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"Filling gaps and removing traps
for sustainable resource management"

Reducing Crop Yields Gap in Acidic Soils of Northern Tanzania Using Local Liming

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Abstract

Soil acidity (pH<5.4) is a widespread problem negatively affecting crop production in all agro-ecological zones of Tanzania including the northern zone. The use of lime in combination with organic and/or inorganic fertiliser has been reported to sufficiently rehabilitate very poor or depleted soils by increasing pH, reducing Al toxicity, enhancing Ca and Mg, contributing to soil structure improvement and increase both, P uptake in high P fixing soils and the plants root system. Despite the availability of the liming materials in different parts of Tanzania and their potentiality to alleviate soil acidity, there is limited use in agricultural production by smallholder farmers in the country, as there are no established liming recommendations (effective rates) of these locally available liming materials and it is even unknown, how effective local liming materials are for soil acidity management in the northern zone of Tanzania. The objectives of this research project are; i) to characterise soil fertility status (acidity levels, physical and chemical properties) of soils from Mbulu district, Northern Tanzania, ii) to characterise the quality of locally available liming materials collected from different parts of Tanzania and iii) to establish liming requirements (effective rates) of the locally available liming materials and determine their effectiveness on soil pH changes, selected soil nutrients and yield performance of maize crop under greenhouse and field experiments at the Nelson Mandela African Institution of Science and Technology (NM-AIST) and two sites in Mbulu district, northern Tanzania. The research project outline will be presented and first results will be shown.

Keywords: Buffer methods, lime, lime requirement, soil acidity, soil fertility

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