SHEEP GRAZING TRIALS.

SUMMARY.

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MANURING TRIAL.

This trial was laid down in 1939, when it will be recalled improved pastures and heavy top-dressing were popularly held to be responsible for ill-thrift in stock and in many quarters were believed to be the cause of such troubles as facial eczema.

The layout of the trial was on the basis of randomised blacks and in each of the five treatments (below) there were five replications, each of one acre.

The manuring treatments, were (per' acre per annum)

(1) One cwt. superphosphate

(2) Four " "

(3) Four " basic slag

(4) Four cwts. superphosphate plus an initial application of two tons ground limestone and five cwts. annually.

(5) As for (4) plus two cwts. 30% potash salts.

Two tooth ewes, selected on a restricted random basis (for body weight and wool type) were used as experimental animals and each treatment carried at all times 20 or 4 per acre. Each small experimental flock of 20 sheep remained on its particular treatment for 4 years, replacements being made as necessitated by deaths and failure to breed. Southdown rams were used and the lambs killed and marketed. Ewes, additional to the experimental flocks, were carried as necessary and yearling cattle used in the spring to control the pastures.

It is to be emphasised that the aim of these trials was not to determine accurately carrying capacity, but to determine the effect on thrift and productivity of ewes and lambs, of the various pastures under a system of management which aimed at keeping the sward young and tender at all times and with a rate of stocking which enabled the experimental animals to feed to appetite on the pastures alone throughout the year. It was found most convenient to adapt a five day rotation system of grazing.

RESULTS:

1. No differences in the thrift and productivity of the ewes and lambs could be measured. Detailed records have been kept for seven years of the growth rate of ewes and lambs, deaths, lambing percentage and infertility in ewes, fleece weight, wool quality in its broadest sense, wool valves, fat lamb quality.

2. The sheep have at all times been confined to their own particular plots and have had no opportunity to show any preferences. Judging by the uniform results for growth and production, they have apparently had similar appetities on all treatments. The slag plots have appeared to be more evenly grazed and in latter years the lime plots also; but differences in this respect have been small and at no time very obvious.

3. Any areas of ranker growth which appeared on any treatment were unpalatable and impossible to control with sheep.

4. The more vigorous the growth the more difficult was the problem of control and efficient utilisation with sheep. Irrespective of manuring treatment well controlled pasture was very

palatable and ,-invariably evenly grazed.

5. Carrying capacity. Stock carried on each plot has been recorded daily and is summarised in arbitrary ewe equivalents in the following table for the years 1940-43 inclusive.

CARRYING CAPACITIES IN EWE EQUIVALENTS (EE) BY QUARTERLY PERIODS- : - 1940-43 INCL.

p - w -	M1	M2	M3	M4	M5
March-May 1940	11.2	11.2	11.5	10.7	11.1
June-Aug. "	4.1	4.1	4.1	'4.1	4.1
Sept.-Nov. "	9.9	10.5	10.0	10.0	9.8
Dec.-Feb. 1941.	5.0	5.3	5.3	5.2	6.8
Average 12 mths.	7.6	7.8	7.7	7.5	7.9
March-May 1941	9.9	10.0	10.8	10.9	11.3
June-Aug. "	4.0	4.2	4.2	4.3	4.6
Sept.-Nov. "	9.8	8.6	9.0	10.8	11.2
Dec.-Feb. 1942	8.1	10.2	10.8	11.1	11.2
Average 12 mths.	.		8.7	9.3	9.6,
March-May 1942	8.8	9.2	8.7	9.6	9.8
June-Aug. "	4, 0	4.0	4.1	4.3	4.3
Sept.-Nov. "	11.1	15.6	16.2	18.0	17.9
De&.-Feb. 1943	8.8	10.1	10'8.2	11.5	11.6
Average 12 mths.	8.2	9.7.	9.8	10.9	10.9

6.' A fuller account of this trial 'has recently' been published in Proceeding 7th Annual Conference of the N.Z. Society of Animal Production 1947.

11. TRIALS OF H.I. ('SHORT ROTATION) V's PEDIGREE.

PERENNIAL RYEGRASS:

This trial was laid down in 1945 to test the merits of short rotation rye-grass under sheep-grazing.conditions in this district.

The following scheme, was 'adopted.'

(a) Set Stocking.

, (i) Five one. acre plots laid down with

Pedigree Ryegrass Ryegrass '40 lbs,
" White Clover 3 lbs.

'(ii) Five one acre plots laid down with

Pedigree Ryegrass '20 lbs.
Short Rotation Ryegrass (HI) 20 lbs.
Pedigree White Clover 3 lbsi

(b) - Rotational Grazing (Five day rotation).

(i) Five one acre. plots sown down as for (i) above.

(ii) Five one acre plots sown down as for (ii) above.

This trial was stocked to a safe carrying capacity with two

tooth ewes in 1945, and the same records kept as for the manuring trial. Mo effects on thrift of stock have, bssn observed. The carrying capacity is summarised in ths following table:-'

1945 - 47.

CARRYING CAPACITIES IN 'EWE EQUIVALENTSP (EE) BR QUARTERLYD. S .

	1	2	3	4
June - Aug. 1945	**4.1**	5.1	**4.4**	**5.2**
Sept. to Nov. "	**l-l.5**	10.5	11.1	10.2
Dec.-Feb. 1946	11.2	10.1	10.9	9.9
March-May	8.7	8.2	9.5	8.8
Average for 12 months.	8.9	**a.5**	9.0	8.5
June-Aug. 1946	6.8	6.6	**6.8**	6.8
Sapt .-Nov. "	9.9	10.1	9.9	10.3
Dec.-Feb. 1947.	12.7	12.5	12.6	11.5
Mar. - May 1947.	7.8	7.2	8. 6	8.1
Average for 12 months,	9..3	9.1	9.5	9.2
June-Aug. 1947.	7.3	6.8	6.9	6.8

1. Ped. Rye + White Clover. } Rotationally Grazed.
2. H.I. " + Ped. Rye + White Clover }
3. Ped. Rye + White Clover } Set Stocked
4. H.I. " + Ped. Rye + White Clover }

Theshort rotation (HI) pastures showed a big increase in carrying capacity in the first late winter early spring period, this being most marked in the month of August.,.., 1945, when the increase amounted to over 1½ sheep. From September of the first year differences between the HI 'plots and the pedigree plots. -have been small.

At the present time there is but a trace of the HI rye remaining on any plot.

The main general conclusions are:

(1) The inclusion of HI in an autumn sown pasture gave a worthwhile increase in pasture production in the late winter and early spring of the first year.

(2) HI ryegra ss , under this system of management did not persist in association with pedigree ryegrass.

(3) At the present time it would seem that the pastures are all perennial ryegrass - white clover dominant and all equally productive.

(4) Differences between the set stocking and rotational grazing have not been of any magnitude. The fat lambs from the set stocked plots have however, been superior in weight and quality.

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