



Fig. 6.—Block 1 in 1940. Little improvement from topdressing only.



Fig 7.—Block 2 in 1940. No hard fern; no sign of burns.



Fig. 8.—Block 3 in 1940. No hard fern; no sign of burns.

The grass strike was only fair, but there was sufficient established to give a good cover. The cattle did exceptionally good work on this block, and although the burn was not as good as on Blocks 2 and 3, there was little difference between them at the end of twelve months. Practically all the fern disappeared after the second topdressing, and at the present time there is little difference between Blocks 2, 3, and 4.

Reports show that the fern persisted longer on the pegged plots than on any of the other autumn-burned areas, but the heavy stocking with cattle completed the destruction even on this block where the burn was not good.

Block 5

This block was to be burned with a flame-thrower, reseeded, and topdressed in the spring, but the actual burning and topdressing was delayed until November 17, 1939, because of very wet conditions. When burned, the ground was very dry, but there was a fair amount of new growth, and the fires did not carry at all well. Much

time was spent on the fringes and unburned edges, but it was impossible to get a clean burn.

The block was sown and topdressed, with a resulting fair strike, and the grass has made quite a fair cover on the burns.

Stock neglected this block after the treatment, and it was not until the following winter after the second topdressing of superphosphate on April 17, 1940, that the block was at all well grazed. Because of this neglect all the hard fern which survived the fire made good growth, and it was not until the winter of 1940 that the spread was checked with cattle. Bracken fern also appeared in the neglected pasture and made the block more unsightly. In the following spring the block was fairly well grazed, but it was not until the third topdressing that it was as well grazed as the others.

The result of this treatment is that the hard fern, although not covering such a large area as previously, is still well established over the whole

area, but is now being held in check. There is no sign of the cattle damaging the remaining patches of fern. The newly-sown grass is not as strong as the grass on the other blocks, and the old pasture has not improved to the same extent as the pasture on the other areas.

This treatment has been a failure in comparison with the other burned areas, but if this area had been fenced off from the autumn-treated areas, the results might have been better. Even so, one could not recommend spring burning because of the difficulty in getting suitable weather or a clean burn when the fern is growing.

Conclusion

From the information given in this experiment and also from observation of farming methods, it is quite evident that hard fern can be eradicated, and that many areas at present occupied by this pest could carry good productive pastures. The chief failing of past practice in the control of this pest has been, firstly, the overstocking of pastures with sheep and the understocking with run cattle.

Previously, farmers have either allowed the land to revert through the hard fern stage to bracken fern, and have then burned and reseeded the burn, or have burned the patches of hard fern and given little attention to the regressing of the scars and the consequent stocking and topdressing.

Hard fern can be eradicated, and it would appear that the best method is to burn the patches of fern thoroughly in the autumn, reseed the burns with a suitable grass seed mixture, and follow up with topdressing and good pasture management. The heavy stocking with run cattle is essential for at least the first twelve months to crush out any surviving fern.



Fig. 9.—Block 4 in 1940. No hard fern; no sign of burns.



Fig. 10.—Block 5 in 1940. Bracken and hard fern present; some of the burned patches can still be distinguished.