THE USE OF HORMONE SPRAYS IN PINE PLANTATIONS.

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With the steadily rising costs of manpower and the possibility of increased planting acreages in the near future, it is becoming increasingly important to find some means of keeping down the costs of tending from the time of planting until the pines are fully established.

This is usually a period of from four to five years assuming satisfactory establishment is reached at first planting.

It is in this initial period that considerable expenditure can be incurred, in some cases on operations that are at best only partially effective. Until recently, hand slashing of the taller weeds, suckers of E. marginata, E. calophylla and Acacia pulchella etc. was carried out as a matter of course. The usual results of such work, apart from being immediately effective, were the regrowth of multiple stems from the slashed suckers. This entailed a repeat of the operation at least once, and in some cases twice, before establishment was satisfactorily achieved.

Many and varied methods of scrub control have been tried within recent years, bulldozing, ploughing, rotovating etc. between the rows of pines. Few if any have proved completely effective and all are relatively expensive.

In recent years the introduction of Hormone poisons into plantation work has provided a means of attaining satisfactory conditions for early establishment at a reasonable cost.

Several methods of applying Hormone poisons in plantations have been tried, some are still under investigation - basal spraying of suckers, foliar spraying of creeper etc.

These methods will, when fully tested, undoubtedly prove of value in plantations where a weed problem already exists and it is here that maximum care in application and treatment are essential to success and to prevent damage to the pine crop.

The following brief account of the use of Hormone poison as a foliar spray on suckers of E. marginata and E. calophylla in association with Ac. pulchella will serve to illustrate what can be accomplished in planted areas with these poisons.

The operation took place over three compartments of 1962 planting during the early summer of 1964. The area treated was steep with isolated patches of rock.

Equipment used consisted of a M.F. 65 tractor fitted with a carryall and 2 x 44 gallon drums, a rotoflo, power pump and two spray leads 15 ft. in length fitted with pressure release valves and standard packspray nozzles.

The Hormone was 2,4,5 T (80% Ester) in aqueous solution with Agrol L.N. as a spreader. The solution strength was varied during spraying; on hot cloudless days $\frac{1}{2}$ pint 2,4,5 T to 44 gallons of water 0.14%, during dull cloudy weather this was increased to $\frac{3}{4}$ pint 2,4,5 T to 44 gallons of water 0.21%.

No spraying took place on windy days; whilst on days with a light breeze, advantage was taken of sheltered positions to continue spraying.

Drums containing the solution were completely emptied before refilling to prevent any build up in concentration.

Complete spraying was stipulated of all foliage, ensuring thorough wetting of all accessible leaf surfaces.

Estimated kill three months after completion of spraying was in excess of 80%, E. marginata proved the most resistant and comprised almost 100% of the surviving suckers. Deaths took place over a period of some six weeks, usually a good indication of effective kill.

In almost every case the remaining live suckers appeared extremely weak. Shortly after spraying, repeated bifurcation of all growing tips took place resulting in a dwarfed bushy appearance.

Slight 'scorch' of some pines occurred, this was however confined to pines overtopped by or in extremely close proximity to tall suckers.

A certain element of risk must always be present in operations such as the foregoing and they are also of necessity slow and expensive.

The most obvious solution to this problem of eliminating or controlling weed competition during the early years of establishment is to introduce control measures before planting takes place. Any form of weed control that takes place post-planting is at best a slow and expensive measure by comparison.

The main advantages of pre-planting control would be the considerable reduction in cost per acre treated due to quicker cover of the ground and more effective kill, the operator being able to concentrate solely on weed kill without the distraction of avoiding nearby pines.

To be fully effective large scale pre-planting treatment of future pine plantations would need careful consideration. An initial survey would be necessary at least two years prior to planting to determine the areas suitable for treatment. The actual application of the poison would probably be best carried out two growing seasons in advance of intended planting dates. This would allow time for a careful appraisal of the kill to be made and enable a follow - up operation to take place in the season prior to planting if considered necessary.
