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GENETIC RESOURCES AND GENOMICS: TWO SIDES OF THE SAME COIN

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Plant genetic resources constitute the raw material where useful agronomic traits can be identified and exploited to improve the efficiency and/or sustainability of food or industrial crops. The need to preserve and use plant genetic resources is well recognized, and the prospect of dwindling plant genetic diversity, coupled with increased demands on these resources has made them a topic of global discussion. So far only a small part of the total genetic variability has been characterized and used for breeding purposes. However, in recent years all aspects related to genetic resources (collection, conservation, evaluation, and utilization) have been eminently impacted by biotechnology. Structural and functional genomics have greatly expanded our understanding of plant genetic resources, allowing a detailed analysis of the organization, expression, and interaction of plants at the genome level. Nowdays the entire sequence of plant genomes can be well considered a newly developed genetic resource. It provides information on how plant function and allow finding the genes from the wild that correspond to specific phenotypes. In this presentation, the use and usefulness of plant genetic resources in the "genomic era" will be illustrated with reference to major crops.