

Actual yields of varieties and composites at two locations in 1961.

Variety or composite	College Station	Temple
	bu. per acre	bu. per acre
YS variety	48.5	46.0
YS ₁ composite	61.9	51.3
YS ₂ composite	68.8	52.0
YS ₃ composite	61.7	52.0

FYD variety	49.5	51.2
FYD ₁ composite	52.4	53.9
FYD ₂ composite	57.0	54.7
FYD ₃ composite	64.6	60.7

In both groups, the lower-yielding top crosses have been reduced in each cycle. Also variation among top crosses was reduced in the fourth cycle tests.

Yields of crosses among testers in composites indicate that a large portion of the increased combining ability can be attributed to the YS composites, especially the YS₂ composite. The accompanying table shows no change in the combining ability of the FYD composites. Actual yields of composites may indicate different types of gene action in the two source varieties.

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1. In 1961 several thousand seeds from a cross (Bl₄ x 4Co63) x A C R B Pl were germinated in the dark and classified for purple root color to identify monoplids. In addition to the expected monoplids, a class of plants was found which were of normal fertility and presumably diploids. These came from kernels having colored aleurone and the plants lacked purple color. In every case such plants, when selfed, were found to be heterozygous for yellow endosperm color. The parental single cross was (Y x y). Therefore the exceptional class of plants is interpreted as being maternal diploids. Maternal diploids and monoplids occurred with roughly equal frequency.

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2. An F₂ three-point test involving Bt Pr gl₁₀ / bt pr Gl₁₀ gave the following results:

Bt Pr Gl	Bt Pr gl	bt Pr Gl	bt Pr gl	Bt pr Gl	Bt pr gl	bt pr Gl	bt pr gl
306	161	28	7	98	0	39	1