RECOMMENDATIONS FROM
BRAIN-STORMING II
Molecular Breeding
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After having extensive discussions, following conclusions and recommendations were made:

(1) Breeders should use MAS for only those traits for which phenotypic or visual selection is not feasible such as latent traits or drought-related traits.

(2) Priority needs to be given to new methodologies of MAS such as MARS and GWS (also called GS) in different breeding schemes especially for complex traits. Breeders should exercise background selection only in case of introgression of genes from wild species or from very inferior donor into a mega-variety. Also, only background selection may be necessary and no foreground selection be needed, if phenotypic selection of target trait is easy.

(3) Option for MARS or GWS should be exercised judiciously after due consultation with the experts and breeders, who have experience in deploying these methodologies for crop improvement. In case of GS or GWS, construction of ‘training population’ should also be done with due care and ‘phenotyping’ needs to be done with precision.

(4) There is a need for a shift from SSRs to DArTs, SNPs and ‘genotyping by sequencing’. While using SNP markers, choice of appropriate SNP genotyping platform is also important.

(5) Outsourcing the genotyping work and training for using bioinformatics tools needs to be encouraged as it is time and cost-effective.

Clear-cut guidelines should be made by ICAR for release of MAS bred varieties. MABC bred varieties should need only one year trial data and should be treated as essentially derived varieties (EDV). All AICRPs should approve the guidelines already followed in rice for MAS-bred varieties. ICAR should ensure the implementation of these guidelines.