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Core Reference Sets Of Sorghum And Musa : From A Whole Collection To A Mini Core Collection And Back

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The 'core' approach for investigating genetic diversity in a crop germplasm collection has proven merits, among which the possibility to choose a sample of manageable size (e.g. a 'minicore'), so that it can be studied in details, be exchanged among researchers and users and serve as a common reference for integration of data of multiple sources. In turn, studies on a mini core collection can help direct further investigation in the whole collection and target specific compartments for specific purposes. The Generation Challenge Programme is helping various germplasm centers develop genetic stocks to serve as core reference sets for an array of important food crops ; the case of sorghum will be presented as an advanced example. Sorghum reference set has been evaluated under normal and postflowering water stress conditions at ICRISAT. A wide range of variation for agronomic traits, including yield and Fe and Zn have been observed and promising lines selected for use in breeding programmes. The forthcoming possibility to apply massive genotyping to crop germplasm may justify adaptation of scientific strategies, in relation to the biology and the history of the crops. These aspects will be discussed for two contrasting crops, namely sorghum, a diploid, predominantly inbreeding cereal crop with vast germplasm collections, and banana/plantain, a multi-, essentially tri-ploid, vegetatively propagated fruit crop with collections of limited size.