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A PRELIMINARY REPORT ON CONTROL OF

SPRUCE BUDWORM ON WHITE SPRUCE

BY NRDC-143 APPLIED AS

SIMULATED AERIAL SPRAY

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A report to Chipman Chemicals Limited and
FMC of Canada Limited, on field studies
carried out near Shawville, Quebec, 1976.

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PRELIMINARY REPORT ON SIMULATED AERIAL SPRAY TESTS

NRDC-143 VS SPRUCE BUDWORM - SHAWVILLE - 1976

Two main series of tests were carried out with NRDC-143 against spruce budworm on small white spruce trees with a natural infestation of budworm. The material was applied as a simulated aerial spray deposit. In series I, application was made early in season before the larvae had entered the buds. Application rates were at 0.3 and 0.5 oz AI/acre in volumes of 0.125, 0.25 and 0.5 US gal/acre. In these tests only the Chipman sample was available (5.0 lb/gal E.C. diluted with fuel oil 2 : Arotex 3:1).

Series II tests were carried out in midseason, i.e. when budworm larvae were predominantly L₄, L₅ and L₆. Application rates were as in series I, with the addition of a parallel set of tests using the FMC preparation (4.0 lbs AI/gal) diluted to the same concentration of active ingredient as in Chipman formulations.

Two formulations each of fenitrothion and acephate were included for comparative purposes.

Table I

Summary of Deposits and Biological Data - Early and Midseason Applications

Test No	Date	Treatment	Deposit (oz) ⁺			Infestation		% Reduction	
			Fl.	AI	Drops/cm ²	Buds (%)	per branch	Buds	BR.
1	6-5	NRDC-143, 0.3 oz AI/16 fl.oz/ac	39	0.7	39	3.3	2.3	73	60
2	10-5	NRDC-143, 0.5 " 16 " "	14	0.4	20	7.0	5.7	43	2
3	11-5	NRDC-143, 0.3 " 32 " "	44	0.4	16	5.4	3.8	56	34
4	11-5	NRDC-143, 0.5 " 32 " "	41	0.6	27	3.9	2.6	68	55
5	11-5	NRDC-143, 0.3 " 64 " "	86	0.4	74	5.7	4.3	53	26
6	12-5	NRDC-143, 0.5 " 64 " "	89	0.7	76	6.2	3.7	49	36
7	12-5	Orthene 75S, 4 oz AI/40 fl.oz/ac	64	6.4	18	7.8	4.3	36	26
8	12-5	Orthene 75S, 2 " 20 " "	25	2.5	7	8.9	5.9	27	(2)
9	12-5	Orthene 75S, 1 " 20 " "	26	1.3	6	13.7	6.4	(12)	24
10	12-5	Fenitrothion (oil soln) 3 oz AI/16 fl.oz/ac	17	3.2	6	6.9	3.2	43	45
11	13-5	Fenitrothion (small drops) 3 oz AI/16 fl.oz/ac	8	1.5	16	3.7	2.9	70	50
12	13-5	Fenitrothion (emulsion) 4 oz AI/40 fl.oz/ac	-		-	10.0	5.7	18	2
Checks						12.2	5.8	0	0
13	27-5	NRDC-143, I A, 0.3 oz AI/16 fl.oz/ac	21	0.4	16	11.0	4.5	28	47
14	27-5	NRDC-143, B, (FMC) 0.3 oz AI/16 fl.oz/ac	22	0.4	20	24.2	8.7	(59)	(2)
15*	27-5	NRDC-143, II A, 0.3 oz AI/32 fl.oz/ac	16	0.15	14	14.1	6.3	7	27
16*	27-5	NRDC-143, II B, 0.3 oz AI/32 fl.oz/ac	24	0.22	16	8.7	4.3	43	49

continued/...

Table I Cont'd

Test No	Date	Treatment	Deposit (oz) ⁺			Infestation		% Reduction	
			Fl.	AI	Drops/cm ²	Buds (%)	per branch	Buds	BR.
17*	27-5	NRDC-143, III A, 0.5 oz AI/32 fl.oz/ac	20	0.31	13	8.4	5.1	45	40
18*	27-5	NRDC-143, III B, 0.5 oz AI/32 fl.oz/ac	28	0.4	7	14.8	11.3	3	(33)
19	29-5	NRDC-143, III A, 0.3 oz AI/32 fl.oz/ac	42	0.4	25	6.6	5.8	57	32
20	29-5	NRDC-143, III B, 0.3 oz AI/32 fl.oz/ac	47	0.4	31	8.1	4.6	47	46
21	29-5	NRDC-143, IV A, 0.5 oz AI/32 fl.oz/ac	44	0.7	34	6.7	4.2	56	51
22	29-5	NRDC-143, IV B, 0.5 oz AI/32 fl.oz/ac	33	0.5	29	4.6	2.8	70	67
23	2-6	NRDC-143, V A, 0.3 oz AI/64 fl.oz/ac	58	0.27	48	9.1	4.5	40	47
24	2-6	NRDC-143, V B, 0.3 oz AI/64 fl.oz/ac	34	0.16	34	11.3	6.6	26	23
25	2-6	NRDC-143, VI A, 0.5 oz AI/64 fl.oz/ac	30	0.23	32	6.1	4.2	60	51
26	2-6	NRDC-143, VI B, 0.5 oz AI\$64 fl.oz/ac	96	0.75	68	3.1	1.8	80	79
27	2-6	Orthene 75S, 1 oz AI/20 fl.oz/ac	21	1.0	17	5.0	2.9	67	66
28	3-6	Fenitrothion, 4 oz AI/40 fl.oz/ac	31	3.1	34	7.1	4.1	53	52
29	5-6	Fenitrothion (oil soln), 3 oz AI/16 fl.oz/ac	19	3.6	10	5.5	2.3	64	73
30	4-6	Dowco-214, 6.4 oz AI/64 fl.oz/ac	104	10.4	62	2.9	1.8	81	79

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Table I Cont'd.

Test No	Date	Treatment	Deposit (oz) ⁺			Infestation		% Reduction	
			fl.	AI	Drops/cm ²	Buds (%)	per branch	Buds	BR.
31	4-6	Dowco-214, 3.2 oz AI/32 fl.oz/ac	61	6.1	42	7.1	3.4	53	60
32	4-6	Dowco-214, 1.6 oz AI/16 fl.oz/ac	30	3.0	26	4.7	2.4	69	72
Checks						15.2	8.5	-	-

⁺ Average on total of 4 samples from each of 3 tree replicates.

* Applied at one half intended volume by error.



