

THE BARK PROBLEM IN 2012 GEORGIA COTTON: AN ANALYSIS OF CLASSING DATA

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Introduction

There are eight measurements used in the grading or “classing” of upland cotton fiber. These are Color, Leaf, Staple, Strength, Micronaire, Uniformity, Trash, and Extraneous Matter. The Trash measurement includes Extraneous Matter but Extraneous Matter is also reported in a separate measurement.

Extraneous Matter (noted as XM or EM on the classing record) is any substance in the bale sample other than cotton fiber and Leaf. The kind of Extraneous Matter and amount are noted on the classing record by a two-digit number. The number “11”, for example, would signify type 1, level 1. Type 1 is bark and level 1 is “light”. A designation “12” is heavier bark contamination.

“Bark” is cotton stalk particles or fragments that remain in the lint sample after cleaning and ginning. Bark is the result of fracturing and deterioration of the cotton stalk. This can be caused by delayed harvest, weathering, lodging, disease, and/or aggressive harvesting.

When bark is present in the cotton bale sample, the value of the cotton is reduced. The price of the cotton is discounted.

2012 Situation and Overview

Typically, bark is not a major problem for Georgia cotton growers. It is not unusual for a small percentage of cotton to have bark but bark is seldom a major problem. So, on occasion when a relatively higher than normal percentage of the crop has a problem with bark, it is a cause for concern and explanation.

For the 2012 Georgia cotton crop, 12.4% of the crop was graded with bark. This compared to only 3% or less for each of the previous 4 years (Table 1). The bales graded with bark were almost entirely Level 1. Less than .05% of the crop was a Level 2.

Discounts for Extraneous Matter can be severe. For the 2012 crop year, the typical discount for “11” was 4 cents per pound of lint (USDA-AMS). The typical discount for “12” was 8 cents per pound. It is estimated that these fiber quality price discounts and the resulting loss in value due to bark on the 2012 Georgia cotton crop was \$7.09 million.

Table 1. Percentage of Bales Classed and Discounted for Bark, by Crop Year

	GA	FL	AL	NC	SC	VA
2008	2.2	1.8	3.4	0.3	0.5	0.3
2009	1.0	3.7	4.5	0.2	0.2	0.3
2010	0.6	.7	1.1	0.1	0.4	0.0
2011	3.0	2.7	4.1	0.4	0.4	0.3
2012	12.4	12.1	8.7	8.9	13.3	9.2

Source: USDA-AMS.

Examination of Classing Data

Bark Problem by State

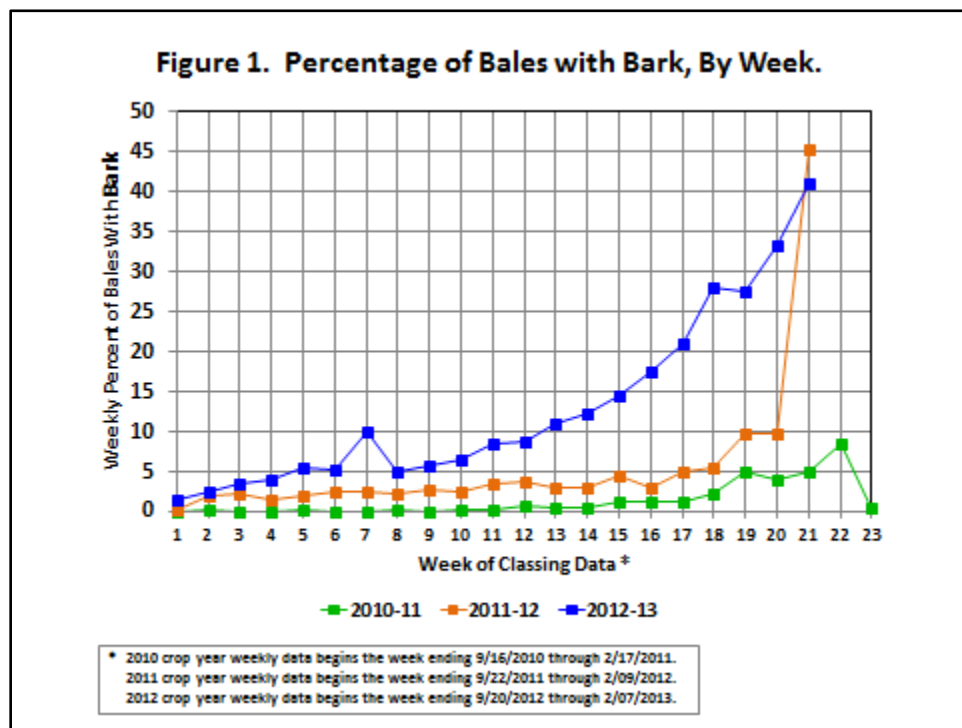
For the 2012 crop, 12.4% of Georgia cotton was classed (graded) as having bark. The problem was not isolated to just Georgia. Neighboring states and all 6 Southeast states had a large increase in bark compared to previous years (Table 1). Proportionately, South Carolina actually experienced the largest increase and worst degree of the problem than any Southeastern state.

Georgia and Florida were similar in the amount of bark. Alabama and North Carolina had an increase in bark but the problem was not as severe as in Georgia.

The Problem by Week

Regardless of the severity of the problem overall, the incidence of bark increases as the harvest season progresses (Figure 1). In years when bark is relatively high (like 2012), and also years when bark is much lower (like 2010 and 2011), the incidence of bark still increases as the harvest season progresses.

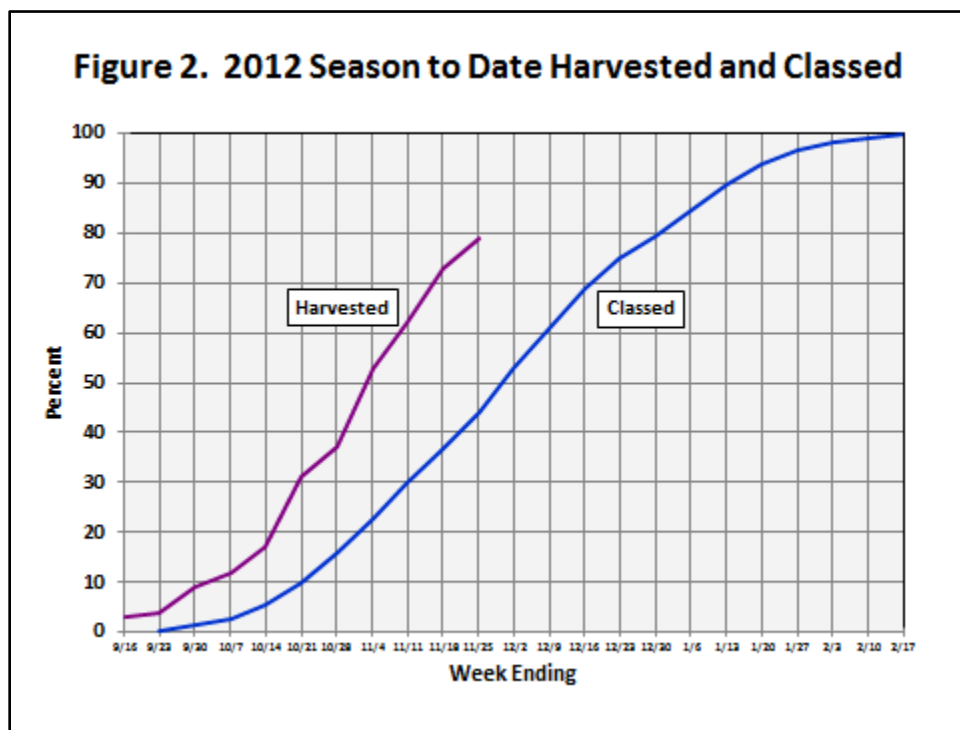
Figure 1 shows the percentage of bales classed with XM 11 or 12 weekly beginning with the first week of available data and continuing weekly for the remainder of the season. Weekly reports and data are not available for the entire crop (a small amount of cotton continues to be classed after the last weekly report) but most of the crop is reflected in the weekly reports.



The 2012 crop started out early with less than 5% of bales with bark (Figure 1). The incidence of bark quickly began to increase, however, and by the 13th week over 10% of the cotton being classed weekly had bark. By the 18th week, over 1/4th of cotton samples weekly had bark and the final 2 weeks of weekly data shows that one-third or more of the cotton classed had bark.

The volume of bales classed is light early in the season, increases as harvest progresses

further, then declines as harvest and ginning nears completion. There is also a lag in time between harvest, then ginning, then classing (Figure 2). Also, early in the harvest season a gin may not begin ginning immediately but instead wait until an adequate accumulated volume of cotton is available at the gin to require a minimum number of operating hours. For the 2012 crop, the crop was approximately 50% harvested on November 3, 2011 (USDA-NASS). Based on weekly reports of the volume of cotton samples classed, it is estimated that the 2012 crop was 50% classed on November 29, 2012. This would be 26 days from harvest to classing.



The 2012 crop averaged 12.4% with bark. The average occurred at approximately the 14th week of classing or on about December 20, 2012 (Figure 1). This would have coincided with cotton harvested on or about November 18th (Figure 2). Based on weekly classing data and the progression of harvest, it is estimated that cotton harvested prior to approximately November 18 was below average in bark. Cotton harvested after November 18 was above average in bark contamination.

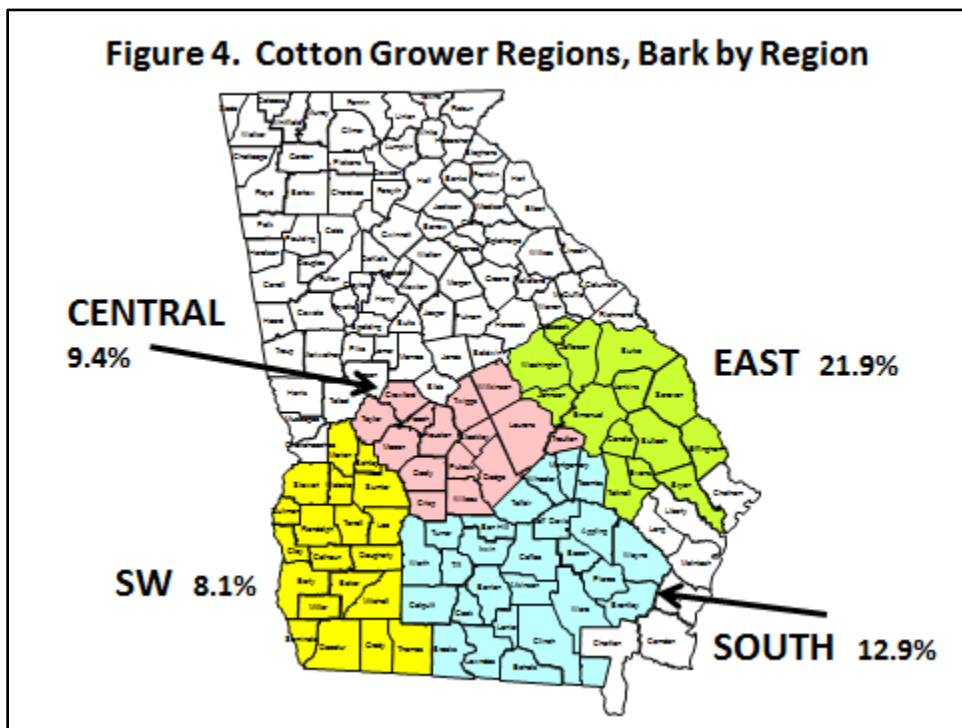
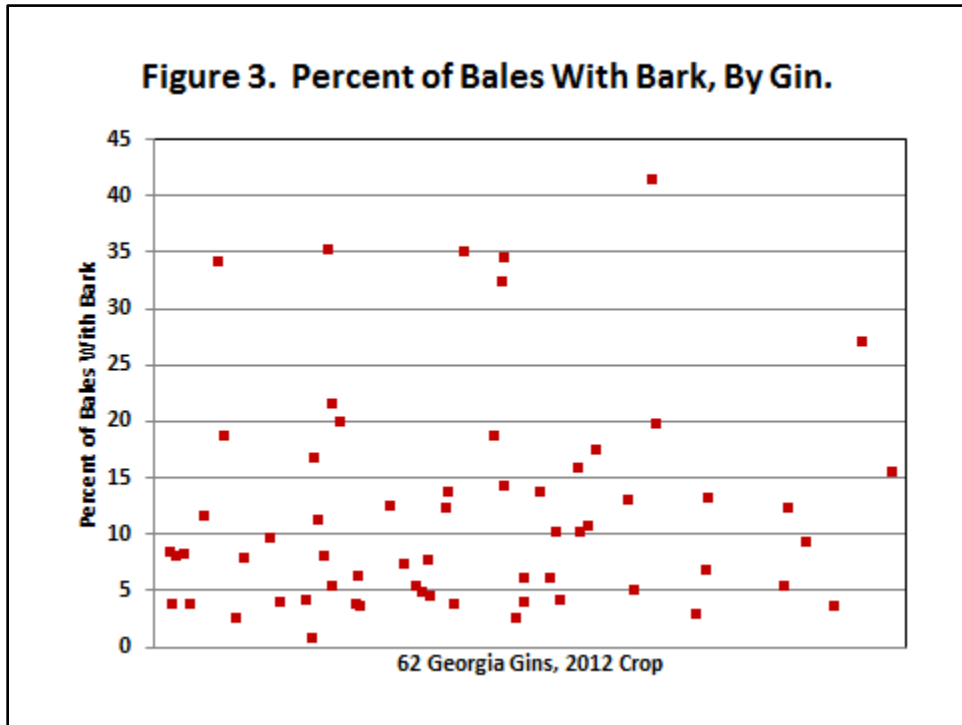
Difference in Bark by Gin and Location

For the purposes of this analysis, a cotton gin is simply a representation/proxy for a group of producers. No inference is intended regarding ginning practices. The gin is simply a group of producers from the market area of the gin.

The degree of the problem with bark seemed to vary by gin and location. Classing data for individual gins (USDA Cotton Classing Office, Macon) indicates that some gins (growers) had a rather severe problem with bark while other gins (growers) had much less of a problem. Of 62 gins in Georgia, 16 gins (about one-fourth of the gins in the state) had less than 5% bark (Figure 3). On the other hand, 6 gins (or about 10%) had one-third or more of their cotton with bark.

One gin had almost no bark (.56%) while one gin had over 41% of its cotton with bark. Most gins (almost half) had 5% to 15% of bales with bark.

As previously mentioned, the 2012 crop had 12.4% of bales with bark. The simple average of all 62 gins (Figure 3) was about the same at 11.8%. This perhaps indicates that the incidence and degree of bark was fairly uniform across gin size.



For this analysis, cotton-producing counties were placed into 1 of 4 regions (Figure 4). These regions were determined based on county location of the gin and the assumed majority market region for the gin. The purpose for this was to see if there were differences in the bark problem by location/region of the state. The analysis excludes 2 gins in the northern part of the state. These gins were omitted to avoid disclosure of individual data.

In the Southwest region, 8.1% of bales were discounted for bark. By comparison, 21.9% of bales in the East region had bark (Figure 4 and Table 2).

In the East region, there are 11 gins (grower groups). Of these 11 grower groups, the gin/group with the lowest bark problem had only 3.6% of bales with bark. The gin/group with the worst bark problem had 35.1% of bales with bark.

In the South region, there are 20 gins (grower groups). The gin/grower group with the worst bark problem had 41.3% of bales discounted for bark. By comparison, the gin/group with the least bark problem had only 2.4% of bales with bark.

The gin/grower group with the least bark problem was in the Central region with on .6% of bales with bark. The gin/grower group with the worst bark problem was in the South region with over 41% of bales with bark.

Table 2. Bark by Region and Gin/Grower Group.

Region¹	# Gins (Grower Groups)	Percent of Bales Ginned With Bark	High Individual Group/Gin	Low Individual Group/Gin
Southwest	14	8.1%	15.4%	3.6%
South	20	12.9%	41.3%	2.4%
Central	15	9.4%	19.7%	0.6%
East	11	21.9%	35.1%	3.6%

1/ See Figure 4.

Discussion and Summary

The 2012 increase in bark prior to frost appeared to be caused by stalks shattering and tearing as the cotton was being harvested. Many opinions exist as to the cause(s) of the stalk shattering, however, no specific cause has been determined for all acres that resulted in bark cotton.

The sole purpose of this analysis was to examine fiber quality data in hopes that this might shed light on the problem. In doing so, aid to support or disprove the opinions or theories being tossed around about the reasons for the problem.

Classing data supports that the incidence of bark increases with later harvested cotton (Figure 1). The incidence of bark increases as the harvest season progresses due to weathering and frost. For the 2012 cotton crop, harvest was actually ahead of normal and not delayed (USDA-NASS). Weather during the harvest period has not been investigated but harvest timing itself suggests nothing unusual and does not explain the very dramatic increase in bark.

The 2012 crop was planted ahead of normal (USDA-NASS) but harvested at the normal time/pace. This means that, on average, the crop was in the field a little longer and perhaps took a little longer to mature. This is supported by the fact that progression of boll opening

compared to normal appeared to slow down as the harvest season progressed (USDA-NASS). This could have been weather related.

Whatever the reason(s) for the dramatic increase in bark in 2012, classing data suggest the following:

- The bark problem appears to have been worse in the eastern part of the state
- The problem was highly variable and did not affect all growers equally
- There was high variability in the incidence of the problem even among growers/gins in close geographic proximity
- Other states, not just Georgia, also saw a marked increase in bark

Yield equals lint harvested per plant which is determined by boll load, bolls harvested, efficiency of harvest, and fiber length. Despite the increase in bark, the 2012 crop was a new record yield for Georgia.

Acknowledgements

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