

Crop diversity and West African farmers: agroecological perspectives

Christian Leclerc^{1,2} (christian.leclerc@cirad.fr), Amy Bodian³, Harouna Coulibaly⁴, Oumar Coumare⁵, Danfing Dit Youssouf Diarra⁶, Abdoukader Zakari Loussou⁷, Téwendé Laurent Ouedraogo⁸, Sani Salha⁹, Lawali Sitou⁷, Ladan Soumana¹⁰, Mamy Soumare¹¹, Isabelle Sanchez¹², Nicolas Verzelen¹², Abdoul-Aziz Saidou¹³, Mathieu Thomas^{14,2}, Selim Louafi^{1,2}

¹ UMR AGAP Institut, Cirad, Montpellier, France ; ² UMR AGAP Institut, Univ Montpellier, Cirad, INRAE, Institut Agro, Cirad, Montpellier, France ; ³ CERAAS / ISRA, Thiès, Senegal ; ⁴ Institut d'Economie Rurale (IER), Bamako, Mali ; ⁵ Association of Professional Farmer Organisations (AOPP), Bamako, Mali ; ⁶ Institut d'Economie Rurale (IER), Bamako, Mali ; ⁷ Université de Maradi, Maradi, Niger ; ⁸ Université de Ouagadougou, Ouagadougou, Burkina Faso ; ⁹ Gaskiya Federation of Maradi Farmers Unions, Maradi, Niger ; ¹⁰ FUGPN-Mooriben, Niamey, Niger ; ¹¹ Université de Bamako, Bamako, Mali ; ¹² MISTEA Laboratory, INRAE, Univ. Montpellier, Montpellier, France ; ¹³ Imaan Research, Niamey, Niger ; ¹⁴ Cirad, UMR AGAP Institut, Cirad, Montpellier, France

Crop biodiversity is key in agroecological approaches to ensure food security and nutrition. However, in West Africa (WA) as elsewhere, global changes impose sometimes drastic choices, and the diversity of practical solutions experimented by farmers to adapt to these changes remains unknown. The aim of this study is to examine crop biodiversity-based options experimented by farmers in different ecological contexts across four countries, Senegal, Burkina Faso, Mali, and Niger. What species are grown by farmers' households and why? Which seed sources support this choice? And more specifically, what role does sorghum play in this strategy, as one of the main crops grown in WA. A collaborative survey developed in partnership with five academic institutions and four farmers' organizations was deployed in 144 villages among 285 people, men and women of different generations, using a uniform spatial sampling strategy in order to also consider the diversity of ecological contexts, from North to South and from East to West, across the four countries. The spatial organization of crop diversity varies between countries. Within countries, crop diversity increases from North to South, but it also depends on the number of languages spoken in villages and on the presence of farmers' organizations. Seed supply also varies between and within countries, and according to the species considered. For sorghum, 75% of farmers use their own seeds in Burkina, but only 50% in Senegal. 60% of farmers use market seeds for peanut in Niger, but only 15% in Senegal. Farmers' practices also vary for maize and cowpea. When attention is paid to one crop, the diversity of farmers practices cannot be captured. There is not one, but many crop biodiversity-based options, which differ according to contexts. As they are based on farmers' experiences, they would represent a promising agroecological perspective