THE CHEMISTRY AND SOIL RESEARCH INSTITUTE (CSRI)

PEDOLOGY AND SOIL SURVEY SECTION

OUTLINE OF THE SOIL CLASSIFICATION SYSTEM OF ZIMBABWE

ORDER	DESCRIPTION	GROUP	TYPICAL SOIL FAMILIES
1.AMORMIC	Little or no horizon development	1.Regosol Deep sands 2.Lithosol Extremely shallow	1K(Deep sands derived from Kalahari deposits 2E(derived from mafic rocks)
CALCIMOPHIC	Unleached soils generally with large reserves of weatherable minerals: high base saturation.	3. Vertisols Very active clay 4.Siallitic Active clay	3B(derived from basalt) 4PE(derived from mafic gneiss)
KAOLINITIC	Moderately to strongly leached soils; appreciable amounts of free sesquioxides of iron and aluminum.	5.Fersiallitic mixed clay 6.Paraferrallitic Inert clay 7.Orthoferrallitic	5G(coarse grained sandy soils derived from granite) 6G 7G
NATRIC	Dominated by appreciable amounts of sodium as the exchangeable ion	8.Sodic Weakly sodic Strongly sodic Saline sodic	 8n 8N 8h

SOIL GROUPS

GROUP	B/S	E/C	S/C	REMARK
1.Regosol	-	-	-	Less than 10% silt=clay within upper 2m.
2.Lithosol	-	-	-	Soils having depth ≤ 25cm they overlie hard/partially weathered rock
3.Vertisol	Almost invariably >95%	>60	>60	Predominantly 2:1 montmorillonitic clay, slickensides.
4.Siallitic	Generally 85%	≥35	≥31	High amounts of both 2:1 and 1:1 clay mineral.
5.Fertiallitic	Usually >80%(but in sands)	12-35	6-30	Small amounts of 2:1 always present. Appreciable amounts of sesquioxides. 1:1 clay minerals dominant.
6.Paraferrallitic	-	≤12	≤6	Dominated by 1:1 clay minerals. Appreciable amounts of sesquioxides. 1:1 clay minerals dominant.
7.Orthoferrallitic	-	≤11	≤5	Entirely 1:1 clay minerals and sesquioxides
8.Sodic	-	-	-	Soils have ESP>9 within 80cm of the surface.

B/S – Base saturation (%).
E/C - CEC per 100g of clay.
S/C – Total exchangeable bases per 100g of clay.

NUMERALS INDICATING THE SOIL'S POSITION ON A CATENA

Numeral	Meaning
0	- Lithosol
1	- Relatively immature or shallow soil
2	- Typical moderately deep to deep well drained soil with emphasis being placed on good drainage condition.
3	- A soil in which some signs of wetness evident
>3	- Progressively wetter soils

SYMBOL USED TO DENOTE PARENT MATERIALS AT FAMILY LEVEL

A Siliceous sediments, volcanics, metasediments and metavolcanics that give rise to light to medium textured soils, but in which silt content is significantly high.

B Basalt. This parent material is differentiated from other mafic rocks in that, in Zimbabwe, it invariably gives rise to dark clayey soils even in areas of high rainfall.

C Colluvium

E	Igneous and metamorphic rocks other than basalt that give rise to soils of high clay content
F	Parent materials that give rise to highly micaceous, light to medium textured soils.
G	Granite and gneissic granite that give rise to soils in which the sand fraction is coarse grained. Clay content varies with the degree of weathering and catenal position.
I	Ferruginous sediments that give to medium to heavy textured soils in which the silt content is not significantly high.
K	Unconsolidated fine to medium grained sand soils without weatherable minerals. Most of these are Kalahahri sands.
M	Sandstones and quartzite that give rise to predominantly sandy soils in which silt content is not signifivantly high.
P	Siliceous gneisses that give to light textured soils in which the sand fraction is fine to medium grained.
S	Combined argillaceous sediments and metasediments with volcanics and metavolcanics that all give rise to heavy textured soils in which silt cotent is significantly high.
U	Alluvium
X	Ultramafic rocks. These invariably give rise to clayey soils in which exchangeable Mg is greater than exch Ca i.e the Ca:Mg ratio is inverse. In these soils the presence of heavy metals, such as Ni and /or Cr, in toxic amounts is common.

NB

Lower (smaller) group numbers indicate a relatively lower degree of leaching whilst higher numbers a greater degree of leaching. Thus soils of the siallitic groups are relatively unleached and of high base status while the soils of the orthoferrallitic are the most leached.

n – weakly sodic: soils in which the ESP within the 80cm of the surface from 10 to 15, and the conductivity of the saturation extract is less than 4millisiemens/cm.
N - strongly sodic: ESP>15, specific conductivity <4millisiemens/cm.
h – saline sodic: ESP >10 and specific conductivity>4 millisiemens/cm