

the statement attached to every lot of seed containing 1 lb. or more that is exposed or offered for sale.

These provisions do not apply to seeds grown for food purposes only; or to any person selling seeds to merchants to be cleaned or graded before being offered for sale; or to seed branded "Not absolutely clean" held or sold for export outside the State only; or to seed sold and delivered by any farmer on his own premises for seeding by the purchaser himself, unless the purchaser obtains a certificate from the seller at the time of sale that the seed is supplied subject to the provisions of the Act.

We are told that sooner or later such a weed as Californian thistle will certainly spread throughout New Zealand. The enactment of such a law as this, which has been adopted in Canada and several of the United States, would undoubtedly retard such a spread to many districts where it is not now found.

This report is already too long or we might detail the various recommendations received with regard to the amendment of the Act, but a summary of those sent by the County Councils is attached. A small committee might be set up to formulate these, and to confer with the officers of the Department as to which, if any, it might be desirable to endorse and adopt. We may mention in passing that the Iowa Seed Law provides that the weeds on the highways should be cut by the officers of the Road Board and paid for out of the rates. It has often been urged that this is a better plan than waiting for each settler to clear his own frontage.

At the 1893 conference a resolution was passed urging the Government to grant a bonus for the invention of a cheap method of destroying weeds. Mr. J. H. Williams stated that he had successfully dealt with small patches by a solution of arsenic (1 oz. to the gallon); but Mr. T. W. Kirk stated the Department had conducted numerous experiments with arsenic, and he had found no method cheaper than cutting; and, generally speaking, this has been the experience of most New Zealand farmers, though a certain amount of success has resulted from the use of salt, carbolic acid, sodium arsenite, and the sulphates of iron and copper under specially favourable conditions. For example, spraying with sulphate of copper destroys charlock and mustard, and the Vermont Agricultural Experimental Station reported favourably on attacking hawkweed and other weeds with salt. We think, too, that the hands of the Inspectors of Noxious Weeds would be strengthened if the Department could arrange to supply them with copies of some of the letters received from public bodies in their districts urging that the Act be fully enforced, and containing suggestions as to the best course to be adopted with regard to certain dangerous weeds.

To briefly summarize the above, the following seem to be the most feasible recommendations that have been suggested:—

- (a.) The initiation of a weed-survey.
- (b.) The appointment of a Commission or committee to inquire fully into the question, and to classify the different areas growing noxious weeds, and to state the extent to which the clearing of weeds should be enforced in each.
- (c.) To send out another circular to practical agriculturists asking the names of the worst weeds in their centres, and the best methods of dealing with them.
- (d.) To enlist the assistance of the education authorities, and to distribute throughout the schools, &c., descriptions and plates of the worst weeds to enable young people to recognize them before they become a menace to the district.
- (e.) To take steps to prevent the dissemination of unclean seed.
- (f.) To set up a committee to consider the proposed amendments to the Act.
- (g.) To supply the information already collected to the Weed Inspectors.

The Taranaki New Zealand Farmers' Union Conference urge the planting of all badly broken weed-infested land with pines, preferably *Pinus insignis*, as the most effective means of suppressing weeds of all kinds.

The United States Department of Agriculture reported in 1913 that very few of the common weeds troublesome on the farm can survive the dense shade of a good crop of hemp. If the hemp makes a short weak growth, owing to unsuitable soil, drought, or other causes, it will have little effect in checking the growth of weeds, but a good dense crop, 6 ft. or more in height, will leave the ground practically free from weeds at harvest-time. In Wisconsin, Canadian thistle has been completely killed and quack-grass severely checked by one crop of hemp. In one 4-acre field in Vernon County, Wis., where Canadian thistles were very thick, fully 95 per cent. of the thistles were killed where the hemp attained a height of 5 ft. or more, but on a dry gravelly hillside in this same field, where it grew only 2 ft. to 3 ft. high, the thistles were checked no more than they would have been in a grain crop. Some vines, like the wild morning-glory and bindweed, climb up the hemp-stalks and secure light enough for growth, but low-growing weeds cannot live in a hemp-field.

The Ontario Experimental Union have recently initiated a series of co-operative experiments to ascertain the best way of dealing with any particular weed. The weeds selected for the experiments in 1912 and 1913 were perennial sow-thistle, twitch-grass, bladder-campion, and wild mustard. Six experiments in all were outlined, namely: (1) The use of rape in the destruction of perennial sow-thistle; (2) a system of intensive cropping for the eradication of perennial sow-thistle; (3) the use of rape in the destruction of twitch-grass; (4) a method of cultivation and cropping for the extermination of twitch-grass; (5) a method of cultivation and cropping for the eradication of bladder-campion; (6) spraying with iron sulphate to destroy mustard in cereal crops.

5th December, 1916.

EDWIN HALL.