

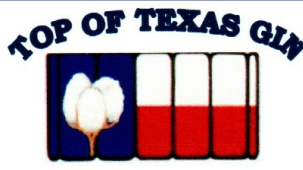


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## Cotton Insights Newsletter

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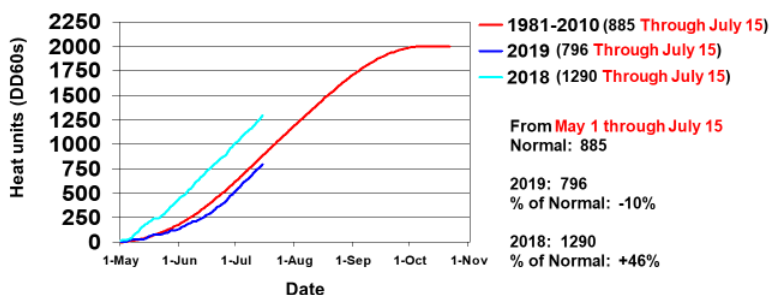
July 16, 2019

### Crop Update

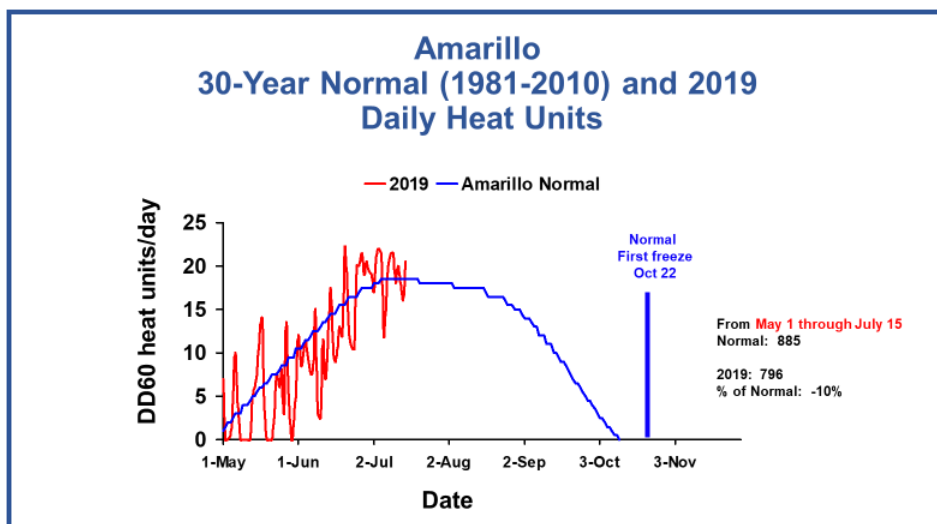
Cotton growth and development continues to progress nicely and many fields are into the mid- to late-square stage. When using Amarillo temperatures, the first half of July has been slightly above normal with respect to cotton heat unit accumulation, and we are now about 10% below normal from May 1 through July 15 (see graphs below).

The crop is still playing "catch up" in many areas, and it appears that some fields should be blooming in the next 10 to 14 days. This indicates that based on historical bloom dates in the area, that would be anywhere from 1 to 2 weeks late. We will need a great fall for good yields and maturity. Weed control has generally been excellent and irrigation systems are running in many fields.

### Amarillo 30-Yr Normal (1981-2010) vs. 2018 and 2019 Cotton Heat Unit Accumulation for May 1 Through July 15



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### Square Retention Concerns

- When covering a large swath of area, I have been seeing some less than desirable square retention in several observed fields. Some of the pinhead square shed is probably due to environmental conditions, but after visiting with others in the industry, not all of this can be explained by that factor.
- With all of the May rainfall, we have a lot of alternate hosts for various “square thieves” growing in weedy dryland corners planted to grass, ditches, and other non-cropland. These areas can harbor multiple pest species including cotton fleahoppers and lygus bugs that can rapidly migrate into cotton as the weeds dry down or get mowed by growers.
- Although I haven’t personally seen a lot of these insects in the observed fields, there are some concerns with respect to pinhead square loss. Some of the plants I have observed have lost first position squares on as many as 3 to 4 sequential fruiting branches up the plant. Based on the size of the second position squares on these fruiting branches, whatever occurred must have been about 10-14 days ago.
- What this means is that with this fruit loss, second position squares will be leaned upon to make up that difference. A loss of first position squares means that the first bloom date can be delayed around 6 days or so.
- On any given fruiting branch, the difference in age between adjacent sequential fruit development on that branch (e.g. first and second position squares) is about 6 days or so.
- This early season square loss is not something we need, but we do have in some areas. This may necessitate higher plant growth regulator applications depending upon the planted variety’s growth potential and growing conditions.
- Pre-bloom cotton squares need to be protected through the bloom stage. At the bloom stage, cotton fleahoppers typically cease to be a problem, but lygus and other species can still be problematic well into bloom.
- If proper insect management has been implemented, growers have really done all they can do.

## Photos of First Position Pinhead Square Loss



Photo taken July 11

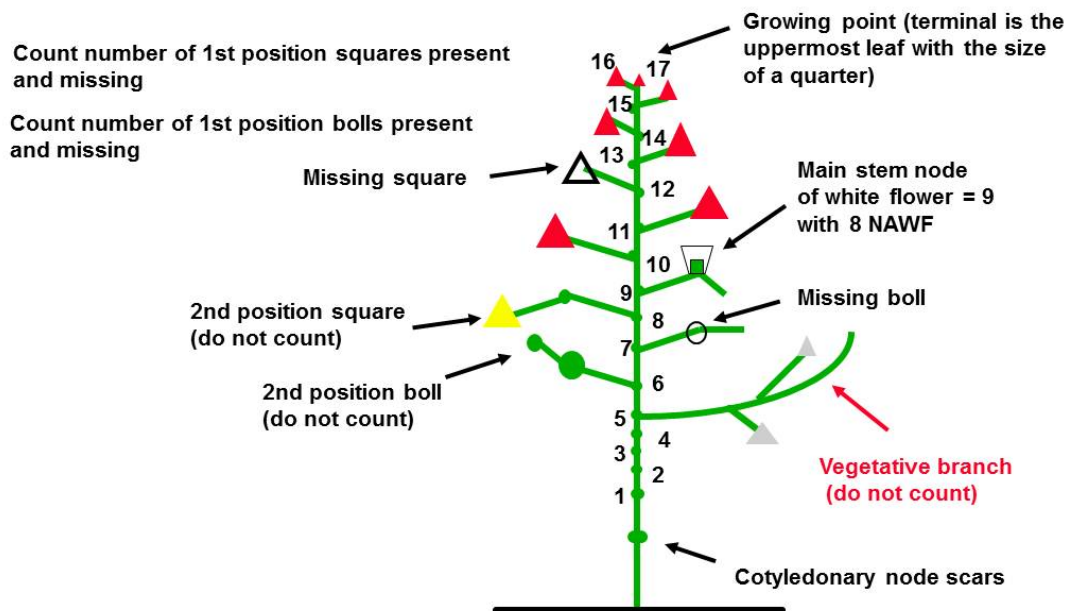


Photo taken July 16

## Plant Monitoring Considerations

- A considerable amount of cotton is well into the square stage.
- Normally it takes about 21-25 days for a pinhead square to develop into a bloom.
- First position fruit is very quickly counted, and is generally adequate for “getting a handle on the crop” (see Figure 1).
- Retaining early fruit is an important component of managing for earliness. During the pre-bloom period, we should target of at least 75-85% first position square retention. We also like to see at least 85% first position square retention going into the first week of bloom. Hopefully well-maintained fields will retain nearly 100% of pre-bloom squares.
- As we begin to move into the bloom stage, it will be important to check fields for first position nodes above white flower (NAWF) at early bloom to assess the yield potential and vigor at that time.
- At early bloom, a good “rule of thumb” is that about 80% of the harvestable crop will be on the plant in the form of squares and blooms.

**Figure 1. Early bloom plant mapping using first position fruiting sites.**





## Important Plant Mapping Data at Early Bloom

- 1) Total 1st position squares present and missing: (retained squares / total square sites = % square retention). Square retention goal is 75 - 85% 14 days after early bloom.
- 2) Total 1st position bolls present and missing: (retained bolls / total boll sites = % boll retention)
- 3) 1<sup>st</sup> position nodes above white flower (NAWF). To determine NAWF see Figure 2.
- Nodes above white flower at first bloom gives an indication of crop vigor and yield potential. Typically, NAWF should be high at first bloom and then decrease as the boll load ties down the plant, and mainstem node production rate slows or ceases.
- Greater than 8 NAWF can typically be considered excellent vigor, 6-7 – reduced yield potential possible unless adequate irrigation is quickly initiated or rainfall is obtained, 4-5 or less - cutout imminent on more determinate varieties.
- Fields that have been moisture stressed may have a short bloom period due if only a few NAWF are found at early bloom, unless timely rainfall or irrigation is obtained.
- It will be important to track NAWF averages weekly for each field, as key management decisions later in the season can be assisted if the cutout date is known.

**Figure 2. Nodes above white flower at early to mid-bloom.**

