

is dormant. The introduction of a rapidly maturing smothering catch-crop to replace summer fallow is worthy of consideration. A modification of the above method is to plough in December and work for a whole year before sowing turnips. The main point generally emphasized is to sow as late as possible in the season. The important period of cultivation is from the middle of December to the middle of January. No mention is made of the value of lucerne in controlling thistle, and it is dubious whether this practice, applicable to drier districts, would be of much value.

In Central and North Otago Californian is ranked as the most serious weed, mainly on account of its bad reputation. It is remarkable that lucerne-growing is not generally adopted to control thistle on badly affected land in this district.

In Canterbury Californian ranks second amongst noxious weeds, pride of place being taken by one or other of the couch-grasses. Californian control in Canterbury is essentially different to that in Southland. The thistle apparently exists mainly in comparatively small patches, and affected ground is virtually quarantined, and a long continuous cultivated fallow, extending sometimes over years, is adopted. Salting up to the rate of 24 tons per acre is also regularly recommended and apparently carried out. The vigorous cutting of thistle on all waste ground is urgently demanded.

In Kaikoura-Blenheim district lucerne-growing is universally recommended on ploughable land, and this is apparently successful both on mown and grazed lucerne areas. In Nelson Californian falls to fifth place as a noxious weed.

Coming to the North Island, a great diversity of opinion is held as to the harmfulness of Californian. Many report that cutting is of no value, and proper stock-management, subdivision, and attention to pastures by top-dressing, &c., is the best course to take. Others again report that cutting is the only possible successful method. The variation in opinion is so great that the matter required the most careful examination. The replies indicate that control measures must vary in accordance with the type and character of the ground. I have divided this into four grades.

*Some Tentative Suggestions regarding Control.*

(1.) *On Cropping-land.*—On such land where Californian thistle exists in small patches it may be advisable to adopt the Canterbury system of semi-quarantining the land and adopting very expensive methods of control by continuous cultivated fallow, heavy salting, &c., the expense of such work being debited to the working of the whole farm and looked upon as an insurance policy against further infection. This system, however, is impossible where the patches are at all numerous and large, and under such conditions a system such as that adopted in Southland should be carried out—short fallows, the use of winter-growing forage crops, smothering summer forage crops together with grain crops at intervals, and the liberal employment of temporary pastures, consisting largely of clover cut for hay, perhaps twice in the season. Lucerne-growing on thistle land should never be overlooked, but is advocated only in localities where lucerne is known to thrive. In Central and North Otago, for instance, the use of lucerne should be largely encouraged on thistly land, but in many parts of South Otago and Southland such a procedure would, at least with our present knowledge, be economically unsound. Soiling-crops, especially those that can be cut several times during the summer, are to be highly recommended. In many localities the repression of thistle should be followed by the laying-down of fairly long grass leas, and investigations on this point are required. The restriction of fallowing and its replacement by catch-cropping also is in crying need of study.

(2.) *On Grass Land capable of being ploughed.*—By such land is meant that suitable for arable farming, but which the farmer would prefer to remain in permanent grass. Such land is often of good quality, and soil-amendments, especially by drainage and top-dressing, by encouraging a thickening of the sole during the dormant period of the thistle, would often do far more good than cutting. Mowing, however, should be done wherever such a procedure is payable, and careful attention to stocking, especially heavy stocking, during the flowering and seeding stages is required. The good effect of rubbing-posts in thistle-patches is an indication of the value of trampling, and there appears little doubt that the trampling method of control could be considerably developed, especially by growing special crops and feeding them out on thistle-patches. Where methods such as the above are not successful then cultivation methods as suggested for cropping-land would have to be undertaken, and finally, when the weed was sufficiently weakened, the land laid down again into permanent grass.

(3.) *On Grass Land temporarily incapable of being ploughed.*—Such land may either be level (potential cropping-land) or undulating (potential turnip and forage-crop country and capable of being reseeded to pasture), but the limiting factor rendering it incapable of immediate cultivation where such a procedure would be advisable is the presence of logs and stumps. Efforts directed towards logging up the land; and a certain amount of stumping of the better-class land, must precede any definite efforts towards Californian-thistle repression. Small areas should, however, be cleaned up annually, subdivision carried out so that areas can be thoroughly stocked, especially with cattle, during the flowering and seeding stages, and plenty of attention given to top-dressing. As soon as the land is in a sufficiently clean condition for ploughing, the level lands should be cropped with smothering forage crops and those crops that mature and are fed off during the dormant season of the thistle.

Lucerne-growing should always be in mind in dealing with level thistly land as soon as it is fit for ploughing, taking off first either a turnip or rape crop, in the latter case sowing late and feeding off finally in the early spring, and laying down lucerne in the summer. On the hillier land, after logging, &c., where the pasture is poor and needs renewing, careful attention towards sowing down again into permanent pasture should be given. In many cases it is probable