

REGRASSING EXPERIMENTS ON CANTERBURY BACK-COUNTRY.

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SEVERAL factors have no doubt played a part in bringing about the condition of denudation which extends over thousands of acres of good sheep-country in the Mackenzie district. Among the chief causes of depletion are severe climatic conditions—hot north-west winds in summer with heavy and continuous frosts in winter; overstocking with sheep and rabbits; and conditions of tenure which have not encouraged the occupiers to improve their holdings.

In the spring of 1921 the Agricultural Instruction Branch of the Department, in co-operation with Canterbury College, undertook experimental sowings to ascertain whether or not these areas could be regrassed by surface-sowing, or with the aid of such agricultural operations as could be applied in a practical manner over large areas. The Department already had two wire-netted areas on which experimental sowings of grass had been made a number of years previously. Numerous species had been tried, and the plots gave a useful guide as to what grasses were likely to establish if sowings were made on selected areas not protected by wire netting.

In planning the sowings now dealt with, three aspects were taken into consideration: (1) Flat ground exposed to wind, (2) sunny faces, and (3) dark faces. The sowings were made in the spring of 1921, autumn of 1922, and spring of 1922. The grasses used in the spring of 1921 were cocksfoot, heath mixture (Yorkshire fog, white clover, and rye-grass), yarrow, tall fescue, white clover, sheep's burnet, Grimm lucerne, tall oat-grass, *Poa pratensis*, and florin. The sowings made on the flat ground exposed to wind germinated and dried off, and resulted in no take of grass. Those made on sunny faces were also very poor and practically useless, except where soil conditions were favourable enough to support a weak strike.

The results on the dark faces were most encouraging. The first sowings (6th September, 1921) were inspected in March, 1922, when a satisfactory strike was noticed, but all plants were small and tender, and it was problematical whether or not they would be lifted out by frost during the advancing winter. When again inspected on 7th September, 1922, it was found that practically all the plants had wintered well, and quite a green tinge was noticeable on what had hitherto been a dark-brown face. The portion here referred to was Gallows Hill, on Haldon Station, the altitude of the latter being about 1,200 ft. The top of the hill, some 300 ft. above the surrounding flat country, is rocky, but it was among the rocks that the grass appeared to be doing particularly well. The hill was stocked with sheep from time to time, but not heavily in the early stages.

A further inspection was made on 23rd February, 1923, when it was found that the hill had been heavily stocked with both sheep and