

**SEED SELECTION: A WESTERN GROWER'S
PERSPECTIVE
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Abstract

Pima Influence in California

Because one-variety and one-quality have been designated by law for the San Joaquin Valley, Acala cotton has been the predominant variety grown since the first field was planted in 1917. In 1988 Pima was introduced in the San Joaquin Valley. S-6 was the first variety of Pima grown in California. Then S-7 was introduced and became the variety predominantly grown in the San Joaquin Valley and set the standard. In 1998 DP-HTO and Phytogen 57 were introduced. Growers now have more choices in Pima varieties and have a higher quality of Pima to choose from. HTO provides Acala type turn out of about 35% to 36% with excellent grades. Over the past couple of years, Pima has occupied about 25 to 35% of the cotton acres grown in the San Joaquin Valley.

Upland vs. Acala in California

After Pima was considered an approved ELS quality cotton fiber in 1991, we were now a one-quality valley growing only approved Acala varieties and approved Pima varieties. In 1998 the one-quality law changed and California's San Joaquin Valley was able to plant California uplands. Upland in California allowed growers to plant non-Acala type cotton where on certain soil conditions growers had better options on making a successful crop. Upland varieties gave growers choices of more narrow-row, short-to-mid season varieties with excellent heat tolerance. Double cropping behind vegetables in late spring, short season uplands play an important part in crop rotation giving growers more options in crop planning. Although we've only completed two successful years of growing upland cotton, we've learned that the crop does well with early and late plantings. Although some discounts were seen in the quality compared to Acala varieties, in some areas of the San Joaquin Valley the yields made up for the differences.

Transgenic: Bt vs. Herbicide-Resistant Varieties

Transgenic varieties came into the picture in California when upland varieties were allowed in the San Joaquin Valley. Delta & Pine first introduced transgenics in the screening of Roundup Ready varieties. DP-6100 RR was the first variety commercially available in the San Joaquin Valley. Although the Bt gene came in such varieties as 33 B, 458 BR, 501 BR, 125 BR, the Bt gene has minimal control on California pests.

Bt varieties do not have the same degree of importance as they do in the South and Arizona. Next season the San Joaquin Valley will have two new herbicide-resistant varieties from CPCSD, the Maxxa-quality Acala Riata RR and Acala BXN Nova. In the heavy vegetable growing areas the Acala Riata RR will give excellent weed control up to and on the 4th true leaf. And the Acala BXN Nova will be an excellent tool for controlling broad leaf weeds up to 90 days before harvest. These tools will give us an added advantage to growers by reducing growing and weeding costs.

**Crop Rotation for Seed Choice on
Soils Affected by Verticillium Wilt**

When cotton was first grown in California on virgin soils, the varieties grown were not wilt resistant. After many years of growing cotton, verticillium wilt built up in the soils and cotton yields dropped. The predominant variety grown in the San Joaquin Valley was SJ-2. Wilt was still a problem with this variety until GC-510 was released in 1984. GC-510 increased yields in wilt soils, but did not out perform SJ-2 in non-wilt soils. In 1990 Maxxa was released and a new quality and yield standard was developed for the San Joaquin Valley. Yields were up because Maxxa was grown on about 80% of the upland acres and Pima was grown on about 10% to 15%, giving growers some relief on wilt soils. Most of the non-Acala upland types grown now are not wilt resistant and growers will need to pay close attention to wilt conditions on poorly rotated wilt ground. Seed and variety selection will play an important part in rotation with more upland cotton being planted that do not have the wilt resistant of Acala and Pima cotton.

Testing for Seed Quality

Testing for seed quality should be a standard practice for all growers. On our farm we have been testing seed lots purchased for warm and cold germ. Warm germ of 87 degrees Fahrenheit should be consistent on 85% of the seed lot and cold germ of 64 degrees Fahrenheit should be consistent on 85% of the seed lot. Most of the seed saved in California has had great quality consistently year after year, with warm and cool germ averaging 90 to 95%. But 1998 proved to be a difficult year for saving seed. Some of the Acala's harvested early had decent germination, but most of the Acala and Pima harvested after the rain had 15 to 20% moisture in modules, and seed quality deteriorated. Tests showed poor germination. Forty to 50% of Acala seed and 50% of all Pima seed were rejected. As a grower, I know our crop is determined by what kind of start the crop has. Consequently, testing seed lots on a farm level is a standard practice for us. We have seed lots tested for our own standards and will accept only warm and cool germ tests that exceed 90%. In 1999 we were able to purchase 1997 seed with germination of 92% cool and 97% warm. Not only is seed quality important, planting at optimum soil temperature is equally important. Soil temperature should be no lower

than 60 degrees Fahrenheit. We've found that planting by the right weather conditions, instead of the calendar, has enabled us to get consistent yields year after year.