

The Weather Bureau has installed a standard climatological station on the farm. A modified system of soil-drainage gauges is ready for installation, preliminary investigation showing that the classical type of lysimeter would be prohibitively expensive to construct at the present time. A travelling laboratory in the form of a specially fitted caravan has been constructed and given preliminary trials. So far it has been found well suited for rapid soil- and tissue-test work in the general programme of correlating chemical methods of determining manurial requirements with the results of observational field experiments. Detailed reports of the work of the various sections follow.

Field Research.—In the field-work carried out at this Station much attention has been given to the question of the technique of pasture measurement, and a series of trials designed to compare existing techniques has been laid out. Applications of fertilizers to the trials will be made this autumn and the trials themselves will then be under way. Work so far done has consisted in laying them out and in making preliminary cuts for purposes of establishing the degree of uniformity over the area.

Observations and weighings have continued on the technique of keeping sheep at constant weight on the $\frac{1}{2}$ -acre paddock, and certain preliminary comparisons have been made with the pasture-production measured from the adjoining control plots of the "nitrogen" series. So far differences of the order of 16 per cent. have been observed between the mower and the sheep techniques.

The series of trials with nitrogenous fertilizers was laid down primarily with the objective of chemical determinations of the fate of added nitrogen. The trial is being continued, employing the mowing and clippings returned technique, with a view to following up effects on pasture yield of the different nitrogenous fertilizers.

A trial designed to test out under the mowing and grazing technique different types of imported phosphatic fertilizers such as themo-phos, silico phosphate, and metaphos is at present being laid down and should provide information on the value of these materials on the Hamilton clay loam.

Investigational work on the Rukuhia peat soils has been commenced and some striking effects from the use of nitrogenous fertilizers have been noted, particularly where these have been used at high rates of application. Initially there is little or no response to lime, phosphate, and potash, although there is evidence to suggest that a potash response will be more evident with the passage of time. Work on the peat has so far been restricted to observational trials, but with the sowing-down of a recently acquired area it is hoped that mowing trials will be undertaken to give some quantitative measurement and responses to various treatments. In conjunction with the Agrostologist, investigations on pasture species—particularly clovers—are being planned.

An extensive trial employing the white-clover technique has been laid down to compare the effect of different rates and frequencies of applications of lime, superphosphate, serpentine-superphosphate, and potash.

Soil-moisture Studies.—An irrigation trial was commenced in January on the Hamilton clay loam to investigate the effect of water as a limiting factor on pasture-production. An area of approximately $2\frac{1}{2}$ acres of sloping ground, so chosen because of its proximity to an existing high-pressure water-supply, was subdivided to give 6 plots of 0.43 acre with an interconnecting race. The type of irrigation employed is a spray system operating with movable pipes. Two plots are irrigated to receive 1 in. of water at each irrigation, 2 to receive $\frac{1}{2}$ in., and the remaining 2 remain unirrigated.