

## CLASSIFICATION OF PASTORAL LANDS



Class 2: Wet or saline land (strawberry clover). Tidal flats being reclaimed in North Auckland. [Sparrow Industrial Pictures Ltd. photo.]

common species of water grasses used are reed sweetgrass (*Glyceria aquatica*), floating sweetgrass (*Glyceria fluitans*), mercer grass (*Paspalum distichum*), and reed canary grass (*Phalaris arundinacea*) where winter flooding is prolonged. On areas where winter flooding is not so prolonged meadow foxtail (*Alopecurus pratensis*), rough meadow grass (*Poa trivialis*), Yorkshire fog (*Holcus lanatus*), and paspalum (*Paspalum dilatatum*) are frequently associated with the former grasses.

Each grass has its own particular requirements. Mercer grass and paspalum are confined mainly to the warmer areas in the Auckland Land Districts. Floating sweetgrass grows in areas where the flood waters keep moving gently, and reed sweetgrass thrives where the flood waters are more or less stagnant.

Mercer grass grows most abundantly in the flooded areas of the lower Wai-kato, where it survives several months of complete immersion. The grass is extremely palatable, but as it is a shy seeder it must be propagated by cuttings. The grass is cut by frosts and survives only when winter floods give a complete cover to the plants.

*Paspalum dilatatum* will stand complete immersion for only relatively-short periods and is really a dry-land rather than a water grass. Floating sweetgrass also will not stand as severe flooding as mercer grass or reed sweetgrass; it thrives particularly when the water is moving and the flooding not so severe as to prevent the plant's long, trailing stems reaching the surface of the water. Over wide areas of winter-flooded land reed

sweetgrass is quite suitable; it is not as palatable as mercer grass or floating sweetgrass, but produces a great bulk of summer fodder which is eaten readily. All these water grasses will grow in drains, and in certain situations may cause considerable interference with the free flow of drainage water.

**There is little doubt that utilisation of flooded areas with water grasses is frequently more economical than improvement through costly stop-banking and drainage and pumping works, particularly where the flooded area is merely a portion of a dry-land farm and through the introduction of water grasses can be made to produce valuable summer feed at slight expense.**

### Class 2: Wet or Saline Land (Strawberry Clover)

Strawberry clover (*Trifolium fragiferum*) is a most valuable clover on land which is too wet or too saline for white clover and is used most advantageously in the reclamation of the tidal estuary lands of rivers and harbours.

The reclamation of tidal land is a long-term project and requires the erection of fairly costly works, consisting of stop-banks, floodgates, drains, and frequently pumping plants, but the land usually is highly productive when grassed, and more tidal reclamation works could add many thousands of acres of useful grassland to the pastoral area of the Dominion.

In the reclamation of a tidal flat stop-banks must be erected and are raised from material obtained from a

ditch which runs parallel to and on the inside of the stop-bank and which ultimately serves as the main drainage canal for the reclaimed area. The material for the ditch is moved forward a few feet and built into a bank, the height of which depends on the maximum rise and fall of the tide but should be at least 2 or 3ft. higher than the level of maximum tides. The stop-bank may require revetting with stones or brush to prevent wave erosion in exposed positions and should be planted with earth-binding grasses. In the northern districts buffalo grass and kikuyu grass are very suitable for this purpose. Drainage outlets through the stop-banks must be provided by flood-gates with concrete or timbered supports or by concrete pipes. The rapid removal of drainage water is greatly facilitated if flood pumps are installed to lift water away between tides.

After the tidal waters have been excluded from the area the next step is to provide adequate internal drainage by open and covered drains so that the rain may wash through the soil and carry away the surplus salt. Three to 10 years may pass before reclaimed tidal land is fit for grassing. The first indication that the salt content is being lowered is the appearance of sea aster (*Aster subulatus*) plants, and when these are followed by a fairly general growth of Canadian fleabane (*Erigeron canadensis*) the land is usually fit for grass.

Strawberry clover is the essential pioneer plant in pasture establishment; it has tremendous powers of spreading over the ground by means of long stolons, and one plant ultimately will cover many square yards. The usual