

75° F., and the effects of the following treatments were investigated: (a) hormone versus no hormone; (b) coconut fibre versus washed sharp river sand as a rooting medium; (c) splitting of basal $\frac{1}{4}$ in. to $\frac{1}{2}$ in. of the cutting. No hormone treatment used gave results equal to untreated. Coconut fibre gave superior results to sand, more particularly in cases where the bottom heat was applied by heated water below the rooting medium. There was definitely no gain through splitting the bases of the cuttings. These results were based on some six hundred cuttings.

DRAINAGE RESEARCH WORK

A. W. HUDSON

Maintenance Work and Recording.—Continuous records of outflows from the drainage experiments were obtained up to the beginning of December, when the meters were removed for overhaul as no further outflows were expected.

Routine testing of about three hundred mole junctions of three different types were carried out.

Analysis of Records.—Records collected during the war years are being examined and it is hoped that some of the investigations which have been the subject of these records will be finalized. Records from the following experiments have been collected:—

- (1) A comparison of fast pulling with slow pulling of the mole plough. Records examined indicate that efficiency of drains was not affected by pulling at speeds of from one to three miles per hour.
- (2) Uphill versus downhill pulling of moles. Records from this experiment indicate that there is no justification for the practice sometimes adopted of pulling one way only.
- (3) A comparison of the effect of a thick blade with a thin blade on the life of a mole channel. A thick blade definitely facilitates the entry of water into the mole channel but may also hasten deterioration.
- (4) A comparison of three different depths of pulling moles. The shallow moles gave greater outflows initially, but records so far examined indicate that they may also deteriorate more rapidly.
- (5) A comparison of two different types of plug.
- (6) A comparison of five different types of backfill material over tile drains.

Concrete Field Tiles.—Owing to the difficulty of procuring earthenware field tiles and the increasing cost of them, investigation of possible alternatives is being made, and to this end information concerning machines for manufacturing concrete field tiles is being collected.

NUTRITION EXPERIMENT

E. A. CLARKE

Results of the first four years of the trials have been worked up and their presentation in a form suitable for publication has been completed.

Manurial Trials.—This trial is now in its second year of a further four-year period, having been restocked in February, 1944, with two-tooth ewes. Results to date confirm the previous findings that in so far as thrift and productivity of ewes and lambs are concerned there are no measurable differences which can be attributed to manuring treatments. Differences in carrying-capacity are of much the same order as in previous years, although owing to the favourable winter conditions more stock has been carried on all plots. Lime effects are becoming more obvious, and in the case of some plots of the control area (1 cwt. super per acre) moss, weeds, and volunteer grasses are becoming more evident. Records are being kept in the same detail as in the past.

This long-range experiment is producing much valuable basic data on the sheep and on pastures under stabilized management and will provide increasingly valuable material for the study of soil reactions to manuring treatments.