HAWTHORN CONTROL

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IN recent years the spread of hawthorn (*Crataegus monogyna*) particularly on Banks Peninsula and in parts of North Canterbury has been a matter of some concern. Also, the difficulties experienced in its control emphasised the need to find an effective and practical method of control or preferably eradication.

Hawthorn has been used as a hedge plant in many parts of the country and has served its purpose well when kept under control. However, it has the undesirable characteristic of serving as a host plant for fireblight and on this point alone its eradication would be very welcome in many places.

The date of the introduction of hawthorn into this country is not known, but it was first reported by Kirk as growing wild in the North Island in 1899 and by Smith in the Ashburton County in 1904. At the present time its occurrence is fairly widespread, although infestations consist more of odd, scattered plants rather than of large impenetrable thickets. The spread of hawthorn from old uncut hedges can be attributed mainly to birds. The seed establishes on country where an open type of pasture exists and where pasture control by grazing is relatively light or non-existent. These conditions exist on some of the poorer foothill country, tussock grasslands, and cleared bush country which is reverting.

PROBLEMS OF CONTROL

The problems associated with the control of hawthorn are very similar to those associated with the control of sweet briar. Cutting, though giving temporary control, produces vigorous regrowth from the rootstock and results in a much denser growth than originally. Uprooting by bulldozers seems to be fairly satisfactory on older plants, but with younger plants any remaining piece of root shoots afresh.

Probably the most commonly used method of control up to the present time has been the application of sodium chlorate to the stumps left after cutting. This method has given fairly good control and has resulted occasionally in eradication, more particularly on older plants. However, the rates of application which secure a kill are usually heavy enough to be uneconomical when used on a large area. Altogether this method has been expensive in time, labour, and material, if the over-all control achieved is considered. In the last few years coverage sprays with 2,4,5-T in water have been used with little effect.

EXPERIMENTAL WORK

Very little experimental work on hawthorn control has as yet been done and the trials summarised in this paper began as recently as March 1955. Trials have been carried out at Pigeon Bay on Banks Peninsula and alongside the Christchurch - west coast highway near the foot of Porter's Pass.

The various materials and methods of application used in these trials were as follows:—

As coverage sprays: (1) the oil-soluble butyl ester of 2,4,5-T, (2) equal parts of the same ester of 2,4,5-T and ATA, (3) the mixed polypropylene glycol butyl ether esters of 2,4,5-TP, (4) equal parts of the

same 2,4-5-TP ester and ATA, and (5) ATA alone. Materials 1 to 3 were applied in the autumn in water at a dilution of 1 : 80 and all materials in the early summer at dilutions of 1 : 100 and 1 : 500 in water.

PMU and CMU at rates from ¼oz. to 2oz. per bush were applied in water as basal applications in the autumn and early summer and sodium chlorate at rates from 2oz. to 8oz. per bush in the same manner in the autumn only. The oil-soluble butyl ester of 2,4,5-T was also used with dieselene as a carrier at a dilution of 1 : 20 and this mixture was applied as a basal spray and on frilled stems in the autumn. In early August the same mixture was applied as a basal spray; a spray on cut stumps and on frilled stems.

RESULTS OF EXPERIMENTS

The short-term effects of the various coverage sprays were difficult to assess, because of the depredations of the pear slug and the drought conditions which existed during the trial period. However, at best these treatments appear to have caused a temporary check and a slight die-back of the younger shoots.

The effects of the PMU and CMU applications were very variable and the severity of damage was not a factor of rate of application. Some apparent kills were obtained, but in the main the effects were shown in various degrees of defoliation. Damage was generally more severe at Porter's Pass than at Pigeon Bay and this could possibly be explained by better moisture conditions and a much more friable topsoil at Porter's Pass.

Sodium chlorate caused a temporary check at the higher rates, but very little permanent damage resulted.

By far the most promising results were obtained with the 2,4,5-T in dieselene treatments. Effective damage varied from slight to severe on the frilled stem treatments and from slight to apparent kills on the autumn-applied basal spray treatments. Smaller bushes were apparently killed, but larger ones were only slightly affected. However, all bushes treated in the dormant period either by the basal spray or spray on cut-stump methods appear to be dead at this stage. It will be next spring at least before the complete effectiveness of these two treatments can be judged, as it is possible that regrowths from the rootstock or root suckers may yet appear.

Similar results with the basal spray and spray on cut stump applications were obtained by Mr. J. J. A. McLaughlin, Technical Officer, Imperial Chemical Industries Ltd., Christchurch, in a trial in North Canterbury.

CONCLUSIONS

Conclusions reached at this stage must be treated with caution owing to the limited amount of experimental work done and the short time that has elapsed since the treatments were applied. However, it is felt that the results obtained with 2,4,5-T in dieselene at a dilution of 1 : 20 when applied as a basal spray or on cut stumps in the dormant period (July to early August) are sufficiently encouraging to warrant a trial by farmers undertaking hawthorn control. Of the two methods of application the basal spray is much more convenient, as it merely involves spraying all main stems to a height of 12in. to 15in. Should this method prove to be as effective in the long run as it promises to be at this stage, it will compare more than favourably with any method of control used at the present time as regards the time, labour, and expense involved.

Finally, hawthorn cannot be classed among our major weed problems in respect of the area infested or because of the rate at which it spreads. Nevertheless, the difficulties associated with its control point to the wisdom of taking steps to prevent any further spread, particularly into inaccessible hill country.

DISCUSSION

Q.—Is the time of application after cutting critical, that is, is it necessary immediately after cutting?

A.—Yes, application should be made immediately after cutting.

Q.—What is the best season of the year for applying basal dressings of 2,4,5-T and diesel oil?

A.—Late dormant period.

Q.—Which gave the best control; mixtures at the rate of 1 in 20 or 1 in 40?

A.—1 in 20 only used in trials so far. My impressions are 1 in 40 should give quite satisfactory results.
