

A bird's eye view of marker applications in commercial corn breeding

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High throughput genotyping laboratories have developed the capacity and cost structure necessary to facilitate large-scale utilization of molecular markers in breeding programs. Monsanto corn breeding programs are benefitted by several unique marker applications. Quantitative germplasm improvement is realized through marker assisted selection of chromosomal regions identified in QTL mapping experiments. Speed and efficiency of trait integration programs are improved with the implementation of marker assisted backcrossing. Program efficiency gains are realized through enhanced quality control enabled by applying marker evaluation to the validation of population identity and genetic structure. The combination of these tools is delivering increased genetic gain in Monsanto corn breeding programs.