

COTTONSEED QUALITY

CROP OF 1993

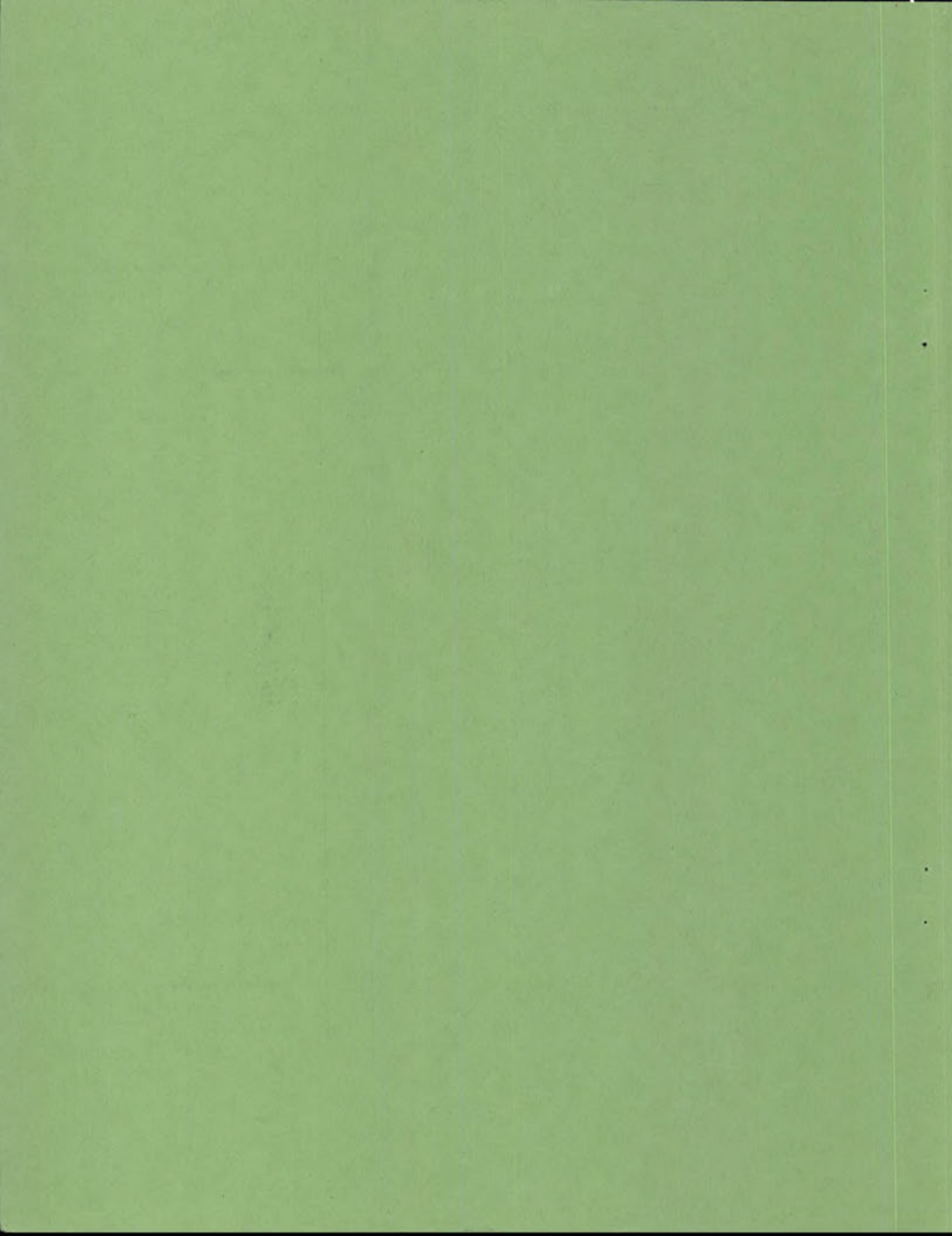


UNITED STATES DEPARTMENT OF AGRICULTURE

Agricultural Marketing Service Cotton Division

Memphis, Tennessee

April 1994



Cottonseed Quality - 1993 Crop

Cottonseed from the 1993 crop averaged higher in grade than the previous year, according to the Cotton Division, Agricultural Marketing Service, USDA. The average grade was 97.4, up from 96.3 a year earlier, but down from 99.1 in 1991. Foreign matter content was 1.5 percent in 1993. This was up from 1.3 in 1992, but down slightly from 1.6 in 1991. Average moisture content was 9.7 percent against 10.5 and 10.2 percent in 1992 and 1991, respectively. The percentage of free fatty acids in cottonseed from the 1993 crop averaged 0.6, down from 0.8 last year and two years ago. The quality index was 98.3 against 99.3 in 1992 and 98.6 in 1991. Average oil content of cottonseed was 17.7 percent, up slightly from 17.5 in 1992, but down from 18.0 in 1991. Ammonia content averaged 3.85 against 3.68 last year and 3.92 two years ago. Average quantity index at 98.53 compares with 97.28 in 1992 and 100.45 in 1991.

Data from grade certificates covering 21,867 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 1993-crop cottonseed production was 6.27 million tons, according to the Agricultural Statistics Board, National Agricultural Statistics Service, USDA. This was up from 6.23 million tons produced in 1992, but down from 6.93 million tons in 1991.

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 1978-1993

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			
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
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

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						Quality factors						Grade	
	FFA 3/ Total: Reduction		FM 4/ Total: Reduction		H2O 5/ Total: Reduction		Oil Total: Product 7/		NH3 8/ Total: Product 7/		Sum of products			Adjustment factors
Pct.	Units	Pct.	Units	Pct.	Units	Pct.	Units	Pct.	Units	Pct.	Units	Pct.	Units	
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	102.5
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	101.0
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	93.5
4	1.9	0.4	1.0	0.0	12.0	0.0	0.4	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	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	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	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	98.8	4.15	24.90	123.70	-10	113.70	108.0 AP
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	61.5
10	1.8	0.0	10.1	9.1	12.0	0.0	42.8	57.2	4.13	24.78	92.38	+5	97.38	88.5
11	1.8	0.0	1.0	0.0	20.1	8.1	9.1	67.6	3.80	22.80	98.00	+5	103.00	94.5
12	1.8	0.0	15.8	14.8	11.1	0.0	8.1	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	65.6	4.32	25.92	91.52	+5	96.52	75.5
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	86*
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	86*

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, 1992 and 1993 crops

State	Quality factors - percent				Quality factors - percent		Quality factors - percent		Quantity index	Average grade				
	Foreign Matter		Moisture		Free fatty acids		Quality index	Oil			Ammonia			
	1992	1993	1992	1993	1992	1993						1992	1993	
AL	0.7	0.9	11.5	10.8	1.8	1.9	97.2	17.2	3.69	3.93	98.47	97.52	95.8	95.4
AR	1.0	1.1	10.9	11.7	0.6	1.1	99.3	17.2	3.64	3.65	95.62	90.70	95.1	89.4
GA	0.8	0.3	12.2	11.0	1.0	1.0	99.1	16.9	3.36	4.24	92.66	94.84	91.9	95.0
LA	0.9	0.8	10.9	10.1	1.0	0.7	99.5	17.6	3.70	3.54	97.59	88.73	97.1	88.1
MS	0.8	0.9	10.9	11.4	1.2	0.9	100.7	17.2	3.67	3.74	95.77	94.59	95.1	93.9
MO	1.0	1.2	11.5	12.6	0.5	1.0	99.3	17.3	3.61	3.72	95.80	93.50	95.2	92.3
MH	1.9	-	9.3	-	0.6	-	99.1	17.4	4.04	-	98.89	-	98.0	-
MC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OK	2.9	2.2	9.8	9.0	0.6	0.3	97.9	18.0	3.83	3.98	100.49	100.16	98.4	98.9
SC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TN	1.0	1.5	12.1	12.3	0.6	1.2	98.9	17.4	3.53	3.70	95.58	95.34	94.6	93.7
TX	2.1	2.0	9.2	8.2	0.5	0.3	98.7	18.0	3.76	4.00	99.80	103.69	98.5	102.5
OTHER	0.6	0.3	13.0	12.6	2.7	3.2	95.3	17.3	3.46	3.63	95.12	97.58	90.6	90.8
U.S.	1.3	1.5	10.5	9.7	0.8	0.6	99.3	17.5	3.68	3.85	97.28	98.53	96.3	97.4

Table 4. Cottonseed: Average quality and quantity factors, indexes and grades, by specified periods and states, 1993

Month	Quality factors - percent			Quality index	Quality factors - percent			Quantity index	Average grade	Number of samples
	Foreign matter	Moisture	Free fatty acids		Oil	Ammonia				
ALABAMA										
Sept. & earlier	-	-	-	-	-	-	-	-	-	-
Oct.	0.8	9.6	2.2	96.1	17.4	4.09	98.90	95.1	181	
Nov.	0.8	11.3	1.8	98.2	16.9	3.85	95.86	94.0	144	
Dec.	1.1	11.3	2.5	96.1	17.3	4.01	98.26	94.3	50	
Jan.	1.2	10.6	1.9	98.8	17.6	3.94	98.86	97.7	99	
Feb.	-	-	-	-	-	-	-	-	-	
Mar. & later	-	-	-	-	-	-	-	-	-	
Season	0.9	10.8	1.9	97.9	17.2	3.93	97.52	95.4	474	
ARKANSAS										
Sept. & earlier	0.9	11.7	0.5	99.7	15.8	3.95	92.08	91.7	129	
Oct.	0.8	11.5	0.6	99.3	16.8	3.84	95.43	94.8	1111	
Nov.	1.1	12.0	1.0	99.0	16.6	3.77	94.15	93.3	908	
Dec.	1.1	12.9	1.7	97.0	15.9	3.74	90.86	88.2	179	
Jan.	2.0	11.6	1.9	96.5	16.4	3.78	93.25	90.0	139	
Feb.	1.1	10.8	0.7	99.9	16.4	3.93	94.18	94.0	13	
Mar. & later	-	-	-	-	-	-	-	-	-	
Season	1.1	11.7	1.1	95.5	16.5	3.65	90.70	89.4	2479	
GEORGIA										
Sept. & earlier	-	-	-	-	-	-	-	-	-	
Oct.	-	-	-	-	-	-	-	-	-	
Nov.	0.3	11.0	1.0	100.0	16.1	4.24	94.84	95.0	10	
Dec.	-	-	-	-	-	-	-	-	-	
Jan.	-	-	-	-	-	-	-	-	-	
Feb.	-	-	-	-	-	-	-	-	-	
Mar. & later	-	-	-	-	-	-	-	-	-	
Season	0.3	11.0	1.0	100.0	16.1	4.24	94.84	95.0	10	
LOUISIANA										
Sept. & earlier	1.1	9.2	0.4	99.7	17.4	3.95	98.24	98.0	98	
Oct.	0.8	10.2	0.5	99.8	17.3	3.89	97.34	97.2	886	
Nov.	0.8	11.0	0.5	99.6	17.3	3.86	97.34	97.0	584	
Dec.	1.2	11.7	1.5	98.3	17.0	3.82	95.84	94.2	59	
Jan.	0.8	11.5	1.3	98.4	16.9	3.89	95.88	94.5	124	
Feb.	1.0	10.1	0.8	99.8	16.8	3.97	96.15	96.0	32	
Mar. & later	1.0	11.0	0.6	99.7	16.7	3.73	94.07	93.7	30	
Season	0.8	10.1	0.7	90.9	15.7	3.54	88.73	88.1	1813	

Table 4. Cottonseed: Average quality and quantity factors, indexes and grades, by specified periods and states, 1993

Month	Quality factors - percent				Quality index	Quality factors - percent			Quantity index	Average grade	Number of samples
	Foreign matter	Moisture	Free fatty acids			Oil	Ammonia				
MISSISSIPPI											
Sept. & earlier	0.4	9.4	0.4		100.0	17.5	3.96		98.77	98.7	260
Oct.	0.8	10.1	0.5		99.8	17.2	3.88		97.36	97.2	2075
Nov.	0.8	11.5	0.7		99.6	16.9	3.78		95.33	95.0	1767
Dec.	1.2	11.0	1.8		98.1	16.5	3.83		93.92	92.2	209
Jan.	1.1	11.9	1.5		98.3	17.1	3.65		93.31	93.7	313
Feb.	-	-	-		-	-	-		-	-	-
Mar. & later	-	-	-		-	-	-		-	-	-
Season	0.9	11.4	0.9		98.4	16.8	3.74		94.59	93.9	4624
MISSOURI											
Sept. & earlier	0.8	12.2	0.4		99.5	15.9	3.76		90.78	90.4	74
Oct.	1.0	12.7	0.8		98.8	16.4	3.72		92.69	91.6	408
Nov.	1.3	12.7	1.1		98.6	16.6	3.73		93.83	92.6	251
Dec.	1.0	11.4	2.2		98.4	17.0	3.75		95.50	94.0	12
Jan.	0.9	12.8	1.3		98.9	16.6	3.62		93.24	92.3	43
Feb.	-	-	-		-	-	-		-	-	-
Mar. & later	-	-	-		-	-	-		-	-	-
Season	1.2	12.6	1.0		98.7	16.6	3.72		93.50	92.3	788
NEW MEXICO											
Sept. & earlier	-	-	-		-	-	-		-	-	-
Oct.	-	-	-		-	-	-		-	-	-
Nov.	-	-	-		-	-	-		-	-	-
Dec.	-	-	-		-	-	-		-	-	-
Jan.	-	-	-		-	-	-		-	-	-
Feb.	-	-	-		-	-	-		-	-	-
Mar. & later	-	-	-		-	-	-		-	-	-
Season	-	-	-		-	-	-		-	-	-
NORTH CAROLINA											
Sept. & earlier	-	-	-		-	-	-		-	-	-
Oct.	-	-	-		-	-	-		-	-	-
Nov.	-	-	-		-	-	-		-	-	-
Dec.	-	-	-		-	-	-		-	-	-
Jan.	-	-	-		-	-	-		-	-	-
Feb.	-	-	-		-	-	-		-	-	-
Mar. & later	-	-	-		-	-	-		-	-	-
Season	-	-	-		-	-	-		-	-	-

Table 4. Cottonseed: Average quality and quantity factors, indexes and grades, by specified periods and states, 1993

Month	Quality factors - percent				Quality index	Quality factors - percent			Quantity index	Average grade	Number of samples
	Foreign matter	Moisture	Free fatty acids	Oil		Oil	Ammonia	Ammonia			
OKLAHOMA											
Sept. & earlier	1.0	11.1	0.3	18.4	100.0	3.53	3.53	99.78	100.0	11	
Oct.	1.9	10.3	0.4	17.9	99.0	3.90	3.90	99.95	98.9	169	
Nov.	1.8	8.8	0.3	17.8	99.1	4.03	4.03	100.28	99.3	286	
Dec.	3.0	8.8	0.3	17.8	98.0	3.96	3.96	99.83	97.8	139	
Jan.	2.6	8.6	0.3	18.0	98.4	3.95	3.95	100.69	99.0	53	
Feb.	-	-	-	-	-	-	-	-	-	-	
Mar. & later	-	-	-	-	-	-	-	-	-	-	
Season	2.2	9.0	0.3	17.8	98.8	3.98	3.98	100.16	98.9	658	
SOUTH CAROLINA											
Sept. & earlier	-	-	-	-	-	-	-	-	-	-	
Oct.	-	-	-	-	-	-	-	-	-	-	
Nov.	-	-	-	-	-	-	-	-	-	-	
Dec.	-	-	-	-	-	-	-	-	-	-	
Jan.	-	-	-	-	-	-	-	-	-	-	
Feb.	-	-	-	-	-	-	-	-	-	-	
Mar. & later	-	-	-	-	-	-	-	-	-	-	
Season	-	-	-	-	-	-	-	-	-	-	
TENNESSEE											
Sept. & earlier	0.7	12.6	0.5	16.0	99.0	3.82	3.82	91.97	91.2	57	
Oct.	0.6	12.7	0.7	17.0	98.9	3.67	3.67	95.04	94.1	488	
Nov.	1.4	12.3	0.9	17.0	98.9	3.70	3.70	95.38	94.4	368	
Dec.	1.5	11.4	2.0	17.5	97.3	3.69	3.69	97.12	94.6	85	
Jan.	2.6	12.8	2.2	16.8	94.6	3.70	3.70	94.46	89.4	78	
Feb.	-	-	-	-	-	-	-	-	-	-	
Mar. & later	-	-	-	-	-	-	-	-	-	-	
Season	1.5	12.3	1.2	17.0	98.2	3.70	3.70	95.34	93.7	1076	
TEXAS											
Sept. & earlier	1.0	9.3	0.4	17.3	99.6	3.80	3.80	96.96	96.8	1617	
Oct.	2.2	8.7	0.3	18.5	98.8	4.01	4.01	103.16	101.8	2160	
Nov.	2.0	8.2	0.3	18.8	101.7	4.00	4.00	104.02	102.9	3261	
Dec.	2.1	8.1	0.3	18.7	98.9	4.01	4.01	103.88	102.7	2052	
Jan.	2.2	8.2	0.4	18.4	96.4	3.93	3.93	102.19	100.7	796	
Feb.	-	-	-	-	-	-	-	-	-	-	
Mar. & later	2.4	8.2	0.3	19.9	98.6	4.11	4.11	109.26	107.5	18	
Season	2.0	8.2	0.3	18.7	100.1	4.00	4.00	103.69	102.5	9904	

Table 4. Cottonseed: Average quality and quantity factors, indexes and grades, by specified periods and states, 1993

Month	Quality factors - percent			Quality index	Quality factors - percent			Quantity index	Average grade	Number of samples
	Foreign matter	Moisture	Free fatty acids		Oil	Ammonia				
Sept. & earlier	-	-	-	-	-	-	-	-	-	-
Oct.	-	-	-	-	-	-	-	-	-	-
Nov.	0.3	12.2	4.0	90.6	18.3	3.60	99.57	90.0	29	
Dec.	0.3	13.4	1.8	98.6	16.6	3.70	93.60	92.5	12	
Jan.	-	-	-	-	-	-	-	-	-	-
Feb.	-	-	-	-	-	-	-	-	-	-
Mar. & later	-	-	-	-	-	-	-	-	-	-
Season	0.3	12.6	3.2	93.3	17.7	3.63	97.58	90.8	41	

OTHER STATES