

COTTONSEED QUALITY

CROP OF 1995



UNITED STATES DEPARTMENT OF AGRICULTURE

Agricultural Marketing Service Cotton Division

Memphis, Tennessee

June 1996

Cottonseed Quality - 1995 Crop

Cottonseed from the 1995 crop averaged higher in grade than the previous year, according to the Cotton Division, Agricultural Marketing Service, USDA. The average grade was 99.1, up from 97.1 in 1994, and 97.4 in 1993. Foreign matter content was 1.1 percent in 1995. This was the same as last year, but down from 1.5 in 1993. Average moisture content was 9.8 percent against 10.5 in 1994 and 9.7 in 1993. The percentage of free fatty acids in cottonseed from the 1995 crop averaged 0.6, down from 1.0 in 1994 and was the same as in 1993. The quality index was 99.4, this compares to 98.3 in 1994 and 1993. Average oil content of cottonseed was 17.8 percent, the same as in 1994, and up slightly from 17.7 in 1993. Ammonia content averaged 3.98 against 3.80 last year and 3.85 two years ago. Average quantity index at 99.80 compares with 98.81 last year and 98.53 in 1993.

Data from grade certificates covering 14,169 samples of cottonseed were used to compile this report. Averages of cottonseed quality and quantity factors and grades are shown by states, when sufficient certificates were received, and by months. Average grade factors of cottonseed are shown by states in Table 3. The averages in this table are arithmetic means of grade factors and indexes tabulated and averaged from the individual grade certificates issued by chemists licensed by the U.S. Department of Agriculture.

Indicated 1995-crop cottonseed production was 6.85 million tons, according to the Agricultural Statistics Board, National Agricultural Statistics Service, USDA. This was down from 7.60 million tons produced in 1994, and 6.34 million tons in 1993.

The summary of national averages appearing in Table 1 below and presented in other tables of this report is based on state quality and quantity and grades weighted by the number of certificates received.

Table 1. Cottonseed: Average quality and quantity factors, indexes and grades, United States 1980-1995

Year 1/	Quality factors percent			Quality index	Quantity factors percent		Quantity index	Average grade	Number of Samples
	Foreign matter	Moisture	Free fatty acids		Oil	Ammonia			
1980	1.7	10.4	0.9	98.0	16.9	4.08	97.17	95.5	38,224
1981	2.0	10.1	0.8	98.1	17.2	3.97	97.69	96.0	50,636
1982	1.4	10.9	1.1	98.0	17.5	3.89	98.22	96.5	33,612
1983	1.6	11.0	0.7	98.4	17.0	4.02	97.12	96.0	24,549
1984	1.7	11.4	2.1	93.8	17.0	3.94	96.63	90.5	39,970
1985	1.4	10.8	1.4	96.4	17.3	3.94	97.72	94.6	35,586
1986	1.8	11.1	1.2	97.1	17.3	3.96	98.04	95.3	25,414
1987	1.6	9.4	0.6	98.9	18.3	4.06	101.09	100.2	33,210
1988	1.3	10.2	0.9	98.6	17.9	4.02	99.96	98.9	36,235
1989	1.5	9.9	0.7	98.9	18.0	3.96	100.51	99.6	24,301
1990	1.3	10.1	0.8	98.9	17.4	4.09	99.00	97.9	30,350
1991	1.6	10.2	0.8	98.6	18.0	3.92	100.45	99.1	32,978
1992	1.3	10.5	0.8	99.3	17.5	3.68	97.28	96.3	27,292
1993	1.5	9.7	0.6	98.3	17.7	3.85	98.53	97.4	21,867
1994	1.1	10.5	1.0	98.3	17.8	3.80	98.81	97.1	21,877
1995	1.1	9.8	0.6	99.4	17.8	3.98	99.80	99.1	14,169

1/ Year beginning August 1.

STANDARDS FOR GRADES OF COTTONSEED SOLD FOR OR OFFERED FOR SALE
FOR CRUSHING PURPOSES WITHIN THE UNITED STATES

Determination of grade. The grade of cottonseed shall be determined from the analysis of samples, and it shall be the result, stated in the nearest whole or half number, obtained by multiplying a quantity index by a quality index and dividing the result by 100. The quantity index and the quality index shall be determined as hereinafter provided:

- (a) The basis grade of cottonseed shall be grade 100.
- (b) High grades of cottonseed shall be those grades above 100.
- (c) Low grades of cottonseed shall be those grades below 100.

Determination of quantity index. The quantity index of cottonseed shall be determined as follows:

- (a) For upland cottonseed the quantity index shall equal 4 times the percentage of oil plus 6 times the percentage of ammonia plus 5.
- (b) For American Pima cottonseed the quantity index shall equal 4 times the percentage of oil plus 6 times the percentage of ammonia minus 10.

Determination of quality index. The quality index of cottonseed shall be an index of purity and soundness, and shall be determined as follows:

- (a) Prime quality cottonseed. Cottonseed that by analysis contain not more than 1.0 percent of foreign matter, not more than 12.0 percent of moisture, and not more than 1.8 percent free fatty acids in the oil in the seed, shall be known as prime quality cottonseed and shall have quality index of 100.
- (b) Below prime quality cottonseed. The quality index of cottonseed that by analysis contain foreign matter, moisture, or free fatty acids in the oil in the seed, in excess of the percentage prescribed in (a) above shall be found by reducing the quality index of prime quality cottonseed as follows:
 - (1) Four-tenths of a unit for each 0.1 percent of free fatty acids in oil in the seed in excess of 1.8 percent.
 - (2) One-tenth of a unit for each 0.1 percent of foreign matter in excess of 1.0 percent.
 - (3) One-tenth of a unit for each 0.1 percent of moisture in excess of 12.0 percent.
- (c) Off quality cottonseed. Cottonseed that has been treated by either mechanical or chemical process other than the usual cleaning, drying and ginning (except sterilization required by United States Department of Agriculture for quarantine purposes) or that are fermented or hot, or that upon analysis are found to contain 12.5 percent or more of free fatty acids in the oil in the seed, or more than 10.0 percent of foreign matter, or more than 20.0 percent of moisture, or more than 25.0 percent of moisture and foreign matter combined shall be designated as "off quality" cottonseed.
- (d) Below Grade cottonseed. Cottonseed the grade of which when calculated according to the foregoing is below grade 40.0 shall be designated as "Below Grade" cottonseed and a numerical grade shall not be indicated.

Table 2. Examples of the computation of cottonseed quality and quantity indexes and grades, by qualities, in accordance with the official standards of the United States ^{1/}

Example 2/	Quality factors										Grade		
	FFA 3/		FM 4/		H2O 5/		Oil		NH3 8/			Sum of Adjustment factors	Quantity index
Total : Reduction	Pct.	Units	Total : Reduction	Pct.	Units	Total : Reduction	Pct.	Total : Reduction	Pct.	Total : Product 7/	Total : Product 7/		
1	0.5	0.0	0.3	0.0	10.0	0.0	0.0	76.0	3.60	21.60	97.50	+5	102.60
2	1.8	0.0	1.0	0.0	12.0	0.0	0.0	71.2	4.10	24.60	95.80	+5	100.80
3	1.2	0.0	0.8	0.0	9.6	0.0	0.0	64.8	3.97	23.82	88.62	+5	93.62
4	1.2	0.4	1.0	0.0	12.0	0.0	0.0	74.0	3.50	21.00	95.00	+5	100.00
5	1.8	0.0	1.1	0.1	12.0	0.0	0.1	78.8	3.75	22.50	101.30	+5	106.30
6	1.8	0.0	1.0	0.0	12.1	0.1	0.1	69.2	4.23	25.38	94.58	+5	99.58
7	1.9	0.4	1.1	0.1	12.1	0.1	0.6	63.2	2.98	17.88	81.08	+5	86.08
8	2.5	2.8	3.2	2.2	7.4	0.0	5.0	98.8	4.15	24.90	123.70	-10	113.70
PRIME QUALITY SEED													
9	12.5	42.8	0.7	0.0	12.0	0.0	0.4	80.4	3.67	22.02	102.42	+5	107.42
10	1.8	0.0	1.0	0.0	12.0	0.0	0.1	67.6	4.13	24.78	92.38	+5	97.38
11	1.8	0.0	1.0	0.0	20.1	8.1	8.1	75.2	3.80	22.80	98.00	+5	103.00
12	1.8	0.0	1.8	0.0	11.1	0.0	14.8	77.2	4.08	24.48	101.68	+5	106.68
13	4.6	11.2	11.5	10.5	9.2	0.0	21.7	65.6	4.32	25.92	91.52	+5	96.52
OFF QUALITY SEED													
Treated (other than usual), Fermented, Hot													
14	10.5	34.8	20.8	19.8	15.6	3.6	58.2	68.0	3.41	20.46	88.46	+5	93.46
15	17.5	62.8	0.5	0.0	14.1	2.1	64.9	78.0	3.94	23.64	101.64	+5	106.64
BELOW GRADE SEED													

1/ Important key figures that determine the range of various qualities of cottonseed are underscored.

2/ Example "g", demonstration of application of grading system of American Pima seed; all others relate to upland cottonseed.

3/ Free fatty acids in the oil in the seed.

4/ Foreign matter in the seed.

5/ Moisture in the seed.

6/ Reductions are the adjustments made in the quality index for excesses of free fatty acids, foreign matter, and moisture above or below tolerances.

7/ "Products" are percentages of oil and ammonia in the seed multiplied by the factor used in computing the quantity index.

8/ Ammonia in the seed.

* Below grade 40. No numerical grade is indicated.

Table 3. Cottonseed: Average quality and quantity factors, indexes and grades, by states and United States, 1994 and 1995

State	Quality factors - percent		Free fatty acids		Moisture		Quality index		Quantity factors - percent		Quantity index		Average grade			
	1994	1995	1994	1995	1994	1995	1994	1995	1994	1995	1994	1995	1994	1995		
AL	0.8	0.8	11.8	11.4	2.8	1.6	95.2	98.6	17.6	17.2	3.72	3.95	97.65	97.61	92.9	96.3
AR	0.9	0.9	11.5	10.5	0.8	0.5	99.0	99.8	17.1	17.5	3.71	4.38	95.76	97.92	94.3	97.7
GA	0.7	0.6	11.4	11.0	4.1	1.9	90.8	98.5	18.3	17.6	3.69	3.92	100.19	98.73	94.3	97.2
LA	0.8	0.7	10.7	9.6	2.0	0.8	96.7	99.7	17.7	17.7	3.66	3.88	97.62	99.05	94.5	98.7
MS	0.7	0.4	10.9	9.6	1.5	0.5	97.6	100.0	17.7	17.7	3.64	4.01	97.68	99.96	95.5	99.9
MO	1.0	0.9	11.3	10.6	0.5	0.5	99.6	99.8	17.3	17.6	3.76	3.78	96.73	98.17	96.4	98.0
NM	1.2	-	9.5	-	0.3	-	99.8	-	18.9	-	4.10	-	105.20	-	105.0	-
NC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OK	1.8	2.5	9.6	8.6	0.4	0.4	98.9	98.5	17.4	18.3	4.12	3.94	99.34	102.00	98.3	100.5
SC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TN	0.9	0.8	11.9	11.0	0.6	0.5	99.2	99.7	18.0	18.2	3.62	3.66	98.55	99.84	97.8	99.5
TX	1.4	1.7	9.1	8.7	0.5	0.5	98.7	99.1	18.2	18.1	4.03	4.02	102.22	101.32	100.9	100.2
OTHER	0.4	0.4	12.6	11.4	4.4	2.1	89.3	98.4	16.9	16.7	3.57	3.83	93.79	94.92	83.8	93.3
U.S.	1.0	1.1	10.5	9.8	1.0	0.6	98.3	99.4	17.7	17.8	3.80	3.98	98.79	99.80	97.1	99.1

Table 4. Cottonseed: Average quality and quantity factors, indexes and grades, by specified periods and states, 1995

Month	Quality factors - percent				Quantity factors - percent				Average grade	Number of samples
	Foreign matter	Moisture	Free fatty acids	Quality index	Oil	Ammonia	Quantity index			
ALABAMA										
Sept. & Earlier	-	-	-	-	-	-	-	-	-	-
Oct.	0.5	10.8	0.8	99.7	17.2	4.03	98.10	97.8	167	
Nov.	0.7	11.2	1.5	99.9	17.4	3.97	98.27	98.2	104	
Dec.	1.4	12.3	2.3	97.1	17.1	3.86	96.53	93.8	83	
Jan.	0.7	12.1	2.9	95.3	17.2	3.81	96.76	92.3	53	
Feb.	-	-	-	-	-	-	-	-	0	
Mar. & Later	-	-	-	-	-	-	-	-	0	
Season	0.8	11.4	1.6	98.6	17.2	3.95	97.61	96.3	407	
ARKANSAS										
Sept. & Earlier	-	-	-	-	-	-	-	-	-	
Oct.	0.8	10.1	0.6	99.9	17.4	3.86	97.84	97.7	810	
Nov.	0.8	10.5	0.5	99.8	18.0	5.87	99.77	99.5	482	
Dec.	0.0	11.3	0.5	99.7	17.1	3.73	95.91	95.6	412	
Jan.	1.3	10.7	0.8	99.4	17.8	3.62	97.83	97.4	66	
Feb.	-	-	-	-	-	-	-	-	0	
Mar. & Later	-	-	-	-	-	-	-	-	0	
Season	0.9	10.5	0.5	99.8	17.5	4.38	97.92	97.7	1,770	
GEORGIA										
Sept. & Earlier	-	-	-	-	-	-	-	-	-	
Oct.	0.3	10.9	1.3	99.7	17.7	4.00	99.95	99.7	128	
Nov.	0.7	11.9	1.8	99.1	17.4	3.80	97.52	96.6	135	
Dec.	0.7	10.9	2.0	98.1	17.6	3.93	98.84	97.0	526	
Jan.	0.8	10.7	1.6	99.6	17.4	3.91	98.10	97.7	95	
Feb.	0.7	10.7	2.5	97.2	17.2	4.06	97.96	95.3	23	
Mar. & Later	1.2	10.1	2.9	95.6	17.7	3.90	98.97	94.5	23	
Season	0.6	11.0	1.9	98.5	17.6	3.92	98.73	97.2	930	

Table 4. Cottonseed: Average quality and quantity factors, indexes and grades, by specified periods and states, 1995

Month	Quality factors - percent			Quantity factors - percent			Quantity index	Average grade	Number of samples
	Foreign matter	Moisture	Free fatty acids	Quality index	Oil	Ammonia			
LOUISIANA									
Sept. & Earlier	-	-	-	-	-	-	-	-	-
Oct.	0.7	9.4	0.5	99.9	17.6	3.91	98.89	98.8	0
Nov.	0.6	10.1	0.9	99.9	18.2	3.79	100.40	100.3	661
Dec.	0.7	9.9	1.2	99.3	17.7	3.87	98.89	98.1	139
Jan.	-	-	-	-	-	-	-	-	412
Feb.	-	-	-	-	-	-	-	-	0
Mar. & Later	-	-	-	-	-	-	-	-	0
Season	0.7	9.6	0.8	99.7	17.7	3.88	99.05	98.7	1,212
MISSISSIPPI									
Sept. & Earlier	-	-	-	-	-	-	-	-	-
Oct.	0.4	9.4	0.5	100.0	17.7	4.05	99.88	99.9	0
Nov.	0.5	9.2	0.5	99.9	18.0	4.00	101.09	101.0	953
Dec.	0.4	10.2	0.5	10.0	17.7	3.96	99.42	99.4	323
Jan.	0.6	11.7	0.6	100.0	17.4	3.88	97.85	98.0	421
Feb.	-	-	-	-	-	-	-	-	25
Mar. & Later	-	-	-	-	-	-	-	-	0
Season	0.4	9.6	0.5	100.0	17.7	4.01	99.96	99.9	1,722
MISSOURI									
Sept. & Earlier	-	-	-	-	-	-	-	-	-
Oct.	0.7	10.0	0.4	99.9	17.7	3.80	98.68	98.6	0
Nov.	0.8	10.5	0.5	99.8	17.8	3.84	99.30	99.1	576
Dec.	1.2	11.6	0.5	99.5	17.2	3.65	95.86	95.4	446
Jan.	1.2	11.6	0.5	99.7	17.4	3.72	97.05	96.7	337
Feb.	-	-	-	-	-	-	-	-	39
Mar. & Later	-	-	-	-	-	-	-	-	0
Season	0.9	10.6	0.5	99.8	17.6	3.78	98.17	98.0	1,398

Table 4. Cottonseed: Average quality and quantity factors, indexes and grades, by specified periods and states, 1995

Month	Quality factors - percent			Quantity factors - percent			Quantity index	Average grade	Number of samples
	Foreign matter	Moisture	Free fatty acids	Quality index	Oil	Ammonia			
NEW MEXICO									
Sept. & Earlier	-	-	-	-	-	-	-	-	0
Oct.	-	-	-	-	-	-	-	-	0
Nov.	-	-	-	-	-	-	-	-	0
Dec.	-	-	-	-	-	-	-	-	0
Jan.	-	-	-	-	-	-	-	-	0
Feb.	-	-	-	-	-	-	-	-	0
Mar. & Later	-	-	-	-	-	-	-	-	0
Season	-	-	-	-	-	-	-	-	0
NORTH CAROLINA									
Sept. & Earlier	-	-	-	-	-	-	-	-	0
Oct.	-	-	-	-	-	-	-	-	0
Nov.	-	-	-	-	-	-	-	-	0
Dec.	-	-	-	-	-	-	-	-	0
Jan.	-	-	-	-	-	-	-	-	0
Feb.	-	-	-	-	-	-	-	-	0
Mar. & Later	-	-	-	-	-	-	-	-	0
Season	-	-	-	-	-	-	-	-	0
OKLAHOMA									
Sept. & Earlier	-	-	-	-	-	-	-	-	0
Oct.	-	-	-	-	-	-	-	-	0
Nov.	1.6	9.4	0.4	99.3	18.1	3.82	100.13	99.5	99
Dec.	2.7	8.2	0.4	98.3	18.5	3.98	102.82	101.0	251
Jan.	3.6	9.3	0.6	97.5	18.1	4.00	101.20	98.5	25
Feb.	1.7	9.3	0.8	99.3	18.2	3.81	100.66	100.0	16
Mar. & Later	-	-	-	-	-	-	-	-	0
Season	2.5	8.6	0.4	98.5	18.3	3.94	102.00	100.5	391

Table 4. Cottonseed: Average quality and quantity factors, indexes and grades, by specified periods and states, 1995

Month	Quality factors - percent			Quantity factors - percent			Average grade	Number of samples
	Foreign matter	Moisture	Free fatty acids	Quality index	Oil	Ammonia		
SOUTH CAROLINA								
Sept. & Earlier	-	-	-	-	-	-	-	0
Oct.	-	-	-	-	-	-	-	0
Nov.	-	-	-	-	-	-	-	0
Dec.	-	-	-	-	-	-	-	0
Jan.	-	-	-	-	-	-	-	0
Feb.	-	-	-	-	-	-	-	0
Mar. & Later	-	-	-	-	-	-	-	0
Season	-	-	-	-	-	-	-	0
TENNESSEE								
Sept. & Earlier	-	-	-	-	-	-	-	0
Oct.	0.5	10.8	0.5	99.8	18.2	3.67	99.82	713
Nov.	0.8	11.2	0.5	99.6	18.3	3.69	100.33	483
Dec.	1.2	11.3	0.6	99.5	18.1	3.62	99.32	350
Jan.	1.2	10.1	0.7	99.7	18.0	3.60	98.72	48
Feb.	-	-	-	-	-	-	-	0
Mar. & Later	-	-	-	-	-	-	-	0
Season	0.8	11.0	0.5	99.7	18.2	3.66	99.84	1,594
TEXAS								
Sept. & Earlier	-	-	-	-	-	-	-	0
Oct.	0.9	10.0	0.8	99.4	17.7	3.96	99.36	1,198
Nov.	1.9	8.4	0.3	99.1	18.1	4.07	101.95	1,064
Dec.	2.0	8.3	0.4	98.9	18.2	4.03	102.01	1,936
Jan.	2.1	7.9	0.4	98.8	18.2	4.05	101.93	413
Feb.	1.9	7.6	0.4	99.1	18.4	4.01	102.79	62
Mar. & Later	-	-	-	-	-	-	-	0
Season	1.7	8.7	0.5	99.1	18.1	4.02	101.32	4,673

Table 4. Cottonseed: Average quality and quantity factors, indexes and grades, by specified periods and states, 1995

Month	Quality factors - percent			Quantity factors - percent			Quantity index	Average grade	Number of samples
	Foreign matter	Moisture	Free fatty acids	Quality index	Oil	Ammonia			
Sept. & Earlier	-	-	-	-	-	-	-	-	0
Oct.	1.1	11.0	1.6	99.9	17.1	3.73	95.78	95.5	16
Nov.	0.2	10.9	2.2	98.6	16.6	3.82	94.29	93.0	27
Dec.	0.2	11.7	3.0	95.2	16.5	4.05	95.30	90.5	19
Jan.	0.3	12.4	1.8	99.6	16.9	3.72	94.92	94.5	10
Feb.	-	-	-	-	-	-	-	-	0
Mar. & Later	-	-	-	-	-	-	-	-	0
Season	0.4	11.4	2.1	98.4	16.7	3.83	94.92	93.3	72

OTHER STATES