

4. Performance of yellow dent corn varieties from the southern States of Brazil.

In a special randomized block design including 300 samples of yellow dent corn from Sao Paulo State, with 3 replications in 5 blocks per replication of 60 plots each for the same number of samples and 4 plots for randomized checks and further with systematic check every 16 plots, we obtained a frequency distribution of the yields as shown in table 1. As the main check we used H-4664 (I.A.) which is the best semi-dent double hybrid now in distribution.

The error between samples, with regards to the general mean, was of course highly significant. Upon comparing sample yields with the check double hybrid H-4624 (I.A.) it became evident that one sample was numerically superior to the check, about 63 samples or 21% were equal to it at the 1% limit of significance, and the rest of 237 samples were inferior to it. Thus it is evident that the Paulista Dent types under cultivation by farmers and not yet explored by breeders, offer excellent material for new breeding projects, and it must be expected that some of the 63 samples equal to the best double hybrid in this experiment may give still higher yields after improvement through breeding.

Table 1. Frequency distribution of yields of yellow dent corn samples from Sao Paulo State, Brazil.

Kg/ha Intervals	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	4.76 to 5.00	Total
Number of samples	1	2	4	15	28	48	65	60	44	26	6	--	1	300
%	0.33	0.67	1.33	5.00	9.33	16.00	21.67	20.00	15.67	8.67	2.00	--	0.33	100%

2.45(1%) ← general mean → 4.27(1%)
 2.67(1%) ← 3.47 → 4.49(1%)
 ↓ 3.86(1%) ← 4.66
 ↓ 3.61(1%) ← H-4624 (check)

Since little is known about the detailed history of Paulista Dent and of the real meaning of names used among farmers, sample means were grouped in accordance to names (Table 2). These data seem to indicate that there is really some systematic difference between samples with identical names. Those received under the name of Itaici and Armour tend to yield more and those under the names of Cunha and Sta. Catarina (i.e. grown under this name in Sao Paulo) tend to yield less than average.

Table 2. Frequency distribution of yields of yellow corn samples from Sao Paulo State, according to sample denominations.

Denom- ination of samples	Kg/ha	general mean												Total
		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	
Itaici	-	-	-	-	-	-	2	-	-	1	-	-	1	4
Armour	-	-	-	-	5	5	13	19	10	7	1	-	-	60
Argentino	-	-	-	2	4	3	6	6	9	6	-	-	-	36
Gaiano	-	-	1	5	3	14	7	6	7	-	1	-	-	44
Amarelão	-	1	-	3	8	6	15	13	6	6	3	-	-	61
Sta. Catarina	-	-	-	1	1	1	3	1	-	-	-	-	-	7
Cunha	1	1	1	-	3	1	3	1	-	1	-	-	-	12
Others	-	-	2	4	4	18	16	14	12	5	1	-	-	76

2.45(1%) ← 2.67(1%) ← 3.47 ← 4.27(1%) → 4.49(1%)
 3.86(1%) ← 4.66
 3.61(1%) ← H-4624(check)

In another yield trial including samples of yellow dent corn from the Southern States of Brazil-Santa Catarina (68 samples) and Rio Grande do Sul (28 samples) with two replications and with H-2464 (I.A.) as check distributed in systematic arrangement, we obtained the frequency distribution of yields shown in table 3. Thus it is evident that these more southern dents do not differ much in yield from the Paulista Dent. It must however be considered that dents from Rio Grande do Sul frequently show in Sao Paulo a lack of adaptation and undesirable plant characters.

Table 3. Frequency distribution of yields of yellow dent corn samples from Santa Catarina and R. G. Sul States, of Brazil.

Origin	Kg/Ha	general mean												Total
		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	3.75 to 4.00	4.01 to 4.25	4.26 to 4.50	
No. of samples	-	1	-	3	2	6	13	8	17	12	3	3	-	68
S.C. %	-	1.47	-	4.41	2.94	8.83	19.12	11.76	25.00	17.65	4.41	4.41	-	100.00
No. of samples	1	-	-	1	2	5	5	4	2	2	3	2	1	28
R.G.S. %	3.57	-	-	3.57	7.14	17.87	17.87	14.28	7.14	7.14	10.71	7.14	3.57	100.00

2.26(1%) ← 2.51(1%) ← 3.42 ← 4.33(1%) → 4.58(1%)
 3.66(1%) ← 4.57
 3.41(1%) ← H-4624(check)

Classifications for plant vigor, lodging, ear height, and ear appearance were also made. In the material from Sao Paulo we found in general

much lodging. Among the southern samples, those from Santa Catarina have a better performance in agronomic characters than those from Rio Grande do Sul. These samples from Santa Catarina came mainly from one region near the sea coast, populated by a special type of farmers, in small holdings and of North European origin.

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