



## **Drought Management Strategies Related to Production, Management, and Marketing of Cotton in Texas**

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### **Production Decisions**

Drought has a significant impact on cotton production across the state of Texas. The amount of harvested acres may be reduced by several million in severe drought years. Timing of drought occurrence is critical in making appropriate management decisions. Many times, early or preplant drought can result in producers planting cotton near “final planting dates for insurance purposes.” Sometimes these fields never receive rainfall and can later be considered failed after non-emergence. However, in other situations, rainfall may be obtained later – many times during or just after the crop insurance “late planting period,” which then results in a late emerged crop with generally low yield potential. Late emerged fields result in risky production, as crop maturity is pushed later into the growing season, and late boll production is susceptible to yield loss due to early fall freeze. In other instances, fields may have good soil moisture at planting and then encounter dry conditions after stand establishment. Many producers in the Rolling and High Plains regions typically minimize early expenses in a dryland crop until yield prospects are improved by rainfall occurrence. If cotton stands are obtained reasonably early and extremely dry conditions later prevail, producers should consider the following management suggestions.

Dryland cotton producers should cease application of plant growth regulator products containing mepiquat chloride (Pix, Pix Plus, Mepichlor, Mepex, Mepex Gin Out, Stance and others) and mepiquat pentaborate (Pentia) in fields that are moisture stressed and fail to receive additional rainfall. These products are gibberellic acid inhibitors and will impart additional stress on the crop which may further reduce yields under severe moisture stress conditions. Also, application of other production inputs should be minimized.

Growers should refrain from excess cultivation that can dry the soil and increase problems related to drought. Cultivating too deeply (more than 1 to 2 inches depending on the size of cotton) can prune roots and reduce the plant's ability to extract soil moisture. Cultivation during the reproductive period (squaring, bloom, boll set) should be avoided because water use is greatest during these growth stages (Figure 1).

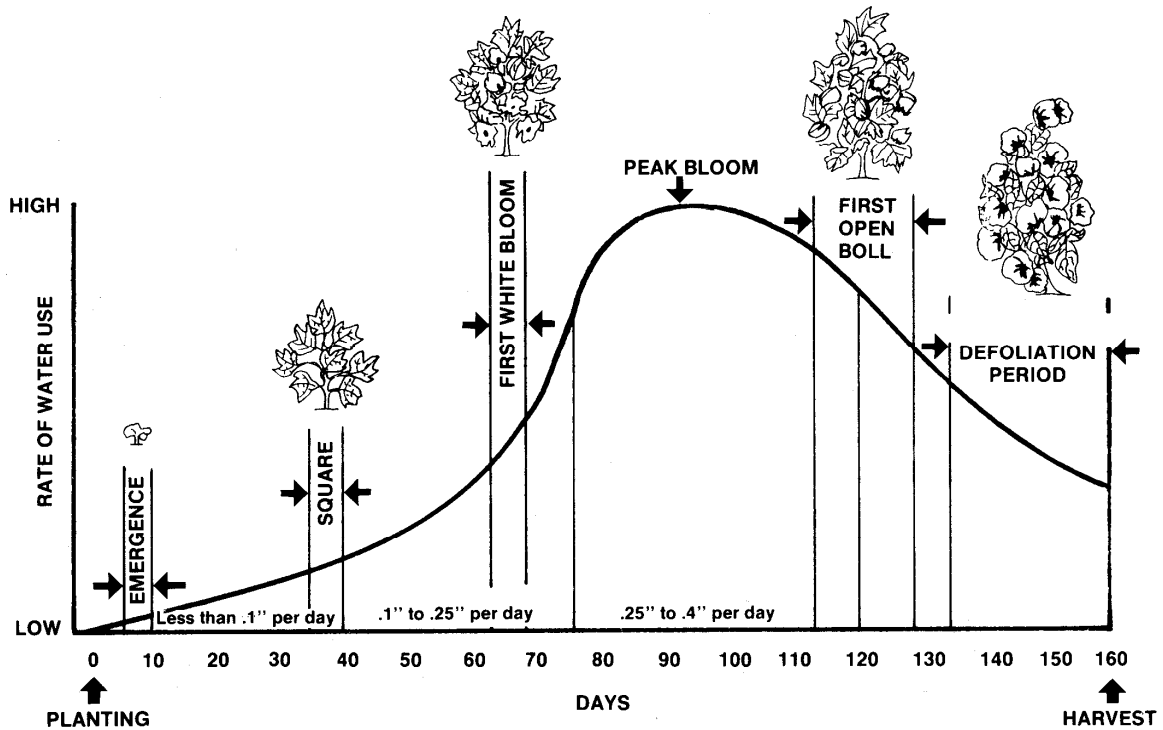


Figure 1. Water use in relation to cotton development.

Cotton has the unique ability to adapt to a wide range of plant densities. Under favorable growing conditions, uniform plant stands ranging from 30,000 to 60,000 plants per acre will generally produce similar yields (Figure 2). During drought conditions, lower plant populations (final plant density of two plants per foot) should be considered.

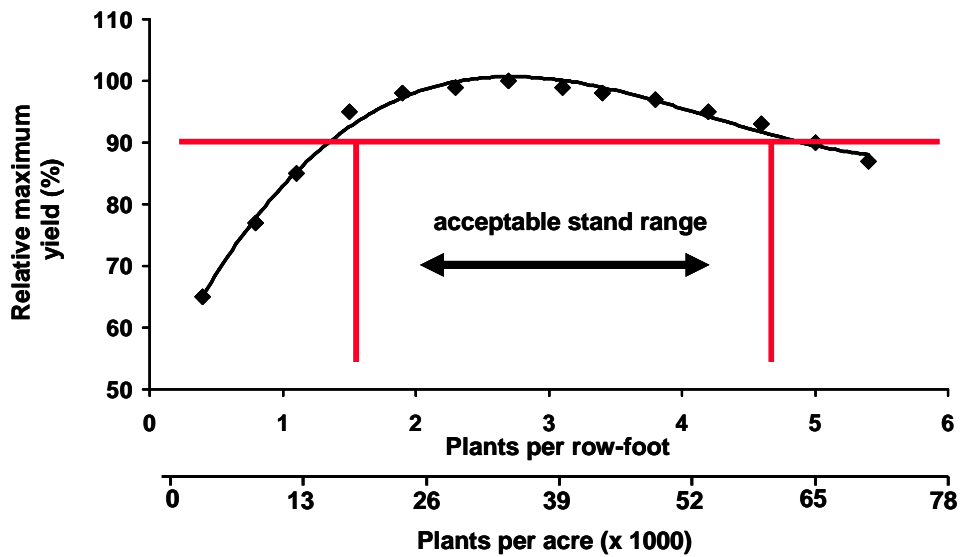


Figure 2. Cotton Yield-Stand Relationship for 40-inch Row Irrigated Cotton in the Texas High Plains.

Producers should be aware that regrowth can be substantial when heavy rains are received after a cut-out period. A high carryover of plant nutrients that were not used by the low yielding crop due to dry weather and followed by a prolonged period can set the stage for significant regrowth. A resurgence of weeds can also be expected in many fields with the return of moisture. Timely harvest preparation is critical during favorable weather to minimize the interference of regrowth and weeds during the harvest operation.

Cotton producers should minimize expense for harvest-aid chemicals on small, drought-stressed crops with low-yield potential. In many fields only a defoliant or desiccation treatment may be required to prepare the crop for harvest. Harvest-aid decisions should be made on a field-to-field basis. Harvesting cost can be greatly reduced by using a stripper harvester rather than a picker harvester on small size stalks with lower yield potential.

In some areas of Texas, cotton producers should destroy stalks as early as possible to reduce the removal of soil moisture from rains that came too late for the current crop. In the northern areas, freeze termination negates this need. After stalk destruction, perform sub-soil, chisel, and furrow diking operations to achieve maximum storage of moisture throughout the soil profile when subsequent rainfall occurs.

Crop producers are encouraged to have their soil tested to determine fertilizer carry-over prior to establishing the next crop, especially if the previous crop was fertilized for a yield goal that was much higher than the actual yield of the drought-stressed crop.

### **Economic Decisions**

If you are participating in the government farm program, a prudent rule is to always check with your local USDA-Farm Service Agency (FSA) office for information and/or approval for any actions which may impact program eligibility. If your crop has Multiple Peril Crop Insurance (MPCI) or Catastrophic (CAT) coverage, and you desire to destroy the crop rather than harvest it, it is imperative to notify your insurer for clearance and for yield loss determination prior to crop destruction. For MPCI and CAT claims notify both your insurer and FSA. Failure to do so will result in loss of insurance benefits.

Whether to harvest or destroy a failed crop should only be decided by comparing potential returns with costs yet to be incurred. Realistically, harvesting a cotton crop depends on whether the expected revenue from lint and cottonseed exceeds the cost of harvesting, hauling, and ginning. However, if the producer does not agree with the insurance adjustment provided by the company (estimated yield by crop insurance adjuster) it will be necessary to carry the crop to harvest in order to determine the final yield. Alternatively, if the producer wishes to abandon the crop but disagrees with the insurance adjustment a request may be made to destroy most of the field but leave some remaining representative strips in each field. If approved by the insurance company, the remaining representative strips would then be carried to harvest to provide a basis for final yield determination. If the producer is allowed by the insurance company to leave representative strips, insurance rules require that they be managed in an appropriate manner.

## Marketing Decisions

The virtual unlimited flexibility allowed in the Farm Bill will allow many producers to plant almost any commodity on program acreage.

Having a written marketing plan helps to avoid getting caught up in the emotion of the markets. In past short crop years, prices often peaked at or before harvest, so returns to storage are often poor to non-existent.

Several pricing mechanisms exist which could be used in pricing a crop that has not been harvested or that may not even be planted yet. These include futures, options, forward contracts, minimum price contracts or other marketing alternatives such as cooperative pools. Further explanation of the use of these marketing/pricing alternatives can be obtained from the Texas Cooperative Extension.

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