IMPACT OF SEED ATTRIBUTES ON 21st CENTURY COTTON CULTIVAR DEVELOPMENT

R.G. McDaniel, Department of Plant Sciences, University of Arizona, Tucson, AZ

Abstract

Strong trends within the industry promise to have a dramatic effect on nearly every aspect of the production of cotton planting seed. Likewise, the ability of geneticists and breeders to design a seed which will allow the expression of desirable traits in cultivars under development will strongly impact which of these actually are adopted in the next decade. Approaches to cottonseed improvement include: (1)technology for the production of vigorous high quality seed; (2) removal of unnecessary seed components, and addition of "value added" characteristics to the seed through breeding, genetic engineering, or a combination of both; (3)re-engineering the structural and functional components of seed, from seed surface area/density ratio to cell type and number; to bioenergetic efficiency and hormone balance; and (4)improved fiber properties through breeding or genetic engineering. Other possibilities exist. At present, biotechnological approaches to the improvement of seed and seedling disease and insect resistance are at the forefront of research. An increasing demand for stronger, cleaner and more uniform cotton fiber will also provide impetus to efforts to design seeds and seed coats which fulfill physical and physiological requirements supporting improved fiber characteristics. These new imperatives are sure to provide challenges to scientists.

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