

Effects of Ecological Conditions and Crossing Periods on the Quality of Hybrid Cotton Seed

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Abstract: Using the parent lines of SCRC15, the effects of crossing periods and ecological conditions on hybrid seed quality were studied in Shandong in 2002 and 2003. Average results indicated that seed maturity, percentage of germination, absolute content of fat and protein in seed kernels decreased as crossing period progresses in the same ecological area. Averaged across crossing periods, seed maturity, germination percentage, absolute content of fat and protein in seed kernels harvested in either the

southwest or northwest of Shandong were much higher than those in the north of Shandong. There occurred significant interaction effects between ecological area and crossing period on seed quality. Significant correlation ($r=0.9128^{**}$) between seed maturity germination and percentage was detected. Neither relative fat content nor protein content in seed kernels was correlated to germination percentage, while the absolute content of fat and protein was correlated to seed germination significantly ($r=0.8985^{**}$ for fat, $r=0.6028^*$ for protein). It was also found that relative fat content was negatively correlated to that of protein ($r=-0.6124^*$). Shifting production base to the south of Shandong and ending crossing earlier might be beneficial to improving hybrid quality.

Key words: cotton; hybrid seed; seed quality; ecological condition, crossing period