

2. Dp-Df transmission tests for In 2c.

A stock homozygous for chocolate pericarp (Ch) and the paracentric In 2c has been established. Tests were made for possible transmission of the Dp-Df in plants heterozygous In 2c homozygous chocolate by crossing them as ♀ with ch ch. The 1442 progeny were all chocolate, none with colorless pericarp expected from functioning of Dp-Df (the Ch locus is distal to the inversion).

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3. A test to recognize Dp+Dp combinations from interchange crosses of type 2b (Gopinath & B. Genetics 1956).

Since duplications may be of use in modifying chemical composition associated with endosperm or other characters, it is desirable to have methods for identifying individuals carrying the duplication. One method is the following: 1. Cross the two interchanges that are homozygous for the Dominant allele at the locus to be duplicated. 2. The F₁ between them is crossed to a stock of either parent interchange which is homozygous for the recessive allele. 3. In the progeny any plants suspected of carrying the Dp+Dp may be tested by crossing them as ♀ to the double recessive. Plants carrying the duplication should give a ratio of about 3 dominant:1 recessive, and should have about 25% spore abortion. I am not aware that this test has been proposed, but I would be surprised if it hasn't. One feature of establishing a duplication by this method of using interchanges is that the duplicated region is not in tandem, but is in a different chromosome. One possible difficulty in getting it homozygous is that the duplication may show low transmission through the pollen.

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4. Inversions.

The inversion stocks isolated by Anderson and Longley were grown and crossed with W23. Forty-two of those listed in their Table 7 (ARS 34-16) were in the collection received from them.

5. Miscellaneous stocks available.

1. (Ra Ra) gl₁ v₅
2. Multiple recessive bm pr ys virescent with expanded glumes.

6. Progress in producing multiple interchange stocks.

Stocks homozygous for the following interchange combinations were produced: 2-1-7, 1-2-6, 1-3-7, 1-3-9, 3-2-6, 4-2-6, 4-2-8, 3-4-8, 4-6-5, 3-6-5, 6-5-7, and 8-10-9. Crosses were made with the chromosome identification set to check on the interchanges present in these and in the lines produced earlier. A stock homozygous for the 3-2-4-9 interchange combination has been established. The cross with 9-10b produced a 010. This F₁ has been backcrossed to 3-2-4-9 to add chromosome 10. A stock of 3-2-4-9-10 when crossed with 1-5-6-7-8 (already established) should produce plants with 2010. From this we expect to establish a stock homozygous for 3-2-4-9-10 plus 1-5-6-7-8. This is to be X-rayed in an attempt to unite the two rings.