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“Utilisation of diversity in land use systems:
Sustainable and organic approaches to meet human needs”

“Grassroots Breeding”: A Way to Optimise the Use of Local Crop Diversity for the Well-Being of People

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Abstract

Effective maintenance of crop diversity within farming systems has been the subject of number of studies over the last decade. Although the benefits of agrobiodiversity have been widely recognised and encouraged through global conservation and policy awareness initiatives, its use is constrained due limited number plant breeders who can respond to all the needs of the poor farmers. Agrobiodiversity assets that are important for the poor are either being lost or not being optimally use. This is because neither the rural poor nor research and development workers fully appreciate their value and/or manage them well. This loss is often attributed to the green revolution, which, due the needs of the time assumed that the sophisticated plant breeding, led and controlled by professional breeders, is the best way of addressing the farmer’s problem and needs. On the contrary, farmer participation in breeding might: 1) improve farmers’ access to a wide range of genetic resources for local innovation, and 2) enhance farmers’ knowledge and skills in genetic resources conservation and plant breeding. In this paper, we re-examine if farmer participation does improve the availability, access, quality, conservation and utilisation of genetic resources. This paper put forward a step-by-step plant breeding process, which can enhance the capacity of grassroots institutions and farmers to assess existing diversity, select niche specific plant materials, produce sufficient quality seed, and distribute this within the community. We call this process of local crop development “Grassroots Breeding”. Based upon this analysis, together with experience of community-based on-farm management, we conclude that a rethink in current plant breeding approaches is essential if we want to optimise the benefits to poor farmers through the use of genetic diversity at the local level. What are the simple tools that can be used, or are being used, to reach this goal? Such an effort is pertinent given the ever-increasing demands placed on different production systems due to changing climate and farming practices. High levels of on-farm diversity can help mitigate the negative effects of these current trends if communities are empowered for efficient resource use and diversity in agro-ecosystems for improving livelihoods.

Keywords: Agricultural biodiversity, community empowerment, diversity, efficiency, farmer seed systems, grassroots breeding, grassroots institutions, local crop development, participatory plant breeding