show little if any difference between the normal hybrids and the heterozygote opaque forms. However, the moisture content of the heterozygous opaque hybrids is higher by 2.2 and 2.7% than in the normal forms. These data prove that only the "days to 50 percent male flowering" is not usable as an index of the earliness of the hybrids.

It is remarkable that the yielding ability of the normal and the heterozygous opaque single crosses is practically the same. The difference in the case of 156 x N6 o_2 is 4.5 percent, while in the case of 156 x B14 o_2 it is 3.7 percent. These properties are supplemented by the expected increase in lysine content, by nearly 25 percent, due to 25% o_2 grains among the normals.

I. Kovács

4. Evaluation of heterozygous opaque hybrids of the Mv Syn A-3 O_2 sublines.

The Syn A-3 opaque-2 inbred line was developed from the open pollinated variety, Illinois Synthetic A o_2. The sublines of Syn A-3, which are related to each other, were selected from their large population and crossed with the normal unrelated tester N6. The heterozygous opaque single hybrids of different Syn A-3 sublines were planted in comparative yield trials in two replications, with 40 plants per plot in 80 x 30 cms spacing. In the experiment with heterozygous opaque hybrids we used two standards. One of them was the Mv Syn A x Syn B opaque varietal hybrid and the other was the normal hybrid of 156 x B14.

Data on the most important properties of heterozygous opaque single crosses are summarized in Table 1. The data show considerable differences both in the moisture content at harvest and yielding ability, as well as the 1000 grain weight of the tested hybrids. The moisture content at harvest (earliness) varied from 29.4 to 33.1 percent showing a 3.7% difference. Similarly remarkable is the finding that the mean value of the moisture content in the heterozygous opaque hybrids in less by 15.6 percent than the same value in the opaque varietal hybrid and is 5 percent less than in the normal standard single cross.

The greatest differences were found in the yielding ability of the Syn A-3 o_2 sublines. The lowest yield was 92.1 percent of the opaque

Table 1

Yielding ability of the heterozygous opaque hybrids produced on N6 testers by sublines of Syn A-3 o_2 (Martonvásár, 1973)

Combination	Moisture content %	Dry grain yield		1000 grain weight		Yield %	
		kg/plot	q/ha	g Normal	g Opaque	Mv Syn A o_2 x Syn B o_2	156 x B 14
Syn A-3-4 o_2 x N6	29.4	12.8	66.7	270.2	259.7	101.6	88.9
Syn A-3-6 o_2 x N6	29.8	11.6	60.4	234.8	216.9	92.1	80.6
Syn A-3-11 o_2 x N6	30.0	13.4	69.8	244.3	223.5	106.3	93.0
Syn A-3-18 o_2 x N6	30.1	11.8	61.4	237.4	222.2	93.6	81.9
Syn A-3-24 o_2 x N6	31.1	13.2	68.7	265.8	248.7	104.8	91.7
Syn A-3-28 o_2 x N6	29.4	13.2	68.7	276.7	256.8	104.8	91.7
Mv Syn A o_2 x Syn B o_2	35.5	12.6	65.6	-	225.6	100.0	87.5
156 x B 14	32.2	14.4	75.0	324.8	-	114.3	100.0
Syn A-3-29 o_2 x N6	30.9	14.8	77.1	244.7	229.5	117.5	102.8
Syn A-3-30 o_2 x N6	32.9	14.2	74.0	277.9	258.1	112.7	98.6
Syn A-3-36 o_2 x N6	30.4	15.7	81.8	284.5	267.8	124.6	109.0
Syn A-3-38 o_2 x N6	33.1	13.0	67.7	242.3	223.3	103.2	90.3
Syn A-3-43 o_2 x N6	30.6	12.7	66.1	251.1	236.3	100.8	88.2
Mean	30.7	13.3	69.3	257.2	240.2	105.6	92.4
L.S.D. 5 per cent level		1.5	7.8				

standard hybrid, the highest 124.6 percent, indicating a 32.5% difference. The same value in the case of normal standard is 28.4 percent. It is remarkable that the yielding ability of some heterozygous opaque hybrids reaches or approaches the normal standard. At the same time, Table 1 shows significant differences in specific combining ability of the hybrids of Syn A-3 o_2 sublines. In this respect, the hybrids of Syn A-3-36 o_2, Syn A-3-29 o_2 and Syn A-3-30 o_2 seem to be promising. These properties are supplemented by the expected increase in lysine content by nearly 25 percent.

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1. Hollow endosperm in maize.

Hollow endosperm, an allele of sh_1, was isolated from a single kernel on the cob where ACRShWx (coloured, non shrunken and non-waxy) plants from EMS-treated seeds were crossed with csh_1wx pollen.

The kernel was colorless, non-shrunken and had a hollow cavity in the center. The phenotypic expression of the changed kernel indicated a possible loss of an intrachromosomal segment including the C and Sh_1 loci (2.8 map units apart). The mutant on selfing gave fifty hollow, seventy intermediate and 132 shrunken type seeds. The waxy and non-waxy were equal in number. When further selfed (Table 1) and reciprocally crossed to the pollen parent (Table 2), plants from hollow seeds showed only 20 to 30% hollow kernels. The hollow mutant, as well as the linked marker Wx, failed to be transmitted through the pollen. The Wx gene showed equal segregation in the hollow cob with slightly significant deviation. This suggests that there was a loss of a small chromosomal segment including C and a portion distal to it, which prevented functioning of gametes through the pollen. The hollowness indicated a possible mutational event at the Sh_1 locus. Prolonged selfing of plants from