

# PEST MANAGEMENT NEWS

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THE INTEGRATED PEST MANAGEMENT NEWSLETTER

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FOR THE LOWER ROLLING PLAINS

## GROWING CONDITIONS

A great amount has changed since the previous newsletter. Rain has covered most, if not all, of the area leaving most soils in very good shape for planting.

Cotton ranges from in the bag to 5-6 leaf stage. We need to watch for early season pests to avoid crop delays.

## INSECT PESTS

Early season pest control will be critical to cotton production in an already delayed crop. Based on normal cotton production, a cotton field planted on 15 June will reach first bloom on 9 August (Table 4). This leaves only three (3) weeks of bloom prior to 1 September. Blooms after 1 September have a greatly reduced chance of becoming a quality open boll.

The two insect pests that can delay a cotton crop prior to bloom are thrips and cotton fleahoppers. Thrips have been found in low numbers in most fields that are up (<1 per plant). Control may be justified when the average number of thrips exceeds the number of true leaves on the plant.

If the temperatures continue to be in the upper 90s we will only experience economic injury in fields with high numbers of thrips.

Fields will need to be watched for fleahoppers when squares are found on the crop. **Treatments prior to the formation of squares are not justified.**

## COTTON GROWTH AND DEVELOPMENT

Cotton is a perennial shrub in its native habitat and can live for many years. Therefore, by planting and harvesting each year, cotton producers are forcing a perennial plant to perform as an annual. Cotton plants will limit fruit production unless all their needs for survival are being met. To produce acceptable yields, you must make sure that the cotton plants' basic needs for nutrients, water, temperature and sunlight are satisfied.

The first leaves that emerge are the cotyledon or seed leaves, the only leaves on the plant that grow directly opposite each other. Cotyledon leaves are primarily storage tissues; they have minimal ability to produce photosynthates (food).

If both cotyledons are lost within the first week after emergence, plant maturity will be delayed because the leaves do not have time to transfer their stored nutrients to other plant parts. After the cotyledons emerge, the plant develops main-stem, or true, leaves. Later in the season, subtending leaves develop on fruiting branches, which are critical to boll set and boll fill.

Through the process of photosynthesis, leaves produce carbohydrates that the plant uses to survive, grow and produce fruit. A leaf's ability to produce carbohydrates is closely related to its age. Leaves that are 16 to 25 days old are prime producers and exporters of carbohydrates to other parts of the plant. After this age, they become less able to supply photosynthates. A 60-day-old leaf is unable to supply food reserves for developing fruit.

During the early stages of plant development, the roots grow faster than the plant parts above ground. A young taproot may extend six inches into the soil by the time the first true leaf is visible. Soon after the first true leaf appears, the roots begin developing an extensive lateral system.

**Table 1. Heat Units Accumulated from Selected Dates Through June 12, 2003**

From	Total Heat Units (DD60)
5/01	717
5/10	564
5/20	391
6/01	240
6/10	65.5

**Table 2. Accumulated Heat Units Required for Different Stages of Cotton.**

Growth Stage	From Emergence	From Previous Stage
1 <sup>st</sup> True Leaf	16	16
Pin-head Square	455	439
Match-head	560	105
1/3 Grown	770	210
First Bloom	1064	294
First Open Boll	1641	577
95% Mature	2271	630

**Table 3. Estimated Time Sequence of Growth and Development Stages in the Cotton Plant.**

Planting Date		
1 <sup>st</sup> Square	A	32 Days
1 <sup>st</sup> White	A	23 Days
1 <sup>st</sup> Open Boll	A	55 Days
30% Open	A	15 Days
60% Open	A	10 Days
85% Open	A	20 Days

**Table 4. Projected Dates of Crop Growth Landmarks for Various Planting Dates Based on Table 3.**

Planting Date	1 <sup>st</sup> Square	1 <sup>st</sup> White Bloom	1 <sup>st</sup> Open Boll	30% Open	60% Open	85% Open
5/01	6/02	6/25	8/19	9/03	9/13	10/03
5/10	6/11	7/04	8/28	9/12	9/22	10/12
5/20	6/21	7/14	9/07	9/22	10/02	10/22
6/01	7/03	7/26	9/19	10/04	10/14	11/03
6/10	7/12	8/04	9/28	10/13	10/23	11/12
6/20	7/22	8/14	10/08	10/23	11/02	11/22

\* Keep in mind that these dates are estimates, warmer and cooler temperatures will hasten and delay crop maturity, respectively.