Variability in oil composition of inbred lines may be advantageous if selection can be practiced toward a better oil quality (such as higher linoleic acid percent). However, the variability in oil composition which may be present in inbred lines should be examined before inbred lines are used in studies concerning fatty acid composition of oil. Considerable error could be introduced into genetic studies as well as other studies where uniform genetic material is desired, unless preliminary analyses of oil composition are made. At this Station, individually selfed ears are maintained separately within inbred lines and single-kernel analyses are made for oil composition to determine uniformity before use of a particular inbred in further studies.

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2. Plant introductions with high stearic acid composition of oil.

The fatty acid composition of commercial corn oil includes about 2.0% stearic acid. Most inbred lines have oil with between 1 and 4% stearic acid. Approximately 1500 inbred lines of U.S. origin have been analyzed for oil composition over the past several years. Very few inbred lines had stearic acid composition between 4 and 6% and only one inbred line had stearic acid slightly above 6% of total oil.

Early in 1968, kernels of 144 plant introductions from 52 different foreign countries were received from the North Central Regional Plant Introduction Station, Ames, Iowa. Kernels were analyzed individually for fatty acid composition of oil from the original sib pollinated sample and from first generation selfed ears produced in Georgia. Results of five plant introductions in which high stearic acid composition was found are shown in Table 2. Sibbed kernels of P. I. 214124 (Bolivia) were received from the Plant Introduction Station in 1969 and no additional analyses have been made. Original seeds were variable in stearic acid composition and were high in stearic acid as compared with other plant introductions. Original seed of P. I. 175334 (Nepal) had a range in stearic acid of 1.70 to 6.22%. However, the average oil composition of two S_1 ears had stearic acid composition which was considerably higher. The range in stearic acid percent of individual kernels from S_1 ear No. 4 and of S_2

Table 2

Percent stearic acid composition of total oil

P.I. No.	Origin	Original sibbed kernels	Avg. of S_1 ears	Single kernels from S_1 ears				
[a]214124	Bolivia	8.27						
		10.36						
		3.75						
		5.90						
		7.39						
175334	Nepal	3.93	4.86					
		6.21	10.71					
		1.70	2.76					
		2.80	11.54	10.82	10.48	14.46	13.06	9.08
		6.22	3.83					
				[b]12.13	11.16	13.10	12.37	8.87
				[b]11.88	15.10	12.13	14.83	13.54
				[b]13.32	13.09	13.19	13.47	13.11
197503	Ethiopia	1.33	3.25					
		2.61	11.18					
		2.57	5.53					
		8.42	2.51					
		7.96	1.72					
185619	Egypt	1.04	1.27	1.55	1.03	1.54	2.06	1.71
		2.47	3.48					
		1.90	2.77					
		2.07	1.41					
		2.63	6.19					
			6.20					
			9.29	7.15	6.79	13.42	9.01	5.74
177651	Syria	2.87	2.21					
		2.69	2.13					
		1.80	8.55					
		1.71	4.12					
		2.61						

[a]Additional analyses of S_1 ears have not been made for this P. I.

[b]Single kernel analyses made on three selected S_2 ears. Seed originated from S_1 ear with 11.54% stearic acid.

ears is shown in Table 2. A wide range in stearic acid composition was observed among original sibbed kernels and S_1 ears of P. I. 197503 (Ethiopia). P. I. 185619 (Egypt) and P. I. 177651 (Syria) had typical stearic acid composition in original kernels, but had high stearic acid in some S_1 ears.

Stearic acid is a saturated fatty acid and a high percentage may not be desired in corn oil for commercial food use. However, the high composition found in certain plant introductions is of considerable interest for future genetic and biochemical studies. Some of these high stearic acid lines have been crossed with low stearic acid inbred lines for genetic studies. Of biochemical interest, lines which are high in stearic acid have also had a much higher than usual amount of arachidic acid. Selfing in this material is being continued to obtain homozygous lines with high stearic acid composition.

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1. Multiple character analysis and chromosome studies in the *Tripsacum lanceolatum-pilosum* complex.

The genus *Tripsacum* has nine recognized species all of which are native to the new world. The range of their distribution extends from northern South America through Central America and Mexico into the United States. There are four diploid (2n = 36) species (*T. floridanum*, *T. australe*, *T. maizar* and *T. zopilotense*). *T. dactyloides* has both diploid and tetraploid (2n = 72) forms while *T. laxum*, *T. latifolium*, *T. lanceolatum* and *T. pilosum* exist as tetraploids. While the diploid species of *Tripsacum* are morphologically very distinct the tetraploid "species" are not so sharply delimited. This is nowhere better illustrated than in the tetraploid populations in Mexico. Even though these tetraploids are referred to as *T. lanceolatum* or *T. pilosum*, there are a