

15. COTTON CLASSIFICATION

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Samples are taken from each North Carolina bale of cotton at the gin and sent to the United States Department of Agriculture—Agriculture Marketing Service (USDA-AMS) Cotton Classing office in Florence, South Carolina. These samples give cotton buyers information about the quality of the cotton the growers have produced. Producers should understand the classing system, as many aspects of cotton quality can be influenced by management decisions. Most of the information below is taken from the USDA publication *Cotton Classification Results*, which is available through the USDA-AMS, Cotton Division, 3275 Appling Road, Memphis, TN 38133.

The high volume instrument (HVI) classification system consists of the classer’s judgment on color grade, leaf grade, and extraneous matter (if any), plus instrument measurements for fiber length, micronaire, strength, color, trash, and length uniformity.

Most classification data are provided to the industry by telecommunications, computer tapes, diskettes, and computer punch cards. In order to provide classification data for individual bales, the incoming bale identification tag must meet certain requirements, which are discussed below. For ease of explanation, the Universal Classification Data Format is used as an example for explaining the various quality measurements.

USDA-AMS COTTON DIVISION UNIVERSAL CLASSIFICATION DATA FORMAT

Table 15-1 lists the quality parameters measured at the classing office and the corresponding column where you will find each quality parameter listed. This information applies to all methods of data dissemination offered by the Cotton Division. Columns 36, 46, 55, 58, and 62 are omitted.

Gin Code Number (Columns 1–5)

The gin code number is composed of five digits. The first two digits denote the classing office, and the last three digits identify the gin. The local classing office assigns this code number and can provide codes for any gin.

Gin Bale Number (Columns 6–12)

The seven-digit bale numbers are assigned by the gin. A bar-coded bale identification tag, preprinted with the gin code number and gin bale number, is placed between the two halves of the sample for identification purposes. The classing office scans the bar codes to enter the bale identification into its computer before classing the sample.

**Table 15-1. USDA-AMS Cotton Division
Universal Classification Data Format**

FIELD NAME	COLUMN
Gin Code Number	1–5
Gin Bale Number	6–12
Date Classed	13–18
Module, Trailer, or Single Bale	19
Module/Trailer Number	20–24
Bales in Module/Trailer	25–26
Producer Account	27–29
Color Grade	30–31
Fiber Length (32nd)	32–33
Mike (Micronaire)	34–35
Strength	37–40
Leaf Grade	41
Extraneous Matter	42–43
Remarks	44–45
HVI Color Code	47–48
Color Quadrant	49
HVI Rd	50–51
HVI + b	52–54
HVI Trash Percent Surface	56–57
Fiber Length (100th)	59–61
Length Uniformity Percent	63–64
Upland or Pima	65
Record Type	66
CCC Loan Premiums and Discounts	67–71

Date Classed (Columns 13–18)

This is the date the bale was classed in the classing office.

Module, Trailer, or Single Bale (Column 19)

This one-digit code indicates whether the sample was out-turned as a single bale or came from a bale that was module-trailer averaged: Single bale = 0, Module = 1, Trailer = 2.

Module/Trailer Number (Columns 20–24)

A five-digit number identifies the module-trailer number assigned at the gin.

Bales in Module/Trailer (Columns 25–26)

A two-digit number identifies the number of bales in the module-trailer that were averaged to determine the value of all the bales in the module-trailer.

Producer Account (Columns 27–29)

The producer account number space is reserved for USDA use.

Color Grade (Columns 30–31)

The color grade that appears on the classification record is determined by the classer, based on the official color grade standards. Color refers to the gradations of whiteness and yellowness in the cotton. Codes that identify extraneous matter and special condition cotton are shown in the “Extraneous Matter” and “Remarks” rows. Producers can influence color by having good defoliation and by getting the crop harvested before wet weather damages fiber color. The codes that identify American Upland color grades are as follows:

Table 15-2. Color Grades of Upland Cotton

	White	Light Spotted	Spotted	Tinged	Yellow Stained
Good Middling	11*	12	13	—	—
Strict Middling	21*	22	23*	24	25
Middling	31*	32	33*	34*	35
Strict Low Middling	41*	42	43*	44*	—
Low Middling	51*	52	53*	54*	—
Strict Good Ordinary	61*	62	63*	—	—
Good Ordinary	71*	—	—	—	—
Below Ordinary	81	82	83	84	85

* Physical standards. All others are descriptive.

Special Condition Codes for Upland Cotton

96 – Mixture of Upland and Pima

97 – Fire Damaged

98 – Water Damaged

Fiber Length—32nds (Columns 32–33); **100ths** (Columns 59–61). The HVI system measures length in hundredths of an inch. Length (staple) is reported on the classification record in both 32nds and 100ths of an inch. Low staple length has become more of a problem in the Southeast. Growers should avoid varieties with low staple length. Cotton with low staple length and high micronaire is very hard to sell. Growers should totally avoid varieties with both low staple length and high micronaire.

Micronaire (Columns 34–35)

An airflow instrument is used in the HVI system to measure fiber fineness. The measurements, commonly referred to as micronaire or “mike” readings, are the same as those that have been provided for many years in cotton classification. Micronaire and maturity are highly correlated within a variety. High mike is often a problem in North Carolina in drought-stressed years,

especially where defoliation is delayed past optimum timing. Growers should try to avoid planting high micronaire varieties in fields that often have significant drought stress.

Strength (Columns 37–40, Decimal in Column 39)

Fiber strength is influenced most by variety selection. In general, full-season varieties have higher strength than short-season varieties. The fiber strength measurement is made by clamping and breaking a bundle of fibers, with a 1/8-inch spacing between the clamp jaws. Results are reported in terms of “grams per tex” to the nearest 10th. A tex unit is equal to the weight in grams of 1,000 meters of fiber. Therefore, the strength reported is the force in grams required to break a bundle of fibers one tex unit in size. The following table shows some general descriptions of HVI 1/8-inch gauge-strength measurements in grams per tex.

Table 15-3. Fiber Strength Table

Descriptive Designation	HVI 1/8" Gauge Strength (grams per tex)
Weak	23 and below
Intermediate	24–25
Average	26–28
Strong	29–30
Very Strong	31 and above

HVI Rd (Columns 50–51)

HVI +b (Columns 52–54)

The HVI color measurements cover grayness and yellowness. *Grayness* (HVI Color Rd) indicates how light or dark the sample is, and *Yellowness* (HVI Color + b) indicates how much yellow color is in the sample. The Nickerson-Hunter cotton colorimeter color diagram on page 11 of *Cotton Classification Results* is based on current official standards for American Upland cotton and shows how these measurements are coded and how they relate to the color of the grade standards. Each color grade is subdivided into quadrants to denote color differences within a color grade for more precise measurements. This information is reported as a two-digit Color Grade Code and a single digit grade quadrant. The resulting three-digit number is derived by locating the intersection of the Rd and +b readings on the diagram.

The Nickerson-Hunter cotton colorimeter color diagram on page 12 of *Cotton Classification Results* is based on the official standards for American Pima cotton. Color grades shown in the chart are the one-digit color grades of American Pima. Two digits are shown on the classification record, the first digit being zero (0). Grade quadrants are not used for American Pima.

HVI Trash Percent Surface (Columns 56–57)

The two-digit trash code reported on the classification record is the percentage of the sample surface covered by trash particles as determined by a video scanner. For example, a reading of 04 indicates that trash particles cover 0.4% of the sample surface. Trash particles include extraneous matter such as grass, bark, etc. However, the classer will continue to identify

samples containing extraneous matter. Table 16-4 illustrates the relationship of leaf grade to the percentage of the surface area measured by the HVI trashmeter for the 1993 crop.

Table 15-4. Relationship of Classer’s Leaf Grade to HVI Trash Reading, 1993 Crop

Classer’s Leaf Grade	HVI Trash Reading
1	1
2	2
3	3
4	4
5	6
6	8
7	11
8	15

Length Uniformity Percent (Columns 63–64)

Length uniformity is a two-digit number that measures the degree of uniformity of fibers in a sample. The descriptive terms in Table 16-5 may be helpful in understanding the measurement results.

Table 15-5. Length Uniformity Percent

Descriptive Designation	HVI Length Uniformity
Very Low	Below 77
Low	77–79
Average	80
High	83–85
Very High	Above 85

Upland or Pima (Column 65)

The one-digit code indicates whether the sample is Upland or American Pima.

- 1 = Upland
- 2 = Pima

Record Type (Column 66)

The one-digit code gives the type of record, according to the following:

- 0 = Original, 1 = Review, 2 = Rework, 3 = Duplicate, 4 = Correction

CCC Loan Premiums and Discounts (Columns 67–71)

The five-digit code gives the CCC loan premium and discount points for Upland cotton.

- Upland—Column 67 (+) if Premium, (-) if Discount
- Columns 67–71 will be left blank if the quality is not eligible for loan.