

## CLASSIFICATION OF PASTURE LANDS



Class 3: Flat and undulating land (white clover permanent). Rushes commonly invade pasture land of this class. They are encouraged by wet winter conditions and close and continuous grazing. Thorough drainage, the re-establishment of a vigorous sward, and controlled rotational grazing are usually necessary for rush control.

pasture mixture consists of perennial ryegrass and strawberry and white clovers, with the addition of paspalum in the warmer districts and cocksfoot and timothy in the colder. Grass growth depends on the successful establishment of strawberry clover and normally is not satisfactory until strawberry clover has colonised the whole area, but when this has occurred very highly productive milk- and meat-producing pastures are secured.

As well as on tidal flats, on large areas of moist land in river bottoms and swamps strawberry clover grows exceedingly well. Where such areas occupy the major part of a farm the tendency is to drain the land so that all-year-round stocking is possible and to change the sward from strawberry clover dominance to white clover dominance. However, where such flats are a minor part of a farm it may be more desirable to leave the land moist and use it for late-spring and summer grazing—for instance, on sand-dune country where moist flats suitable for strawberry clover are interspersed with higher land suitable only for subterranean clover.

### Class 3: Flat and Undulating Land (White Clover Permanent)

Land on which white clover is permanent and vigorous without special soil treatment occurs chiefly on alluvial river flats and terraces and consists of moist, fertile soils, generally used for dairying and fat-lamb production. Excessive winter soil moisture is usually the limiting factor in stocking and pasture utilisation, and most areas require thorough drainage, either with moles or tiles or with a

combination, to reduce winter poaching and to control rush growth. Without such improvement large areas, such as the Hauraki Plains, cannot be utilised to full advantage unless the rich alluvial land is used in conjunction with dry winter run-off country.

Winter poaching is responsible for reducing production over large areas; poaching not only destroys the pasture turf and allows the ingress of weeds, but also is destructive to the soil structure and causes the land to harden and crack in dry summer weather. Rolling the sward after winter poaching to revivify the turf is a practice worthy of extension, but it is only a palliative and cannot replace thorough drainage as an ultimate necessary work for land improvement.

Over large areas rushes occupy a considerable proportion of the land surface; they are encouraged by wet winter conditions and close and continuous grazing. Thorough drainage, the re-establishment of a vigorous sward, and controlled rotational grazing usually are necessary for rush control.

The conditions which occur in soils on which white clover is permanent and vigorous are worth close study, for the chief task of the land improver is to raise low-fertility soils to the fertility status required by white clover. The brief comments made about white clover land have stressed the necessity for fertility and moisture; the soils are rich in plant food and are moist—frequently too moist in winter for the full utilisation of the feed produced. Moisture and high fertility are necessary because white clover is a very shallow-rooted plant

and is intolerant of summer dryness or winter flooding. When the white clover plant germinates it has a taproot, as red clover has, but after a year or 18 months the taproot disappears and the plant depends on shallow roots which spring from the plant's stolons. Hence soils rich in plant food but dry in summer do not maintain permanent white clover, and when white clover is used in the pasture it remains vigorous only for 1 or 2 years, as is common on the wheat-growing lands of Canterbury, though it may be maintained through lax summer grazing to allow annual reseeding. Providing the rainfall is sufficient (as it is in most parts of New Zealand) and the soil retains moisture in summer, the fertility may be raised to white clover standard through the application of fertilisers and lime. The treatment required will depend on the soil; it may require lime, it may require phosphates, or it may require potash either alone or in combination. However, if the soil is dry in summer, it cannot be made to carry permanent white clover without irrigation, and subterranean clover must replace it as a pasture clover.

### Class 4: Land which Requires Fertility Building to Maintain Permanent and Vigorous White Clover

The application of fertilisers and lime and the provision of drainage works and in certain areas of irrigation may be necessary to bring land to a fertility level suitable for the permanent and vigorous growth of white clover. The most important improvement method has been liming and phosphatic topdressing, and this practice has raised the carrying capacity of millions of acres of pasture land