

Table 2
Examples of results obtained with duplicate chromatograms
of 12 corn oil samples.

Sample No.		Fatty acid composition (%)				
		16:0	18:0	18:1	18:2	18:3
1501	A	12.46	2.67	23.05	58.30	3.51
	B	12.10	2.83	22.40	59.00	3.67
1502	A	12.76	1.47	24.33	60.69	0.75
	B	12.88	1.54	25.43	59.37	0.78
1503	A	14.74	1.78	13.81	67.15	2.52
	B	14.06	1.82	14.36	67.12	2.64
1504	A	15.15	1.01	15.76	66.56	1.52
	B	15.12	1.07	16.05	66.20	1.56
1505	A	16.22	2.49	24.23	54.09	2.98
	B	15.99	2.63	24.22	54.08	3.07
1506	A	15.32	1.60	30.45	51.85	0.78
	B	15.22	1.67	29.85	52.44	0.82
1507	A	19.17	1.58	15.28	60.94	3.03
	B	19.29	1.60	15.14	60.93	3.03
1508	A	18.43	1.11	19.54	58.78	2.13
	B	18.52	1.09	18.69	59.68	2.01
1509	A	14.88	1.82	26.26	54.03	3.00
	B	14.55	1.79	25.88	54.88	2.90
1510	A	14.99	1.53	26.74	55.82	0.92
	B	15.61	1.46	25.88	56.19	0.86
1511	A	19.33	1.85	12.91	62.65	3.27
	B	19.48	1.76	12.25	63.28	3.23
1512	A	18.85	1.16	15.44	62.35	2.20
	B	18.61	1.08	15.54	62.59	2.17

Variation is due to chromatographic equipment and, probably, mainly due to human errors in measurement of peak areas.

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2. Fatty acid composition of reciprocal crosses.

The fatty acid composition of a number of reciprocal crosses has been determined. The results for inbred lines and their reciprocal crosses are shown in Table 1. Averages are of nine kernels (fatty acid composition of oil) from each of two ears for each inbred and cross. Reciprocal crosses of GE295 and GE297 showed heterotic effect for palmitic acid. Oleic and linoleic acid composition of the reciprocal cross was similar to that of the inbred line used as the female parent. The reverse of this

(reciprocal cross similar to male parent) was shown for oleic and linoleic in reciprocal crosses of GEC314A and T61. Palmitic acid of GEC314A x T61 was higher than the high parent (GEC314A) and the reciprocal was lower than the low parent (T61). Fatty acid composition of reciprocal crosses of SC313 and GE297 were similar and close to the midparent value. Palmitic and stearic acid composition of the crosses were in the direction of the maternal parent value. GEC314A and Mp482 did not differ greatly in fatty acid composition. Reciprocal crosses were similar for oleic and linoleic composition and similar to the parent GEC314A. Therefore, dominance in the F_1 for high linoleic and low oleic was exhibited in this particular cross.

Fatty acid composition of reciprocal crosses are different in some cases but not in others. Whether differences between reciprocal crosses can be attributed to true maternal effects or to some type of cytoplasmic effect has not been determined.

Table 1
Average fatty acid composition of the oil from 18 individual kernels of parental inbred lines and their reciprocal crosses.

	Inbred No.	Fatty acid composition (%)				
		16:0	18:0	18:1	18:2	18:3
GE295	1	14.6	3.02	31.1	50.0	1.26
1 x 2		15.2	2.48	32.2	49.1	1.11
2 x 1		15.2	3.05	38.0	42.8	0.92
GE297	2	14.8	3.22	38.4	42.6	0.97
GEC314A	3	15.1	2.86	41.1	40.2	0.78
3 x 4		15.7	3.13	34.4	46.0	0.77
4 x 3		14.4	4.29	38.4	42.2	0.79
T61	4	14.9	3.72	34.0	46.4	0.91
SC313	5	13.1	0.97	22.9	62.3	0.82
5 x 2		13.9	1.89	32.8	50.5	0.90
2 x 5		14.5	2.50	32.4	49.7	0.95
GE297	2	14.8	3.22	38.4	42.6	0.97
GEC314A	3	15.1	2.86	41.1	40.2	0.78
3 x 7		16.2	2.76	40.9	39.5	0.69
7 x 3		15.1	2.72	40.4	41.0	0.76
Mp482	7	15.5	2.14	45.5	36.2	0.74

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