5. Performance of yellow-orange flint hybrids.

A yield trial carried out in 1951-52, but not yet published, compared hybrids between Brazilian inbreds with those between Brazilian and Colombian strains, received from the Agricultural Colombian Program (Dr. L. M. Roberts). One of our problems in breeding yellow flint is the low ceiling of combining ability, which seems typical of the Brazilian "Cateto." Table 4 shows mean yields, with the 49 samples arranged into two groups (results of a simple 7 x 7 lattice, with 4 replications). As checks we used the two best double hybrids then in distribution, and still in use today.

Table 4. Frequency distribution of yields of yellow flint hybrids and varieties according to the origin of their inbred.

(Col x Bra = double hybrids with lines from Colombia and Brazil)

(Col; Bra = Hybrids or varieties, of either Colombia or Brazilian origin only)

2.62(1%o) ← general mean → 4.46(1%o)

2.82(1%) — 3.57 → 4.26(1%)

Kg/Ha / Origin	1.26 to 1.50	1.51 to 1.75	1.76 to 2.00	2.01 to 2.25	2.26 to 2.50	2.51 to 2.75	2.76 to 3.00	3.01 to 3.25	3.26 to 3.50	3.51 to 3.75	3.76 to 4.00	4.01 to 4.25	4.26 to 4.50	4.51 to 4.75	Total of samples
Col x Bra	-	-	-	-	-	-	-	-	1	7	12	5	2	-	27
Col	-	-	-	-	-	1	-	-	1	-	1	1	-	1	5
Bra	1	-	1	-	2	1	-	2	4	5	1	-	-	-	17

2.64 — 3.20 H-3531 — 3.36 → 4.08(1%)

Minas 2B

2.44(1%o) ← → 4.28(1%o)

It is evident that a considerable increase of yield, well beyond that of hybrids of Brazilian lines (Cateto), is always obtained after introducing Colombian germplasm. If we take the hybrid Minas 2B, all but one of 27 hybrids (Brazil-Colombia) give a yield numerically superior while 7 in 27 give a yield statistically higher at the 1% limit. Of the Brazilian hybrids, 12 do not differ statistically from Minas 2B and 5 are statistically less productive. If we had used as main check H-3531 (I.A.), the superiority of the Colombia x Brazil hybrids would become still more pronounced.

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