

rye-grass on the plots treated with superphosphate after lime. In the spring a great growth of meadow-foxtail was to be seen, while in January timothy-heads made their appearance. White clover made a good showing on all the manured plots.

A careful study of the flora reveals the fact that the omission to top-dress the paddock last autumn has been responsible for the marked intrusion of weeds and poorer grasses, notably tarweed (*Bartsia viscosa*), Yorkshire fog (*Holcus lanatus*), and sweet vernal (*Anthoxanthum odoratum*). It is evident that land such as that under study at present should receive an annual dressing of at least 2 cwt. of phosphatic manure per acre, but a larger dressing of 3 cwt. to 4 cwt. would be preferable. The following interim report will give some idea as to the state of the plots at the time of an inspection made on 10th October, 1922:—

Plot 1 (control): Fair growth, poor colour, not as good as central control. Sweet vernal and moss very noticeable, also red-top on unlimed portion.

Plot 2 (Nauru superphosphate): Decided difference between this plot and No. 3 at the boundary. This plot is undoubtedly the best in the paddock; colour and growth good. Growth on limed and unlimed portions about the same.

Plot 3 (Nauru ground rock): Unlimed portion looks decidedly better than the limed; very little foxtail and cow-grass to be seen.

Plot 4 (control): Easily picked out: sweet vernal noticeable; poor colour. No perceptible difference between limed and unlimed portion.

Plot 5 (Ephos): Fair amount of foxtail and clover showing; unlimed portion slightly better than limed.

Weighings were taken from the various plots on 21st December, 1922. If we were able to balance the extra water-content of the grass at this date against the extra growth that would have taken place between 21st December and 18th January (the date on which weighings were made last year), it is probable that our results would admit of comparison with those of last season. The following were the green weights for this season (taken on 21st December) in tons per acre:—

(1.) Control, limed, 6.2 tons; unlimed, 4.9 tons.

(2.) Nauru superphosphate, limed, 13 tons; unlimed, 10 tons.

(3.) Nauru ground-rock phosphate, limed, 6.75 tons; unlimed, 8.8 tons.

(4.) Control, limed, 5.9 tons; unlimed, 6.7 tons.

(5.) Ephos phosphate, limed, 5.7 tons; unlimed, 7.9 tons.

On a percentage basis the results may be stated as follows: Controls, unlimed, 100; controls, limed, 104; Nauru super with lime, 224; Nauru super without lime, 172; Nauru rock with lime, 116; Nauru rock without lime, 152; Ephos with lime, 100; Ephos without lime, 136.

The use of lime without manure does not appear so far to have shown any very appreciable effect this season, either in the actual pasture-composition or in the yields from the respective plots. It will be seen from the foregoing figures that the difference between the average from the limed controls and that from the unlimed controls is a negligible one. Nauru superphosphate used with lime has doubled the results given on the control plot. Superphosphate used alone has shown an advantage of 72 per cent. over the controls. Nauru ground rock used with lime has shown very little advantage over the untreated