

ERADICATION OF HARD FERN

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Successful Experimental Work In King Country

ONE of the first plants to invade grass land in most reverted country is hard fern. This fern, which is known by various local names, such as ring fern, silver fern, carpet fern, and, mistakenly, as water fern, usually appears first on the cold, damp faces lying away from the sun, but may also appear on dry, sunny faces.

This fern covers large areas of hill country, and causes considerable loss to farmers. Some farmers have been reasonably successful in combating this pest, but many have failed to make any headway against the gradual spread of the hard fern.

The fern, which is a surface-rooting plant, is very difficult to eradicate, and although burning has been practised for a number of years, it has proved only a partial success, and the usual result was a regrowth of the fern patch in the form of a ring, leading to the name ring fern.

From the surface-rooting habit of the plant, it is apparent that if it is to be attacked by fire it is necessary to burn the area when the ground is dry and also when there is a reasonable amount of dead leaves to carry the fire and produce a good heat, thus destroying most of the roots.

Earlier Experiments

Earlier experiments with hard fern were carried out in the Whangamona County, and proved that hard fern can be controlled by spraying with one part by weight of arsenic pentoxide and 320 parts of water.

This may seem a reasonable method of eradication, but when it is remem-

bered that all water has to be packed up the steepest and most inaccessible parts of the farm it is not surprising that this method of destruction found little favour with farmers.

Recent Experiments

In 1938 experiments were planned to discover a cheaper, easier, and more practical method of destroying the hard fern and regrassing the reverted areas.

A block of 15 acres on the property of Mr. D. F. McLeod, Opatu, was selected for the experiments, and as this was fairly evenly divided into five blocks by ridges, it was decided to try five different treatments, which are summarised as follows:—

1. Topdressing a block with superphosphate and grazing with run cattle.
2. Burning with a flame-thrower, reseed, and topdressing.
3. Treating the hard fern with a 5 per cent. mixture of sodium chlorate

Experiments in the Southern King Country show that hard fern can be eradicated, and that many areas at present occupied by this pest can carry good productive pastures. Thorough burning is necessary, together with re-seeding with a suitable grass seed mixture, followed by topdressing and good pasture management. Heavy stocking with run cattle is also essential for at least the first twelve months to crush out any surviving fern.

and lime; later, when the fern had withered and dried, burning the patches with a flame-thrower, and sowing the burns with a suitable mixture of topdressing with superphosphate.

4. Burning the fern with a "fire-stick," reseed, and topdressing. Treatments 1, 2, 3, and 4 are all applied in the autumn.

5. Burning with a flame-thrower in the spring and reseed and topdressing.

After the first year all blocks were topdressed with 2cwt. per acre of superphosphate each autumn for two years, making three years' topdressing in all.

On Treatments 2, 3, 4, and 5, four plots, each consisting of one burned patch of fern, were pegged. These plots consisted of two good burns and two poor burns on each block, and were used to give a check on how the burns grassed and how they responded to the heavy grazing with run cattle.

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