Fig. 2.—Uncertified white clover sown with the same mixture as Fig. 1.
[H. Drake, photo.

These points were based on the amount and vigour of perennial rye-grass in the sward. The station-selection lines have proved slightly better than the certified mother seed. It is from lines selected and bred at the Plant Research Station that our pedigree seed is derived, and this seed is the highest quality available. Nevertheless certified mother seed and certified permanent-pasture seed can be relied upon to provide a truly permanent pasture if climatic conditions and management are suitable. It will be seen from the points given above that, at their best, the uncertified types have been showing only fair results.

New Zealand strains of cocksfoot were compared with Aberystwyth (Wales) and Danish lines. During the early period of the trial New Zealand certified Akaroa cocksfoot was superior to all imported lines. After about twelve months the cocksfoot began to be less in evidence, and was replaced by weeds.

Timothy seed grown in New Zealand was compared with American-bred lines, but this species did not at any time provide much feed, and it is doubtful whether timothy, or even cocksfoot, can be considered as very valuable components of Waikato pastures under normal grazing conditions. Cocksfoot is undoubtedly a most valuable grass under certain conditions, but in high rainfall areas, where the pasture is managed to suit rye-grass and white clover, cocksfoot will not readily thrive.

Clover.

Certified and uncertified strains of New Zealand white clover were sown in comparison with imported Kentish and Danish seed and a Plant Research Station selection. These plots have given very interesting results. Although all strains grew well during the first season, the imported Danish strains soon began to thin out and were not nearly as vigorous as the certified types. Imported Kentish seed continued to make quite dense growth, but it is a small-leaved type and much lower in production than the New Zealand types. As the trial progressed the most persistent and highly productive strains were the certified strains, with a station-selection line outstanding.

The differences between various strains of red clover were never very marked, although a line bred at the Plant Research Station appeared slightly better than the others. It appears very doubtful whether red clover is a necessary or valuable constituent of first-class mixtures on high fertility land such as that on which the trial was carried out. Undoubtedly it holds a very important place in mixtures on poorer land, where it gives a large bulk of feed in the early life of the pasture and builds up the fertility of the soil.

Subterranean clover strains were compared, but here again, although subterranean clover plays an important part in building up the fertility of light land and under low rainfall conditions, it cannot compete with vigorous white clover in the Waikato.

Simple Mixtures.

A series was sown containing as a basal mixture 25 lb. certified perennial rye-grass, 10 lb. certified Akaroa cocksfoot, and 3 lb. certified white clover. To this mixture one of the following species was added in each plot and the swards of each compared: Crested dogstail, timothy, *Poa trivialis*, paspalum, Italian rye-grass, Western Wolths rye-grass, Alsyke clover, broad red clover, Montgomery red clover, *Lotus major*, and subterranean clover.

Each of these added species has shown up to some extent, but it can safely be said that none has improved the existing rye-grass - white clover sward, with the possible exception of paspalum which, however, was slow to establish and was not much in evidence during the first two seasons. During last summer the paspalum produced more green feed than the other plots and demonstrated the value of this grass under dry conditions.

Probably the most interesting series in the trial was the one in which different strains of the rye-grass - cocksfoot - white clover base were sown. Three selected strains of rye-grass were used—Akaroa and Aberystwyth cocksfoots, New Zealand No. 1, and Kentish and certified permanent pasture white clovers. The main differences have been in the growth and persistency of the rye-grass in each plot.

Fig. 3.—Certified rye-grass forms the basis of high-producing swards.
[E. R. Marryatt, photo.