Temporary Pasture.

Italian ryegrass, 25lb.; cocksfoot, 6lb.; red clover, 5lb.; white clover, 2lb.; total, 38lb. per acre.

These mixtures give general satisfaction on pumice soils. The permanent pasture under good farming practice management will provide a close sward—ryegrass dominant and white clover sub-dominant, with a very good development of cocksfoot (small). If management control is lax, strong-growing cocksfoot will be dominant with white clover and ryegrass subdominant. Timothy, crested dogstail, paspalum, subterranean clover, and *Lotus major* are frequently included in the permanent pasture mixtures, but it would seem that their inclusion depends largely on the subsequent utilisation of the pasture.

Under manurial treatment and pasture management with the object of securing a high-producing pasture, the competition of ryegrass, white clover, and cocksfoot is too great for satisfactory production of these grasses and clovers, although this does not imply that these grasses will not thrive on pumice soils. Timothy and crested dogstail, for instance, are very noticeable in many pastures throughout the Central Plateau area, and the inclusion of these grasses and less ryegrass in a mixture on areas which are not likely to be heavily stocked and where less manurial treatment and stock management is given in first year or two of establishment is worth considering. Such pastures are very suitable for the grazing of young stock, and, being a class of pasture requiring less intensive management than ryegrass—dominant—they can therefore be used in providing good feed for late autumn and early winter. Subterranean clover does quite satisfactorily, but it is of less value in districts of liberal rainfall where white clover does so well.

Time of Seeding

Where soil fertility has been improved by farming practice, spring and autumn sowing do equally well. When sowing on the first ploughing of virgin land, spring-sown pastures make better progress than autumn sowings, which have the winter weather conditions to contend with. Autumn sowings on virgin lands should not be made later than the middle of March.

Manurial Treatment

Pumice soils are deficient in phosphoric acid and respond markedly to phosphate manuring, and in pasture establishment it is essential that adequate available phosphates be supplied. Superphosphate at the rate of 3cwt. to 4cwt. per acre has proved the most economical for this purpose. Nitrogen is deficient in these pumice soils, but nitrogen deficiency is overcome by the luxuriant clover growth obtained through phosphatic manuring.

It is usual to apply 3cwt. of superphosphate with the grass seed, and frequently a second application is given four or five months after sowing, followed by 3cwt. each year, making a practice of the annual topdressing being done in the autumn. Frequent applications in the early stages of establishment appear to be definitely warranted, and the general practice is now to sow with 3cwt. of superphosphate and give further applications of 3cwt. per acre twice a year for the first two years This method produces a dense and highly productive ryegrass-white clover pasture. This liberal application of fertilisers may appear excessive to those farming under different circumstances, but it has proved its value in developing pumice soils.

A topdressing of 3cwt. of ammoniated superphosphate per acre in the first autumn of the establishment of young pastures will strengthen the ryegrass. Ammoniated superphosphate should never be applied other than from the autumn to early spring. In regard to manurial mixtures, it is not economical to use other than superphosphate for the first few years in the establishment and development of pastures on pumice soils, except the one application of ammoniated superphosphate as an autumn topdressing to young pastures. As