

**BREEDING STRATEGIES TO IMPROVE  
COTTON PLANTING SEED QUALITY**

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**Abstract**

There are numerous advantages to the inclusion of improved seed vigor and germination characteristics in a cotton breeding program. In order to gain maximum benefit from improved seed, it is necessary to initiate selection for seed quality early in the breeding process. If one or more of the cultivars or germplasm sources in the ancestral parental materials exhibits excellent seed quality characteristics, a relatively straight-forward field emergence and stand establishment selection process can be implemented. If seed quality problems are substantial among the majority of ancestral materials, or if unadapted or wild germplasm is to be used for genetic introgression, I recommend that an initial hybridization and recurrent selection program utilizing one or more adapted germplasm sources with excellent planting seed characteristics be carried out. Following this process a strong parental seed source may also be utilized as a basis for the introduction of specific desired engineered, agronomic or fiber traits via further conventional breeding steps. Data presented illustrate the advantages of rigorous evaluation of and selection for improved seed quality traits during the initial stages of a cotton cultivar development breeding program.

Although these data were gathered as part of a genetic program for improvement of Southwestern, irrigated cotton germplasm, the approach reported here may prove valuable to other emerging cotton breeding and improvement studies.

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