol)	ACRUSTOX ...
ZM079	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	TYPIC KANDIUSTALFS
ZM080	Vc (Chromic Vertisol)	VRe (Eutric Vertisol)	UDIC CHROMUSTERTS
ZM081	Af (Ferric Acrisol)	ACH (Haplic Acrisol)	KANDIC PALEUSTALFS
ZM082	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	TYPIC KANDIUSTALFS
ZM083	ql (Luvic Arenosol)	FRh (Haplic Ferralsol)	USTOXIC QUARTZIPSAMMENTS
ZM084	Ph (Humic Podzol)	PZc (Carbic Podzol)	TROPOMODS ...
ZM085	Af (Ferric Acrisol)	ACH (Haplic Acrisol)	RHODIC KANDIUSTULTS
ZM086	Ne (Eutric Nitosol)	NTh (Haplic Nitosol)	UDIC PALEUSTOLLS
ZM017	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	RHODIC PALEUSTALFS

WISE_id	FAO_74	FAO_90	USDA Soil Taxonomy
ZW018	Fr (Rhodic Ferralsol)	CMo (Ferralic Cambisol)	RHODIC HAPLUSTOX
ZW019	Af (Ferric Acrisol)	FRx (Xanthic Ferralsol)	TYPIC KANDIUSTULTS
ZW020	Lc (Chromic Luvisol)	LVx (Chromic Luvisol)	TYPIC RHODUSTALFS
ZW021	Vp (Pellic Vertisol)	VRe (Eutric Vertisol)	TYPIC PELLUSTERTS
ZW022	Rd (Dystric Regosol)	ARo (Ferralic Arenosol)	USTIC QUARTZIPSAMMENTS
ZW023	HL (Luvic Phaeozem)	PHL (Luvic Phaeozem)	TYPIC ARGIUUSTOLLS
ZW024	Re (Eutric Regosol)	RGe (Eutric Regosol)	TYPIC USTOCHREPTS
ZW025	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	KANDIC PALEUSTALFS
ZW026	Ap (Plinthic Acrisol)	ACp (Plinthic Acrisol)	ARIDIC KANDIUSTULTS
ZW027	Af (Ferric Acrisol)	ACh (Haplic Acrisol)	TYPIC KANHAPLUDULTS
ZW028	Fh (Humic Ferralsol)	CMo (Ferralic Cambisol)	RHODIC HAPLUDOX
ZW029	Vp (Pellic Vertisol)	VRe (Eutric Vertisol)	MOLLIC TORRERTS
ZW030	Af (Ferric Acrisol)	ACh (Haplic Acrisol)	TYPIC KANDIUDULTS
ZW031	Lf (Ferric Luvisol)	LXh (Haplic Lixisol)	TYPIC KANDIUSTALFS

USDA classifications were derived from file SCSOIL.

Appendix 2. Terms of Reference.

Terms of Reference for cooperation between
the IGBP-DIS Task Group on Global Soil Data
and
the International Soil Reference and Information Centre (ISRIC)
on
the initialization of a World Pedon Data Base for IGBP purposes

The Global Soil Data Task group of IGBP-DIS proposes to assemble a reliable and readily accessible data set on soil properties for global change research. The principal international custodians of soil data, FAO, USDA/SCS and ISRIC, have agreed to play an active role in this task.

In a separate activity, ISRIC has developed a global profile data set linked to a $\frac{1}{2}^{\circ} \times \frac{1}{2}^{\circ}$ grid version of FAO's corrected and digitized 1 : 5 000 000 Soil Map of the World through its project "World Inventory of Soil Emission Potentials (WISE)". The international data sets held in WISE have been proposed to serve as nucleus for this global pedon data base of IGBP-DIS.

During the April 1994 meeting in Washington D.C., USA, the Global Soil Data Task Group requested ISRIC to provide all USDA/SCS data, transferred into the WISE data base format, with the FAO-Unesco 1974 and 1988 soil unit names. This is necessary to establish the linkage to the soil types shown on FAO's Soil Map of the World.

The work will be based on the available USDA/SCS Soil Taxonomy classification plus interpretation of the morphological, physical and chemical profile data. The selected SCS data set comprises about 650 profiles (see attachment), the additional FAO classification of which will require about four (4) man-months, starting from mutual endorsement of the Terms of Reference.

Output will be submitted as dBASE files using WISE data base structure and coding conventions with an accompanying final report.

