

Methodology

Precision of Analysis: AOCS Smalley Check Sample Program Analysis, 1985-86

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A summary of average means and standard deviations determined from results of 1981-82 and in some cases earlier Smalley Check Sample analyses were compiled several years ago by Jim Ridlehuber (*JAOCS*, vol. 59, No. 11, pp. 888A-889A). Because of a continuing interest in precision data for analytical methods used to examine products included in the Smalley Check Sample Program, the compilation was expanded to include precision data from analysis of individual samples and updated to provide precision data from the 1985-86 Smalley Committee analyses.

Means, \bar{x} ; reproducibility standard deviation, s_R ; reproducibility relative standard deviation, RSD, %; and

reproducibility value, R, are defined as follows (See *J. Assoc. Off. Anal. Chem.* 71:161-172 (1988):

\bar{x} = mean value for all accepted results for each sample = $\Sigma(x)/n$

s_R = among-laboratories (including within-laboratories) precision = $\left(\frac{\Sigma(x-\bar{x})^2}{n-1}\right)^{1/2}$

RSD, % = $(s_R)(100/\bar{x})$

R = the value below which the absolute difference between two single test results, obtained by different operators in different laboratories on identical test material, may be expected to lie with a probability of 95% = $2.83 \cdot s_R$

TABLE 1

Oilseed Meal Series

	Sample	No. of analyses	No. of outliers	Mean	s_R	RSD %	R
Soybean							
Moisture ^a	1	123	3	10.54	0.245	2.33	0.69
Moisture	2	120	8	11.65	0.191	1.64	0.54
Moisture	3	118	4	10.98	0.184	1.68	0.52
Oil ^b	1	118	6	1.39	0.110	7.90	0.31
Oil	2	114	6	1.13	0.133	11.76	0.38
Oil	3	113	0	1.00	0.086	8.60	0.24
Nitrogen ^c	1	122	7	7.73	0.073	0.95	0.21
Nitrogen	2	118	4	7.50	0.058	0.77	0.16
Nitrogen	3	118	7	7.88	0.063	0.80	0.18
Fiber ^d	1	94	4	4.13	0.240	5.81	0.68
Fiber	2	92	6	4.71	0.217	4.61	0.61
Fiber	3	87	4	3.55	0.199	5.60	0.56
Peanut							
Moisture ^a	1	122	6	6.94	0.234	3.37	0.66
Oil ^b	1	121	12	3.97	0.078	1.97	0.22
Nitrogen ^c	1	121	4	7.95	0.081	1.02	0.23
Fiber ^d	1	95	2	8.19	0.464	5.67	1.31
Cottonseed							
Moisture ^a	1	124	9	9.28	0.173	1.86	0.49
Moisture	2	115	3	7.84	0.250	3.19	0.71
Oil ^b	1	120	9	4.49	0.118	2.63	0.33
Oil	2	111	2	3.72	0.187	5.02	0.53
Nitrogen ^c	1	122	11	6.73	0.073	1.08	0.21
Nitrogen	2	115	7	7.09	0.061	0.86	0.17
Fiber ^d	1	95	2	8.19	0.464	5.67	1.31
Fiber	2	88	3	10.50	0.712	6.78	2.02

TABLE 1 (Cont.)

Oilseed Meal Series

	Sample	No. of analyses	No. of outliers	Mean	s_R	RSD %	R
Safflower							
Moisture ^a	1	120	5	5.61	0.181	3.23	0.51
Moisture	2	111	4	3.80	0.186	4.90	0.53
Oil ^b	1	116	7	1.17	0.089	7.63	0.25
Oil	2	107	6	1.52	0.070	4.62	0.20
Nitrogen ^c	1	121	6	4.15	0.063	1.52	0.18
Nitrogen	2	111	4	4.30	0.063	1.46	0.18
Fiber ^d	1	93	2	32.89	1.310	3.98	3.71
Fiber	2	86	6	32.76	1.167	3.56	3.30
Rapeseed							
Moisture ^a	1	119	5	10.97	0.249	2.27	0.71
Oil ^b	1	115	2	2.51	0.159	.34	0.45
Nitrogen ^c	1	119	5	5.94	0.059	0.99	0.17
Fiber ^d	1	91	0	11.18	1.006	9.00	2.85
Concentrate							
Moisture ^a	1	113	7	8.92	0.182	2.04	0.52
Oil ^b	1	109	14	0.43	0.046	10.75	0.13
Nitrogen ^c	1	113	5	10.56	0.092	0.87	0.26
Fiber ^d	1	87	9	3.17	0.207	6.52	0.59

^aMethod (Ba 2-38), %

^bMethod (Ba 3-38), %

^cMethod (Ba 4-38), % NH₃

^dMethod (Ba 6-61), %

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TABLE 2

Cottonseeds							
	Sample	No. of analyses	No. of outliers	Mean	s_R	RSD %	R
FM ^{a,b}	1	20	2	3.78	0.321	8.50	0.91
FM	2	20	0	2.20	0.324	14.78	0.92
FM	3	19	1	1.29	0.183	14.14	0.52
FM	4	19	1	0.42	0.110	26.38	0.31
FM	5	17	0	0.83	0.193	23.28	0.55
FM	6	20	2	4.03	0.278	6.90	0.79
FM	7	20	0	1.19	0.233	19.60	0.66
FM	8	20	1	2.49	0.286	11.49	0.81
FM	9	19	1	1.41	0.080	5.69	0.23
FM	10	20	0	0.54	0.096	17.71	0.27
Moisture ^c	1	20	0	8.14	0.323	3.97	0.91
Moisture	2	20	0	8.31	0.164	1.98	0.46
Moisture	3	19	0	8.48	0.164	1.93	0.46
Moisture	4	19	0	9.43	0.129	1.37	0.37
Moisture	5	17	1	9.83	0.274	2.79	0.78
Moisture	6	20	1	8.24	0.204	2.48	0.58
Moisture	7	20	0	10.80	0.332	3.08	0.94
Moisture	8	20	0	9.32	0.163	1.75	0.46
Moisture	9	19	0	8.12	0.136	1.68	0.39
Moisture	10	20	0	9.20	0.179	1.95	0.51
FFA ^d	1	20	0	0.97	0.248	25.70	0.70
FFA	2	20	1	0.88	0.084	9.50	0.24
FFA	3	19	1	0.93	0.129	13.83	0.37
FFA	4	19	0	0.42	0.077	18.51	0.22
FFA	5	17	0	6.18	0.809	13.10	2.29
FFA	6	20	0	0.85	0.105	12.35	0.30
FFA	7	20	0	1.05	0.147	14.00	0.42
FFA	8	20	0	1.08	0.112	10.42	0.32
FFA	9	19	0	0.56	0.135	23.98	0.32
FFA	10	20	1	0.78	0.107	13.65	0.30
Oil ^e	1	20	1	16.82	0.174	1.04	0.49
Oil	2	20	0	17.72	0.181	1.02	0.51
Oil	3	19	1	16.87	0.168	1.00	0.48
Oil	4	19	2	18.58	0.152	0.82	0.43
Oil	5	17	2	14.83	0.183	1.23	0.52
Oil	6	20	0	16.81	0.288	1.71	0.82
Oil	7	20	1	18.47	0.191	1.03	0.54
Oil	8	20	2	17.62	0.231	1.31	0.65
Oil	9	19	1	18.56	0.201	1.08	0.57
Oil	10	20	1	16.82	0.174	1.04	0.49
Ammonia ^f	1	20	2	3.96	0.037	0.93	0.11
Ammonia	2	20	1	4.00	0.037	0.93	0.11
Ammonia	3	19	1	3.83	0.048	1.25	0.14
Ammonia	4	19	3	3.96	0.027	0.68	0.08
Ammonia	5	17	1	4.07	0.063	1.55	0.18
Ammonia	6	20	1	4.00	0.059	1.48	0.17
Ammonia	7	20	1	3.75	0.041	1.10	0.12
Ammonia	8	20	2	3.77	0.044	1.17	0.13
Ammonia	9	19	1	3.92	0.056	1.43	0.16
Ammonia	10	20	0	3.95	0.046	1.16	0.13
Linters ^{g,h}	1	5	0	11.38	0.610	5.36	1.73
Linters	2	5	0	9.68	0.444	4.59	1.26
Linters	3	4	0	13.28	0.789	5.94	2.23
Linters	4	4	0	10.48	0.457	4.36	1.29
Linters	5	4	0	13.03	0.532	4.08	1.51
Linters	6	5	0	10.50	1.235	11.76	3.50

TABLE 2 (Cont.)

Cottonseeds							
	Sample	No. of analyses	No. of outliers	Mean	s_R	RSD %	R
Linters	7	4	0	11.80	0.408	3.46	1.13
Linters	8	4	0	12.70	0.183	1.43	0.52
Linters	9	4	0	10.80	0.294	2.72	0.83
Linters	10	5	0	13.32	0.335	2.52	0.95
^a Foreign matter							
^b Method (Aa 2-38), %							
^c Method (Aa 3-38), %							
^d Method (Aa 6-38), % as oleic							
^e Method (Aa 4-38), %							
^f Method (Aa 5-38), % NH ₃							
^g Grade calculations N.C.P.A. Rule 116.							
^h Method (Aa 7-55), %							

TABLE 3

Soybeans							
	Sample	No. of analyses	No. of outliers	Mean	s_R	RSD %	R
Moisture ^a	1	51	5	12.98	0.194	1.50	0.55
Moisture	2	51	2	8.71	0.249	2.86	0.71
Moisture	3	55	2	9.46	0.241	2.55	0.68
Moisture	4	51	0	9.19	0.275	2.99	0.78
Moisture	5	50	2	10.99	0.161	1.47	0.46
Moisture	6	52	1	10.85	0.287	2.64	0.81
Moisture	7	56	3	12.10	0.325	2.69	0.92
Moisture	8	61	1	10.32	0.283	2.74	0.80
Moisture	9	57	1	8.31	0.280	3.37	0.79
Moisture	10	58	1	9.67	0.230	2.38	0.65
Oil ^b	1	52	2	18.78	0.486	2.59	1.38
Oil	2	51	2	18.37	0.542	2.95	1.53
Oil	3	55	3	19.43	0.416	2.44	1.18
Oil	4	50	6	17.38	0.241	1.39	0.68
Oil	5	49	5	19.93	0.312	1.57	0.88
Oil	6	51	2	19.93	0.490	2.46	1.39
Oil	7	56	3	18.48	0.457	2.47	1.29
Oil	8	60	3	18.38	0.391	2.13	1.11
Oil	9	56	1	19.39	0.484	2.50	1.37
Oil	10	57	1	18.45	0.398	2.16	1.13
Ammonia ^c	1	53	2	6.75	0.095	1.41	0.27
Ammonia	2	54	8	6.87	0.063	0.92	0.18
Ammonia	3	55	2	6.84	0.073	1.07	0.21
Ammonia	4	51	3	7.35	0.109	1.48	0.31
Ammonia	5	50	6	6.85	0.080	1.17	0.23
Ammonia	6	52	2	6.86	0.086	1.25	0.24
Ammonia	7	57	7	7.28	0.098	1.35	0.28
Ammonia	8	61	4	7.29	0.084	1.15	0.24
Ammonia	9	56	1	6.58	0.100	1.52	0.28
Ammonia	10	57	5	7.30	0.083	1.14	0.24
Fiber ^d	1	13	1	4.98	0.672	13.50	1.90
Fiber	2	12	0	5.29	1.027	19.40	2.91
Fiber	3	13	0	5.06	0.788	15.57	2.23
Fiber	4	13	1	5.42	0.437	8.06	1.24
Fiber	5	12	0	5.30	0.232	4.38	0.66
Fiber	6	11	0	5.36	0.512	9.55	1.45
Fiber	7	14	2	5.14	0.338	6.58	0.96

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TABLE 3 (Cont.)

Soybeans							
	Sample	No. of analyses	No. of outliers	Mean	s _R	RSD %	R
Fiber	8	17	0	5.69	1.579	27.73	4.47
Fiber	9	17	1	5.06	0.515	10.17	1.46
Fiber	10	15	1	5.53	0.638	11.54	1.81

^aMethod (Ac 2-41), %^bMethod (Ac 3-44), %^cMethod (Ac 4-41), % NH₃^dMethod (Ba 6-84), %

TABLE 4

Peanuts							
	Sample	No. of analyses	No. of outliers	Mean	s _R	RSD %	R
FM ^{a,b}	1	21	3	0.00	0.000	0.00	0.00
FM	2	20	1	0.00	0.000	0.00	0.00
FM	3	21	2	0.00	0.000	0.00	0.00
FM	4	20	1	0.00	0.000	0.00	0.00
FM	5	18	0	0.00	0.000	0.00	0.00
FM	6	19	0	0.00	0.000	0.00	0.00
FM	7	18	0	0.00	0.000	0.00	0.00
Moisture ^c	1	21	0	6.10	0.138	2.26	0.39
Moisture	2	20	3	6.54	0.113	1.73	0.32
Moisture	3	21	1	6.23	0.203	3.26	0.57
Moisture	4	20	2	6.34	0.134	2.11	0.38
Moisture	5	19	0	6.40	0.203	3.17	0.57
Moisture	6	19	0	6.80	0.371	5.46	1.05
Moisture	7	19	1	6.14	0.299	4.87	0.85
FFA ^d	1	21	0	0.78	0.109	14.05	0.31
FFA	2	20	0	0.78	0.313	40.39	0.89
FFA	3	21	1	0.80	0.098	12.25	0.28
FFA	4	20	0	0.84	0.146	17.44	0.41
FFA	5	19	3	1.01	0.146	14.41	0.41
FFA	6	19	0	0.88	0.212	24.12	0.60
FFA	7	19	1	1.01	0.164	16.22	0.46
Oil ^e	1	19	3	48.15	0.428	0.89	1.21
Oil	2	18	2	46.16	0.377	0.82	1.07
Oil	3	19	2	47.71	0.367	0.77	1.04
Oil	4	18	1	47.78	0.325	0.68	0.92
Oil	5	17	0	47.85	0.408	0.85	1.15
Oil	6	17	0	45.64	0.567	1.24	1.60
Oil	7	17	2	47.89	0.285	0.60	0.81
Ammonia ^f	1	17	0	5.65	0.058	1.03	0.16
Ammonia	2	17	1	5.71	0.044	0.77	0.12
Ammonia	3	17	0	5.65	0.040	0.71	0.11
Ammonia	4	17	1	5.68	0.052	0.92	0.15
Ammonia	5	17	1	5.69	0.037	0.65	0.10
Ammonia	6	17	0	5.78	0.080	1.39	0.23
Ammonia	7	17	0	5.66	0.062	1.09	0.18

^aForeign matter^bMethod (Ab 1-49), %^cMethod (Ab 2-49), %^dMethod (Ab 5-49), % as oleic^eMethod (Ab 3-49), %^fMethod (Ab 4-50), % NH₃

TABLE 5

Sunflower							
	Sample	No. of analyses	No. of outliers	Mean	s _R	RSD %	R
FM ^{a,b}	1	21	0	4.23	0.788	18.62	2.23
FM	2	20	0	5.48	1.009	18.43	2.86
FM	3	22	0	5.41	1.044	19.28	2.94
FM	4	21	0	5.72	1.103	19.27	3.12
FM	5	19	0	3.30	0.690	20.91	1.95
FM	6	21	0	6.20	1.032	16.66	2.92
FM	7	22	0	4.07	0.747	18.34	2.11
FM	8	22	0	4.92	0.779	15.82	2.20
Moisture ^c	1	22	1	6.91	0.230	3.33	0.65
Moisture	2	21	0	7.02	0.275	3.92	0.78
Moisture	3	24	0	7.09	0.532	7.51	1.51
Moisture	4	22	1	7.63	0.259	3.39	0.71
Moisture	5	22	0	8.66	0.543	6.27	1.54
Moisture	6	23	3	5.46	0.147	2.71	0.42
Moisture	7	24	1	6.35	0.176	2.77	0.50
Moisture	8	24	2	5.55	0.138	2.49	0.39
Oil, clean ^d	1	20	1	39.95	0.478	1.20	1.35
Oil, clean	2	19	0	43.08	0.487	1.13	1.38
Oil, clean	3	22	1	42.55	0.540	1.27	1.53
Oil, clean	4	20	2	42.18	0.338	0.80	0.96
Oil, clean	5	20	2	28.42	0.654	2.30	1.85
Oil, clean	6	21	1	43.28	0.491	1.13	1.39
Oil, clean	7	22	0	42.64	0.803	1.88	2.27
Oil, clean	8	22	0	43.43	0.700	1.61	1.98
Oil, as is ^d	1	20	0	38.84	0.380	0.98	1.08
Oil, as is	2	19	0	41.31	0.570	1.38	1.61
Oil, as is	3	22	1	40.72	0.593	1.46	1.68
Oil, as is	4	20	1	40.21	0.401	1.00	1.13
Oil, as is	5	20	0	27.52	0.810	2.94	2.29
Oil, as is	6	21	2	41.30	0.543	1.31	1.54
Oil, as is	7	22	1	41.49	0.422	1.02	1.19
Oil, as is	8	22	0	41.92	0.730	1.74	2.06
Oil, NMR ^e	1	5	0	40.27	0.315	0.78	0.89
Oil, NMR	2	5	0	43.47	0.414	0.95	1.17
Oil, NMR	3	6	0	43.57	1.001	2.30	2.83
Oil, NMR	4	5	0	42.61	0.326	0.77	0.92
Oil, NMR	5	5	0	28.60	1.101	3.85	3.12
Oil, NMR	6	5	0	43.96	0.203	0.46	0.57
Oil, NMR	7	6	0	43.79	0.757	1.73	2.14
Oil, NMR	8	6	0	44.16	0.504	1.14	1.43
Protein/ Protein	1	15	0	20.58	0.527	2.56	1.49
Protein	2	14	0	18.32	0.504	2.75	1.43
Protein	3	18	0	17.93	0.439	2.45	1.24
Protein	4	16	0	19.57	0.870	4.45	2.46
Protein	5	15	0	20.03	0.706	3.52	2.00
Protein	6	16	0	19.13	0.485	2.54	1.37
Protein	7	17	0	19.08	0.549	2.88	1.55
Protein	8	17	2	18.43	0.200	1.09	0.57

^aForeign matter^bMethod (Ai 1-80), %^cMethod (Ai 2-75), %^dMethod (Ai 3-75), %^eMethod not specified.^fMethod (Ai 4-75), % protein

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TABLE 6

Safflower Seed—Rapeseed

	Sample	No. of analyses	No. of outliers	Mean	s_R	RSD %	R
Moisture ^a	1	11	1	6.81	0.061	0.90	0.17
Moisture	2	11	0	5.30	0.149	2.81	0.42
Moisture	3	11	1	6.09	0.120	1.97	0.34
Moisture	4	11	1	6.90	0.124	1.80	0.35
Moisture	5	11	0	5.59	0.152	2.72	0.43
Moisture	6	11	0	5.86	0.121	2.07	0.34
Moisture	7	11	0	8.48	0.166	1.96	0.47
Moisture	8	10	2	6.10	0.032	0.53	0.09
Oil ^b	1	11	0	42.24	0.817	1.93	2.31
Oil	2	11	1	43.59	0.376	0.86	1.06
Oil	3	11	1	42.99	0.241	0.56	0.68
Oil	4	11	1	41.92	0.765	1.83	2.17
Oil	5	11	1	42.99	0.650	1.51	1.84
Oil	6	11	0	42.42	0.264	0.62	0.75
Oil	7	11	1	42.55	0.483	1.14	1.37
Oil	8	10	0	41.31	0.449	1.09	1.27
N-Am-P ^{c,d}	1	11	0	3.31	0.107	3.23	0.30
N-Am-P	2	11	0	2.21	0.047	2.13	0.13
N-Am-P	3	11	1	2.23	0.029	1.30	0.08
N-Am-P	4	11	1	3.38	0.103	3.05	0.29
N-Am-P	5	11	0	2.27	0.037	1.63	0.11
N-Am-P	6	11	1	2.29	0.103	4.50	0.29
N-Am-P	7	11	0	3.32	0.046	1.39	0.13
N-Am-P	8	10	0	2.38	0.056	2.35	0.16

^aMethod (Ai 2-75) or (NIOP), %^bMethod (Ai 3-75) or (NIOP), %^c(% Nitrogen)^dMethod (Ai 4-75) or (NIOP)

TABLE 7

Soybean Oil, Crude

	Sample	No. of analyses	No. of outliers	Mean	s_R	RSD %	R
FFA ^a	1	52	2	0.96	0.070	7.32	0.20
FFA	2	52	0	0.83	0.080	9.65	0.23
FFA	3	50	0	0.74	0.096	12.92	0.27
FFA	4	47	0	0.71	0.077	10.80	0.22
Neutral oil ^b	1	53	2	97.37	0.119	0.12	0.34
Neutral oil	2	52	1	97.68	0.110	0.11	0.31
Neutral oil	3	50	6	97.50	0.125	0.13	0.35
Neutral oil	4	47	5	97.55	0.068	0.07	0.19
Bleached clr ^c	1	43	1	1.73	0.282	16.31	0.80
Bleached clr	2	43	3	1.71	0.199	11.65	0.56
Bleached clr	3	42	2	1.60	0.249	15.61	0.71
Bleached clr	4	40	1	1.57	0.219	13.91	0.62

^aMethod (Ca 5a-40)^bMethod (Ca 9f-57)^cMethod (Cc 8e-63)

TABLE 8

Cottonseed Oil, Crude

	Sample	No. of analyses	No. of outliers	Mean	s_R	RSD %	R
FFA ^a	1	34	1	6.96	0.251	3.61	0.71
FFA	2	33	2	4.17	0.194	4.66	0.55
FFA	3	34	0	4.02	0.158	3.94	0.45
FFA	4	32	0	5.53	0.179	3.24	0.51
Refining loss ^b	1	34	1	22.05	1.244	5.64	3.51
Refining loss	2	33	0	15.41	0.652	4.23	1.85
Refining loss	3	34	0	16.08	1.692	10.52	4.79
Refining loss	4	32	1	17.55	0.661	3.77	1.87
Red color ^c	1	34	1	11.69	1.436	12.29	4.06
Red color	2	33	1	7.84	0.714	9.10	2.21
Red color	3	34	1	6.88	0.663	9.64	1.88
Red color	4	32	1	8.63	0.998	11.56	2.82
Bleached clr ^{d,e}	1	31	0	7.24	1.138	15.73	3.22
Bleached clr	2	30	0	4.35	0.683	15.71	1.93
Bleached clr	3	32	2	3.63	0.368	10.13	1.04
Bleached clr	4	29	0	5.01	0.658	13.14	1.86

^aMethod (Ca 5a-40), % as oleic^bMethod (Ca 9a-52), %^c(Method (Cc 13b-45), AOCS—Tintometer color scale^dRed^eMethod (Cc 8a-52), AOCS—Tintometer color scale

TABLE 9

Fish Meal

	Sample	No. of analyses	No. of outliers	Mean	s_R	RSD %	R
Crude protein ^a	1	31	1	63.71	0.577	0.91	1.63
Crude protein	2	30	0	62.30	0.779	1.25	2.20
Crude protein	3	32	1	61.47	0.507	0.82	1.43
Crude protein	4	27	1	61.45	0.562	0.91	1.59
Crude protein	5	24	1	61.86	0.458	0.74	1.30
Crude protein	6	30	0	63.19	0.670	1.06	1.90
Crude protein	7	30	1	63.29	0.448	0.71	1.36
Crude protein	8	27	2	61.49	0.507	0.82	1.43
Moisture ^b	1	31	0	8.28	0.597	6.97	1.69
Moisture	2	30	0	8.15	0.673	8.26	1.90
Moisture	3	30	1	8.07	0.716	8.88	2.03
Moisture	4	26	0	7.32	0.781	10.68	2.21
Moisture	5	23	0	6.89	0.357	5.18	1.01
Moisture	6	29	0	7.87	0.340	4.32	0.96
Moisture	7	29	1	7.81	0.516	6.61	1.46
Moisture	8	26	0	7.29	0.534	7.32	1.51
Oil, PET ether ^c	1	30	3	9.14	0.185	2.02	0.52
Oil, PET ether	2	29	0	9.70	0.314	3.24	0.89
Oil, PET ether	3	29	0	10.50	0.404	3.85	1.14
Oil, PET ether	4	25	0	11.59	0.388	3.35	1.10
Oil, PET ether	5	23	1	10.54	0.189	1.79	0.53
Oil, PET ether	6	28	2	9.39	0.268	2.86	0.76
Oil, PET ether	7	26	1	9.55	0.240	2.51	0.68
Oil, PET ether	8	25	1	10.99	0.301	2.74	0.85

Methodology

TABLE 9 (Cont'd)

Fish Meal							
	Sample	No. of analyses	No. of outliers	Mean	s _R	RSD %	R
Ash ^d	1	29	1	18.56	0.411	2.21	1.16
Ash	2	29	0	18.91	0.394	2.08	1.12
Ash	3	30	0	19.35	0.284	1.47	0.80
Ash	4	25	0	19.03	0.391	2.05	1.11
Ash	5	23	0	19.21	0.363	1.89	1.03
Ash	6	28	0	18.61	0.247	1.33	0.69
Ash	7	28	0	18.14	0.378	2.08	1.07
Ash	8	25	2	19.17	0.158	0.82	0.45
Pepsin digest. ^e	1	22	0	95.05	1.769	1.86	5.01
Pepsin digest.	2	23	0	93.97	1.404	1.49	3.97
Pepsin digest.	3	23	1	94.96	1.410	1.48	3.99
Pepsin digest.	4	17	0	94.68	1.197	1.26	3.39
Pepsin digest.	5	15	0	92.73	0.756	0.82	2.14
Pepsin digest.	6	19	0	94.90	0.933	0.98	2.64
Pepsin digest.	7	21	0	93.64	0.991	1.06	2.80
Pepsin digest.	8	18	0	93.63	1.182	1.26	3.35
Salt	1	28	3	1.62	0.104	6.42	0.29
Salt	2	29	1	1.54	0.183	11.91	0.52
Salt	3	28	0	1.33	0.148	11.17	0.42
Salt	4	25	2	1.50	0.135	9.00	0.38
Salt	5	21	1	1.42	0.124	8.73	0.35
Salt	6	26	0	1.45	0.175	12.04	0.50
Salt	7	26	1	1.30	0.195	14.95	0.55
Salt	8	24	1	1.30	0.161	12.42	0.46
Sand	1	19	0	1.32	0.343	26.08	0.97
Sand	2	19	0	1.37	0.221	16.08	0.63
Sand	3	19	0	1.75	0.233	13.34	0.66
Sand	4	17	0	2.00	0.284	14.21	0.80
Sand	5	15	0	1.74	0.236	13.53	0.67
Sand	6	16	0	1.46	0.226	15.44	0.64
Sand	7	17	0	1.44	0.281	19.54	0.80
Sand	8	15	0	1.67	0.204	12.23	0.58

^aMethod (AOAC[1984]2.057), % protein

^bMethod (Ba 2-38), %

^cMethod (Ba 3-38), %

^dMethod (AOAC[1984]7.009), % ash

^eMethod (AOAC[1984]7.053)

TABLE 10 (Cont'd)

Edible Fat							
	Sample	No. of analyses	No. of outliers	Mean	s _R	RSD %	R
α-Mono ^d	1	—	—	—	—	—	—
α-Mono	2	—	—	—	—	—	—
α-Mono	3	44	4	0.082	0.039	47.56	0.11
α-Mono	4	49	6	2.61	0.269	10.32	0.76
α-Mono	5	—	—	—	—	—	—
Wiley M.P. ^e	1	14	0	31.41	4.140	13.18	11.72
Wiley M.P.	2	54	4	41.58	1.982	4.77	5.61
Wiley M.P.	3	—	—	—	—	—	—
Wiley M.P.	4	56	2	46.09	1.393	3.02	3.94
Wiley M.P.	5	57	2	40.29	0.924	2.29	2.62
Capillary M.P. ^f	1	56	3	33.60	2.847	8.47	8.06
Capillary M.P.	2	57	3	42.88	3.349	7.81	9.48
Capillary M.P.	3	—	—	—	—	—	—
Capillary M.P.	4	54	2	48.79	2.658	5.45	7.52
Capillary M.P.	5	54	2	41.23	1.480	3.59	4.19
CP ^g	1	—	—	—	—	—	—
CP	2	44	3	29.02	0.812	2.80	2.30
CP	3	46	2	38.16	1.695	4.44	4.80
CP	4	41	3	33.87	0.910	2.69	2.58
CP	5	40	3	28.74	0.756	2.63	2.14
SFI 10.0 C ^h	1	51	2	9.47	0.523	5.52	1.48
SFI 10.0 C	2	50	0	35.22	1.655	4.70	4.68
SFI 10.0 C	3	—	—	—	—	—	—
SFI 10.0 C	4	50	1	17.08	0.633	3.71	1.79
SFI 10.0 C	5	50	1	34.22	0.936	2.74	2.65
SFI 21.1 C ^h	1	51	0	5.36	0.437	8.16	1.24
SFI 21.1 C	2	50	2	15.63	0.640	4.09	1.81
SFI 21.1 C	3	—	—	—	—	—	—
SFI 21.1 C	4	50	2	14.04	0.549	3.92	1.55
SFI 21.1 C	5	50	1	19.72	0.666	3.38	1.89
SFI 26.7 C ^h	1	51	0	3.53	0.376	10.66	1.06
SFI 26.7 C	2	49	1	12.93	0.733	5.67	2.07
SFI 26.7 C	3	—	—	—	—	—	—
SFI 26.7 C	4	49	2	13.36	0.421	3.15	1.19
SFI 26.7 C	5	49	0	15.45	0.636	4.12	1.80
SFI 33.3 C ^h	1	51	0	1.04	0.405	38.79	1.15
SFI 33.3 C	2	49	0	9.89	0.433	4.38	1.23
SFI 33.3 C	3	—	—	—	—	—	—
SFI 33.3 C	4	50	2	10.37	0.357	3.44	1.01
SFI 33.3 C	5	50	1	7.33	0.439	5.99	1.24
SFI 37.8 C ^h	1	51	6	0.09	0.121	140.70	0.34
SFI 37.8 C	2	50	3	7.63	0.515	6.75	1.46
SFI 37.8 C	3	—	—	—	—	—	—
SFI 37.8 C	4	47	0	7.62	0.622	8.16	1.76
SFI 37.8 C	5	49	1	2.88	0.660	22.96	1.87
PV ⁱ	1	70	6	0.61	0.247	40.83	0.70
PV	2	71	2	2.17	0.874	40.33	2.47
PV	3	70	1	2.40	0.599	24.97	1.70
PV	4	72	4	0.64	0.289	45.37	0.82
PV	5	72	3	0.57	0.287	50.53	0.81

TABLE 10

Edible fat							
	Sample	No. of analyses	No. of outliers	Mean	s _R	RSD %	R
FFA ^a	1	70	6	0.024	0.008	33.33	0.023
FFA	2	70	4	0.036	0.009	23.08	0.025
FFA	3	70	5	0.076	0.009	11.84	0.025
FFA	4	72	3	0.032	0.009	28.13	0.025
FFA	5	72	3	0.021	0.007	33.33	0.020
FG ^{b,c}	1	—	—	—	—	—	—
FG	2	—	—	—	—	—	—
FG	3	44	4	0.082	0.039	47.56	0.11
FG	4	42	1	0.029	0.021	72.41	0.06
FG	5	—	—	—	—	—	—

Methodology

TABLE 10 (Cont.)

Edible Fat							
Sample	No. of analysis	No. of outliers	Mean	s _R	RSD %	R	
IV ^j	1	67	6	107.31	1.440	1.34	4.08
IV	2	67	4	53.50	0.653	1.22	1.85
IV	3	67	6	63.24	0.863	1.37	2.44
IV	4	68	3	90.84	1.575	1.73	4.46
IV	5	68	7	71.98	1.043	1.45	2.95
AOM ^k	1	33	4	22.58	2.829	12.53	8.01
AOM	2	31	2	41.49	7.430	17.91	21.03
AOM	3	—	—	—	—	—	—
AOM	4	32	4	28.31	4.346	15.35	12.30
AOM	5	30	0	146.98	39.029	26.55	110.45
Clr, Lovibond ^l							
Red	1	63	1	0.98	0.187	19.16	0.53
Yellow	1	63	1	10.04	1.978	19.70	5.60
Red	2	66	5	3.84	0.329	8.58	0.93
Yellow	2	65	8	37.42	3.089	8.26	8.74
Red	3	63	3	2.75	0.336	12.24	0.95
Yellow	3	63	2	26.77	4.971	18.57	14.07
Red	4	63	3	0.97	0.179	18.45	0.51
Yellow	4	63	3	9.33	1.501	16.09	4.25
Red	5	63	1	1.64	0.285	17.38	0.81
Yellow	5	63	0	15.87	2.756	17.37	7.80

^aMethod (Ca 5a-40), % as oleic

^bFree glycerine

^cMethod (Ca 14-56), %

^dMethod (Cd 11-57), %

^eMethod (Cc 2-38), °C

^fMethod (Cc 1-25), °C

^gMethod (Cc 14-59), °C

^hMethod (Cd 10-57)

ⁱMethod (Cd 8-53), meq peroxide/1000 g sample

^jMethod (Cd 1-25), CgI₂ absorbed d/g sample

^kMethod (Cd 12-57), hrs to PV = 100

^lMethod (Cc 13b-45), AOCS—Tintometer color scale

TABLE 11 (Cont.)

Fish Solubles							
Sample	No. of analysis	No. of outliers	Mean	s _R	RSD %	R	
Moisture	7	9	0	50.03	0.495	0.99	1.40
Moisture	8	10	1	50.64	0.855	1.69	2.42
Oil, PET ether ^c	1	9	0	6.47	0.245	3.79	0.69
Oil, PET ether	2	9	0	6.64	0.283	4.26	0.80
Oil, PET ether	3	9	0	7.53	0.229	3.04	0.65
Oil, PET ether	4	9	0	7.08	0.192	2.71	0.54
Oil, PET ether	5	8	0	5.88	0.350	5.96	0.99
Oil, PET ether	6	10	0	8.35	0.363	4.35	1.03
Oil, PET ether	7	10	0	8.30	0.306	3.69	0.87
Oil, PET ether	8	10	0	9.23	0.211	2.29	0.60
Ash ^d	1	9	0	6.58	0.409	6.22	1.16
Ash	2	9	0	7.16	0.309	4.32	0.87
Ash	3	9	0	6.86	0.381	5.56	1.08
Ash	4	9	1	7.08	0.158	2.23	0.45
Ash	5	8	0	8.51	0.300	3.52	0.85
Ash	6	10	0	7.12	0.512	7.19	1.45
Ash	7	10	0	7.36	0.554	7.53	1.57
Ash	8	10	0	6.53	0.497	7.61	1.41
pH ^e	1	9	0	4.25	0.086	2.02	0.24
pH	2	9	1	4.29	0.052	1.21	0.15
pH	3	9	0	4.22	0.197	4.67	0.56
pH	4	9	0	3.06	0.095	3.11	0.27
pH	5	8	1	4.29	0.056	1.31	0.16
pH	6	10	0	4.31	0.106	2.46	0.30
pH	7	10	0	4.43	0.078	1.76	0.22
pH	8	10	0	4.13	0.089	2.16	0.25
NH ₃ ^f	1	9	2	0.39	0.023	5.91	0.07
NH ₃	2	9	0	0.33	0.071	21.39	0.20
NH ₃	3	9	0	0.35	0.070	19.83	0.20
NH ₃	4	9	1	0.37	0.014	3.79	0.04
NH ₃	5	8	0	0.56	0.052	9.29	0.15
NH ₃	6	10	1	0.51	0.014	2.76	0.04
NH ₃	7	10	0	0.50	0.054	10.87	0.15
NH ₃	8	10	0	0.37	0.023	6.20	0.07
Salt	1	9	0	2.34	0.073	3.11	0.21
Salt	2	9	0	2.42	0.045	1.86	0.13
Salt	3	9	0	2.32	0.045	1.94	0.13
Salt	4	9	0	2.30	0.070	3.04	0.20
Salt	5	8	1	4.16	0.054	1.30	0.15
Salt	6	9	0	2.83	0.278	9.81	0.79
Salt	7	9	0	2.54	0.301	11.83	0.85
Salt	8						
Sand	1	8	0	0.37	0.089	23.86	0.25
Sand	2	8	0	0.48	0.132	27.33	0.37
Sand	3	8	0	0.33	0.075	22.66	0.21
Sand	4	8	0	0.26	0.067	25.38	0.19
Sand	5	7	0	0.30	0.199	65.68	0.56
Sand	6	8	0	0.36	0.046	12.85	0.13
Sand	7	8	0	0.72	0.117	16.30	0.33
Sand	8	8	0	0.42	0.043	10.36	0.12

^aMethod (AOAC[1984]2.057), % protein

^bMethod (AOAC[1984]7.005), %

^cMethod (Ba 3-38), %

^dMethod (AOAC[1984]7.009), %

^e(meter, 72°F, 50/50 v/v, distilled H₂O)

^f(Method (AOAC[1984]2.065), % NH₃)

TABLE 11

Fish Solubles

Sample	No. of analyses	No. of outliers	Mean	s _R	RSD %	R	
Crude protein ^a	1	9	1	32.39	0.146	0.45	0.41
Crude protein	2	9	0	32.98	0.244	0.74	0.69
Crude protein	3	9	1	32.59	0.304	0.93	0.86
Crude protein	4	9	0	30.86	0.279	0.90	0.79
Crude protein	5	8	0	28.69	0.275	0.96	0.78
Crude protein	6	10	2	28.81	0.285	0.99	0.81
Crude protein	7	10	1	33.47	0.498	1.49	1.41
Crude protein	8	10	0	30.90	0.296	0.96	0.84
Moisture ^b	1	9	0	52.44	1.397	2.66	3.95
Moisture	2	9	0	51.27	1.070	2.09	3.03
Moisture	3	9	0	50.30	0.691	1.37	1.96
Moisture	4	9	0	50.93	0.962	1.89	2.72
Moisture	5	8	0	55.34	0.705	1.27	2.00
Moisture	6	10	1	54.99	0.977	1.78	2.76

Methodology

TABLE 12

Fish Oil							
Sample	No. of analyses	No. of outliers	Mean	s_R	RSD %	R	
FFA ^a	1	12	0	3.15	0.151	4.79	0.43
FFA	2	11	1	3.94	0.117	2.97	0.33
FFA	3	12	1	2.68	0.037	1.45	0.11
FFA	4	12	0	3.08	0.077	2.50	0.22
FFA	5	8	0	4.36	0.070	1.60	0.20
FFA	6	12	0	5.52	0.153	2.77	0.43
FFA	7	11	2	3.20	0.032	1.00	0.09
FFA	8	12	1	4.05	0.053	1.31	0.015
Moisture ^b	1	12	0	0.34	0.032	9.36	0.09
Moisture	2	11	1	0.22	0.037	16.59	0.10
Moisture	3	12	2	0.51	0.028	5.51	0.08
Moisture	4	12	0	0.13	0.021	16.80	0.06
Moisture	5	8	0	0.18	0.049	26.63	0.14
Moisture	6	12	0	0.15	0.027	17.53	0.08
Moisture	7	11	0	0.22	0.017	5.44	0.05
Moisture	8	12	1	0.20	0.014	7.04	0.04
IV ^c	1	12	1	166.44	1.990	1.20	6.63
IV	2	11	0	174.35	1.389	0.80	3.93
IV	3	12	1	146.12	1.750	1.20	4.95
IV	4	12	0	169.11	3.515	2.08	9.95
IV	5	8	0	172.09	3.117	1.81	8.22
IV	6	12	1	189.56	2.832	1.49	8.01
IV	7	11	1	173.56	2.879	1.66	8.15
IV	8						
Color ^d	1	12	0	12.42	0.515	4.15	1.46
Color	2	11	0	12.50	0.500	4.00	1.42
Color	3	12	0	12.83	0.389	3.03	1.10
Color	4	12	0	10.96	0.451	4.12	1.28
Color	5	8	0	11.44	0.496	4.34	1.40
Color	6	12	0	13.54	0.656	4.84	1.86
Color	7	11	1	12.00	0.000	0.00	0.00
Color	8	12	3	12.00	0.000	0.00	0.00

^aMethod (Ca 5a-40), % as oleic^bMethod (Ca 2a-45), %^cMethod (Cd 1-25), CgI₂ absorbed/g sample^dMethod (Td 1a-64), empirical

TABLE 13

NIOP Fats and Oils

Sample ^a	No. of analyses	No. of outliers	Mean	s_R	RSD %	R	
Sp. Gr. ^{b,c,d}	1	31	2	0.919	3.68*	0.040	104.10
Sp. Gr.	2	32	2	0.904	2.01*	0.022	56.97
Sp. Gr.	3	28	4	0.917	2.76*	0.030	78.19
Sp. Gr.	4	29	3	0.919	1.77*	0.019	50.11
Sp. Gr.	5	28	5	0.919	1.38*	0.015	39.17
FFA ^e	1	32	1	3.75	0.077	2.05	0.22
FFA	2	33	4	0.14	0.014	10.29	0.04
FFA	3	31	1	1.99	0.054	2.72	0.15
FFA	4	30	1	0.18	0.026	14.86	0.07
FFA	5	30	2	0.08	0.010	12.20	0.28
IV ^f	1	31	1	8.64	0.121	1.40	0.34
IV	2	33	1	55.33	1.392	2.52	3.94

TABLE 13 (Cont.)

NIOP Fats and Oils

Sample	No. of analysis	No. of outliers	Mean	s_R	RSD %	R	
IV	3	31	3	17.50	0.197	1.13	0.56
IV	4	30	1	143.98	1.572	1.09	4.45
IV	5	30	0	8.14	0.155	1.90	0.44
Sap. values ^g	1	30	1	256.19	1.983	0.77	5.61
Sap. value	2	32	1	197.03	1.939	0.98	5.49
Sap. value	3	30	4	244.04	1.164	4.76	3.29
Sap. value	4	29	1	191.72	2.129	1.11	6.03
Sap. value	5	29	3	256.27	0.711	0.28	2.01
Clr, Lovibond ^h							
Red	1	29	2	9.71	0.911	9.38	2.58
Yellow	1	25	1	53.84	7.520	13.97	21.28
Red	2	32	0	3.04	0.403	13.24	1.14
Yellow	2	27	0	29.00	4.874	16.81	13.79
Red	3	29	0	5.31	1.186	22.35	3.36
Yellow	3	21	0	38.43	10.211	26.57	28.90
Red	4	30	2	3.72	0.511	13.73	1.45
Yellow	4	25	1	35.83	7.245	20.22	20.50
Red	5	29	1	0.98	0.189	19.25	0.54
Yellow	5	26	0	7.81	1.327	17.00	3.76

^aSample 1, crude coconut oil; sample 2, refined palm oil; sample 3, crude palm oil; sample 4, crude safflower oil; sample 5, cochineal coconut oil.^bFiltration step in B(a)1 omitted; palm oil specific gravity reported at 45°C/45°C.^cSpecific gravity (30°C/30°C)^dMethod (Cc 10a-25)^eMethod (Ca 5a-40), % oleic^fMethod (Cd 1-25), CgI₂ absorbed/g sample^gMethod (Cd 3-25), mg koH to saponify 1 g sample^hMethod (Cc 13b-45), AOCS—Tintometer color scale* × 10⁻⁴

TABLE 14

Tallow and Grease

Sample	No. of analyses	No. of outliers	Mean	s_R	RSD %	R	
FAC color ^a	1	44	0	10.71	1.472	13.75	4.17
FAC color	2	47	1	12.39	1.390	11.22	3.93
FAC color	3	44	1	11.19	1.052	9.40	2.98
FAC color	4	45	0	12.73	1.388	10.90	3.93
FAC color	5	45	0	11.80	1.160	9.83	3.28
R&B clr, red ^b	1	40	0	2.44	0.579	23.75	1.64
R&B clr, red	2	42	1	2.77	0.503	18.19	1.42
R&B clr, red	3	39	0	2.80	0.487	17.39	1.38
R&B clr, red	4	39	1	4.81	0.772	16.06	2.19
R&B clr, red	5	38	0	3.83	0.600	15.66	1.70
R&B clr, yellow ^b	1	37	0	23.39	4.953	21.18	14.02
R&B clr, yellow	2	38	0	27.24	5.144	18.89	14.56
R&B clr, yellow	3	37	0	27.51	4.776	17.36	13.52
R&B clr, yellow	4	36	0	42.50	12.302	28.94	34.82
R&B clr, yellow	5	34	1	36.12	4.891	13.54	13.84
Titer ^c	1	42	2	38.56	0.294	0.76	0.83

Methodology

TABLE 14 (Cont.)

Tallow and Grease

	Sample	No. of analysis	No. of outliers	Mean	s _R	RSD %	R
Titer	2	44	1	38.34	0.279	0.73	0.79
Titer	3	41	3	38.44	0.221	0.58	0.63
Titer	4	41	3	39.08	0.335	0.86	0.95
Titer	5	40	0	38.82	0.337	0.87	0.95
FFA ^d	1	51	1	2.37	0.093	3.93	0.26
FFA	2	54	4	2.57	0.052	2.02	0.15
FFA	3	49	3	2.52	0.080	3.18	0.23
FFA	4	50	1	2.19	0.082	3.75	0.23
FFA	5	50	1	2.37	0.084	3.54	0.24
Moisture ^e	1	51	3	0.058	0.032	55.17	0.09
Moisture	2	54	0	0.055	0.035	63.64	0.10
Moisture	3	49	0	0.056	0.037	66.07	0.11
Moisture	4	49	3	0.043	0.026	60.47	0.07
Moisture	5	50	2	0.046	0.028	60.87	0.08
Unsap. matter ^f	1	49	2	0.37	0.128	34.23	0.36
Unsap. matter	2	51	3	0.36	0.097	27.25	0.28
Unsap. matter	3	47	0	0.38	0.108	28.13	0.31
Unsap. matter	4	47	2	0.40	0.088	22.06	0.25
Unsap. matter	5	47	2	0.39	0.075	19.48	0.21
Insolubles ^g	1	51	0	0.14	0.054	39.42	0.15
Insolubles	2	54	2	0.17	0.059	34.30	0.17
Insolubles	3	49	0	0.16	0.039	24.38	0.11
Insolubles	4	50	4	0.44	0.070	15.84	0.20
Insolubles	5	50	3	0.29	0.052	17.81	0.15

^aMethod (Cc 13a-43), % empirical^bMethod (Ca 8d-55), empirical^cMethod (Cc 12-59), °C^dMethod (Ca 5a-40), % as oleic^eMethod (Ca 2c-25 or Ca 2b-38), %^fMethod (Ca 6a-40), %^gMethod (Ca 3-46), %

TABLE 15

Aflatoxins

	Sample	No. of analyses	No. of outliers	Mean	s _R	RSD %	R
Corn ^a							
B-1	1	45	3	10.7	5.2	48.6	14.7
	2	46	1	609.8	225.0	36.9	636.8
	3	40	3	22.5	10.4	46.2	29.4
	4	40	2	175.2	81.3	46.4	230.1
	5	39	1	47.5	18.7	39.4	52.9
	6	41	2	46.4	20.7	44.6	58.6
	7	40	1	87.4	39.6	45.3	112.1
	8	42	0	127.9	55.7	43.5	157.6
B-2	1	45	5	0.9	1.1	122.2	3.1
	2	46	2	158.2	58.2	37.2	166.4
	3	40	1	2.3	2.3	100.0	6.5
	4	40	1	12.7	8.5	66.9	24.1
	5	39	4	4.3	3.2	74.4	9.1
	6	41	1	4.1	4.3	104.9	12.2
	7	40	2	8.7	5.7	65.5	16.1
	8	42	1	9.8	6.1	62.2	17.3

TABLE 15 (Cont'd)

Aflatoxins

	Sample	No. of analyses	No. of outliers	Mean	s _R	RSD %	R
G-1	1	45	10	0.0	0.3	—	—
	2	46	1	477.1	223.5	46.8	632.5
	3	40	2	0.0	0.0	—	—
	4	40	3	0.7	1.6	228.6	4.5
	5	39	1	0.0	0.0	—	—
	6	41	2	0.0	0.0	—	—
	7	40	5	0.0	0.0	—	—
	8	42	5	0.0	0.0	—	—
G-2	1	45	5	0.0	0.2	—	—
	2	46	4	220.3	89.8	40.8	254.1
	3	40	3	0.0	0.0	—	—
	4	40	3	0.0	0.0	—	—
	5	39	0	0.0	0.0	—	—
	6	41	2	0.0	0.0	—	—
	7	40	1	0.0	0.0	—	—
	8	42	1	0.0	0.0	—	—
Total ^b	1	45	5	12.4	6.1	49.3	17.3
	2	46	3	1505.0	453.5	30.1	1283.4
	3	40	2	26.3	13.2	50.2	37.4
	4	40	2	191.2	86.4	45.2	244.5
	5	39	1	53.4	20.8	39.0	58.9
	6	41	2	51.3	22.7	44.2	64.2
	7	40	1	98.7	41.7	42.2	118.0
	8	42	0	138.8	59.6	42.9	168.7
Cottonseed ^c							
B-1	1	28	0	113.4	55.5	48.9	157.1
	2	27	2	540.9	204.2	37.8	557.9
	3	25	1	24.3	13.1	53.9	37.1
	4	21	0	88.4	36.2	41.0	102.4
	5	24	0	43.3	24.6	56.8	69.6
	6	25	0	84.8	37.5	44.2	106.1
	7	23	0	107.4	44.6	41.5	126.2
	8	26	0	93.9	40.1	42.7	113.5
B-2	1	28	0	25.7	15.9	61.9	45.0
	2	27	2	135.2	48.2	35.7	136.4
	3	25	0	5.6	3.4	60.7	9.6
	4	21	0	18.4	8.5	46.2	24.1
	5	24	0	43.3	24.6	56.8	69.6
	6	25	0	20.0	12.2	61.0	34.5
	7	23	1	25.0	10.7	42.8	30.3
	8	26	0	22.5	12.0	53.3	34.0
G-1	1	28	1	0.0	0.0	—	—
	2	27	2	418.6	187.4	44.8	530.3
	3	25	0	0.0	0.0	—	—
	4	21	0	0.0	0.0	—	—
	5	24	2	0.0	0.0	—	—
	6	25	0	0.0	0.0	—	—
	7	23	0	0.0	0.0	—	—
	8	26	1	0.0	0.0	—	—
G-2	1	28	1	0.0	0.0	—	—
	2	27	2	174.6	74.4	42.6	210.6
	3	25	0	0.0	0.0	—	—
	4	21	0	0.0	0.0	—	—
	5	24	2	0.0	0.0	—	—
	6	25	0	0.0	0.0	—	—
	7	23	0	0.0	0.0	—	—

Methodology

TABLE 15 (Cont'd)

Aflatoxins							
	Sample	No. of analyses	No. of outliers	Mean	s _R	RSD %	R
	8	26	1	0.0	0.0	—	—
Total ^d	1	28	0	140.9	66.1	46.9	187.1
	2	27	2	1306.6	428.7	32.8	1213.2
	3	25	1	29.5	14.4	48.8	40.8
	4	21	0	106.8	43.6	40.8	123.4
	5	24	0	53.5	25.7	48.0	72.7
	6	25	0	104.9	45.5	43.4	128.8
	7	23	0	135.2	56.7	41.9	160.5
	8	26	0	120.3	47.6	40.0	134.7
Peanut ^e							
B-1	1	56	1	37.3	18.3	49.1	51.8
	2	60	3	596.8	208.2	34.9	589.2
	3	60	4	83.2	35.6	42.8	100.7
	4	59	0	103.5	53.6	51.8	151.7
	5	53	1	82.2	37.1	45.1	105.0
	6	56	1	98.6	43.7	44.3	123.7
	7	51	6	15.6	6.6	42.3	18.7
	8	60	3	80.5	32.7	40.6	92.5
B-2	1	56	3	6.7	3.8	56.7	10.8
	2	60	4	160.6	49.9	31.1	141.2
	3	60	2	15.4	7.3	47.4	20.7
	4	59	1	16.8	7.6	45.2	21.5
	5	53	1	14.3	7.2	50.3	20.4
	6	56	1	17.2	7.4	43.0	21.1
	7	51	3	2.8	1.9	67.9	5.4
G-1	1	56	0	13.7	12.1	88.3	34.2
	2	60	2	493.0	181.6	36.8	513.9
	3	60	1	35.9	21.8	60.7	61.7
	4	59	1	36.6	18.6	50.8	52.6
	5	53	1	29.1	13.7	47.1	38.8
	6	56	2	34.1	14.5	42.5	41.0
	7	51	1	8.6	9.1	105.8	25.8
	8	60	2	29.2	13.5	46.2	38.2

TABLE 15 (Cont.)

Aflatoxins							
	Sample	No. of analysis	No. of outliers	Mean	s _R	RSD %	R
G-2	1	56	4	2.5	2.2	88.0	6.2
	2	60	1	231.4	102.8	44.4	290.9
	3	60	1	7.5	4.9	65.3	13.9
	4	59	2	7.3	4.2	57.5	11.9
	5	53	3	5.5	2.8	50.9	7.9
	6	56	0	7.2	3.9	54.2	11.0
	7	51	2	1.4	1.4	100.0	4.0
	8	60	2	6.3	3.8	60.3	10.8
Total ^f	1	56	1	63.5	34.5	54.3	97.6
	2	60	3	1491.9	472.7	31.7	1337.7
	3	60	3	140.9	59.9	42.5	169.5
	4	59	0	168.5	76.5	45.4	216.5
	5	53	1	132.5	50.3	38.0	142.3
	6	56	1	155.6	59.0	37.9	167.0
	7	51	2	31.3	20.3	64.9	57.4
	8	60	1	136.1	55.7	40.9	157.6
AM, in milk ^{g,h}	1	13	1	0.214	0.170	79.4	0.48
	2	15	0	276.0	127.3	46.1	360.3
	3	11	0	0.284	0.164	57.7	0.46
	4	11	0	0.125	0.077	61.6	0.22
	5	10	0	0.299	0.122	40.8	0.35
	6	10	0	0.286	0.179	62.6	0.51
	7	11	0	0.487	0.212	43.5	0.60
	8	11	0	0.413	0.187	45.3	0.53

^aMethod (AOAC1984)26.026-26.031), mg/kg^bTotal of B-1, B-2, G-1, G-2 (corn)^cMethod (AOAC[1984]26.052-26.060), mg/kg^dTotal of B-1, B-2, G-1, G-2 (cottonseed)^eMethod (AOAC[1984]26.026-26.031 or 26.032-26.036), mg/kg^fTotal of B-1, B-2, G-1, G-2 (peanut)^gAflatoxin M₁^hMethod (AOAC[1984]26.090-26.100)

Methods for Nutritional Assessment of Fats

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