

are the two major factors responsible for the presence of barley-grass. Again, in the case of the rich stack-bottom, where the rye-grass is killed entirely by smother and by much treading during the winter while stock are consuming the straw, high fertility and no competition favour barley-grass above all others. Around willow-trees, poplars, and in other spots in the paddock where stock camp, barley-grass is dominant, gradually thinning out as the degree of treading lessens, until the zone of rye-grass persisting under the lighter treading, but still high fertility, is reached.

Control of barley-grass seems a matter of stock-manipulation almost entirely, together with the use of the mower to prevent reseeding. Were it possible to wipe out all camp-sites the trouble from barley-grass would be almost eliminated. Such places are almost invariably the source of supply of seed that stock distribute to other small weak open spaces throughout the general run of the paddock.

HAIR-GRASS (*Festuca myuros*).

Hair-grass occupies areas of low fertility where there is little or no competition from perennial species. The interstices of a danthonia sward almost invariably hold hair-grass—fine-leaved, producing but scant edible herbage in the early spring, and running rapidly to unpalatable stem and seed in the early summer. The long bearded seed of hair-grass is a frequent impurity in danthonia seed, and so consistent is this species in the swards of danthonia that the Maori has come to regard it as the “daddy of danthonia—no hair-grass, no danthonia.” It only goes to show that hair-grass is essentially an inhabitant of low-fertility soils. No rye-grass or any other plant of high producing capabilities could thrive on soils running dominantly to hair-grass. The fertility of those soils must be raised.

SPOTTED BURR CLOVER (*Medicago maculata*) AND TOOTHED BURR CLOVER (*M. denticulata*).

The more common of these two species in New Zealand is spotted burr clover, but as their ecology is similar they are treated as one under the general term of “burr clover.”

Loose soil conditions, moderately fertile to fertile, with little competition from perennial species, are essential conditions for burr clover. In a sense burr clover, when once established, creates its own conditions as far as weak turf is concerned. Stock neglect it because of its unpalatable herbage, and so rank and prolific is its growth that it often overtops and actually smothers out the rye-grass and white clover, leaving at the end of summer bared and open sward well seeded down for the perpetuation of its kind on the advent of autumn rains.

Control would appear to centre in management of the sward—to graze it moderately low, and to keep, by mowing if necessary, the heavy smother away from the rye-grass and white clover, together with stimulation of the rye with a quick-acting manure that favours grass rather than clover. Sulphate of ammonia immediately appeals. To control burr one has got to get the grass. A tight and vigorous turf is essential, and it would appear that where burr is bad, ploughing and resowing to a good rye-grass, together with feeding and managing of the new sward, is the course to pursue.