

STATUS OF EXCHANGEABLE POTASIUM IN SOILS OF SELECTED LANDSCAPES OF SOUTHERN HIGHLANDS OF TANZANIA

Ngailo, J.A; F.C Mlowe; W.N.Mmari; Z.J.U.Malley

Uyole Agricultural Research Institute P.O.Box 400
Mbeya, Tanzania

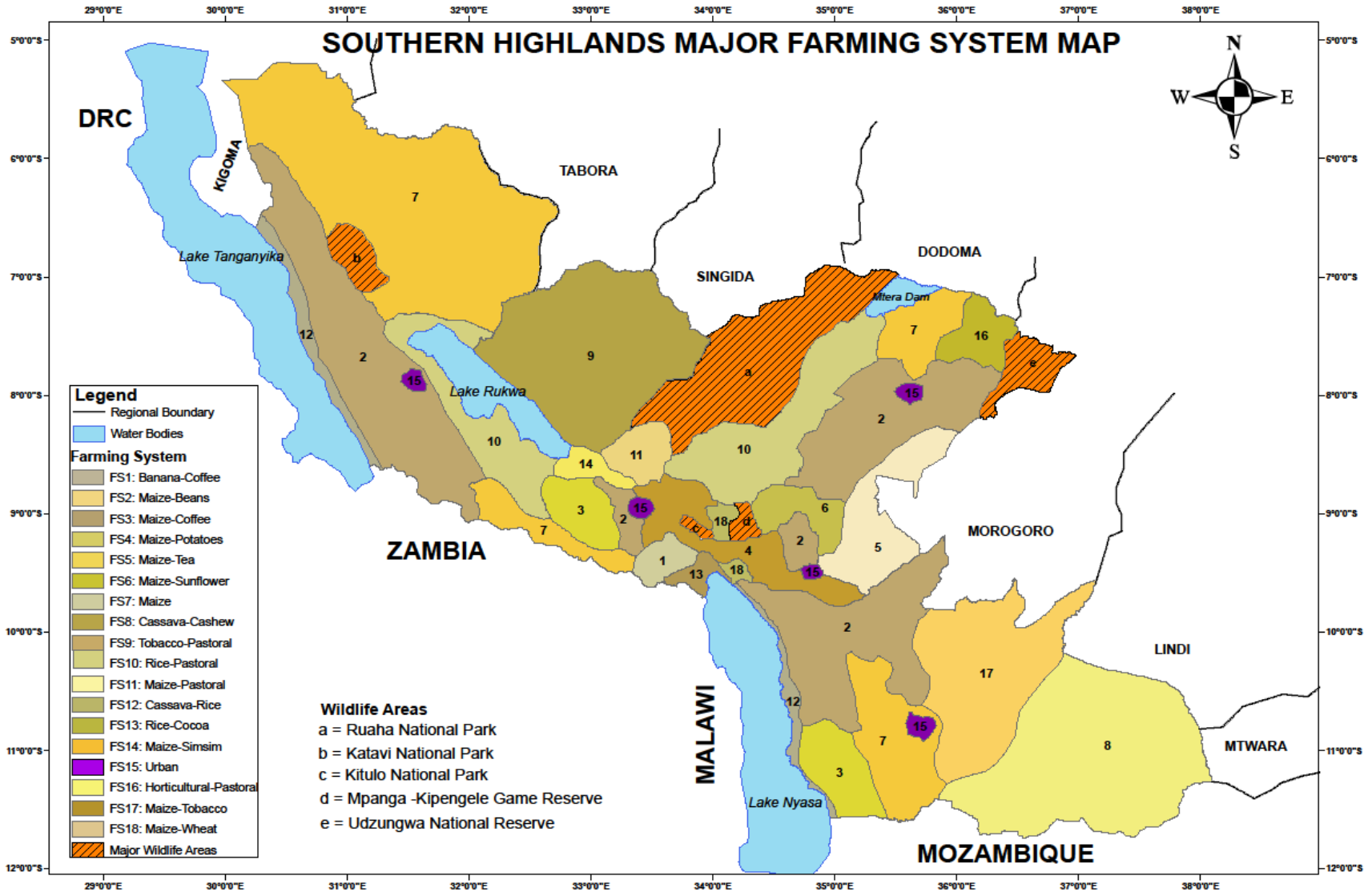
INTRODUCTION

- *Potassium is a major constituent of the earth crust*
- *igneous rocks contain more potash than the sedimentary rocks.*
- *Potassium comprise on an average of 2.6 % of the earth crust,*
- *It is the seventh most abundant element and fourth most abundant mineral nutrient in the lithosphere.*

Intro. Cont'd

- ✓ In SH K studies date back to 1980s but do not present a correct picture of the situation for now
- ✓ Recent data are from field studies carried out by Malley, (2007), Mmari et al., (2010); Ngailo et al 2010; Ngailo et al., (2011) and Ngailo et, al (2013), Ngailo et al (2015). when conducting other studies.
- ✓ Nonetheless, there is still paucity of adequate information on levels potash in different soils of broad physiographic units

Intro. Cont'd



General objective

- To conduct survey on status of potash in landscapes of SH of Tanzania with different parent materials

Specific objectives:

- *To identify some gray areas or gaps required to be addressed*
- *Provide justification for further organised research agenda on potash for maintaining sustainable crop production*

Methodology

A two stage approach was used as follows:

- The Farming Systems map of SH at a scale 1:2,000,000 was carefully studied to find out the main physiographic units.
- These main physiographic units were taken as the basis of aggregating the various soil types and units
- Results of potash from analysed soils from the different soils were studied
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Results and discussion

Major soil groups/types	N	Minimum K levels Cmolc Kg ⁻¹	Maximum K levels Cmolc Kg ⁻¹	Average exchangeable K levels Cmolc Kg ⁻¹	interpretation
Mountains (Highlands)					
Andisols	49	0.21	1.42	0.86	high
Ultisols and Luvisols	46	0.10	1.62	0.89	high
Usangu plains (Lowlands)					
Eutric regosol, Fluvisols or gleyic luvisols	160	0.10	1.89	0.62	high
Flood plains (Kyela)					
Fluvisols	61	0.19	1.87	0.69	high
Lake plains(around lake Tanganyika and Nyasa)					
Eutric regosol	45	0.32	1.06	0.66	high
Lake basins (lake Rukwa)					
Fluvisols	45	0.19	1.87	0.70	high
Fluvisols	48	0.32	2.0	1.06	high

Results and discussion cont'd

Correlation of potassium with cation exchange capacity, organic carbon, and clay

Forms of K	pH	CEC	OC	sand	clay
Exch-K	-0.548**	0.916**	0.919**	-0.916**	0.917**

Conclusion and recommendation

- ✓ The average levels of exchangeable K in soils of SH were relatively high variation minor do existed
- ✓ A positive correlation existed between other properties of soils including the fine particles of soils including clays
- ✓ We recommend that, although levels of K seem to be higher this does not mean they may not be suitable for every crop and therefore this might require continuous monitoring through soil site specific sampling and analysis

Acknowledgement

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Thank you for your attention