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Pearl millet breeding for agroecology: Biodiversity considerations in West Africa

EVA WELTZIEN¹, KASSARI ANGO², INOUSSA DRABO³, GHISLAIN KANFANY⁴, MOUSSA DAOUDA SANOGO⁵, AHMAD ISSAKA⁶, H. FREDERICK W. RATTUNDE⁷

¹ *University of Wisconsin-Madison, Agronomy, United States of America*

² *INRAN, Centre Maradi, Niger*

³ *INERA, Pearl Millet Program, Burkina Faso*

⁴ *ISRA, Pearl Millet Program, Senegal*

⁵ *IER, Pearl Millet Program, Mali*

⁶ *INRAN, Pearl Millet Program, Niger*

⁷ *University of Wisconsin-Madison, Agronomy, Germany*

Abstract

Agroecology as a movement and a science uses environmental and social principles for guiding food system transformation. The biodiversity principle addresses the maintenance and enhancement of genetic resources for functional diversity in agroecosystems over time and space. The agroecological movement, while focusing on strengthening farmers' seed management options, rarely uses support from scientific breeding. This study seeks to understand how national breeding programmes in West Africa address biodiversity issues relevant to agroecological transformation. Semi-structured interviews with pearl millet breeders, farmer-organisation and NGO representatives from Senegal, Mali, Burkina Faso and Niger provided the data for this study. All breeding programmes are collaborating with farmers to identify preferred traits and set priorities for variety development for specific agroecologies or uses. All of these programmes use local germplasm as the base for their breeding populations, and are thus contributing to conservation of these gene pools. They also introduce new genetic diversity for new resistances to biotic and abiotic stresses. All breeding programmes evaluate their new selections in collaboration with farmer organisations, and thus support decentralised farmer decision making for seed production and dissemination. These findings show that breeding programmes and agroecology activists share many concerns. Thus, there is a solid basis for enhancing biodiversity through more direct collaboration between farmers, activists and pearl millet breeders in West Africa. These opportunities will be discussed.

Keywords: Plant breeding, *Pennisetum glaucum*, West Africa