

BLIND-SEED DISEASE OF RYE-GRASS

Work in the control of this serious disease is being approached from three different angles: (1) crop management; (2) therapeutics; (3) the breeding of resistant strains.

Some therapeutic treatments using commercial fungicides have been applied to crops of rye-grass infected with blind-seed disease. Dusting with a copper compound has given a 12 per cent. improvement in germination, but further experiments with this and several new therapeutants are required.

The problem of breeding a strain of perennial rye-grass equal to the present pedigree strain but resistant to the disease depends on the possibility of combining the agronomic characters of pedigree rye-grass with the resistance found in some otherwise inferior types. From second-generation progenies produced from crosses of resistant plants to pedigree plants, a number of resistant plants superior agronomically to the original resistant plants but not the equal of pedigree plants have been obtained. Further generations of crossing to plants of pedigree type will be required to prove whether a resistant strain similar in other respects to the pedigree strain can be produced.

MEASUREMENT OF PASTURE-PRODUCTION FROM PURE AND MIXED SWARDS UNDER DIFFERENT MANURIAL TREATMENTS

A comprehensive series of plots has been established to measure the effects of added phosphates and lime on pure swards of grass, of clover, and mixtures of these species. Cross-treatments to measure the effects of the return of animal residues and added nitrogenous fertilizers have resulted in a wide range of productivity and compositions, both chemical and botanical. Substantial evidence is being obtained to support the contention that the effectiveness of added phosphate is influenced by the type of clover present in the pasture. It appears, also, that much phosphate has been, and is being, wasted in actual farm practice.

TRIALS IN GRAZING AND MANAGEMENT METHODS

These are now well established and valuable data is being secured. Demonstrations on the plots have attracted wide attention.

MEASUREMENT OF CROP VARIETIES

Yield and feeding value trials have been continued on behalf of the Agronomy Division. Crosses between chou moellier and field cabbage are encouraging enough to merit further breeding-work.

SEED-PRODUCTION TRIALS

Trials on old cocksfoot pastures in Canterbury have been continued to study the effects of (a) added fertilizers and (b) mechanical treatments of the stand. The effects of added nitrogenous fertilizer as the basic requirement for high yields and the doubtful value of superphosphate alone are being investigated further.

Various nitrogenous fertilizers at different rates were studied in relation to seed yield of perennial rye-grass and short-rotation rye-grass. Outstanding increases of up to 45 per cent. in seed yield were obtained, as well as a general improvement in quality, where heavy dressings of nitrogen were applied.

HERBAGE ANALYSES

Botanical analyses of herbage for the Department of Agriculture and this Division are being made regularly, while plant material for chemical analysis is also being supplied to the Plant Chemistry Laboratory.