The immediate mean yield of Composite Cross XIV should exceed that for Composite Cross XV in California, and segregation will be restricted to fewer alleles. Composite Cross XV will give a much greater diversity of recombinations, however. Thus, in theory, the one population is intended to provide a means for substituting more favorable recombinations of genes in a fairly well-stabilized adaptation complex; the other, to provide new genes and new adaptation complexes. Both $F_2$ populations will be grown in isolation, at normal seeding rates, on 1/10-acre plots in 1945. Only male-sterile plants, naturally cross-pollinated, will be harvested, and the seed there from bulked. This will then be planted on 1/10-acre plots in 1946, and the selection procedure repeated. After about three seasons of continuous random natural crossing under competitive conditions, and when approximately half of the population has become homozygous male-sterile, it is proposed that the selection procedure be reversed, either by bulk or pedigree selection, to fix the normal fertility of the components, to increase homozygocity, and to begin their individual evaluation for yield and other qualities.

Admittedly, the course of the breeding procedure and all the likely problems associated therewith have not been fully charted. In giving this preliminary report, two objectives are sought. One is to emphasize for the benefit of both theoretical and practical breeders, the enlarged potentials afforded in barley breeding by male-sterile; the other, to offer available seed stocks to interested breeders.—COIT A. SUNESON, Division of Cereal Crops and Diseases, Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, U. S. Dept. of Agriculture, and the Department of Agronomy, University of California, Davis, Calif., cooperating.

THE EFFECT OF VARIOUS FACTORS ON THE VALUE OF RYE FOR GREEN MANURE

The value of green manures in a soil management program is readily recognized. Rye is extensively used for this purpose. Although not a legume, it has certain advantages over a number of crops among which are wide climatic adaptability, low cost of seed, a less critical lime and fertilizer requirement than a legume, a rapid rate of growth, and resistance to winterkilling.

The prospect of low-cost nitrogen in the post-war period will tend to diminish the advantage of growing a legume rather than a non-legume for green manure purposes. A number of factors are associated with the value of a crop for green manure purposes. Among these factors are the yield of both tops and roots, stage of maturity of the crop, percentage of nitrogen in tops and roots, the effect of an application of chemical nitrogen on the growth and composition of the crop, the ability of the crop to absorb chemical nitrogen and thus prevent leaching of the nitrogen from the soil, and the effect of stage of maturity of the crop on the moisture content of the soil.

1Contribution from the Department of Agronomy, University of Delaware, Newark, Del. Published with the permission of the Director of the Agricultural Experiment Station.