Four-Bract Squares Showing Up Again

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If you are noticing declining square retention even when no or below threshold numbers of plant bugs are detected four-bract squares may be the culprit. Malformed squares (extra bracts and extruding reproductive structures) are being found in our planting date trial in Jackson. Malformed squares are caused by physical damage from insects (possibly due to heavy thrips infestations this year), but can occur due to adverse weather conditions affecting meristems. Typically, the lower fruiting branches are where most four-bract squares occur. Four-bract squares are more susceptible to shedding from insect damage from the fourth bract providing an opening for insects to enter a young square. Additionally, any malformed squares (including four-bract squares) can shed.

In 2011 four-bract squares affected cotton planted from May 10-25 and experienced high temperatures in the upper 90's, low temperatures in the upper 70's for two and a half weeks in June. This year we have experienced episodes of high temperatures and drought during much of the second half on May which could contribute to the current situation. Microscopic squares begin to form as early as the two leave stage (as many as 40 days prior to seeing a pinhead square). Any stressed experienced during this period (temperatures, thrips, drought, etc) can cause malformed squares. Four-bract squares can be found every year. prior to 2011, the last year where we had higher than average four-bract squares was 2007. During that year early heat and drought peristed through the growing season and where four-bract squares were monitored, ~60% eventually aborted. While you may not notice square loss right now, if square retention begins to decline with an absence of plant bugs four-bract squares could be to blame. I suggest examining some squares while scouting to determine if four-bract squares are currently present. Δ

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Fourth Bract — Subtending Leaf