

RESEARCH WORK AT AGRICULTURAL COLLEGES

Grants were made by the Department during the year to Canterbury Agricultural College and Massey Agricultural College for a number of projects which are reported on below.

CANTERBURY AGRICULTURAL COLLEGE

SUBTERRANEAN CLOVER PASTURE INVESTIGATIONS

J. W. CALDER

The seventh season has been reasonably good for the growth of subterranean clover pastures. An excellent establishment occurred in February, 1945 and heavy rainfall in August resulted in substantial growth in the early spring months. November was very dry and the herbage dried off considerably, but a recovery occurred in December. The latter half of January and early February were dry and the sheep have grazed most of the available herbage.

The method of measuring production was altered this season. For the past six years a self-maintaining flock of Corriedale ewes was carried on each of the four treatments. Production was measured in terms of live weight and wool-production of lambs, ewe hoggets, and ewes. This season dry sheep were used and production measured in terms of sheep-grazing days—tupping ewes for two months (April to May) and ewe hoggets for four months (October to February); no grazing June to September.

The plots are 3 acres in area and there are six replicates of each of the four treatments, making a total of 18 acres per treatment:—

- Treatment A: 5 cwt. of lime alternating yearly with 1 cwt. of superphosphate.
 Treatment B: 2 cwt. of superphosphate annually—no lime.
 Treatment C: 2 cwt. superphosphate annually—1 ton lime in 1938.
 Treatment D: 2 cwt. superphosphate and $\frac{1}{2}$ cwt. potash annually—1 ton lime in 1938.

Carrying-capacity, in Ewes per Acre, over Seven Seasons

Treatment.			First Year, L*, 1939–40.	Second Year, S*, 1940–41.	Third Year, L*, 1941–42.	Fourth Year, S*, 1942–43.	Fifth Year, L*, 1943–44.	Sixth Year, S*, 1944–45.	Seventh Year, L*, 1945–46.
A	..	..	1.0	1.3	1.6	2.15	1.60	3.15	2.2
B	..	..	1.3	1.2	1.2	1.44	1.73	2.31	2.1
C	..	..	1.6	1.7	1.8	2.05	1.70	2.92	2.2
D	..	..	1.6	2.1	2.3	2.35	1.78	3.20	2.58

L* = lime applied to treatment A. S* = superphosphate applied to treatment A.

Total Quantity of Lime and Fertilizer applied.—Over the establishment period and the grazing period, a total of nine years, the following quantities of lime, superphosphate, and potash have been applied to the respective treatments:—

Treatment A: 5 cwt. superphosphate (five applications) and 1 ton lime (four applications).

Treatment B: 19 cwt. superphosphate (ten applications).

Treatment C: 19 cwt. superphosphate (ten applications) and 1 ton lime (one application, 1938).

Treatment D: 19 cwt. superphosphate (ten applications), 4 cwt. potash (eight applications), and 1 ton lime (one application, 1938).