



EARLY COTTON DEVELOPMENT

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After stand establishment, the next critical stage in the development of a cotton crop is the initiation of the first squares, or floral buds, which could develop into the plants' first boll. This is an important step for a cotton crop and one which is usually followed closely by the attentive farmer. About the earliest one can find the occurrence of the first fruiting branch (which bears the first attempted square on the plant) is on the fifth node above the cotyledons. Usually, we are satisfied to see the cotton plant beginning its fruiting development by forming first fruiting branches on nodes five, six, or seven (above the cotyledons). If this is the case, we can predict the occurrence of this first square as a function of heat unit accumulations after planting (HUAP, 86/ 55°F thresholds). For the first square, we generally look for its presence at about 700 HUAP (Figure 1) for both Upland and Pima varieties. The first square may occur slightly before or after 700 HUAP, but we should be able to find signs of at least an attempt on the part of the plant to form those first squares by that time. If that is the case, we can expect those early squares to develop to a sufficient size that they can survive the infestation of young pink bollworm (PBW) larvae and thereby be declared as a "susceptible square" to PBW. This stage should occur at about 900 HUAP, if the plant has

initiated squares close to 700 HUAP and was able to hold those early squares. As the squares continue to develop, the next major step is the occurrence of the first blooms, which should appear at about 1200 HUAP. The first blooms announce the true beginning of the fruiting cycle in terms of boll set and development.

With the use of the HUAP information provided through Dr. Paul Brown and AZMET, and the channelling of that information on a localized level through the county Extension offices through the weekly cotton advisories, Arizona farmers can follow the early development of their crop in relation to HUAP. In this manner, the crop can lend some early indication of its early season vigor and fruiting potential. Secondly, once the first squares are identified it is important to follow their retention. Early square loss can be a point of concern and should at least be recognized and hopefully related to some cause. The cause or culprit associated with early square loss could be insect, weather, water, disease, or nutritionally related and may require an active response in management. For information regarding possible responses to this, one should contact their local County Extension Agent.

Planting Date	Pinhead Square	Susceptible Square	First Bloom
0	700	900	1200

Heat Units Accumulated After Planting (HUAP 86/85°)

Figure 1. Early season cotton plant development as a function of heat units.



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