

the grazing conditions outstrip the other plants, and in some cases eliminate them entirely. In a reasonably well-grazed sward rye-grass, if present, assumes control, but rye-grass, not having the ability of white clover to cover the ground, does not eliminate the other grasses, as white clover through its stoloniferous growth suppresses other clovers. Thus dressings of potash finally improve a sward through distinct phases. First, increase in growth of all the clovers present, the elimination of slower-growing and of annual species, and the establishment of a thick, vigorous sole of white clover, then improvement of the pasture-grasses of higher production and the suppression of the more poorly productive ones. At the same time the weeds are greatly suppressed or eliminated by white-clover growth. Some weeds more fitted to the better growth conditions survive to a limited extent.

The aim of every farmer should be to obtain on all his pastures a vigorous sole of white clover. In potash-deficient soils this is not possible with the use of lime and phosphate, even with heavy applications. The addition of potash enables the white clover to thrive, bringing about increased grass-growth and increased production of farm-products, and will put the phosphate and lime top-dressing of the sward on a more economic footing. Even the effect of the stock-droppings are limited by the lack of potash in the soil. Stock-droppings on potash-treated plots provided a richer verdure than the droppings on plots not so treated in potash-responsive soils.

WAIHI RESPONSES.

The Waihi Plains, Ohinemuri County, do not consist of level country but comprise gently rolling downs, in area about six miles long by four miles wide. They are surrounded almost entirely by high scrub-covered or bush-clad hills. The soils are derived from volcanic-ash showers. The country is well watered by streams. The soils on the rolling downs are sandy loams. Alongside the streams are small level stretches of land comprising alluvial soils of a heavier nature than the sandy loams. Small patches of the alluvial soils are covered by a small amount of peat.

On the alluvial soils the pastures are quite good and are composed mainly of rye-grass and white clover, with much sweet vernal, crested dogstail, timothy, cocksfoot, and rib-grass. On the peat areas the pasture is also quite highly productive, but contains much Yorkshire fog and some *Lotus major*. The much more prevalent sandy-loam soils have been grassed with some difficulty. The soil being light, consolidation for a grass-seed bed has been hard to accomplish, and the pastures after a few years have deteriorated to a poor type of pasture. The soils are deficient to a very large degree in phosphate, and these poor pastures have been improved to a great extent by phosphatic top-dressing. Fields on the sandy-loam soils are in various stages of development from sweet vernal, Chewings fescue, *Poa pratensis*, hair-grass, catsear, lamb's tongue, suckling clover, *Lotus major* swards to rye-grass, white-clover, cocksfoot, timothy, rib-grass swards. The pastures are generally rather poor and contain a short supply of white clover and rye-grass, and there is much *Poa pratensis*, sweet vernal, catsear, lamb's tongue, rib-grass, *Lotus major*, and suckling clover. Some fields on the three different soil types on the plains contain a fair proportion of paspalum, which grows quite well.