

Other P^{WR} alleles have also been introduced into inbred A171 (P^{WW}) by backcrossing and they all seem to produce the same red cob color following a number of backcrosses suggesting that modified genes and not differences at the P^{WR} locus account for the different shades of red cob color.

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1. Sorghoid maize.

A research project has recently been initiated at the Maize Breeding Station Yousafwala (Montgomery) to develop varieties resistant to the Asiatic Maize Borer (Chilo zonellus Swinhoe). In the quest for genetic resistance against this devastating pest of maize, a large number of open pollinated varieties were obtained from different maize growing countries of the world and planted in the borer nursery during the year 1964. Part of the seed was also grown in another field under artificial pest control where the germplasm was maintained by composite pollination.

One of the varieties received from Italy under the name Zeppetello had plants with rather condensed tassels and small sized ears with hard flinty grains. These plants were composite pollinated as usual. No detailed observations regarding the plant or ear characters were recorded. In the following year, however, this variety was grown under close observation from the seed obtained through composite pollination in the previous years. Planting was done in the 3rd week of August, 1965. Germination and growth of the plants was normal. Observations regarding different plant characters were recorded and are summarized below:

Plant:

Plants short, average height 123.6 cm, early maturing (40.6 days to mid silking); average number of leaves, 10.2; leaf size, medium to small (average length and breadth, 40.6 and 4.8 cm respectively).

Tassels:

Peduncle medium in length, extending 10-15 cms above the flag; central rachis short; branching profuse and condensed. Apparently the tassel resembles a sorghum head; female flowers frequently present in the tassel but seldom set grain.

Ears:

(i) External character: Ears short 5 to 8 cm long, 4-6 cm in diameter, conical in shape, borne on short 3-5 cm long shank; average diameter of the shank 1.26 cm; ear enclosed in 8-10 husks that extend 6-10 cm beyond the tip of the ear; ears in general appearance resemble small compact heads of sorghum with similar type of branching. Some of the branches end in a spike of male flowers.

(ii) Internal characters: Ears in most cases devoid of cobs (pith), instead there is central rachis with primary, secondary and tertiary branches; branches short and stout, female spikelets borne on primary, secondary, and tertiary branches; rachilla of the female spikelets short; glumes hard and indurated, usually bearing two grains like double seeded sorghums; lemma and palea thin and papery.

Grain:

Grain small, roundish in shape, 7.1 mm in width and 7.4 mm in length, hard flinty type, deep yellow in colour.

Most of the tassels shed normal pollen. The pollen when used on silks of other maize varieties proved to be quite effective. No grain formation was obtained in self pollinated ears. Partial to normal setting was observed in the ears pollinated by composite pollen from the plants within the variety. Ears of self pollinated plants that fail to form grain present a clearer picture of the internal structure of the ear. The unusual feature of the ear is a slender sorghum-like rachis with primary, secondary, and tertiary branches bearing female spikelets.

Studies to ascertain the genetic basis of sorghoid characters in this type of maize are being undertaken both at the maize research station, Yousafwala (Montgomery) as well as in the department of Plant Breeding and Genetics in the West Pakistan Agricultural University at Lyallpur.

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NOTE: Photographs of plants and ears of sorghoid maize were included with this report, but could not be reproduced here. They will be preserved in the News Letter files and are available for inspection.

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1. The null-expression of the wx gene in a monoploid sporophyte test.

It is well known that wx wx wx constitution in the endosperm and the wx constitution of the pollen grain result in a