GORSE CONTROL

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WHEN the author bought a 14½-acre block that had belonged to a stock dealer he inherited an ideal experimental area for all or any of the troublesome weeds that thrive in North Taranaki. Pastures were starved and weeds flourished. Much of the area covered with gorse was heavily undulated and precipitous conditions were common. Gorse and blackberry were sprayed with 2,4,5-T and, reviewing the results 2½ years later, the author feels that some of the operations and subsequent conclusions may be both interesting and instructive.

Old Man Gorse

One major operation was to make a plantation of a steep hillside that was truly an impenetrable jungle of dense gorse 8ft. to 9ft. high, laced or fortified plentifully with long, trailing blackberry vines. Two areas of about ½ acre each were chemically treated with a volatile ester of 2,4,5-T. On one portion 200 gallons of spray was applied (3.6lb. of 2,4,5-T acid in 400 gallons of water per acre). On the other 100 gallons of spray (3.6lb. of 2,4,5-T acid in 200 gallons of water per acre) was applied.

The aim was to do aerial spraying from the ground, as it was impossible to walk through the gorse. With a high-pressure spray gun (No. 5 disc) the power unit gave 100 p.s.i. (a unit giving higher pressure was not available at that time) during spraying. From the top of the bank the spray was directed high in the air so that the spray drops fell like rain and as near vertically as possible. The range of throw was extended considerably by the action of a favourable wind from behind.

Using an oilskin coat and sou'-wester, the author watched the spray falling around him in the gorse and returned not at all sanguine of good results. The sparsely spaced "rain drops" appeared in the main to beat right through the gorse cover and spatter into the ground.

This work was done in February 1951. Burning-off followed normally over both areas, the only apparent difference being a deeper colour in that treated with the stronger mix. By June grass was coming away strongly, cattle had opened up tracks, and one would claim at least 90 per cent. control if inexperienced in the results of spraying old man gorse.

The areas were next fenced off and in August of the same year some 400 young trees, average 3 years old, were planted at 9ft. centres; mainly flowering gums and acacias were chosen. If fencing is properly maintained and the trees watched for smothering 12 months after transplanting, the major work of establishment is over. The dead or dying gorse and some regrowth give excellent shelter to the young trees.

The hillside treated was subject to slips and would not have been stable if turned to grass. In such circumstances a weak spray is to be preferred so that the gorse will survive until the ground is bound by tree roots as the gorse roots die off.

A burn will achieve similar results, but it is chancy. If the fire is fierce, all humus and all shelter are lost and the ground is wide open to erosion. It is not subject to any control. It is usually too strong or too light, patchy, or gets out of hand, or will not "take" at all. In all cases it is filthy to work in afterwards. Spraying is quick, efficient, and clean.

Twelve months after spraying, the apparently dead gorse stems were coming to life and fresh shoots arising freely from the roots. The control appeared only about 25 per cent. complete, yet 2½ years afterwards the astonishing point is that the area treated with the weaker sprays shows about 75 per cent. control and that with the stronger spray at least 60 per cent. control. No re-treatment was attempted in either instance.

Obviously the leafy canopy of the gorse acted like an umbrella and caught the finer droplets of spray; the large drops mostly drove through the leaves to the branches or the ground. The weaker spray, with twice the volume of water per acre, naturally gave the more thorough wetting.

Experiments with 3.6lb. of acid in 150 gallons of water per acre gave much inferior results on old, tall gorse.

Summary on Foliage Spraying of Old Man Gorse

Use not more than 3.6lb. of 2,4,5-T acid (volatile) per acre of gorse

Work on surface acreage on hillsides, not land acreage.

Use 300 to 400 gallons of water per acre.

Use a nozzle pressure of 200 p.s.i.

Direct the nozzle high into the air in limited wind so that the spray falls on the gorse as near vertically as possible.

Work systematically or to a pattern of estimated or marked plot sizes to ensure that coverage is reasonably uniform.

In spraying up-hill the range will be found very limited and the tendency will be for ineffective side spraying of the gorse bushes.

If practical, wait at least 2 years before carrying out any respraying.

Topdress and stock heavily at intervals, particularly if bracken is in evidence.

Conclusions

In this experiment stress has been mainly on the blanketing of an area with spray falling vertically, as in aerial application. As the branches and leafy structure of plants are designed to face the sky, it appears that spray mixtures falling vertically may achieve better results than horizontal spraying when the nature of the country and size of the gorse prohibit normal saturation spraying.

The method is applicable on any dense area of gorse, on the flat, or on slopes. It is suggested that the volume of water range from not less than 200 g.p.a. for gorse 3ft. high to 400 g.p.a. for the tallest gorse.

Blackberry

Normal high-volume, high-pressure spraying of 6ft. blackberry bushes proved quick, easy, and completely effective. The spray mixture used was approximately 1 in 200 gallons per acre.

The method was not found so satisfactory against scrub bushes straggling close to the ground. Top kill was good, but control poor. It is clear that the rank, ungrazed grasses that accompany these conditions of growth shielded the lower stems of the vines and reduced the effectiveness of the spray considerably.

Mid-winter (June-July) hand wand treatment of scrub blackberry bushes proved eminently good when the spray was applied on a reasonably warm and sunny day. Spraying should cease by 2 p.m. and rain hold off till evening.

A 1 : 80 mix of 2,4,5-T was used instead of the 1 : 100 normally used for this type of work for summer and autumn application.

All winter trials on cold, cloudy days, in very light drizzle, or where rain fell within about 3 hours gave very poor or even imperceptible results. This is not surprising when one remembers that the absorption of the spray is physical and its reaction chemical, and that these two processes roughly double their time for each 10 degrees C. drop in temperature. Added to this is the fact that plant cell tissues are at this time of the year more or less dormant.