

The IAVAO crop network: a NARS led regional platform for germplasm exchange and multi-environment trials

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Tremendous progress has been made in terms of crop breeding in West-Africa. However, National breeding programs in West-Africa still have limited resources and are generally too isolated to access significant fundings allowing to develop more innovative breeding approaches. A regional network that brings together breeding programs on several crops including sorghum was initiated in 2018. It gathers 5 different countries in West-Africa (Burkina Faso, Mali, Niger, Senegal, and Togo) and creates the conditions of germplasm exchange as well as data and information sharing. The network is supported by a charter that establishes the rules and responsibilities of its members, covers intellectual property issues related to the exchange and use of germplasm and data, while ensuring a network as functional as possible, and confidence and trust among partners. Measurement variables and methods as well as experimental protocols have been collectively harmonized around common ontologies. Experimental data are stored and analyzed in a shared instance of the Breeding Management System (BMS) and accessible to the members of the network. Globally, since 2018, 61 sorghum varieties have been evaluated through experimental trials conducted in 21 different environments in West-Africa. Between 28 and 45 varieties were evaluated each year in 9 to 13 locations. The data produced so far provides a valuable database on the adaptation of a large set of sorghum varieties and breeding lines representative of the elite material that currently forms the core of national breeding programs in West-Africa. Germplasm exchange allowed breeders to test varieties from other countries and revealed them some interesting material for registration or as trait donors. The multi environment trials also provided valuable data to progress on characterization of photoperiod sensitivity and modeling of target environments. Perspectives to link and extend this network to on-farm testing networks and farmers' germplasm is also under development.