CHANGES IN THE COTTON CAPSULE WALL IN RELATION TO BOLL WEEVIL AND BOLLWORM FEEDING

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Abstract

It has been demonstrated that bollworm and boll weevil damage to developing cotton (Gossypium hirsutum L.) bolls decline dramatically at approximately 350 heat units after pollination of the flower that produced the boll. Use is made of this phenomenon in for timing the cessation of insecticide application to the cotton crop. This study was designed to explain this phenomenon by investigating anatomical and biochemical changes in the capsule wall in relation to boll age and insect feeding. The effect of insecticide termination at 250, 350, and 450 heat units after pollination on carbon partitioning from the upper leaves with insect damaged fruit to lower (protected) bolls was also movement of carbohydrates to bolls lower in the canopy. The effect of plant growth regulators, PIX and PGR-IV, on the development of the boll wall was investigated. This project should explain the decline in attractiveness of the cotton boll with age to bollworm and boll weevils, and provide additional confidence in using this phenomenon in crop termination.

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