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Formulations of Nuclear Polyhedrosis Virus and Deposit Rates Applied as Simulated Aerial Spray - Leconte's Sawfly - 1977

by

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In cooperation with Dr. J. Cunningham (of the S.S. Marie laboratory), field testing of four formulations of Neodiprion leconteii Nuclear Polyhedrosis Virus (NPV) was carried out in July, 1977. The materials were applied as simulated aerial spray deposit to single red pine trees, *ca* 1.5m in height, each with a minimum of 4 colonies of Leconte's sawfly. The location of the tests was Lot 27, Conc. 5, Beckwith Twp., in the county of Lanark.

This report deals primarily with composition of the formulation and deposit rates of the materials as determined from samples taken on petri dishes and Kromekote cards during application.

Formulations

Two samples of NPV, as standardized by Mr. Bill Kaupp, were received from the S.S. Marie laboratory and labelled as follows:

1. Neodiprion leconteii NPV Purified 3.5×10^7 PIB/ml
2. NPV - Crude 3.6×10^8 PIB/ml

Four formulations for field testing (50 ml of each) were prepared from the two concentrates as follows:

NPV - I	Purified conc.		0.8 ml
	Ethylene glycol-water* 1:9		49.2 ml
			50.0 ml
	62.5 x dilution to give	5.6×10^5	PIB/ml
NPV - II	Crude conc.		0.08 ml
	Solvent as for I		50.0 ml
	625 x dilution to give	5.8×10^5	PIB/ml
NPV - III	Crude conc.		0.08 ml
	Molasses		12.5 ml
	Solvent as for I		37.5 ml
	a 625 x dilution	5.8×10^5	PIB/ml
NPV - IV	Crude conc.		0.08 ml
	Molasses		12.5 ml
	IMC 90.001		3.0 g
	Solvent as for I		34.5 ml
	625 x dilution	5.8×10^5	PIB/ml

* The ethylene glycol-water mix solvent contained *ca* 0.2% Rhodamine B dye as tracer.

The PlB concentration was twice that originally recommended because of the advanced stage of the sawfly larvae at the time of application.

Application and Deposit Sampling

The formulations were applied and deposits sampled, using the device and technique as described by Hopewell 1975, C.C.R.I. Rpt. CC-X-115. Four ml were applied to the $4.5m^2$ area within the shelter surrounding the tree during treatment for a nominal application rate of 11.0 ℓ/ha. Time and weather permitted duplication of each test only, for a total of 8 treated trees. Application was made 14 July, 1977 from 0650 to 0900 hrs.

Results

The applied deposit found at the various sampling points as determined by colorimetric assessment of petri dish samples and count of drops on Kromekote cards are given in Table I.

Table I

Litres/ha and Number drops/cm^2 on Samples from each Quadrant

Formulation	Tree	ℓ/ha					Drops/cm^2					Calc. avg. drop diam. (μ)
		N	E	S	W	$\bar{x}$	N	E	S	W	$\bar{x}$	
NPV - I	52	6.4	8.4	10.8	13.1	9.7	62	64	60	100	72	137
	53	5.8	10.8	11.8	14.4	10.7	39	75	61	79	64	147
II	48	7.6	4.6	10.9	10.1	8.3	53	80	113	142	97	118
	49	11.2	11.6	15.4	7.6	11.4	79	80	84	67	78	141
III	54	6.0	12.6	17.9	3.4	10.0	52	124	124	51	88	129
	55	9.7	8.3	12.1	9.8	10.0	72	95	76	99	86	130
IV	50	5.5	10.0	15.1	9.0	9.9	120	133	188	156	149	108
	51	9.4	15.0	19.3	9.4	12.8	62	111	154	79	102	134