

What determines the quality of cotton: Cotton Classification and How That Determines Its Use in the Supply Chain

In a recent post [“What Determines the Price of Cotton,”](#) we discussed how cotton’s value or price is determined by a variety of factors, but perhaps most of all by how it’s graded according to USDA standards for classification.

The USDA uses standardized procedures for evaluating the physical attributes of raw cotton in order to provide buyers with a clear expectation of the quality of a specific bale of cotton for marketing and processing purposes. This process determines the value of a bale of cotton based on a set of predetermined criteria, such as fiber length, length uniformity, color, strength, micronaire, leaf grade, and extraneous matter.

The Purpose of Classification

Farmers pay the USDA to analyze and grade each bale, which in turn allows farmers to market and set the price or value for prospective buyers, who, depending on their market application for the cotton, will look for certain characteristics and pay to meet their quality requirements for manufacturing. Thus, classification provides the buyer of a cotton bale with the information they need regarding the quality of the fibers; thus the buyer can select the ideal characteristics to fit the manufacturing needs of their products. Lots of product materials work this way—think about how a fine Italian leather—used in high-end shoes and even for seats of luxury

cars—may differ from the leather on the belt you wear.

Important Attributes of Cotton

Let's get back to cotton. The attributes of a bale of cotton determine how it's best used in the downstream supply chain. Some applications may require longer length and higher strength, but whiter color may not be as important. Other applications may need higher fiber strength and micronaire and place less importance on fiber uniformity and length.

Think about these major uses for cotton, in products you wear and use every single day. As you reference these products in your mind, especially by their look and feel, you intuitively pick up on the idea of classification by quality.

- Yarn for apparel, shirts, jeans, pants, underwear, etc
- Household furnishings – sheets, towels, mops,
- Money
- Nonwoven applications, like hygiene products

Let's take a look at that last entry on the list, nonwovens. Common to hygiene products, feminine products, and baby products, nonwovens required an ideal grade of leaf 3 or less, and high mic (5.0 or higher), but staple length is less important, as is color, since Barnhardt's ECOV system and purification process transforms any color grade of cotton to pure white. Neither is uniformity, for that matter, since we card nonwoven cotton. Extraneous matter, or lack thereof, is especially important, as nonwoven-grade needs to be absent of field trash, grass, bark, plastic, etc.

This all makes sense, if you think about it. It's important that hygiene products be as free of trash as possible, but both the purification and processes for making nonwovens, such as hydroentanglement, make other aspects like uniformity and color irrelevant.

Here's a walk through the actual classification process that

determines the quality—and subsequent price—of cotton.

The Process of Classification

First, the farmer grows a bale of cotton and has it ginned. The ginner takes a sample and sends it to a USDA Classing office. Here at the Classing office, the sample is tested for the characteristics that we have previously discussed, such as staple, mic, leaf, etc. The farmer pays for the bale to be classed at \$2.20 per bale.

The Classing office uses an HVI (High Volume Instrument) system that's calibrated daily to make sure the bales across the country are uniformly classed. The US is widely recognized to have the best classification system in place, giving sellers an advantage for globally marketing their cotton.

Conclusions

In conclusion, you should know that classing serves two main purposes. First, classification lets the farmer know what his bale is worth, and it allows the buyer to know exactly what he is receiving. All cotton is classed from a base grade. If the fiber characteristics are better than the base the farmer naturally receives a premium for his bale, and the buyer knows that the cotton can be used for applications like high-end apparel, sheets, towels, etc.

Conversely, if the bale is below grade, the farmer will receive a discount for the bale. This fiber will be used for blue jeans, as well as lower-value clothing & sheets. Remember, not all cotton is the same. Most importantly, perhaps, is the notion that classification allows someone in China, who can't come out and "test drive" the bale, the comfort of knowing exactly what they are paying for.