COTTON PHYSIOLOGY TODAY

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The 1996 Production Year

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Across the Cotton Belt, growers faced varied challenges in the 1996 season. Pests such as the boll weevil wreaked havoc in some regions and left other areas in which it has been eradicated alone. Costs of production varied accordingly. This newsletter represents a team effort of your statewide cotton specialists to highlight the good and bad of the 1996 season and to draw some conclusions that might be used to fine-tune next year's crop.

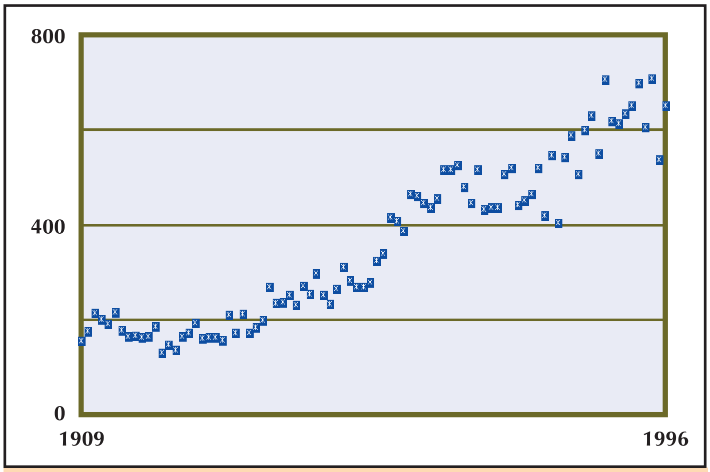

Figure 1. U.S. upland cotton production graphed as average pounds of lint per acre. (Source: USDA)

Comparison with Previous Years

U.S. upland cotton yields have steadily increased since 1909 (Figure 1). Of 12.5 million acres of U.S. upland cotton carried to harvest in 1996, 1.6 million acres were Bt cotton, a first (Figure 2). Most of the Bt cotton was grown in the Southeast (779,000 acres) and Mid-South (728,000 acres, Figure 3).

Figure 2. Bt cotton in Alabama. (Photo: C.D. Monks)

Overall acreage decreased from that harvested in 1995 and from the 5 year average (Table 1). The Southeast, with a sizeable increase in acreage over the 5 year average, is a notable exception to the Beltwide trend.

Yields in 1996 were 26% higher, averaged across the Cotton Belt, than in 1995 and 7% higher than the 5 year average (Table 2). However, the West showed a slight decrease in yield from the 5 year average. Considerable progress can be seen in the 87 years since 1909. It is interesting to note how much greater the 1996 yield of 734 pounds per acre is than the 1909 yield of less than 200 (Figure 1, Table 2).

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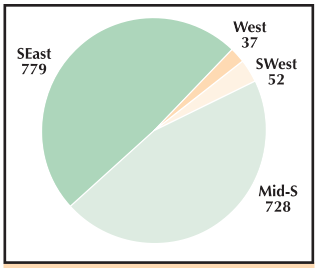


Figure 3. Regional distribution of Bt cotton in thousands of acres. (Source: USDA)

More bales were produced in 1996 than in 1995 and than made up the 5 year average (Table 3).

Summarizing these trends, we see that although acreage decreased this year, the yield increased enough that the total number of bales produced was greater than in 1995 and the 5 year average (Figures 4, 5). In 1996, our growers produced more cotton on less acreage than in the last several years.

Except for the Southeast, the change seen in the '96 crop was not as great when compared to the averages for the last 5 years (Figure 5). Last year was an extremely bad year in most areas, so the differences plotted in Figure 4 are greater than when '96 is compared to the last 5 years (Figure 5), many of which were better years than 1995. The Southeast stands out because of the great jump in new acreage planted to cotton in much of that region.

Table 1. Harvested acreages of U.S. upland cotton — '96, '95 and 5 year averages. (Source: USDA)

REGION	Acreage, million acres		
	'96	'95	5 Yr.
Mid-South	3.89	4.71	4.20
Southeast	3.12	3.42	2.07
Southwest	4.19	6.12	5.38
West	1.32	1.52	1.39
TOTAL	**12.52**	**15.77**	**13.04**

In the remainder of this year-end summary, factors influencing the '96 crop are discussed state by state within each of the four regions.

West (AZ, CA)

The most popular varieties grown in this region are shown in Table 4. The Acala cottons predominate in California's San Joaquin Valley.

Table 2. Yields of U.S. upland cotton — '96, '95, and 5 year averages. (Source: USDA)

REGION	Yield, pounds per acre		
	'96	'95	5 Yr.
Mid-South	726	593	680
Southeast	708	515	648
Southwest	514	414	454
West	1162	995	1178
AVERAGE	**734**	**581**	**688**

Arizona. February rains were followed by a planting season that was very warm, dry and conducive to good stand establishment. Strong, westerly winds persisted through May. They desiccated many small seedling plants and abraded stems of others which allowed entry of fungal pathogens.

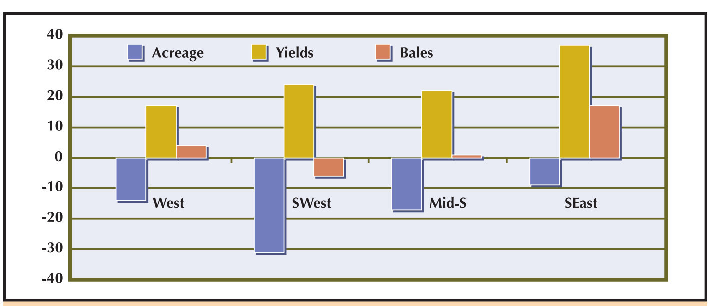


Figure 4. Percent change in '96 acreage, yields, and number of bales produced compared to '95 averages. (Source: USDA)

Table 3. Production of U.S. upland cotton — '96, '95 and 5 year average. (Source: USDA)

REGION	Number of bales, millions		
	'96	'95	5 Yr.
Mid-South	6.02	5.94	6.08
Southeast	4.54	3.88	2.80
Southwest	4.42	4.70	4.77
West	3.22	3.09	3.46
TOTAL	**18.20**	**17.61**	**17.11**

In May these winds caused plants reaching pinhead square (about 600 to 700 heat units after planting) to abort early fruiting positions. Because early season fruit retention dropped, overall crop development was delayed.

June was hot and dry — excellent weather for setting a cotton crop, as long as fields were irrigated in a timely fashion to eliminate stressing the plants for water. In cotton not stressed for water, fruit retention improved so much that maintaining sufficient crop vigor became a challenge. However, fields stressed for water lost critical development time and potential for fruit formation.

July brought in the monsoon season characterized by high humidity as well as high day and night temperatures. As is typical, sharp drops in fruit retention accompanied this weather pattern. The closer a field was to peak bloom when the monsoon conditions began, the greater the fruit lost. Bolls less than 6 days old were most susceptible. The monsoon persisted through August.

Lygus pressure further decreased fruit retention. Many fields were carried longer into the fall to compensate. Bt cotton did a great job of controlling pink bollworm and other worm pests. Insect growth regulators controlled silverleaf whiteflies. Arizona producers are looking for additional ways to streamline their production system to remain competitive in the world market.

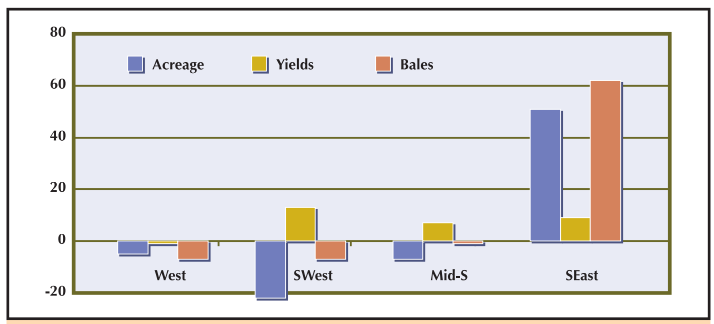


Figure 5. Percent change in '96 acreage, yields, and number of bales produced compared to 5 year averages. (Source: USDA)

California. California's crop began as one of the best ever. Warm weather and ideal planting conditions resulted in good germination, emergence and seedling vigor. Exceptions were some pockets of poor stand establishment where seedlings were affected by *Thielaviopsis*, a pathogen known to be more active at warmer soil temperatures. Throughout June and July, cotton grew and developed well. Insect pressure was low. Heat units accumulated in April, May, June and July were above the 22-year average (Figure 6). USDA yield estimates on August 1 were for 1327 pounds per acre of Upland cotton — a value close to the 1359 pounds per acre record set in 1992.

However, temperatures ranged from 110 to 114°F in the middle of August. This extreme heat blasted the youngest squares (Figure 7). Consequently, these squares never developed and the top crop was lost (Figure 8). Fields that had already cutout were not affected as much as those still developing.

Table 4. Most prevalent upland cotton varieties grown in each region of the Cotton Belt. (Source: USDA)

REGION	Company	Variety
West	CPCSD[1]	Maxxa[A], Royale[A], SJ-2[A]
	Delta & Pine Land	DP5415, Acala 90[A]
	Germain's	GC-510
	Sure-Grow	SG 125
Southwest	Paymaster	HS26[S], HS200[S], PM145[S]
	Delta & Pine Land	DP50, DP5409, Acala 90[A]
	All-Tex	Atlas[S]
Mid-South	Delta & Pine Land	NuCotn 33[T], DP50, DP20, DP51
	Stoneville	ST474
	Sure-Grow	SG125, SG501
Southeast	Delta & Pine Land	NuCotn 33[T], Acala 90[A], DP51, DP5415, NuCotn 35[T], DP5690
	Sure-Grow	SG125

[1] California Planting Cotton Seed Distributors
[A] Acala variety
[S] Stripper variety
[T] Transgenic Bt cotton

Temperatures remained warm in September. But, because of lost top crop, plants became vegetative. They were difficult to defoliate. As many as three applications of defoliant were made to prepare for harvest. USDA yield estimates October 1st were down to 1206 pounds per acre.

Insect and mite infestations generally were lower and occurred later in the season than last year. Thrips caused early season leaf distortion in many fields. Spider mite infestations that occurred at the five leaf stage sometimes required three to four applications of miticides. Aphid populations were much lower than in the 1995 season. Silverleaf whiteflies plagued cotton in the southern end of the San Joaquin and on the east side of Tulare county. Two to three treatments were needed in some of the most heavily infested fields.

For the first time in several years, Phytogen-33, a new variety, out-yielded Maxxa, the standard variety used for comparisons in the University of California variety trials. Harvest began in mid-October. Early rain the last week of October adversely affected fiber quality.

Southwest (NM, OK, TX)

Stripper varieties as well as Acala cottons are grown along with standard upland varieties in this region (Table 4).

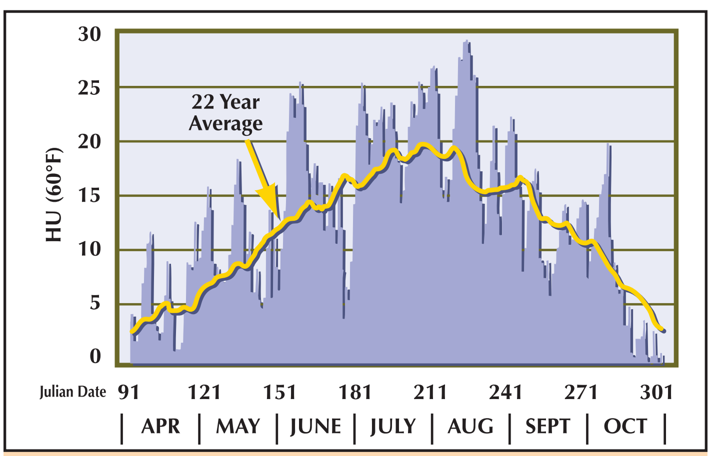


Figure 6. Heat units accumulated at the UC Shafter Research Station during the '96 season. Line represents the 22 year average. (Source: R. Vargas)

New Mexico. New Mexico's crop started slowly. Early cold temperatures and high winds resulted in erratic stands and late plantings. Scattered hail and an early freeze also adversely affected the crop.

Insect pressure was high. Because the last five winters have been mild, insects such as the boll weevil, pink bollworm, beet armyworm, aphids, and thrips increased in numbers. Pressure from the boll weevil, the highest ever in the state, prompted the Cooperative Extension Service to recommend early crop termination and clean field management as steps growers should take in planning for 1997.

Figure 7. Heat-blasted squares in California's San Joaquin Valley. (Photo: R. Vargas)

Clean field management includes destroying stalks, plowing under debris to a depth of 6 inches, and controlling weeds around fields and ditches. These practices should be done as soon as feasible after harvest. Producers planning to graze cattle on their cotton should feed early to allow time to shred and disc by late December. Management that emphasizes early crop termination, timely insecticide applications, and clean crop practices will provide less favorable environments for boll weevils in 1997.

Figure 8. Lost top crop from August high temperatures. (Photo: R. Vargas)

Late-planted cotton suffered most from the pink bollworm and an early freeze. This same freeze was beneficial to producers with an early crop. Mother Nature saved them

Figure 9. Early, hard freeze prepared crops for harvest. (Photo: S.T. Ball)

the cost of applying harvest aids (Figure 9). Most importantly, prolonged cold weather, which is expected this winter, will make it harder for insects to survive.

Bt cotton varieties started more slowly than Acala 1517 varieties. They performed well in side-by-side comparisons, especially where no worm control was practiced.

Oklahoma. Oklahoma experienced the driest winter on record. Consequently, irrigated areas required irrigation before or immediately after planting. Dryland cotton waited until the first of June for rain, so crops were late. High winds in early and mid-June caused sand damage. Hail hit some areas in June, July, August and September. Cloudy, cool weather in mid-August and September stopped development.

Bollworm pressure was very high early in the season. Bt cotton yielded as much or more than conventional cotton. In some areas it required one to three sprays. Extremely high boll weevil damage occurred late season in all varieties (Figure 10).

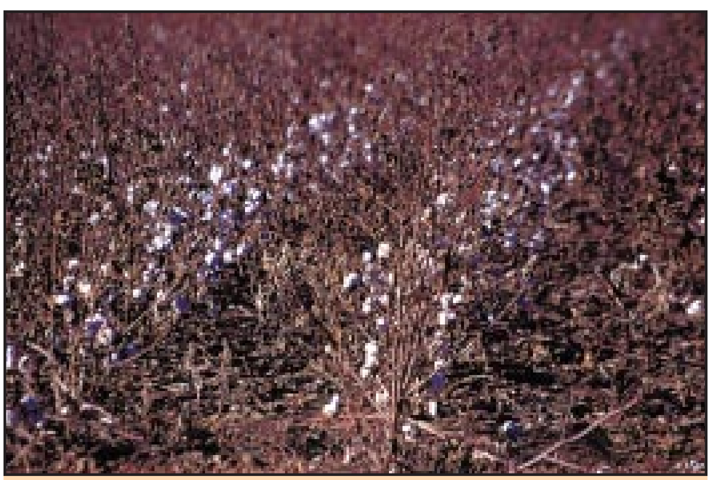


Figure 10. Boll weevils took out the top crop. (Photo: J.C. Banks)

Weed pressure was higher than usual. The extremely dry winter prevented germination of many weeds until after cotton was planted and watered.

Texas. This state covers so much ground that different areas have very different growing seasons. Growing practices, varieties, pests, weather, and soil types vary markedly from area to area within the state. The areas discussed within Texas are outlined in Figure 11.

Blacklands. Southern portions of this region received less than 6 inches of rainfall during the effective growing season (April to August). When rains finally came in August, they were much too late to influence yield. However, they did trigger a significant amount of regrowth which growers found difficult to manage. As a result, many grades from this area are below normal.

The northern counties of the Blacklands had more rain than the central and southern ones. Average yields were 380 pounds per acre. Some pockets that received more timely rainfall yielded 1.5 to 2.0 bales per acre, in spite of heavy bollworm and boll weevil pressure. The highest yielding fields were planted to corn or grain sorghum in 1995.

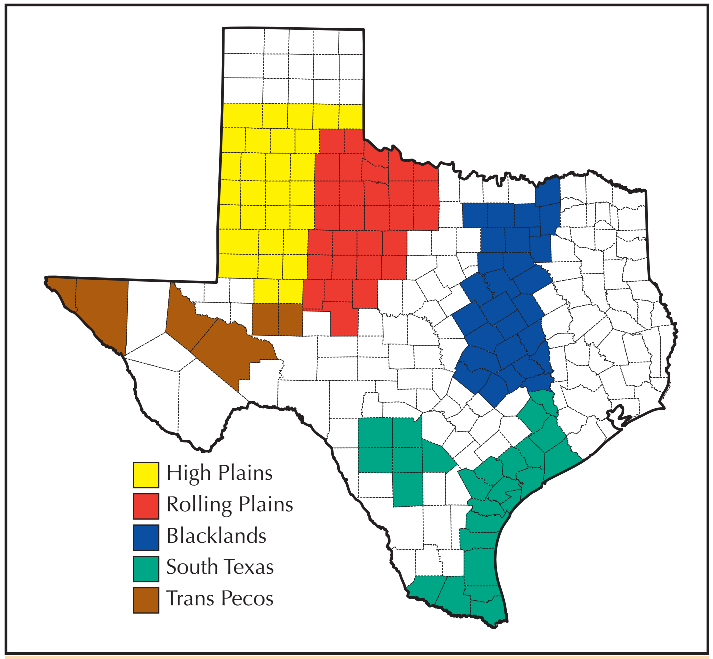


Figure 11. Texas' cotton production regions. (Source: R. Lemon)

High Plains. This region covers approximately 3 million acres of cotton including Paymaster, All-Tex and Holland varieties. Early season temperatures were warm. Rains were adequate north of Lubbock. South of Lubbock rainfall was not uniformly received in adequate amounts. While some dryland regions received adequate rainfall, other regions suffered a fourth year of severe drought. Consequently, many dryland growers were not able to establish a stand. Some early season hail damage occurred on about 10,000 acres. Late season hail damaged around 8,000 acres.

The irrigated acres in the sandy land south of Lubbock were almost entirely replanted because of severe winds and blowing sand. Fields with finer textured soils and high crop residues were able to maintain a stand and benefit from the warm May temperatures. Dryland crops had a late May starting date.

Excellent square and boll set reflected moderate summer temperatures and relatively low insect pressure. A rapid boll set and favorable fall weather combined with use of short season varieties, pivot irrigation, and Pix™ allowed growers to recover time lost from unfavorable conditions at planting. Considering the short season, yields were fair to excellent and quality exceptional.

Boll weevil pressure was at an all-time high, particularly in the area north of Lubbock. Pigweed presented a problem late season because herbicides degraded as a result of rains and warm temperatures. Both seedling disease and nematodes impacted some of the acreage.

Rolling Plains. This production area includes approximately 830,000 acres of cotton. Varieties grown include Paymaster HS200 and HS26; Tamcot Sphinx; Stoneville 132; Deltapine Acala 90, 5690 and 5409. Yields were lower than normal. Hot temperatures early in the season were followed by cooler than normal temperatures late season.

Boll weevils caused problems, particularly in the northern part of the region. Worm pressure was high in July and again in September. Aphid pressure was less this season. Pigweed, Johnsongrass and nightshade were the main weed problems. Some Texas root rot appeared.

South Texas. In the Rio Grande Valley and lower Gulf coast areas, harvested acreage was 50% of last year's. High grain prices and memories of last year's disastrous season of high insect pressure enticed many growers to plant grain and abandon cotton. Drought seriously affected dryland crops from planting to August's harvest. Because the reservoirs were very low, growers could irrigate but once. When wet weather finally came at harvest, it lowered the quality of the crop that had been produced.

As a result of the boll weevil eradication program in the Wintergarden area, boll weevil numbers were lower this year. Worm pressure was low. Relatively few growers tried the longer-season Bt cotton varieties available this year. When the Bt gene is incorporated into earlier-maturing varieties, more growers in this part of Texas will be interested in planting Bt cotton.

Trans Pecos. Both early-season stripper and long-season picker varieties were planted on 210,000 acres in this area. The crop experienced hot temperatures early in the season and cool temperatures in August and September. Rainfall was average most of the season. Again, boll weevil pressure was high and worms were plentiful mid-season and beyond.

Mid-South (AR, LA, MO, MS, TN)

In 1996, a lot of Bt cotton was grown in this region along with other conventional cotton varieties. The most popular varieties are shown in Table 4.

Figure 12. Hail-destroyed crop. (Photo: C.D. Monks)

Arkansas. Yields in 1996 are projected at 776 pounds per acre, about 50 pounds greater than the 5 year average. Most of the million acres of cotton were planted by May 10th, when a cold front moved across the state. Because the earliest planted cotton was already established by then, it fared better. Flooding and hail reduced acreage to 990,000 acres. Severe hail damage destroyed crops (Figure 12). High winds early in the season stressed most fields. Rainfall and cooler temperatures were typical the end of July and early August. Boll rot occurred throughout the state, but was particularly prevalent in the south.

Bt cotton was planted on about 160,000 acres, mainly in the southern part of the state. By mid-July, cotton bollworm numbers were high enough to cause concern. In some fields, Bt cotton received numerous treatments. Tobacco budworm populations remained low. Although early-season boll weevil populations were lower, presumably because of last winter's cold temperatures, their numbers were high by season's end. Many areas only required strip treatments to areas adjacent to favorable overwintering habitats. Aphids were not generally a problem, except in some of the treated boll weevil strips. Beneficials remained at high levels.

Wet weather and high insect numbers late in the season produced 'buggy whips' or 'lightning rods.' This excessive vegetative growth was produced when most plants had already cutout and there were not enough heat units remaining in the season to mature late-set fruit.

Louisiana. Overall, cotton production was below average this season. Of the 870,822 acres planted to cotton, yields varied throughout the state. Weather was the most limiting factor. Wet weather late in the season fostered boll rot. It also prevented some producers from harvesting in a timely fashion.

About 15% of Louisiana's acreage was planted to Bt cotton. Insect pressure was below average in many parts of the state. Bt varieties generally required more mepiquat chloride.

Missouri. Missouri's 405,000 acres of cotton yielded an average of 723 pounds per acre. Excellent temperatures early in the growing season got the crop off to a good start. A high number of bolls was set during early flower. The predominant variety, Stoneville 474, was planted in the southern Bootheel early in May, the optimal planting time for this region. Because of high rainfall, its planting was delayed in the northern Bootheel until late May. Virtually no Bt cotton was planted. Its cost was greater than the typical cost of controlling worms by other means. Missouri has too short a growing season for the late-maturing Bt varieties currently available.

Some areas had thrips and aphid infestations. Very few boll weevils survived the cold winter, but their numbers recovered by the end of the growing season. Few worms and a large beneficial population combined to make insects a minor problem this year.

Mississippi. Only 4% of the Mississippi crop was planted by April 29. The 5 year average shows 26% of the crop is usually planted by then. April's weather was not good for cotton to emerge. However, this seemingly slow start was deceptive, because weather in May and early June was excellent for emergence and early seedling development. Very little replanting occurred. In warmer soils, root systems had an excellent start. By July 1, the crop was 96% squaring and 30% setting bolls, compared to 5 year averages of 74% and 11%, respectively. The rapid development of this year's crop was largely because seed was planted into warm, moist soil and plants emerged under warm conditions. Square and boll retention remained high all season.

The southern brown loam area and south delta experienced some very dry weather during July. Cotton which had a tremendous boll load shed some fruit. A week to 10 days of cloudy, rainy weather at the beginning of August caused those plants that shed fruit to burst into vegetative growth. All cotton shed some fruit as a result of the extended period of clouds and showers. In some cases, the cotton grew so fast vegetatively that it skipped setting fruit for the first couple of nodes after the sun came out. Excessive regrowth was a problem statewide, but particularly in the later-maturing NuCotn 33.

Cotton that was opening during the period of cloudiness suffered a lot of boll rot. The latter parts of August, September and October were good cotton months, so cotton made late and most did not open well. A higher percentage of the Mississippi crop was scrapped than usual.

Insect pressure was relatively light most of the season. Boll weevils were light early in the season, but in tremendous numbers by late season. Because late-season boll weevil and plant bugs required additional sprays, some growers had to spend more money on Bt than conventional varieties. Tobacco budworms were a minor problem in a few hot spots in June, but, generally, they did not cause a problem. The bollworm, however, was another story. Corn covered 630,000 acres in 1996, a 100% increase from last year. Bollworm numbers were very high all season. A large percentage of the state's Bt acreage was sprayed for bollworm.

In BXN cotton, Buctril worked well on MSMA (monosodium acid methanearsonate)-resistant cocklebur. Staple did an excellent job on pigweed and MSMA-resistant cocklebur. More yellowing and stunting occurred than usual, mainly because of poor calibration, application, and the high temperatures under which it was applied.

Higher micronaire, for the second year in a row, is of concern. The primary cause is weather. Dry areas produced cotton of a much higher micronaire than wetter areas. Cotton without a top crop, because of physiological shed or insect damage, tended to have higher micronaire. These plants had no immature bolls, which contain lower micronaire fiber, at the top of the plant to blend with the lower bolls, which contain fiber of higher micronaire.

Tennessee. Generally favorable weather conditions nurtured the Tennessee crop this year. However, the last of harvest was slowed by wet conditions. Conventional early-season varieties (DPL 20, 50, 5409; Stoneville 132, 453, and 495) made up most of the cotton planted. Transgenics were not prevalent in Tennessee. NuCotn was planted on 0.36% and BXN 57 on 0.04% of the acreage.

Low numbers of boll weevils came out of the cold winter, but increased to sizable numbers by harvest. Light bollworm pressure required some spraying. Treatments were also light for plant bugs and aphids. Staple helped control Pigweed, the most notable plant pest. In the future, Roundup Ready cotton will help.

Southeast (AL, FL, GA, NC, SC, VA)

Both transgenic Bt cotton varieties were popular in this region. Other prevalent cottons grown in 1996 are shown in Table 4.

Alabama. Reasonably good growing conditions occurred across the state. Cool, wet weather in early April was followed by a very dry period during May. The southeastern corner was very dry during June, July, and early August. Poor weather in September delayed peanut harvest which, in turn, delayed cotton harvest.

Plantings were made in April and early May with no major problems. Incidences of seedling disease were down from normal. Very little replanting occurred. The dry weather of May and June was a concern as cotton approached first bloom. Fortunately, early July rains promoted vegetative growth. Additional rains in August and September continued this growth trend and resulted in additional late-season fruit.

Because of exceptional early-season boll retention, most crops called for less mepiquat chloride than usual. Boll rot was a common problem because of the poor weather late in the season and early, low fruit set. Yields over 750 pounds per acre, up from a state average of 390 last year, kept boll buggies busy (Figure 13).

Figure 13. Alabama yields kept boll buggies busy. (Photo: C.H. Burmester

Bt varieties, primarily NuCoton 33B, accounted for 77% of the acreage. Bollworms appeared in mid-July and August. Farmers averaged less than 1 spray application for bollworm control. Plant bug and stink bug numbers began increasing in July. Overall, insect pressure was light, but growers in the southwestern area fought fall armyworms.

Nutsedge and sicklepod caused greater problems than usual, because May's dry weather did not activate herbicides.

Florida. Just 6 years ago, Florida had only 20,000 acres of cotton. In 1996, over 100,000 acres were planted to cotton. Growers escaped the bad effects of hurricanes this growing season. However, a late tropical storm came through the state after cotton had started opening. As a result, some cotton hardlocked and yields dropped.

About 40% of the state's acreage was planted to Bt cotton this year. Even conventional cotton required very little spraying (one to two applications of insecticide) this year. In years with higher insect pressure, Bt cotton will be put to a more rigorous test.

Other transgenic varieties included in research and demonstration trials were Roundup Ready and BXN cottons. Although both helped with weed control, trial results showed a need to continue a residual herbicide program for best results. Many growers are using conservation tillage.

The new production area in the northeastern part of the state relies on gins and pickers from Georgia. To spread out the period over which cotton arrived at their gins, ginners encouraged northeastern Florida growers to plant early (early March). This early-planted cotton was ready for harvest in mid-August, a period of typically high rainfall when they could not harvest in a timely fashion. For cotton production to survive in this area, growers need their own cotton pickers and gins so they can plant optimally (mid-April to mid-May) and can harvest mid-September to mid-October, times of lower rainfall.

As cotton production has moved into the central part of the state where there are sandier soils, more nematode damage has occurred. Researchers are working with several growers to identify hot spots in their fields. In coming years, by using global positioning systems, they will be able to target and treat only the nematode-infested areas of their fields with nematicides.

Georgia. Cotton is the leading row crop in Georgia. Its 1.38 million acres place Georgia second only to Texas in cotton acreage. Differences in rainfall throughout the state made this year's yields highly variable. In spite of significant periods of drought in much of the state during the fruiting cycle, most fields had excellent early fruit retention. Yields were better than expected in many areas. Late-season rains caused severe boll rot in the extreme southwestern part of the state. As a result, yields were reduced by as much as 100 to 400 pounds per acre. Rain during harvest reduced fiber quality in much of the state.

About 26% of the crop was planted in Bt varieties. One-fourth of that acreage was sprayed for worms. Because the boll weevil has been eradicated in Georgia and growers have relatively low production costs, cotton acreage continues to increase. Along with expanding acreage, the state has seen an investment of about $350 million in infrastructure such as cottonseed oil mills and gins. Trains carrying new pickers are indicative of cotton's increasing importance in the state's economy (Figure 14).

Figure 14. Train carrying new cotton pickers. (Photo: S.M. Brown)

Nematodes are a serious problem. If production is to be sustained on the present acreage, profitable rotational crops and/or cost effective pesticides are needed. Pest resistance and water availability also will influence future farming decisions in Georgia.

North Carolina. Expectations were high as this year's crop approached August. It looked as good or better than the crop of '94, which was exceptional. However, heavy rain in July and August leached nitrogen from the soil around the roots. Some fields showed nitrogen deficiency symptoms — often the leaves subtending small bolls showed the worst symptoms. Those growers that tested petioles in a timely fashion were able to apply extra nitrogen to avoid this problem.

Figure 15. Boll rot significantly reduced yields in many parts of the Southeast. (Photo: S.M. Brown)

A second hurricane passed through in early September, but did not cause direct damage to the majority of fields. Many of the blown-over plants righted themselves as their cotton opened. The rainy, cool weather that followed the hurricane into October probably hurt the crop more than the actual hurricane. As a result of hardlock and boll rot, many fields in the central and southern coastal plain dropped from potential 800 to 1200 pound crops to 400 to 800 pound crops (Figure 15). Loss of nitrogen, which was leached from soils by two hurricanes and other rains, likely contributed to lower yields in this area. Cool weather from September did not help late cotton.

Quite a few North Carolina growers gained experience with new technologies such as Staple herbicide and Bt cotton. Bt cotton averaged 0.6 insecticide applications in 1996. Availability of early-maturing Bt varieties will make this technology more useful to a larger number of North Carolina growers in the future. Growers who used Staple early, in a timely fashion, on small weeds found it to be effective.

South Carolina. About 282,000 acres of cotton were harvested in South Carolina this year. Producers saw their second best year with yields of 791 pounds per acre and the highest production (465,000 bales) since 1966. Planting was timely; seedlings had adequate moisture for emergence and for activation of pre-emergence herbicides. Good stands and adequate early season weed control were typical. Some areas, such as the northern Piedmont, experienced hail storms in late May and early June, so fields were replanted. All areas of the state received enough rain in August to support substantial top crops. Hurricane Fran affected cotton in the northeastern corner of the state.

About 20% of the acreage was planted to Bt varieties which proved extremely effective against tobacco budworm. Control of the bollworm was significantly less. Some fields required use of pyrethroids. Bollworm pressure was extremely high across the state. Counts as high as 800 eggs per 100 plants were made in the Savannah valley. Usually 200 eggs per 100 plants could be found anywhere along the coastal plain.

In August, most fields required an insecticide application to control stink bugs. Boll weevils reproduced where last year's outbreaks occurred. Use of traps made containment of this pest successful this year.

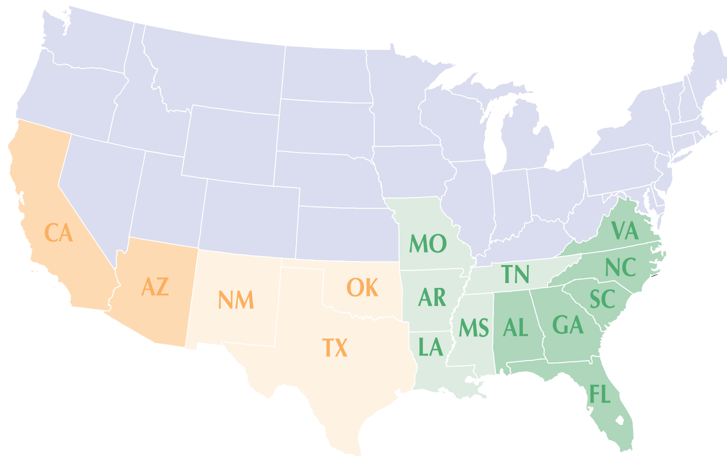
Staple, the new over-the-top broadleaf herbicide debuted this year. Overall, weed control was good.

Virginia. Growers experienced an outstanding season. They averaged 706 pounds of lint per acre, a slight increase over the 5 year average.

Conclusions

A myriad of conditions faced growers across the Cotton Belt this year. For the most part, growers were able to adjust planting dates, irrigation timing and amounts, plant better adapted varieties, and effectively combat weeds, insects, pathogens and nematodes — while still making a profit. Yields, up 26% from 1995, reflected their good management under a variety of environmental conditions — both favorable and unfavorable.

On the horizon are new varieties, including transgenic herbicide-resistant plants, new chemical and biological tools, and the fine-tuning of management that is evolving with precision farming.



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