COTTONSEED QUALITY

CROP OF 1987

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Marketing Service Cotton Division
Memphis, Tennessee
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Cottonseed Quality - 1987 Crop

Cottonseed from the 1987 crop averaged 100.2 in grade, according to the Cotton Division, Agricultural Marketing Service, USDA. This was the highest average grade for any crop since 1967 and compares with 95.3 a year earlier and 94.6 two years ago. Foreign matter content, at 1.6 percent, was down from 1.8 percent the previous season and slightly greater than 1.4 percent in 1985. Average moisture content was 9.4 percent, the smallest percentage since 1963, down from 11.1 and 10.8 percent in 1986 and 1985, respectively. The percentage of free fatty acids in cottonseed from the 1987 crop average 0.6, the smallest since the crop of 1956, and compares with 1.2 in 1986 and 1.4 in 1985. The quality index was 98.9 against 97.1 a year ago and 96.4 two years ago. Average oil content of cottonseed was 18.3 percent, the largest percentage for any crop since 1967 and compares with 17.3 for the two previous years. Ammonia content averaged 4.06 against 3.96 last year and 3.94 two years ago. Average quantity index at 101.09 percent, was the highest since 1967, and compares with 98.04 in 1986 and 97.72 in 1985.

Data from grade certificates covering 33,210 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 1987-crop cottonseed production is 5.80 million tons, according to the Agricultural Statistics Board, National Agricultural Statistics Service, USDA. This is 53 percent above 3.80 million tons produced in 1986 and up 10 percent from 5.28 million tons in 1985.

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 1972-1987

Year beginning August 1	Quality factors - percent: Foreign matter	Moisture	Free fatty acids	Quality index	Quantity factors - percent: Oil	Ammonia	Quantity index	Average grade	Number of samples
1972	1.6	11.9	1.6	95.7	17.3	3.92	97.67	94.0	71,210
1973	1.4	11.0	1.3	96.7	18.0	3.94	100.81	98.0	62,504
1974	1.6	11.0	1.6	96.5	17.7	3.82	98.42	95.5	61,114
1975	1.6	10.6	1.4	97.0	18.0	3.75	99.50	96.5	44,250
1976	1.8	10.6	0.7	98.4	17.7	3.88	98.93	97.5	52,048
1977	1.4	10.8	1.8	95.6	17.5	3.99	98.85	94.5	61,466
1978	1.5	10.5	0.9	98.5	17.4	4.08	98.97	98.0	50,418
1979	1.7	10.3	1.0	97.7	17.6	3.92	98.92	97.0	56,792
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

April 29, 1988

STANDARDS FOR GRADES OF COTTONSEED SOLD 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: FFA 3/ Total	FFA 3/ Reduction	FM 4/ Total	FM 4/ Reduction	H2O 5/ Total	H2O 5/ Reduction	Total reduction 6/	Quality index	Quantity Factors: Oil Total	Oil Product 7/	NH3 8/ Total	NH3 8/ Product 7/	Sum of products	Adjustment factors	Quantity index	Grade
	Pct.	Units	Pct.	Units	Pct.	Units	Units		Pct.		Pct.					
PRIME QUALITY SEED																
1	0.5	0.0	0.3	0.0	10.0	0.0	0.0	100.0	19.0	76.0	3.60	21.60	97.50	+5	102.60	102.5
2	1.8	0.0	1.0	0.0	12.0	0.0	0.0	100.0	17.8	71.2	4.10	24.60	95.80	+5	100.80	101.0
3	1.2	0.0	0.8	0.0	9.6	0.0	0.0	100.0	16.2	64.8	3.97	23.82	88.62	+5	93.62	93.5
BELOW PRIME QUALITY SEED																
4	1.9	0.4	1.0	0.0	12.0	0.0	0.4	99.6	18.5	74.0	3.50	21.00	95.00	+5	100.00	99.5
5	1.8	0.0	1.1	0.1	12.0	0.0	0.1	99.9	19.7	78.8	3.75	22.50	101.30	+5	106.30	106.0
6	1.8	0.0	1.0	0.0	12.1	0.1	0.1	99.9	17.3	69.2	4.23	25.38	94.58	+5	99.58	99.5
7	1.9	0.4	1.1	0.1	12.1	0.1	0.6	99.4	15.8	63.2	2.98	17.88	81.08	+5	86.08	85.5
8	2.5	2.8	3.2	2.2	7.4	0.0	5.0	95.0	24.7	98.8	4.15	24.90	123.70	-10	113.70	108.0 AP
OFF QUALITY SEED																
Treated (other than usual), Fermented, Hot																
9	12.5	42.8	0.7	0.0	12.0	0.0	42.8	57.2	20.1	80.4	3.67	22.02	102.42	+5	107.42	61.5
10	1.8	0.0	10.1	9.1	12.0	0.0	9.1	90.9	16.9	67.6	4.13	24.78	92.38	+5	97.38	88.5
11	1.8	0.0	1.0	0.0	20.1	8.1	8.1	91.9	18.8	75.2	3.80	22.80	98.00	+5	103.00	94.5
12	1.8	0.0	15.8	14.8	11.1	0.0	14.8	85.2	19.3	77.2	4.08	24.48	101.68	+5	106.68	91.0
13	4.6	11.2	11.5	10.5	9.2	0.0	21.7	78.3	16.4	65.6	4.32	25.92	91.52	+5	96.52	75.5
BELOW GRADE SEED																
14	10.5	34.8	20.8	19.8	15.6	3.6	58.2	41.8	17.0	68.0	3.41	20.46	88.46	+5	93.46	BG*
15	17.5	62.8	0.5	0.0	14.1	2.1	64.9	35.1	19.5	78.0	3.94	23.64	101.64	+5	106.64	BG*

1/ Important key figures that determine the range of various qualities of cottonseed are underscored.
2/ Example "8", demonstration of application of grading system on 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, 1986 and 1987

State	Quality factors - percent						Quality index		Quantity factors - percent				Quantity index		Average grade	
	Foreign matter		Moisture		Free fatty acids				Oil		Ammonia					
	1986	1987	1986	1987	1986	1987	1986	1987	1986	1987	1986	1987	1986	1987	1986	1987
AL	1.0	0.9	12.3	9.5	1.7	0.5	96.5	99.8	17.7	17.3	4.00	4.15	99.94	99.14	96.5	98.9
AR	1.0	0.9	12.3	10.1	1.3	0.5	97.1	99.7	16.5	17.7	3.98	3.99	95.10	98.25	92.4	97.9
GA	0.5	0.8	11.2	8.7	3.0	1.7	92.4	96.6	18.6	18.3	4.11	4.11	103.85	103.02	96.1	99.6
LA	0.9	0.9	12.5	9.4	2.1	0.8	95.3	99.6	16.5	17.5	3.89	3.87	94.29	98.08	89.7	97.6
MS	0.9	0.9	11.7	9.5	1.1	0.5	97.8	99.6	16.8	17.6	4.01	4.65	96.24	98.55	94.4	99.5
MO	1.4	1.0	13.5	10.6	0.9	0.5	96.8	99.6	16.7	17.6	3.85	3.86	94.83	97.88	91.9	98.1
NM	3.0	2.1	10.3	8.5	0.7	0.4	97.5	98.9	18.1	19.2	3.82	3.95	100.42	105.79	97.9	104.7
NC	0.8	0.9	11.7	10.1	1.7	2.1	98.1	97.7	18.5	18.7	4.01	4.28	102.97	105.47	101.1	103.0
OK	3.3	2.8	10.9	9.6	2.0	0.6	95.5	98.0	18.1	19.2	3.93	3.88	101.07	104.40	96.5	102.4
SC	0.5	0.9	11.1	9.6	4.6	5.1	88.1	83.1	17.9	17.9	4.35	4.47	102.58	103.50	90.5	88.5
TN	1.2	1.1	12.6	10.2	0.9	0.5	97.6	99.4	17.2	17.6	4.01	3.98	97.21	99.33	95.5	98.4
TX	2.9	2.3	9.2	8.8	0.7	0.5	97.7	98.6	18.1	19.1	3.93	3.88	100.92	103.98	98.6	102.5
Other	0.9	0.8	13.9	10.1	10.0	0.7	64.9	99.7	16.4	16.6	3.67	3.60	92.83	93.30	65.1	93.0
U.S.	1.8	1.6	11.1	9.4	1.2	0.6	97.1	98.9	17.3	18.3	3.96	4.06	98.04	101.09	95.3	100.2

Table 4. Cottonseed: Average quality and quantity factors, indexes and grades, by specified periods and states, 1987

Month	Quality factors - percent			Quality index	Quantity factors - percent		Quantity index	Average grade	Number of samples
	Foreign matter	Moisture	Free fatty acids		Oil	Ammonia			
				ALABAMA					
Sept.	0.9	9.9	0.5	99.9	17.2	4.12	98.78	98.4	127
Oct.	0.7	9.3	0.5	99.8	17.5	4.24	100.34	100.2	544
Nov.	1.1	9.1	0.7	99.6	17.1	4.12	98.21	97.8	116
Dec.	0.9	9.9	0.5	99.8	17.1	3.88	96.55	96.3	41
Jan.	1.0	9.7	0.4	99.7	17.3	4.23	99.50	99.2	5
Feb.	3.6	10.1	0.4	97.4	15.8	3.90	91.60	89.0	1
Mar. & Later	1.4	8.1	0.5	99.6	17.4	4.41	101.06	100.5	11
Season	0.9	9.5	0.5	99.8	17.3	4.15	99.14	98.9	845
				ARKANSAS					
Sept.	0.7	10.5	0.4	99.8	18.5	4.02	95.95	95.7	857
Oct.	0.8	9.9	0.5	99.8	17.6	4.00	99.51	99.2	2,162
Nov.	1.4	9.7	0.6	99.4	17.2	3.96	97.57	96.9	441
Dec.	1.1	10.9	1.0	99.1	17.0	3.88	96.46	95.5	169
Jan.	1.5	10.7	0.7	98.9	17.0	3.85	96.02	95.0	24
Feb.	0.7	9.0	0.6	100.0	17.3	4.10	98.78	98.7	35
Mar. & Later	0.4	9.3	0.4	100.0	18.7	4.07	104.22	104.0	11
Season	0.9	10.1	0.5	99.7	17.7	3.99	98.25	97.9	3,699
				GEORGIA					
Sept.	0.2	11.9	10.2	65.9	17.7	4.20	101.00	65.3	2
Oct.	0.5	8.2	2.0	96.4	18.4	4.28	104.34	100.9	161
Nov.	1.2	8.3	0.9	98.6	18.7	4.03	103.83	102.3	32
Dec.	0.7	10.1	0.7	99.9	17.7	3.87	99.00	99.0	5
Jan.	0.8	10.4	0.4	100.0	16.7	3.62	93.32	93.3	2
Feb.	-	-	-	-	-	-	-	-	-
Mar. & Later	-	-	-	-	-	-	-	-	-
Season	0.8	8.7	1.7	96.6	18.3	4.11	103.02	99.6	202

Table 4. Cottonseed: Average quality and quantity factors, indexes and grades, by specified periods and states, 1987 (Continued)

Month	Quality factors - percent: Foreign matter	Moisture	Free fatty acids	Quality index	Quantity factors - percent: Oil	Ammonia	Quantity index	Average grade	Number of samples
				LOUISANA					
Sept.	0.6	10.8	0.7	99.6	17.1	3.96	96.93	96.5	400
Oct.	0.8	9.0	0.8	99.8	17.5	3.88	98.45	98.1	1,495
Nov.	1.0	9.8	0.9	99.8	17.4	3.65	97.04	96.8	348
Dec.	1.5	10.1	0.9	98.8	16.8	3.84	95.39	94.4	52
Jan.	0.8	9.4	1.7	97.1	17.2	4.06	98.25	95.6	46
Feb.	0.7	9.0	0.8	100.0	18.1	3.98	101.21	101.2	122
Mar. & Later	0.5	8.6	0.6	100.0	18.5	3.99	102.75	102.8	64
Season	0.9	9.4	0.8	99.6	17.5	3.87	98.08	97.6	2,527
				MISSISSIPPI					
Sept.	0.7	10.6	0.6	99.5	17.0	4.01	96.94	95.9	1,551
Oct.	0.9	9.0	0.5	99.9	17.6	5.11	99.45	101.7	3,879
Nov.	1.3	9.3	0.6	98.4	19.2	3.96	98.41	98.0	841
Dec.	1.3	10.2	0.8	99.6	16.7	3.88	95.21	94.8	155
Jan.	1.6	10.7	1.0	98.8	16.6	3.92	95.01	93.9	13
Feb.	1.1	10.9	0.6	99.9	17.7	3.77	98.22	98.0	23
Mar. & Later	0.6	8.5	1.4	100.0	17.2	3.59	95.34	95.5	15
Season	0.9	9.5	0.5	99.6	17.6	4.65	98.55	99.5	6,477
				MISSOURI					
Sept.	0.8	10.1	0.4	99.8	17.5	3.83	98.01	97.9	439
Oct.	0.9	11.2	0.4	99.7	17.7	3.87	99.32	99.1	721
Nov.	1.4	10.0	0.5	99.4	17.2	3.89	92.52	96.7	139
Dec.	1.4	10.2	0.6	99.5	17.5	3.80	98.21	97.7	20
Jan.	4.4	9.4	0.5	96.7	17.2	3.83	96.78	93.5	2
Feb.	2.9	11.8	1.2	97.0	16.5	3.73	93.53	91.0	3
Mar. & Later	1.0	9.5	0.6	99.9	17.9	3.94	100.16	100.0	4
Season	1.0	10.6	0.5	99.6	17.6	3.86	97.88	98.1	1,328

Table 4. Cottonseed: Average quality and quantity factors, indexes and grades, by specified periods and states, 1987 (Continued)

Month	Quality factors - percent: Foreign matter	Moisture	Free fatty acids	Quality index	Quantity factors - percent: Oil	Ammonia	Quantity index	Average grade	Number of samples
				NEW MEXICO					
Sept.	-	-	-	-	-	-	-	-	-
Oct.	0.8	8.7	0.3	100.0	19.8	4.14	108.86	108.9	7
Nov.	1.9	8.5	0.4	99.0	19.5	3.98	107.01	106.0	35
Dec.	2.4	8.1	0.4	98.6	18.7	3.95	105.28	103.8	36
Jan.	2.6	9.0	0.5	98.5	18.8	3.86	103.44	102.0	16
Feb.	2.4	8.0	0.6	98.6	19.3	3.65	103.99	102.7	3
Mar. & Later	1.5	8.5	0.4	99.5	18.5	3.84	102.04	101.5	12
Season	2.1	8.5	0.4	98.9	19.2	3.95	105.79	104.7	109
				NORTH CAROLINA					
Sept.	-	-	-	-	-	-	-	-	-
Oct.	0.3	10.4	2.4	97.4	18.3	4.34	104.26	101.4	68
Nov.	0.8	9.0	1.6	99.2	18.8	4.39	106.54	105.8	45
Dec.	1.8	10.1	2.0	96.9	18.8	4.13	105.13	101.9	9
Jan.	1.5	11.0	1.3	99.6	21.4	4.00	114.60	114.0	2
Feb.	-	-	-	-	-	-	-	-	-
Mar. & Later	-	-	-	-	-	-	-	-	-
Season	0.9	10.1	2.1	97.7	18.7	4.28	105.47	103.0	124
				OKLAHOMA					
Sept.	-	-	-	-	-	-	-	-	-
Oct.	1.0	9.0	0.8	98.8	19.7	3.77	99.08	105.0	54
Nov.	2.4	9.8	0.4	98.6	19.0	3.93	104.42	102.9	324
Dec.	3.0	9.5	0.5	97.9	19.2	3.91	105.29	101.4	575
Jan.	3.3	10.6	0.7	97.5	19.6	3.79	106.08	103.4	97
Feb.	3.4	9.2	0.7	97.6	19.2	3.86	105.07	102.5	131
Mar. & Later	4.5	9.7	0.8	96.3	19.3	3.78	104.85	101.1	83
Season	2.8	9.6	0.6	98.0	19.2	3.88	104.40	102.4	1,264
				SOUTH CAROLINA					
Sept.	0.4	10.7	8.3	74.2	17.7	4.69	103.91	77.5	22
Oct.	0.3	9.6	5.4	84.2	17.8	4.51	103.24	86.9	177
Nov.	1.1	8.7	3.2	83.0	18.1	4.50	104.18	95.7	23
Dec.	1.6	10.1	5.8	83.4	18.0	4.37	103.16	86.0	11
Jan.	-	-	-	-	-	-	-	-	-
Feb.	-	-	-	-	-	-	-	-	-
Mar. & Later	-	-	-	-	-	-	-	-	-
Season	0.9	9.6	5.1	83.1	17.9	4.47	103.50	88.5	233

Table 4. Cottonseed: Average quality and quantity factors, indexes and grades, by specified periods and states, 1987 (Continued)

Month	Quality factors - percent			Quality index	Quantity factors - percent		Quantity index	Average grade	Number of samples
	Foreign matter	Moisture	Free fatty acids		Oil	Ammonia			
				TENNESSEE					
Sept.	0.7	11.4	0.5	99.6	17.1	3.91	96.71	96.3	580
Oct.	0.9	10.0	0.4	99.7	17.9	4.00	100.37	100.0	1,369
Nov.	1.8	9.4	0.6	99.1	17.6	4.02	99.71	96.8	464
Dec.	2.3	10.3	0.8	98.6	17.6	4.02	99.45	98.1	83
Jan.	2.5	11.4	1.2	97.7	17.4	3.82	97.53	95.2	6
Feb.	-	-	-	-	-	-	-	-	-
Mar. & Later	-	-	-	-	-	-	-	-	-
Season	1.1	10.2	0.5	99.4	17.6	3.98	99.33	98.4	2,502
				TEXAS					
Aug.	1.1	9.3	0.5	99.5	17.9	3.92	100.23	99.8	1,582
Sept.	1.2	10.0	0.6	99.3	17.6	3.92	98.95	98.3	1,215
Oct.	1.3	9.4	0.6	99.4	17.9	3.87	100.16	99.4	760
Nov.	2.2	8.8	0.7	98.7	20.5	3.91	105.87	104.6	2,656
Dec.	2.9	7.6	0.4	98.2	19.5	3.89	106.30	104.4	4,098
Jan.	2.9	9.3	0.4	98.0	19.1	3.82	104.34	102.3	2,554
Feb.	2.7	8.9	0.5	98.2	19.0	3.79	103.81	102.0	843
Mar. & Later	3.2	8.9	0.8	97.5	18.7	3.83	102.74	100.3	141
Season	2.3	8.8	0.5	98.6	19.1	3.88	103.98	102.5	13,849
				OTHER STATES					
Sept.	-	-	-	-	-	-	-	-	-
Oct.	0.6	8.3	0.9	100.0	16.7	3.80	94.55	94.6	14
Nov.	0.9	9.6	0.6	99.7	17.1	3.56	95.34	95.0	16
Dec.	0.8	11.7	0.6	99.5	16.4	3.50	91.43	90.9	19
Jan.	1.6	11.9	0.6	99.4	15.1	3.45	86.07	85.5	2
Feb.	-	-	-	-	-	-	-	-	-
Mar. & Later	-	-	-	-	-	-	-	-	-
Season	0.8	10.1	0.7	99.7	16.6	3.60	93.30	93.0	51