EVALUATING THE LAST EFFECTIVE BLOOM DATE FOR COTTON IN GEORGIA

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Abstract

Cotton is Georgia's largest row crop with an average of 1.2 million acres being planted annually, and accounting for nearly $800 million in Farm Gate Value. Most cotton is planted in the month of May in Georgia which allows cotton to fully mature prior to first frost. As growers increase acres or double crop cotton behind sweet corn, potatoes, or small grains, this planting window is being pushed later into the growing season. Delayed planting reduces the likelihood of the crop reaching full maturity. Cotton bolls require 850 DD60s to fully mature from a white bloom. Growers typically use a date between September 5 to 15 as the last effective bloom date depending on location. The objective of this study was to determine the last effective bloom date in multiple cotton producing counties. In 2020 and 2021, County Agents from across the cotton belt in Georgia selected late planted (June 1st or later) commercial cotton fields and beginning the first week of September tagged white blooms each week for five consecutive weeks. On the day the Agent tagged the blooms they selected a single row and tagged twenty-five first position white blooms for that week. One week later they moved over one row and did the same for the duration of the five weeks. Once the cotton was defoliated and ready to harvest, the Agent came back and hand harvested all tagged open bolls while noting if the tagged positions where harvestable, missing, or unopened/unharvestable. Seedcotton weights were obtained for each sample date and boll weights were calculated. Harvestable bolls from blooms tagged during the first three weeks of September 2020 were not significantly different. Percent harvestable bolls ranged from 49 to 72 percent which is acceptable retention rates. Blooms tagged during the fourth and fifth week of bloom were the lowest and ranged from 13 to 29 percent. In 2021, percent harvestable bolls was highest when flowers bloomed in the first week of September. The second and third weeks noted a reduction to 45 and 32 percent in retention, while the last two weeks were the lowest at 5 and less than 1%, respectively. Blooms tagged during the first two weeks of September 2020 produced the greatest total seedcotton weight; 70.90 g in week 1 and 81.85 g in week two. Blooms tagged during the fourth and fifth week of bloom in 2020 were the lowest and ranged from 11.91 g to 23.32 g. In 2021, the highest total seedcotton weight was obtained from bolls tagged in the first week of September. Each subsequent week saw a significant decrease in seedcotton weight, with the lowest observed at the fourth and fifth weeks. Mean boll weights from blooms tagged during the first three weeks of September 2020 were significantly greater when compared with blooms tagged during weeks four and five. There was a trend for boll weight to be reduced for blooms tagged later in September. In 2021 a similar trend was noted, however boll mass saw a significant drop in weeks three through five compared to week one. Generally, as DD60s from white flower to defoliation increased, seedcotton weights and boll retention increased. The environmental conditions experienced during 2020 allowed blooms to mature through the third week of September. The 2021 season was shorter and only allowed blooms to mature through the second week of September. Every field and year will be different, and additional data needs to be collected.