

Variety	x ga	on Ga ^s	Probable Allele
Maiz pisankalla	0	+	Ga ^s
Pollo amarillo	N.P.	0	ga
Pollo blanco	N.P.	0	ga
Pira blanco	N.P.	0 (but late and poll on tillers)	ga

N.P. = No Pollinations

0 = No Seed Set

+ = Full Seed Set

The results of our tests are summarized in Table 2. For most varieties tested, the results were homogeneous. This is not so, however, for the Guatemalan variety 78H, nor for the South American varieties Nariño 330, Eto, and Venezuela 305. In all these varieties there were both plants identified as Ga^s (or Ga) and plants identified as ga. Such a situation could result from recent introgression of a Ga^s variety into a ga variety or the recent establishment of a synthetic variety from varieties one or more of which are Ga^s (or Ga) and the others ga. In this connection, it should be noted that heterozygotes Ga^s/ga or Ga/ga can fertilize Ga^s/Ga^s plants and hence are scored as Ga^s or Ga plants. Some of the varieties tested here in 1959 previously have been tested as accessions from other sources. Chapalote and Zapalote Chico from Anderson and Brown's Standard Exotic Collection in tests in 1953 were found to be Ga^s and Ga respectively. Maiz pisankalla was also previously identified as Ga^s. Reference to Table 2 show that those races again were similarly identified.

The results of the tests are particularly interesting in several ways. In the first place, the collections of Palmero Toluqueño and Harinoso de Ocho which we tested are clearly ga/ga. Palmero Toluqueño, a popcorn, is classified by Wellhausen et al as an Ancient Indigenous race and Harinoso de Ocho as a Pre-Columbian Exotic race. The considerations already presented as to the great selective advantage of the Ga and Ga^s alleles plus the knowledge that United States varieties tested are ga/ga demand the existence of primitive races which are ga/ga. It is reassuring to find that they do exist together with the Ancient Indigenous races (Chapalote and Nal-Tel) which are Ga^s. Secondly, all the other more complex Mexican races tested are either Ga or Ga^s.

With regard to the Guatemalan collections, several identified as Nal-Tel give divergent results in tests for the Ga factors. All that can be inferred here is that if these actually represent one line of descent the ga races are the original types and the Ga^s races the result of introgression into them of another race which is Ga^s. There is a suggestion in the data for these Guatemalan races that the majority of high altitude races may be ga in contrast to the tropical races, but the sample is too small to place much reliance on it.

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1. Adaptation and problems of growing sweet corn in Scotland.

For the first time trials have been conducted with four varieties of sweet corn that I had shown to be the best in English conditions. The main differences in growing sweet corn in Scotland rather than

England are that there is a long summer day in Scotland and that owing to the cooler temperature growth is slower; at the same time sowings have to be made later than in England in order to have the soil reasonably warm, either for germinating seedlings or for establishing young plants put out in soil plots. However, in 1959 (which was an exceptionally good year for Scotland) we had a very good harvest of Canada Cross (=Canada Gold x Singleton's C. 13) and North Star (Joseph Harris Inc.) and somewhat later Northern Cross (Joseph Harris Inc.). The first two varieties gave very nice crops. The difficulty which we had not expected was that there were quite heavy attacks by frit fly (*Oscinella frit*). Several growers in Perthshire are growing sweet corn in walled gardens, mostly using the Canada Cross, but their main difficulty seems to be devastation from frit fly. Considering that the plants are being grown in a latitude of 56°N., it is surprising how adaptable maize can be providing the right germplasm is selected: thus, Canada Gold, North Star and Northern Cross all carry Extra Early Bantam in their ancestry, i.e. flint derivatives. Two varieties are thus adaptable 14° North of their seed origin.

-- Gordon Haskell

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1. A hereditary case of abortion of the corn embryo.

In a Moroccan selfed line, MR 077, grains with aborted embryos or affected by partial necrosis are observed every year on all the harvested ears in variable numbers. The healthy grains proceeding from selfing, as well as the few partly necrotic grains that germinate again transmit this character in the same way. The proportion of affected grains (with regard to the total number of grains of the ear) varies from 15 to 90 per cent.

From a morphological point of view this character shows numerous gradations and all the intermediaries exist between grains with completely desiccated embryo and healthy grains. The least affected grains show a faint, more or less greyish withering on the periphery of the embryo. In most cases the endosperm appears normal.

Hybridizations between line MR 077 and other lines have allowed the following observations:

1. - Cross-pollination does not prevent the appearance of this character on the ear of line MR 077. Consequently there exist hybrid grains with aborted embryos. Mixed pollinations (Selfing + Hybridization) have shown that the proportion of affected hybrid grains could be equal or inferior (according to the pollen lines) to the proportion of affected grains from selfing.

2. - Reciprocal crossing does not produce grains with aborted embryos on the ears of the lines that were pollinated by MR 077.

3. - On ears of selfed F₁ plants in all cases grains with aborted embryos are observed, but at much lower rates than on ears of the line 077. These percentages of affected grains are more or less important according to the crossed lines (see table below). Hitherto no difference has been observed in these percentages, between reciprocal hybrids.