

**EFFECTS OF DELAYED FRUITING ON COTTON ROOT
GROWTH DURING WATER DEFICIT STRESS AND
ITS IMPLICATIONS ON YIELD**

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Abstract

Delayed fruiting in cotton (*Gossypium hirsutum* L.) may result in enhanced growth of roots, which may improve the crops' ability to tolerate episodic drought events. This study, conducted at a rainout shelter at the University of Georgia Coastal Plain Experiment Station, Tifton, was initiated to determine the effects of delayed fruiting on cotton root growth and yield under irrigated and water-stressed conditions. Delayed fruiting was achieved by fruiting branch removal at 35 and 41 days after planting (DAP) such that the first fruiting branch occurred at main stem node 8 in all the plants within a plot. Water stress was developed by withholding irrigation and rainfall for 17 days from 52 to 69 DAP. Root count data were collected on five sampling dates beginning at 53 DAP with a minirhizotron camera system. At harvest, 3 m of row in each plot was box-picked and boll counts and seed cotton yields were recorded. Delayed fruiting, irrespective of the irrigation treatment led to significantly higher root counts. Delayed fruiting with full irrigation produced the highest boll counts and seed cotton yields. However, delayed fruiting with no irrigation treatment led to drastic reduction in boll counts and seed cotton yields. Thus while delayed fruiting did increase the root count, it did not result in resistance to episodic water deficit.