Tropentag, September 10-12, 2025, hybrid conference

"Reconcile land system changes
with planetary health"

Documenting farmer-led knowledge co-creation in horticultural systems in farmer field schools in Senegal and Kenya

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Abstract

Farmers Field Schools (FFS) are a participatory learning approach that has gained prominence in agricultural development for enhancing the capacity of farmers to adopt sustainable farming practices and improving their general agricultural skills in Africa and other regions. However, little information is available on the processes of knowledge co-creation within group members. Within the frame of the AfriNutriForest project that aims to develop, test and promote agroecological fruit-vegetable agroforestry systems in Senegal and Kenya, this study documents the co-creation of knowledge with farmers by using the FFS model. Elements of the FFS approach include hands-on learning in the field, promoting knowledge exchange among farmers, and fostering innovation in vegetable production by testing different potential solutions to production challenges in farmer-led field trials. Seven farmer groups (three in Senegal and four in Kenya) with mostly female members were identified and agreed to participate in the project. The FFS activities performed included participatory needs assessments, listing and ranking of most important vegetables and fruits, identifying production challenges of priority horticultural crops, and exploring potential solutions. This led to the design and implementation of seven different farmer-led experiments, one in each site. Participants started trials on water use efficiency in tomato, organic pest management in amaranth, management of saline soils in onions, organic fertiliser use in lettuce against currently used conventional methods. Farmers are being trained on assessing and interpreting production data on their plots. General first findings of the different trials and the co-learning processes indicate a high motivation of farmers participation and an increase in individual farmers' knowledge on improved horticultural techniques and agroecological approaches. For instance, application of folia feed produced from compost making on amaranth and kales recorded an increase in yields, farmers observed high moisture retention in the use of raised beds for amaranth production, reduced pest infestation in kales when cowpeas are planted around the vegetable gardens as buffer zone and application of groundnut husks mulch reduces soil salinity. The success underscores the high potential of the FFS approach in empowering farmers, improving agricultural productivity, and contributing to sustainable rural development. The findings from the ongoing project will be used to develop recommendations on the use of farmer-led

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research in FFS to promote sustainable agroecological practices in fruit-vegetable agroforestry systems for improving livelihoods and food security.

Keywords: Agroecology, agroforestry, farmer participation, fruit-vegetable agroforestry systems, sub-Sahara Africa