sampling for moisture determinations and the weighing and recording.

The herbage is cut up to such an extent that botanical separations are impractical. If data on percentages of different species are needed they must be acquired by visual estimates prior to harvesting or by hand separations of samples taken before harvest.

Experiments are planned to determine the relative magnitude of experimental errors associated with this type of harvester as compared to the sickle-bar type of mower.—H. R. Fortmann, Associate Professor of Agronomy, The Pennsylvania State University, University Park, Pa.

FURTHER PROGRESS IN RECURRENT SELECTION FOR GENERAL COMBINING ABILITY IN SWEETCLOVER

In an earlier publication results were presented for the first cycle of recurrent selection for general combining ability in sweetclover, Melilotus officinalis. Data in this earlier report indicated a very marked, favorable change in frequency for high general combining ability. Data are now available from an analysis of the second cycle of recurrent selection tested in 1955.

In this study, as in the previous report, approximately 200 plants in the Syn 2 generation of the second cycle were self-pollinated and open pollinated seed harvested from each selfed plant. Replicated trials were conducted in single rows 3 feet apart and 16 feet long using open-pollinated seed from those plants in which sufficient inbred seed was available to produce the next cycle from recombination and selection.

The frequency distributions for general combining ability of a sample of 55 plants in the second cycle are reproduced from an earlier publication for comparison with the distribution for general combining ability of a sample of 55 plants from the first cycle. All data are presented as green weight in the open-pollination progeny test had been analyzed. In this system of breeding with a biennial crop only one cycle can be produced in 5 years; i.e., 2 years for flowering plants in Syn 1, 2 years for progeny harvested from Syn 2, and 1 year for testing of the first-year growth followed by separation of S1 lines during the subsequent winter months.

The progress made by the second cycle was greater than the results published for corn by McGill and Lonnquist. Two reasons may be advanced to explain the large gains made in each of the two cycles:

1.—The original population of Madrid may have been slightly exceeded the means of the 10 plants now available.

In both the first and second cycles the performance of the Syn 2 plants exceeded the means of the 10 plants included as the check variety from seed maintained in cold storage to make possible a direct reference to the original lot of seed used in this study.

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1.—The original population of Madrid may have been better suited to the environment than those plants selected in the first year of growth. Hence, considerable improvement would be possible.

2.—In each cycle of recurrent selection the tester plant was the tester parent, rather than a uniform standard tester. Because each successive cycle was different from the previous cycle, the higher performance of the Syn 2 plants may be due to the fact that the tester parent also would contribute to the level of combining ability. It is quite possible that the major reason for the consistently large gain in each of the 2 cycles for which data are now available.

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