



# Field

Serving the Northern



# Crops

Sacramento Valley

University of California z Cooperative Extension z Butte, Glenn & Tehama Counties

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## 2002 Sacramento Valley Cotton Lessons

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Sacramento Valley cotton production is very different in some ways from cotton production in the San Joaquin Valley. However, generally it is very similar, but it may take several years of observation before the similarity is clear. Following are several observations highlighting the similarities and differences of the 2002 Sacramento Valley cotton crop to the San Joaquin Valley cotton crop.

**Cotton Planting Degree-Day Forecasts:** Variable spring weather makes it necessary to plant as early as possible, in a period of warm sunny weather with adequate soil temperatures. Soil temperatures are taken at 8 am at six inches deep in the cotton bed. After six years of experience, the five day degree-day forecasts specific to the Sacramento Valley are as effective here as they are in the San Joaquin Valley. Getting a good uniform stand of cotton as early as possible, without replanting, is very important for low cost, but high yielding cotton production.

A healthy uniform stand of cotton is a very important part of cost effective weed control in cotton. Uniform plant stands from 25,000 to 60,000 plants per acre produce maximum yields.

**Irrigating Cotton Up:** In the San Joaquin Valley cotton is rarely irrigated up. In the Sacramento Valley over the past few years a number of cotton fields have been irrigated up, with few apparent problems until this year. In 2002, severe weed control problems occurred in fields irrigated up. Good economical weed control, except for Roundup Ready cotton, requires the cotton be taller than the weeds. Planting to moisture with some dry soil over the seed usually results in fewer weeds and weeds which are shorter than the cotton. This doesn't usually happen when cotton is irrigated up.

In previous years in the Sacramento Valley there were probably fewer weeds which were difficult to control in cotton. Now with a history of cotton production, particularly when rotated with tomatoes, there are higher levels of weed seeds in the soil ready to cause severe weed problems when cotton is irrigated up.

Proper timing of planting coupled with correct planting depth, adequate soil moisture, and fertilizer placement will ensure rapid and uniform crop emergence and seedling growth. A vigorous, uniform stand of cotton will compete with weeds more efficiently than one being established under adverse conditions.

**Timing the Last Irrigation:** The last irrigation should be timed to provide enough water to fully develop harvestable bolls, but still result in moderate water stress at the time of defoliation. The timing of the last irrigation can best be timed by several years of some simple observations by each grower for his growing conditions.

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The date of five nodes above of the first position white flower should be noted for each field to serve as an important measure of crop maturity for each field. The date of the last irrigation should be recorded along with the depth of water penetration, which can be determined by probing the soil right after the last irrigation. Then, the final observation is the degree of plant water stress at the time of defoliation. These observations are currently made by cotton growers, the only additional requirement is a little record keeping. These records over several years can be used to fine tune the timing of the last irrigation.

The threat of fall rains makes the timing of the final irrigation even more important in the Sacramento Valley than the San Joaquin Valley. A healthy and deep cotton root system will substantially dry the soil to several feet with moderate water stress in the fall. This dry soil will be very important for a wet fall. The dry soil will absorb the rain and allow a quick return to cotton harvesting after a rain.

**Sticky Cotton:** Sticky cotton lint can be caused by late season aphids or whiteflies. Some areas of the San Joaquin Valley had some serious problems with sticky cotton in the 2001 crop. If an area gets a sticky cotton reputation, all cotton prices in the area have been reduced, not just those known to be sticky.

Most years the Sacramento Valley crop has had some mid and late season aphid problems which have been well controlled to avoid sticky cotton. When it comes to whiteflies, being on the northern edge of cotton production may be a distinct advantage. Whiteflies need many generations during the season to develop into a problem. The problem has been its worst in the Imperial Valley and progressively less of a problem the further north cotton is produced in California.

Whiteflies have gotten progressively worse in the San Joaquin Valley over the past five to ten years, while here in the Sacramento Valley whiteflies haven't been significantly present until this year. In Colusa, Glenn and Butte Counties, the few fields with late season whiteflies this year didn't develop to high numbers, but it is an important late season pest to be monitoring in order to avoid any possibility of a sticky cotton reputation in the Sacramento Valley.

**Crop Rotation:** A good rotation, probably one or two years out of five years, may retain one of the real advantages of Sacramento Valley cotton over San Joaquin Valley cotton. This advantage is good vigorous cotton growth with few soil borne disease problems. Some of the diseases which can be avoided are seedling diseases and verticillium wilt.

Good crop rotation also helps with weed control. If difficult to control weeds in cotton like groundcherry, velvetleaf, nutsedge, nightshade, and cocklebur are present in a field, they will likely increase each year cotton is grown in that field. Rotating to other crops, like wheat and corn, allows for better control of these difficult weeds.

**Summary:** Identifying the few important differences between cotton production in Sacramento Valley and the San Joaquin has been a challenge for Sacramento Valley cotton growers. The growth in cotton acreage and the average Sacramento Valley cotton yields are evidence of their success, in spite of some of the lowest cotton prices in many years.