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"Can agroecological farming feed the world?
Farmers' and academia's views"

Participatory research for agronomic salinity management – experiences from coastal peri-urban vegetable production in Maputo, Mozambique

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Abstract

Salinisation of agricultural soil resources is an ever increasing problem for global sustainable food production. Often, it results from interplay of climate change impacts and human agronomic mismanagement. The concept of Saline Agriculture (SA) provides a versatile toolbox of agricultural practices which have the potential to sustain agricultural production under saline conditions and partly even reverse salinisation through soil remediation processes. SA combines diverse soil, water and crop management approaches which intend to improve soil health parameters, in order to minimise salinity levels within the crops' root zone and/or mitigate salinity stress for the plants. However, SA practices are not universally applicable. They need to be tested locally and adapted to the particularities of production systems. Especially smallholder vegetable production systems in (sub-)tropical environments are still rather poorly understood in this regard. Addressing this knowledge gap, an ongoing project initiative is implementing a participatory pilot of SA practices in Maputo's peri-urban coastal vegetable production zones, in southern Mozambique. A consortium of research institutions, farmer associations, agricultural extension bodies and non-governmental organisations conducted an exploratory study to understand the local extent, farmers' perception, and agronomic implications of salinisation in the target region. A mixed method approach was applied, building on stakeholder interviews, field observations, and a participatory soil and water survey. Currently, the project evaluates the local adaptability of selected SA practices in participatory field trials. Preliminary results confirm (a) the pertinence of salinisation as a local driver of land degradation, with salinity levels significantly surpassing threshold levels recommended for vegetable production, (b) a considerable but expandable (tacit) knowledge level on salinity management by the local farming community, and (c) the potential of innovative SA practices to be sustainably introduced into the local production system. The latter include different organic manures, selection of tolerant cultivars, improved fallows with salt tolerant green manures like Sesbania spp. and salinity monitoring with portable soil and water sensors. The presented poster shares these technical insights along with reflections on the participatory methodology of the project, in order to provide impulses for further applied research initiatives on SA.

Keywords: Farmer field school, farmers' perception, land degradation, local knowledge, saline agriculture, socio-ecological niche, soil salinity

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