

5. Progress in producing stocks with several interchanges.

From the following crosses of translocations with one chromosome in common, a crossover has been obtained which combines the two translocations:

2 - 3d + 2 - 4b*, 4 - 8a + 2 - 4b*, 9 - 10b + 8 - 9b*,

5 - 7(5179) + 1 - 7(4405)*, 1 - 9b + 9 - 10b**, 5 - 7(5179) + 5 - 6c**.

* = homozygous stock, ** = plants with crossover identified. All have been crossed with standard normals and checked cytologically. 4 - 8(5339) has been substituted for 4 - 8a. In addition there are: (2 - 3d + 2 - 4b + 4 - 8a) - see succeeding note by Inman; and 1 - 5 - 6 - 7 - 8 (produced by successive irradiation).

The translocation labeled 3 - 6c gave 204 when crossed with 2 - 3d. It is probably a 4 - 6. Stocks of a new series of translocations selected by Inman for the purpose of building multiple translocation stocks for special uses have been furnished by E. G. Anderson. Crosses and backcrosses are ready for the selection of possible crossovers.

The two ideas worked out by Inman; 1) the proposal for avoiding high sterility as more translocations are added, i.e. during the building process and 2) the proposals for special uses have raised the hopes for producing the needed stocks. It does not appear to be necessary in corn to use Inman's proposal for the use of gene markers in the early stages as an aid in selecting the desired crossovers, but they may be needed in later stages. They are being used for that purpose in the barley translocations. The closely linked gene markers are introduced in the non-translocated chromosomes brought together to produce the 06.

6. Linkage in polyploids.

Fisher's papers on the analysis of linkage data in autopolyploids have been reviewed by Dr. C. E. Gates, our Experiment Station Statistician. Mimeographed material explaining the mathematics and the method is available.

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