

The poor autumn recovery, cold wet winter and early spring, together with the early dry summer, will partly account for the lower yields in 1943.

Nutritional Block, Massey Agricultural College.—Yield and botanical composition of this trial have been kept up to date. During the past year a much better correlation has been obtained between stock carried per acre and dry matter of pasture produced, but the difficulties of accurate measurements and the running of pasture and animal trials together still present great problems. Relative yields of dry matter per acre over the past year are as follows:—

STRAIN TRIAL		MANURIAL TRIAL	
(Pedigree + Pedigree — 100)		(1 cwt. super. — 100)	
Pedigree rye-grass + pedigree white clover ..	100	1 cwt. super.	100
Pedigree rye-grass + low HCN white clover ..	103	4 cwt. super.	108
Pedigree rye-grass + Mother seed white clover ..	102	4 cwt. slag	102
Mother seed rye-grass + Mother seed white clover	103	4 cwt. super. + lime	108
Mother seed rye-grass + pedigree white clover ..	109	4 cwt. super. + lime + potash	111

Botanical analyses for all treatments and also individual paddocks were continued and considerable improvement is noted, whereas eighteen months ago *Poa trivialis* and *Poa annua* were becoming dominant. An improvement in grazing technique has brought about a gradual return to the more desirable rye-white sward.

Silage.—Silage work has continued. During the winter the material ensiled the previous spring was reweighed and dry-matter losses in various treatments determined. These are as follows:—

	Loss of Dry Matter ensiled, Per Cent.
Addition of molasses	27.1
Sulphuric acid	20.3
AlV (hydrochloric acid, sulphuric acid)	25.5
Control	27.5

The acid silage proved difficult to feed to stock. Lime was added to reduce the acidity, but although this was well mixed it did not dissolve rapidly enough, and this, with handling between pit and paddock, resulted in the silage arriving in the paddock in a condition that proved unpalatable. This year a more soluble form of soda-lime mixture is to be used, and better results are expected.

During the present season work has been continued on the same scale in order to confirm previous seasons' results, and various methods are being tried experimentally to reduce losses in dry matter.

Exudate has been collected from all pits and stacks, pH having been determined at intervals. Digestibility trials were carried out on the material ensiled, and further trials will be made on the resultant silage.

Botanical Analyses.—Samples are still being received from all parts of the country, and trials both on the Station and elsewhere benefit from this service.

Short-rotation Trial, Conway Area.—Since the last report, trials of various rye-grasses and clovers have been started. The technique of proportional return has been followed, this method enabling several types of pasture to be measured within the one enclosure without transference of fertility, yet being grazed by and receiving trampling from sheep. The method briefly is to collect all animal residue from the grazing sheep and return to the plots the same proportion as the dry matter yielded by that plot. The trial has not yet been in operation long enough to give conclusive results.

AERODROME-TURF PRODUCTION

There has been no slackening of the aerodrome grassing and turf work during the past year. The officers engaged on this work have been continuously employed in an advisory capacity and at times have given full-time supervision to certain undertakings. Several new areas have been sown to grass, and existing flying-fields have been given appropriate treatments to maintain or improve them. Some 7,500 acres are now under aerodrome in New Zealand. Aerodrome-maintenance has consisted of (1) oversowing with grass-seed as necessary, having regard to all ecological factors; (2) appropriate top-dressing with artificial fertilizers; (3) improvement of surface drainage; (4) proper management of grass turfs by mowing; and (5) chemical spray treatments of the turfs to define landing-areas for pupil pilots.

Proper turf-management on aerodromes will be possible now that adequate mowers have been made available through recent importations. A more rapid building up of a tough, hard-wearing turf can be expected now that grass growth can be properly controlled.

The phosphate status of the soils on many aerodromes has been raised to a satisfactory standard, and considerable economies in phosphate fertilizer for aerodromes is assured. Nitrogenous fertilizer, mainly as sulphate of ammonia, is still required in large quantities, although the rate and frequency of application has been reduced on certain aerodromes where a satisfactory turf and a suitable soil condition has been created through the earlier use of heavy applications of sulphate of ammonia. Very satisfactory progress has been made in grassing fields having soils which are peculiar in character and unsuited to any of the grasses normally used in agriculture or turf work.

A conference of the Royal New Zealand Air Force and Public Works Department personnel engaged in aerodrome-maintenance was held during the year at Palmerston North.

GENERAL

Greenkeeping Research.—This work has continued, and arising out of it has come the call for additional advice on turf-maintenance. The extension of the work under practical playing conditions on some bowling and croquet greens in Palmerston North has demonstrated the value of the information gleaned from the research turf plots at Hokowhitu. Resistance of turf to play, however, can only be measured under actual playing conditions, and there are yet many problems for study under such practical playing conditions. One of the outstanding problems is the question of soil structure and the