

PESTICIDE USE IN BRITISH COLUMBIA FORESTRY

1979 - 1981

by

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TABLE OF CONTENTS

FOREWORD	.ii
LIST OF FIGURES AND TABLES	.iii
ABSTRACT	.iv
INTRODUCTION	1
METHODS.	2
RESULTS.	4
DISCUSSIONS AND CONCLUSIONS.	11
ACKNOWLEDGEMENTS	12

FOREWORD

The contents of this inaugural report on forest pesticide use are based on returns from collaborators in forest industry and regional and branch offices of the Ministry of Forests. The compilation, hopefully the first to be based on a comprehensive information system, will enhance the understanding of pesticide use patterns for forest management.

Your comments and suggestions for improvement would be greatly appreciated.

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LIST OF FIGURES AND TABLES

TABLE I	B.C. MINISTRY OF FORESTS PESTICIDE USE SURVEY FOLLOW-UP FORM, 1979-1981	3
TABLE II A.	SUMMARY OF FOLLOW-UP INFORMATION RECEIVED FOR SUBMITTED BRITISH COLUMBIA FORESTRY PESTICIDE USE PERMITS	5
TABLE II B.	SUMMARY OF INFORMATION RECEIVED FOR APPROVED BRITISH COLUMBIA FORESTRY PESTICIDE USE PERMITS.	
TABLE III	HECTARES OF BRITISH COLUMBIA FOREST LAND TREATED WITH PESTICIDES	6
TABLE IV	PESTICIDES USED AND HECTARES OF B.C. FOREST LAND TREATED	7
TABLE V	PESTICIDE USAGE - B.C. MINISTRY OF FORESTS AND FOREST INDUSTRY COMBINED	8
TABLE VI	PESTICIDE TREATMENT COSTS	9

ABSTRACT

A pesticide use survey was undertaken to provide verification of the extent of pesticide use in British Columbia by both the Ministry of Forests and forest industry. It represents the period 1979 to 1981, inclusive, although 1981 figures are not yet complete. Follow-up information received from both sources represents approximately 80 per cent of approved 1979-80 projects.

INTRODUCTION

As part of an improved Pest Management Information System, records were retrieved on the use of pesticides from B.C. Ministry of Forests and forest industry sources. Results of this pesticide use follow-up survey (1979-1981), are presented here in tabular form.

The tabulations are based on all forestry pesticide use permits issued by the Ministry of Environment's Pesticide Control Branch between 1979 and 1981. The 1979 and 1980 figures reflect all follow-up information received. The 1981 figures have been included to reflect trends as only 32 percent of this information has been verified to date. An assumption was made in regard to the B.C. Ministry of Forests data, that any permit lacking follow-up information was, nevertheless, completed.

Information contained in this report represents only those pesticide use permits issued by the Ministry of Environment, Pesticide Control Branch for forest land and rangeland management purposes.

Permits issued for agricultural purposes or hydro, railway and highway maintenance are not represented in this report. Permits for the operational use of pesticides in forest tree nurseries and orchards are, similarly, not included in this report.

METHODS

With the advice and cooperation of the Council of Forest Industries of British Columbia, a pesticide use follow-up ledger was draughted and sent to management representatives of three major forest companies (Table I). The companies involved were MacMillan Bloedel Ltd., British Columbia Forest Products Ltd., and Western Forest Products Ltd.

Follow-up information on pesticide use was gathered by mail from twenty five divisional foresters of these companies. Meetings were arranged with four divisional foresters of MacMillan Bloedel Ltd. in order to acquire a detailed pesticide use assessment as a comparison to those received by mail.

Similar information from the B.C. Ministry of Forests was gathered from the six regional Pest Management Coordinators representing each forest region. The Vancouver Region was reviewed in detail because it is the major user of pesticides in the ministry. This procedure involved meetings with Silviculture representatives of the Vancouver Region to assess their responses to the pesticide use inventory.

RESULTS

The results of the Pesticide Use Survey, 1979-1981, are presented in tabular form on the following pages.

Follow-up information received from forest industry and Ministry of Forests sources represented approximately 80 percent of approved 1979-80 projects.

Reliable efficacy data was difficult to obtain from both sectors because most of the projects were operational and detailed efficacy follow-up records were not considered necessary.

Approximately 30 percent of the forest industry projects approved by the British Columbia Pesticide Control Branch were cancelled prior to implementation in 1979-80. However, only 10 percent of B.C. Ministry of Forests 1979-80 projects were cancelled during this period.

Herbicide use for the purpose of forest brush and weed control, accounted for approximately 89 percent of 1979-81 pesticide treated hectares. During the years 1979, 1980 and 1981, industry treated, respectively, 1,839, 3,413 and 10,472 hectares of forest land with herbicides. During the years 1979, 1980, and 1981, the B.C. Ministry of Forests treated, respectively, 1,894, 1,613 and 5,227 hectares of forest and range land with herbicides. Chemicals most extensively used as herbicides by both sectors were 2,4-D amine and fosamine (Krenite). In 1981, fosamine use increased to 35,218 kg A.I.¹ from 5,460 kg A.I. in 1980. This large increase was due to research limitations put upon the use of fosamine prior to 1980.

¹ A.I. = Active Ingredient.

The most common method of pesticide application, in terms of hectares treated for 1979-81 was "hack and squirt", at an average cost of \$425.55 per hectare. The second most common method of pesticide application used in 1979-80 was ground spraying, but this appeared to be supplanted in 1981 by aerial spraying. During 1979-81, the average cost of ground spraying reported was approximately \$323.70 per hectare-roughly one and one half times the cost of aerial spray applications, at \$233.99 per hectare.

Sparsity of treatment cost data, particularly for the years 1980 and 1981, has made some figures relatively unreliable and these are indicated as such. All tabulations represent actual area (ha) treated with pesticide.

TABLE II A. SUMMARY OF FOLLOW-UP INFORMATION RECEIVED FOR SUBMITTED BRITISH COLUMBIA FORESTRY PESTICIDE USE PERMITS

	1979				1980				1981			
	B.C. M.O.F.	INDUSTRY	B.C. M.O.F.	INDUSTRY	B.C. M.O.F.	INDUSTRY	B.C. M.O.F.	INDUSTRY	B.C. M.O.F.	INDUSTRY	B.C. M.O.F.	INDUSTRY
TOTAL	#	%	#	%	#	%	#	%	#	%	#	%
PROJECTS SUBMITTED	86	100	77	100	82	100	115	100	81	100	115	100
PROJECTS APPROVED	74	86	71	92	74	90	109	95	77	95	110	96
PROJECTS DENIED	12	14	6	8	8	10	6	5	4	5	5	4

TABLE II B. SUMMARY OF INFORMATION RECEIVED FOR APPROVED FORESTRY PESTICIDE USE PERMITS

PROJECTS WITH FOLLOW-UP DATA	49	66	45	63	42	57	76	70	16	21	5	4
PROJECTS WITHOUT FOLLOW-UP DATA	23	31	7	10	18	24	4	4	50	65	105	96
PROJECTS CANCELLED	2	3	19	27	14	19	29	26	11	14	0	0

TABLE III HECTARES OF BRITISH COLUMBIA FOREST LAND TREATED WITH PESTICIDES¹

B.C. MINISTRY OF FORESTS						
PURPOSE	1979		1980		1981	
	RESEARCH ha	OPERATIONAL ha	RESEARCH ha	OPERATIONAL ha	RESEARCH ha	OPERATIONAL ha
FOREST BRUSH AND WEED CONTROL	258.9	1635.0	79.0	934.9	159.0	4640.1
RANGELAND WEED CONTROL ¹	0.0	362.1	3.5	596.0	7.0	421.3
INSECT, FUNGUS AND OTHER TYPES OF CONTROL	21.8	42.5	1.0	0.3	70.4	78.4
SUBTOTAL	280.7	2039.6	83.5	1531.2	236.4	5139.8
TOTAL	2320.3		1614.7		5376.20	
FOREST INDUSTRY						
PURPOSE	1979		1980		1981	
	RESEARCH ha	OPERATIONAL ha	RESEARCH ha	OPERATIONAL ha	RESEARCH ha	OPERATIONAL ha
FOREST BRUSH AND WEED CONTROL	53.8	1785.3	71.4	3341.3	212.6	10259.3
RANGELAND WEED CONTROL ¹	0.0	0.0	0.0	0.0	0.0	0.0
INSECT, FUNGUS AND OTHER TYPES OF CONTROL	0.0	0.0	0.0	70.0	5.0	2.0
SUBTOTAL	53.8	1785.3	71.4	3411.3	217.6	10261.30
TOTAL	1839.1		3482.7		10478.90	

¹ Only hectares of rangeland administered by the Forest Service are presented for range land.

TABLE V PESTICIDE USAGE - B.C. MINISTRY OF FORESTS AND FOREST INDUSTRY COMBINED¹

PESTICIDE	1979 Total kg a.i. applied	Total ha Treated	1980 Total kg a.i. applied	Total ha Treated	1981 Total kg a.i. applied	Total ha Treated
2,4-D AMINE	5,022.8	2,380.2	4,921.7	3,014.8	15,686.5	6,166.8
2,4-ESTER	732.9	244.0	0.0	0.0	11.0	0.8
MSMA	43.4	88.0	651.2	110.7	5,913.6	1,585.1
FOSAMINE	1,911.8	533.4	5,459.6	1,136.5	35,217.9	6,467.4
GLYPHOSATE	62.5	42.3	172.5	159.0	1,488.4	1,094.4
PICLORAM	1,005.5	730.5	167.4	594.0	292.1	401.3
OTHERS	780.9	141.0	3,737.5	82.4	280.5	139.3

¹ Data presented includes pesticide treatments applied to rangeland administered by the B.C. Ministry of Forests.

TABLE VI PESTICIDE TREATMENT COSTS

B.C. MINISTRY OF FORESTS						
TYPE OF TREATMENT	1979		1980		1981	
	ha	\$/ha ¹	ha	\$/ha ¹	ha	\$/ha ¹
HACK AND SQUIRT	1148.3	250.48	448.3	610.25 ²	2235.7	404.31 ²
HAND APPLICATIONS	25.4	-	0.0	-	10.4	not available
GROUND SPRAYS	590.6	450.73	782.8	453.28	402.6	377.65 ²
AERIAL SPRAYS	556.0	139.23	383.6	131.10	2727.5	594.12 ²
FOREST INDUSTRY						
TYPE OF TREATMENT	1979		1980		1981	
	ha	\$/ha ¹	ha	\$/ha ¹	ha	\$/ha ¹
HACK AND SQUIRT	1414.5	301.24	2589.2	561.45	7318.2	not available
HAND APPLICATIONS	0.0	-	0.6	-	104.9	not available
GROUND SPRAYS	300.8	232.40	378.4	194.15	778.8	234.00 ²
AERIAL SPRAYS	123.8	36.40 ²	514.5	230.41	2277.0	272.76 ²

¹ All costs are based on weighted averages and adjusted to 1981 dollars.

² Quantity of cost data received was not sufficient to provide a reliable weighted average.

DISCUSSIONS AND CONCLUSIONS

Although information presented in this report seems to indicate an increasing variety of forestry pesticide use in British Columbia, follow-up information gathered to date is not complete or extensive enough to give an accurate picture of current trends and needs.

It is, therefore, apparent that:

- (1) A continuing dialogue with the British Columbia Pesticide Control Branch plus other involved branches of the B.C. Ministry of Forests and forest industry, is necessary to establish a more efficient system for gathering comprehensive follow-up records on all forestry pesticide projects.
- (2) A data bank is urgently needed to contain forestry pesticide application, permit, and project follow-up information which could include: project and pesticide control product numbers, location and purpose of project, method of pesticide application, target species, actual hectares treated, actual kilograms of active ingredient used, treatment cost per hectare and treatment efficacy rating. Such a data bank, when supplied with information on an ongoing basis, could be used to give a more accurate indication of current forestry pesticide usage trends and needs in British Columbia.

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