

COMPARING TWO METHODS IN EVALUATION OF BOLL RETENTION

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Abstract

Boll number is one of the most important traits related to upland cotton (*Gossypium hirsutum* L.) yield. Evaluation of boll retention properties at different nodes and positions would provide useful information for cotton breeding and cotton growth management. A boll, being present or absent at each fruiting position, is binomially distributed. In this study, 188 upland cotton recombinant inbred (RI) lines including their two parental lines and a commercial cultivar, Stoneville 474, were used. These lines were planted at Mississippi State, MS, in 1999. The data set was analyzed by both analysis of variance (ANOVA) and logistic regression models. The results showed that the boll retention for the first position was significantly different among nodes. Estimates for boll retention were similar for both models; however, the logistic regression model gave higher precision for the estimation than the ANOVA model. Two-year data of box mapping was also analyzed by the two models, and the statistical conclusions were in good agreement with one-year data. Since standard errors were smaller with the logistic regression model it is more appropriate for evaluating boll retention on different nodes.