CONTROL OF BLACK BEETLE (Heteronychus sanctae helenae Blanchard) AT HAMEL NURSERY WITH DIELDRIN SPRAY.

By A. J. Hart.

SUMMARY

1. Control was achieved in P. pinaster and P. radiata seedling beds using aluminium irrigation pipes and standard rotating sprinklers (Rain Spray type) with Dieldrin 15% at the estimated rate of .025% concentration in 1800 gallons of water per acre.

2. Control of the initial attack in early summer removes the possibility of a second attack in late summer by killing parent insects.

3. The cost of control is estimated at £18.9.6 per acre being cost of Dieldrin only, water used being also an irrigation measure and not charged.

4. It is not known whether control could be effected by use of knapsack sprays only but considered unlikely due to inadequate wetting of soil.

GENERAL NOTES.

Pine seedling beds were treated on 20/9/63 with Dieldrin at the rate of 1¾ gallons per acre (15% concentrate). Dilution rate with water is unknown, as is the effect on Black beetle population present at that date.

Full scale attacks commenced about the beginning of December 1963 and on 9th December, caterpillars of various species including those of Black beetle were found in seedling beds confirming the cause of increasing deaths of seedlings by cutting near ground level.

METHOD OF ERADICATION.

Standard 2" aluminium irrigation pipes and "Rain Spray" type sprinklers were used with a pump which is estimated to deliver 120 gallons per minute.

A suction valve allowed Dieldrin 15% to be drawn into the system at the rate of about 1 gallon per two minutes through a plastic tube placed in the Dieldrin.

Having drawn the insecticide into the line, fifteen (15) minutes watering followed to disperse Dieldrin from the line. At the above rate of pumping this is estimated at 1800 gallons of water, and using three gallons of 15% Dieldrin represents a concentration of 0.025%.

Prior to sucking in insecticide sprinklers were run for 15 minutes to dampen the soil.

Following dispersion of the insecticide (which appears white with water) sprinklers were run for a further 10 minutes to wash same into the

ground. This treatment was repeated once.

Penetration of the insecticide was estimated at 1½ - 2" as evidenced by the dampened soil. This is probably the most critical factor in achieving success in control of the beetle and caterpillars. For local conditions, this was evidently sufficient because the attacks ceased and dead caterpillars were to be found in the surface soil.

As mentioned, the second attack late in summer, which is a feature of the life cycle of this species, did not eventuate hence it is considered that local eradication may be possible or at least a very high level of control attainable using this method.

It is not known whether knapsack sprays could achieve the same result, but most likely application rate (1800 gal/ac.) would prove too costly for such a method of application of insecticide alone.

Cost of control achieved is estimated at £18.9.6 per acre on the basis of 61/7 per gallon of Dieldrin. Water is not charged as this was also a convenient treatment irrigation of seedlings; also labour is not charged for in this cost.

Time to carry out spraying was about 2½ hours with 2 men, two shifts of piping being involved.

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