

Utilization of Cotton DNA Markers in Cotton Breeding

CANTRELL Roy G, XIAO Jin-hua

(Monsanto Company, 800 N. Lindbergh Blvd., St. Louis, MO 63167, USA)

Informative, portable, and efficient DNA markers have the potential to accelerate genetic gain in cotton breeding. Discovery and widespread application of DNA markers to cotton has traditionally lagged behind other major crop species. The reasons are well known to ICGI participants. The foundation for widespread development and application of DNA markers has been laid by ICGI and research within the private sector. The rapid growth of the number of PCR based markers in public databases provides exciting tools for many applications in cotton improvement. As for any crop, the use of DNA markers and genetic architecture of breeding populations need to be continually refined to leverage the marker technology. The appropriate role and future of public and private researcher in molecular markers and molecular breeding will be discussed. Challenges facing cotton in the future such as abiotic stress, fiber quality demands, competition from synthetic fibers, shifting pest spectrums, all require that molecular breeding and biotechnology tools are used and developed to their maximum potential.