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Farmers’ and academia’s views”

Agro-ecological transformation: experiences and issues with variety development of indigenous Sahelian crops in West-Africa

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Abstract

Variety and seed issues are at the heart of agro-ecology as a social movement. These issues, however, have received little attention from the scientific plant-breeding communities. Key entry points could be diversity, co-creation and knowledge sharing and responsible governance of variety and seed dynamics. Indigenous staple-crops in Sahelian West Africa and the farming communities creating and maintaining varietal diversity over millennia offer ideal cases for learning how plant breeding can be organised on agro-ecological principles.

We seek to understand a) how current varietal-development activities for these crops align with agro-ecological principles, and b) what opportunities exist for (re)organising these activities to strengthen their application for optimising environmental benefits and social- and economic improvements for smallholder farmers.

National-programme breeders (NPBs), farmer organisations and NGO representatives shared their experiences in sorghum, pearl millet or cowpea varietal creation and use through online discussions. Discussions focused on a) setting priorities b) choosing and using germplasm to create new diversity, and c) testing and selecting the resulting breeding products. The breeders in Senegal, Mali, Burkina Faso and Niger provided additional written feedback on the initial synthesis of findings.

Joint efforts by smallholder farmers and NPBs for creating new varieties are underway. Breeding programmes are developing product concepts and profiles for prioritising what types of varieties to breed. The specific activities conducted however are, to a great extent, determined by short-term project funding. Attention to agro-ecological outcomes was mostly limited to increasing income for smallholder farmers. Varietal creation to enhance biodiversity, capacities for sharing knowledge and skills, or responsible governance of seed and variety dynamics were not directly addressed by the NPBs.

Breeders extensively use local germplasm for generating new diversity. Purification and registration of local varieties in response to farmers' requests was sometimes reported.

Joint testing and selecting of breeding materials by farmers and researchers was widely reported. This was mostly limited to advanced generations evaluated under recommended fertilisation as sole crops. NGOs and farmer organisations often requested that joint planning with NPBs be held from the beginning.

Entry points for strengthening and (re)organising breeding activities in line with key agro-ecological principles will be discussed.

Keywords: Biodiversity, cowpea, participation, pearl millet, sorghum, variety development