IV. Discussion

The results from simulation followed the results from theory for the ten cycles considered. There are many models which could have been considered but the theoretical formula given should give a reasonable prediction of the relative performance of the two schemes.

The long-term response of the two methods will depend largely on the effective population size which can be maintained. The response over cycles 11 to 20 of the simulation was generally less than during the first ten cycles. This was not surprising with the small population sizes used. For any long-term selection program, large populations are needed to avoid loss of genetic variation due to random drift and to give greater response to selection (Robertson, 1960). Full-sib RRS will enable the breeder to maintain a larger effective population size than half-sib RRS but this would reduce the higher selection differential possible. The breeder would need to decide whether to sacrifice short-term gain to make greater long-term gain.

In corn breeding there will be selection for two-earedness in the nursery in the full-sib RRS in order to produce the progenies required. To the extent that multiple-earedness is correlated with yield (Lonnquist, 1967) this would add to the selection response. Selection for two-earedness could also be incorporated into a half-sib RRS program, but this generally has not been done.

A major advantage of using full-sib RRS is the ability to reproduce high-performing families to produce commercial hybrids, using the extraction procedure suggested by Hallauer (1967) and Lonnquist and Williams (1967). This enables a breeder to combine the efficient development of these new hybrids with population improvement and it should prove a valuable technique in plant breeding. Experimental evaluation of it is needed, and such work is now underway at this station.

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Brief Notic / Kurze Mitteilung

The Gesellschaft für Genetik e. V. München is holding its Third Annual Meeting in Göttingen (Germany) from May 20th—May 22nd, 1971

The scientific meeting will begin on May 21st at 9 AM. Main themes of this day are to be:

a) Production of haploids and their uses in breeding

b) New approaches to investigation and use of heterosis.

During the evening, a round table discussion will take place concerning the theme

"Plant breeding and its importance in nutrition of the world".

On May 22nd, proffered papers will be read in the fields of:

a) Molecular and Classical Genetics

b) Breeding of grains.

Forms for registration can be obtained by writing the Institut für Pflanzenzüchtung der Universität Göttingen, D-34 Göttingen (Germany BRD), Von-Siebold-Straße 8.