

to really learn what burning does with regard to the tussock itself and its accompanying plants. For instance, the following questions await an answer: How frequently can one and the same tussock be burnt? What amount of feed is produced after burning? To what extent and in what proportion do palatable and unpalatable plants come into new ground? Other questions suggest themselves, but the foregoing will suffice. Above all, adjacent sheep-stations where burning and non-burning is carried out require comparison, as also those on which different degrees of burning take place. These and other matters we suggest as subjects for investigation by the Department of Agriculture.

As to the circumstances under which burning should take place, we advise as follows: (1.) Burn when the tussock has become more or less choked out by its dead leaves and stems. (2.) Burn only in the early spring when the ground is damp. But here it must be remembered that spring comes in at different times on a mountain sheep-run. It is entirely a matter of aspect and altitude, and not of the season of the year as defined in the almanac. Thus there can be no hard-and-fast date for burning even on one and the same run. (3.) Burn snow-grass (*Danthonia flavescens*) with caution, and this rather for the purpose of providing tracks for the sheep and not food, for the large snow-tussocks make valuable shelter for stock, and in time of snow serve as food.

Equally if not more important than the right methods of burning are the circumstances under which burning should *not* take place. These are as follows: (1.) Do not burn on sunny faces in an extremely dry climate. (2.) Do not burn when the tussocks are greatly reduced in size. (3.) Avoid burning where it is likely to bring in an excess of unpalatable plants. (4.) Do not burn on greywacke mountains in the vicinity of shingle-slips, or where the soil is shallow and slips are readily made. (5.) Do not burn in a dry climate where rabbits are numerous and so provide food for these pests. (6.) Do not burn in the neighbourhood of rabbit-warrens. (7.) Do not burn near the sources of shingly rivers and bring about excess of shingle, which may raise the river-bed and bury well-grassed river-flats.

From what has been said regarding burning it is evident that the sections of the Land Act regarding this practice require greatly modifying.

(3.) CONCERNING WINTER FEED.

(Part (6) of the Order of Reference.)

Generally speaking the summer country of the South Island sheep-runs is considerably understocked. This applies with its greatest force to the splendid summer country of the mica-schist mountains, where, even in the most depleted part of Central Otago, there are extensive pastures of tall blue-tussock (*Poa intermedia*), a grass of fair palatability even if not burnt. On the greywacke mountains of Canterbury and Marlborough the amount of summer feed is considerably less owing to the extensive areas occupied by shingle-slips. This understocking of the high country is altogether due to the much smaller carrying-capacity of the winter country. In order, then, to increase the carrying-capacity of the runs as a whole, the growing of much more winter feed than at present is essential.

At the present time in the high-country sheep-stations, with but few exceptions, there is no provision made for feeding sheep during winter, the only cultivation being the growing of a minimum of oats for chaff to feed the station-horses, or it may be the rams. This is not owing to the fact that it is impossible to grow oats or grass for hay, or even turnips. At an altitude of more than 3,000 ft. excellent chaff was grown for many years at Taradale and Molesworth. At Castle Hill (Canterbury) at 2,300 ft. altitude there are splendid paddocks of cocksfoot; also, good crops of turnips are grown yearly. Other examples of attention to winter feed could be cited, but such procedure is an exception.

One reason that stands in the way of winter feed being grown is the section in the Land Act by which a runholder can only grow crops by permission of the Land Board; and as this feed can be used only by the grower, it follows that he must not sell any of his produce. This latter restriction is adverse to