

IMPROVEMENT OF TUSSOCK GRASSLAND

Largest Block

The most recently sown block was of about 1300 acres, of which approximately 1000 acres were sown with the following mixture:—

Cocksfoot	lb.
Perennial ryegrass	4
Crested dogstail	3
Danthonia	2
White clover	1
Red clover	1½
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Total	12

This block was the largest yet attempted and burning was carried out ahead of sowing. Because of wet weather, sowing extended over 2 months from the end of August to mid-October, 1947. The first portion was sown and tramped in August, but the remainder of the block was sown in early to mid-October. Trampling with sheep could not be carried out very effectively, as cocksfoot from the earlier sowing had germinated and stocking may have been injurious to seedlings.

Unfortunately in the following early winter some neighbouring sheep gained access to the sown area and destroyed cocksfoot seedlings on the lower portion of the block, but other areas of the same block where these sheep had not grazed showed a good strike and growth of seedlings.

A most interesting feature was an area of about half an acre of cocksfoot. This patch was dense and had established on a dark face down wind from a swampy place which had been sown as an experiment 9 to 10 years previously. The spelling of the block from September, 1947, to March, 1949, in conjunction with the sowing programme had resulted in reseeding from these established plants and indicated the result which the sowing programme could achieve eventually.

It must be emphasised that although the programme has been in progress for 5 years, the owner is still learning. For instance he suggests that by burning the previous year, together with light stocking, the top growth of tussocks and tauhinu and manuka scrub can be reduced and yet danthonia and Yorkshire fog can be controlled from making a very vigorous growth. The



Stream bed where cocksfoot has become well established and is seeding among tall vegetation; these centres of seeding assist establishment along the banks.

growth of tussocks from one year will give added protection for seedlings, yet will not be sufficient to shade the ground and prevent the warming influence of the sun to promote early germination. Also, burning the previous year allows sowing at the desired time in August. It is often necessary to wait for suitable conditions for burning and this time lag retards the time of sowing until later in the spring, when it may be too late to gain the full effects of the spring rains and a poor establishment will result.

Where it is proposed to sow a block, the owner believes that the best procedure is to allow the block to become dirty with a rank growth of tussock and scrub before burning it. The accumulation of leaf mould and dead matter which is left after the fire provides a favourable seed-bed and protection for seedlings.

Early sowing in August or even late July, while there is plenty of frost lift, allows the seed to become well buried, which is essential for good germination and establishment. Seedling plants become firmly rooted in the spring and can withstand the dry summer conditions better. If there is little frost lift during and after sowing, the seed

remains on the surface, where it may germinate, but as the soil is light and friable and the plants are not strongly rooted, they may succumb with the onset of dry summer conditions or be lifted out by frost during the following winter.

Importance of After-treatment

Trampling with stock immediately after sowing is the most important item in the programme, for, besides burying the seed and consolidating soil particles lifted by frost, sheep moving over the area scatter dead matter and litter to afford protection for the seedling plants.

It is also very necessary to spell the block for at least a year or preferably for 18 months to allow the seedling plants to become firmly established and to form a dense crown. The last block sown illustrates this point well. Neighbouring sheep gained access through pig holes in the boundary fence and grazed the lower part of the block in the early part of winter after sowing and little establishment has occurred. In the upper portion of the block, where sheep did not cross the creek for grazing, early sowing, together with trampling and spelling,



Left—Nature of the blocks before burning; note the prevalence of tauhinu scrub. Right—View of the 1300-acre block. In the left foreground sheep gained access and grazed the slopes. The sunny spurs were passed over and only the shady and dark faces were sown.