

## **MUTATION ANALYSIS AND PLANT GENOMICS**

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Sequencing of plant genomes is providing a complete view of genomes architecture in terms of composition and distribution of genes, transposable elements and other genomic elements. However, it is the analysis of variation between genomes that will more efficiently improve our understanding of gene function and regulation and the genetic bases of complex traits. Not surprisingly, large research efforts are underway to identify and describe naturally available allelic variation in human and model species. In crops, a number of technologies are being developed and/or implemented in order to facilitate the analysis of genomes by addressing both natural and induced (i.e. by mutagenesis) variation at the DNA sequence level. Such technologies include the already implemented TILLING and EcoTILLING approaches, the promising array-based detection of Single-Feature Polymorphism and others. Interestingly, new applications are being envisioned for traditional mutation breeding. The interconnections of genomics-mediated mutation analysis with plant breeding will be critically analyzed and discussed.