

DO PRESENT DEFOLIATION PRACTICES AFFECT
QUALITY OF COTTONSEED
(ABSTRACT)

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In preliminary studies at five Mississippi Delta locations in 1961, bottom defoliation of cotton resulted in an average seed moisture of 10 percent in the bottom crop 7 to 18 days after application. Average seed moisture in comparable adjacent untreated areas was 14 percent. Thus, under good drying conditions, bottom defoliation can permit more rapid moisture loss from bottom-crop seed so that it will be at a safer level for storage.

Studies were conducted at the Delta Branch Experiment Station of the effect of defoliation timing on fiber and seed maturity. The percent of open bolls was evaluated as an index of general crop maturity. Seed index, oil content, and germination served as measurements of seed maturity in bolls of known age at time of defoliant application. Results indicated that the 60-percent open stage is usually safe for defoliation unless the set of late-season bolls is relatively heavy, or weather conditions retard boll opening. Determinations of percent of bolls open should be supplemented by examination of top bolls for maturity. Top bolls are mature enough for defoliation if they are difficult to cut through with a sharp knife and if the embryo has developed so that it completely fills the seed cavity.

Seed-quality losses resulting from defoliation-induced immaturity are considered to be relatively minor compared with losses from weather-associated deterioration. Seed immaturity resulting from defoliation when 60 percent of the bolls were open was evident only in the last 10 to 20 percent of the bolls set. On a weight basis, this fraction did not even approach the proportion of mature bolls frequently deteriorated by weather and associated effects.

Timing of defoliant application to the entire plant when it has set bolls for 8 weeks or longer represents a compromise between top-boll maturity and bottom-boll deterioration. Before the 60-percent open-bolls stage is reached, the bottom crop has been subjected to field deterioration for an extended period. Therefore, when conditions have permitted a relatively long period of boll set, bottom defoliation followed by early bottom harvesting may minimize seed-quality losses in the bottom crop.

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