

**PESTICIDE USE  
IN BRITISH COLUMBIA FORESTRY**

**1991**

**by**

**P. Humphreys  
Silviculture Branch**

**British Columbia Ministry of Forests  
Victoria, British Columbia  
Forest Service Internal Report  
FH-SB-01**

**Not for Publication**

**December 1992**

**(The contents of this report may not be cited in whole or part without  
the written approval of the Director, Silviculture Branch, Ministry of Forests,  
31 Bastion Square, Victoria, British Columbia V8W 3E7)**



## TABLE OF CONTENTS

TABLES .....	i
FIGURES.....	ii
FOREWORD .....	iii
INTRODUCTION.....	1
RESULTS OF THE 1992 B.C. FORESTRY PESTICIDE USE SURVEY .....	2
REGIONAL SUMMARIES	
VANCOUVER .....	12
PRINCE RUPERT .....	14
PRINCE GEORGE.....	16
KAMLOOPS .....	18
NELSON .....	20
CARIBOO.....	22
DISTRICT SUMMARIES	
VANCOUVER .....	24
PRINCE RUPERT .....	39
PRINCE GEORGE.....	48
KAMLOOPS .....	63
NELSON .....	74
CARIBOO.....	80
DISCUSSION AND CONCLUSIONS .....	91
ACKNOWLEDGEMENTS.....	92



TABLES

Number		Page
I	The Status of 1991 Pesticide Use Applications and Permits issued by the Pesticide Management Branch	3
II	The Status of Appealed 1991 Pesticide Use Permits as Determined by the B.C. Environmental Appeal Board	4
III	Provincial Summary of Area (ha) Treated and Active Ingredient (kg a.i.) Used by Pesticide, 1991	5
IV	Regional Summary of Area (ha) Treated by Pesticide, 1991	8
V	Regional Summary of Area (ha) Treated by Control Purpose, 1991	9
VI	Regional Summary of Area (ha) Treated by Method of Application, 1991	11
VII	Provincial Summary of Area (ha) Treated by Control Purpose, 1991	83
VIII	Provincial Summary of Area (ha) Treated by Method of Application, 1991	85



FIGURES

Number		Page
1.	Pesticide Use in Percent by Area (ha) Treated, 1991	6
2.	Pesticide Use in Percent by Active Ingredient (kg a.i.) Applied, 1991	7
3.	Provincial Summary of Area (ha) Treated with Pesticides by Forest Region, 1991	10
4.	Provincial Summary of Area (ha) Treated with Pesticides by Control Purpose, 1991	85
5.	Provincial Summary of Area (ha) Treated with Pesticides by Method of Application, 1991	88
6.	Area (ha) Treated with Herbicides for Forestry Purposes, 1981-1991	89
7.	Area (ha) Treated with Insecticides for Forestry Purposes, 1981-1991	90



## **FOREWORD**

A continuing series of internal reports on pesticide use in British Columbia forestry was initiated in the early 1980's. At that time the Ministry of Forests (Protection Branch), the Council of Forest Industries of British Columbia and the Ministry of Environment (Pesticide Control Branch) began a cooperative project to collect data on forestry pesticide use in British Columbia. Information contained in these reports is gathered from all forestry pesticide permit holders, on an annual basis, by the Pesticide Management Branch, and represents only those permits that were active in 1991. Data includes quantities (kg of active ingredient) of each pesticide applied and total area (ha) treated. Area treated is broken down by control purpose and method of application. Also included in this report are forest region and district summaries of pesticide use, as well as herbicide and insecticide use trends from 1981-1991.



## INTRODUCTION

This report is part of a continuing series that began in the early 1980's. At that time a cooperative project was initiated by the Ministry of Forests (Protection Branch), the Council of Forest Industries of British Columbia, and the Ministry of Environment (Pesticide Control Branch) to establish annual records of forestry pesticide use on crown land in British Columbia.

In 1983, the Pesticide Control Branch initiated a requirement of all pesticide use permit holders to submit follow-up reports on a calendar year basis. This data is summarized in tables and graphs on the following pages and includes the following information:<sup>1,2</sup>

1. Numbers of 1991 forestry permit applications submitted; denied; cancelled and appealed.
2. Environmental Appeal Board decisions on all appealed permits.
3. Provincial summary of area (ha) treated and active ingredient (kg a.i.) used by individual pesticide.
4. Forest region and district summaries of area (ha) treated by pesticide, control purpose and general method of application.
5. Provincial summaries of area (ha) treated by control purpose and method of application.
6. Area (ha) of forest land treated with herbicides and insecticides, 1981-1991.

The above information is also summarized by the user - i.e., British Columbia Forest Service or forest industry.

---

<sup>1</sup> This report was based on all follow-up reports received by May 92.

<sup>2</sup> Totals in hectares may differ slightly in each table and graph because of rounding. Totals in forest region summaries are slightly lower than provincial summaries because provincial summaries reflect permits that were used to apply pesticides in several regions.

## RESULTS OF THE 1992 SURVEY

Pesticide Control Branch reviewed 477 forestry pesticide use applications in 1991 and issued 461 permits (Table I).

Twenty permits were appealed in 1991 and Environmental Appeal Board decisions were as follows: nine supported, nine amended, and two cancelled or revoked (Table II).

A total of 43 374 hectares (ha) of British Columbia forest and range (Crown) land were treated with pesticides in 1991. The British Columbia Forest Service applied pesticides to 18 671 ha (43%) and forest industry to 24 702 ha (57%).

The herbicide, glyphosate, and the biological insecticide, *Bacillus thuringiensis* Berliner var. *kurstaki* (*B.t.k.*) were the most widely used products in terms of area treated. Glyphosate was applied to 37 098 ha, 86% of the total area treated in the province in 1991, and *B.t.k.* to 3 733 ha. These were followed by MSMA (1 283 ha), picloram (552 ha) and 2,4-D (281 ha) (Table III, Figure 1).

Quantities of pesticides applied in kilograms of active ingredient (kg a.i.) are shown in Table III and Figure 2.

Summaries of pesticide use by individual forest regions and districts are shown on pages 12-82.

The majority of pesticide applications occurred in the Prince George Forest Region (20 360 ha), followed by Vancouver (8 468 ha), Kamloops (6 258 ha) and Prince Rupert (2 480 ha) (Table IV, Figure 3).

Herbicide applications for the purpose of controlling vegetation (i.e. crop establishment (brushing), crop growth enhancement (conifer release)) remain the most common type of forestry operation involving pesticides.

Herbicides were applied to 31 053 ha for brushing and conifer release operations and to 4 612 ha to prepare harvested sites for planting. Forest right-of-way maintenance and site rehabilitation treatments were conducted on 922 ha, and 496 ha, respectively. Herbicides were also applied to 710 ha for range land management (noxious weed control). Insecticides were applied to 5 269 ha (Table VII, Figure 4).

Pesticides were aerially applied to 32 635 ha of forest land. Of this, 18 509 ha were treated by helicopter and 14 126 ha by fixed-wing aircraft. Tree injection application methods were used over 5 557 ha, while backpack sprayers and vehicle mounted sprayers were used to apply pesticides to 4 352 ha (Table VIII, Figure 5).

**TABLE I**  
**THE STATUS OF 1990 PESTICIDE USE APPLICATIONS AND PERMITS**  
**ISSUED BY THE PESTICIDE CONTROL BRANCH**

	<b>BC FOREST SERVICE</b>	<b>FOREST INDUSTRY</b>	<b>TOTAL</b>
APPLICATIONS SUBMITTED	177	300	477
APPLICATIONS WITHDRAWN OR DENIED	3	13	16
PERMITS ISSUED (TOTAL)	174	287	461
PERMITS CANCELLED REVOKED OR SUSPENDED BY THE PESTICIDE CONTROL BRANCH	52	74	126

**TABLE II**  
**THE STATUS OF APPEALED 1990 PESTICIDE USE PERMITS**  
**AS DETERMINED BY THE B.C. ENVIRONMENTAL APPEAL BOARD**

	<b>BC FOREST SERVICE</b>	<b>FOREST INDUSTRY</b>	<b>TOTAL</b>
PERMITS APPEALED	5	15	20
APPEALED PERMITS CANCELLED/REVOKED	0	2	2
APPEALED PERMITS AMENDED	5	4	9
APPEALED PERMITS SUPPORTED	0	9	9
HEARINGS OR DECISIONS PENDING	0	0	0

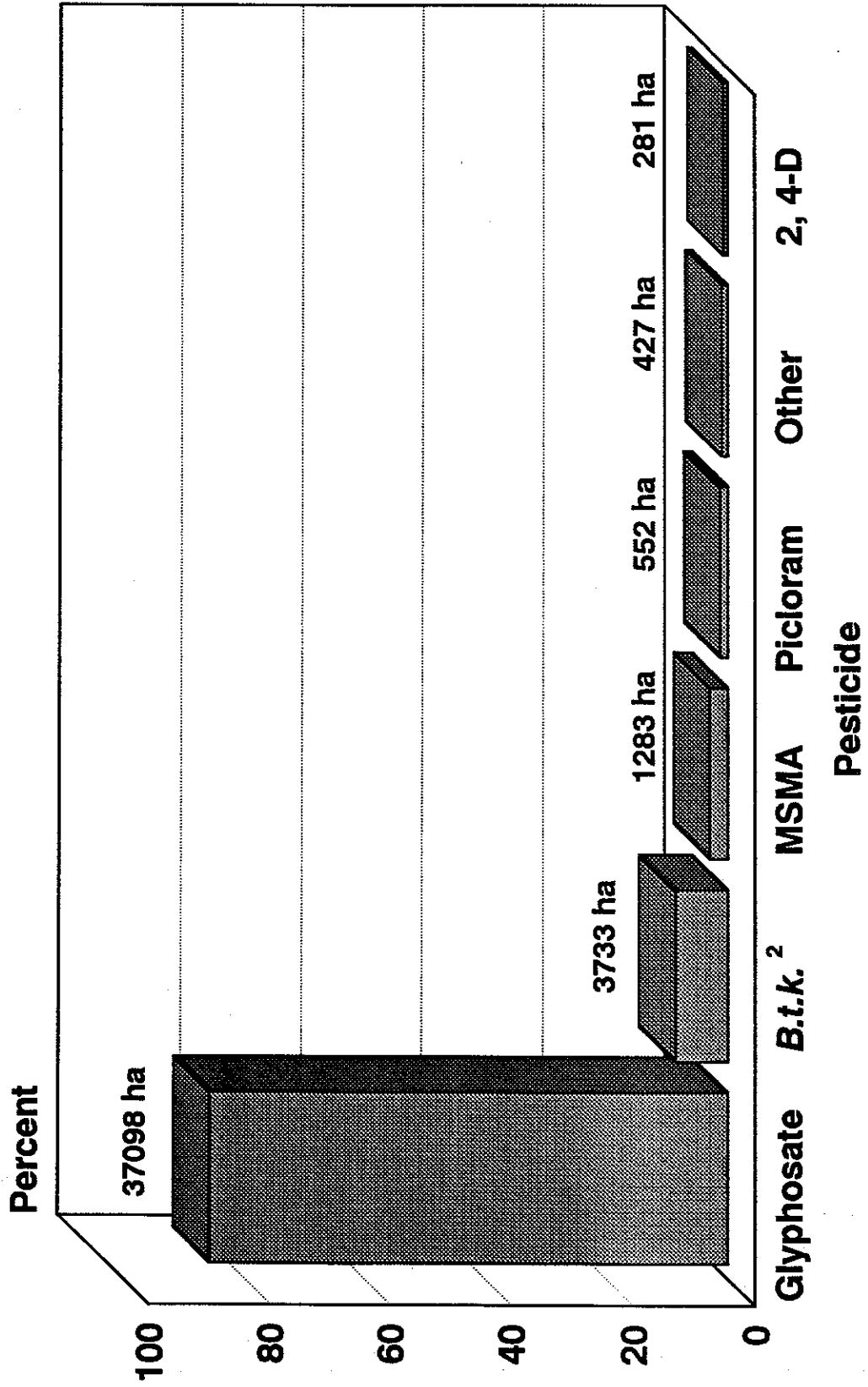
\*permits extended one year by the Appeal Board are not considered to be amended

**TABLE III**  
**PROVINCIAL SUMMARY OF AREA (ha)**  
**TREATED AND ACTIVE INGREDIENT (kg a.i.) USED**  
**BY PESTICIDE, 1991**

PESTICIDE	BC FOREST SERVICE		FOREST INDUSTRY	
	ha treated	kg a.i. applied	ha treated	kg a.i. applied
1,3-dichloro	0.000	0.000	0.478	191.760
2,4-D	92.050	368.675	189.010	148.850
<i>B.t.k.</i>	3,733.000	10,228.000	0.000	0.000
carbaryl	3.260	8.640	0.000	0.000
dicamba	1.250	3.900	0.000	0.000
dimethoate	0.150	0.294	0.000	0.000
glyphosate	13,553.543	21,488.990	23,544.640	36,671.786
hexazinone	0.000	0.000	7.400	89.000
mineral oil	0.050	9.000	0.000	0.000
MSMA	519.110	970.350	763.660	30.760
Na Meta	0.000	0.000	0.500	50.000
NPV	200.000	2.181	0.000	0.000
oxydemeton	0.150	0.294	0.000	0.000
permethrin	0.022	0.009	0.000	0.000
picloram	482.023	288.365	69.650	4.901
triclopyr	0.000	0.000	125.110	67.132
verbenone	86.680	8.920	2.500	0.420

# Pesticide Use

In Percent (ha) Treated, 1991<sup>1</sup>

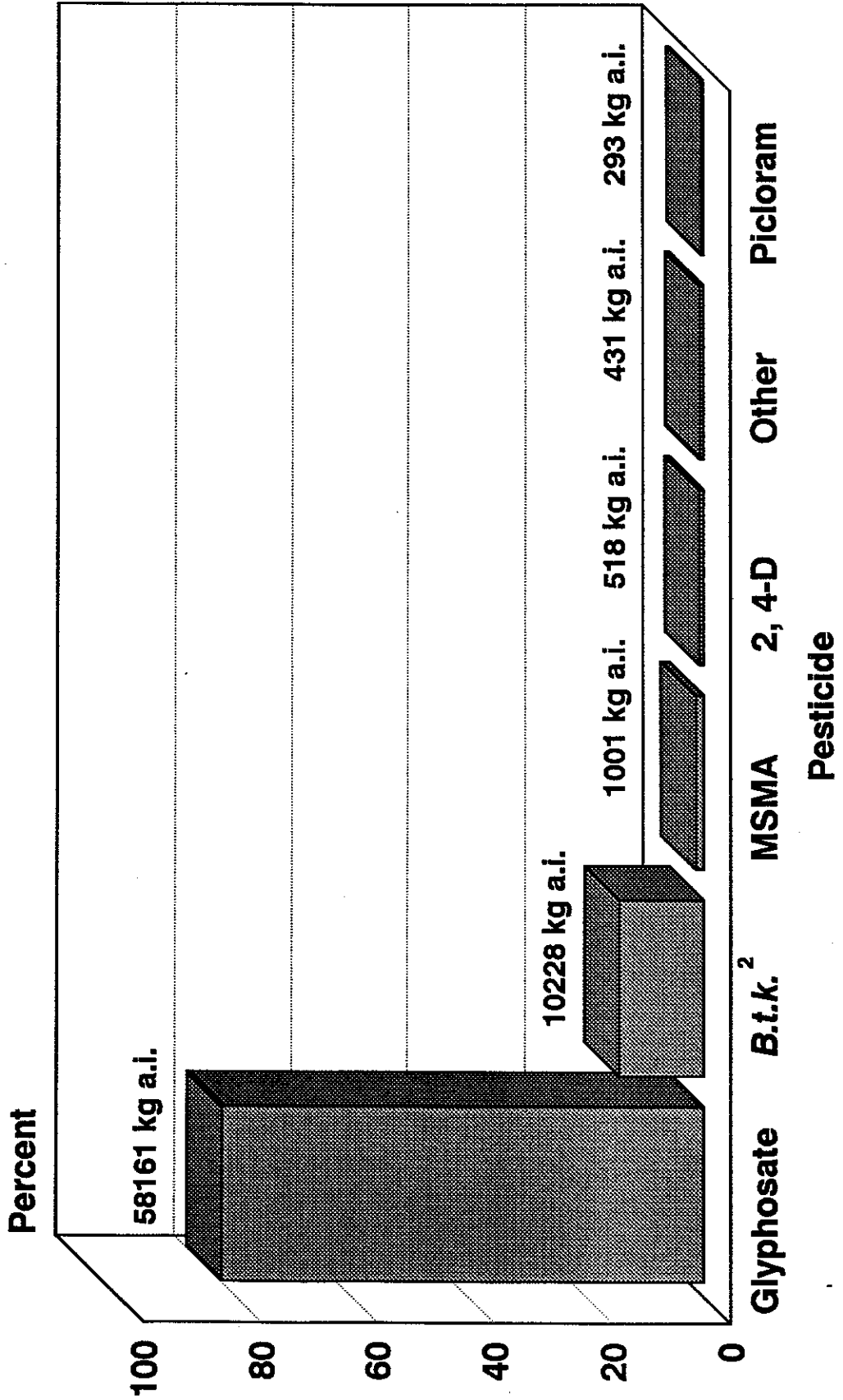


<sup>1</sup> B.C. Forest Service & Industry Combined

<sup>2</sup> Bacillus thuringiensis var. kurstaki

# Pesticide Use

In Percent Active Ingredient (kg a.i.) Applied, 1991<sup>1</sup>



<sup>1</sup> B.C. Forest Service & Industry Combined  
<sup>2</sup> *Bacillus thuringiensis* var. *kurstaki*

**TABLE IV**  
**REGIONAL SUMMARY OF AREA (ha) TREATED**  
**BY PESTICIDE, 1991**  
**BCFS AND FOREST INDUSTRY**

<b>FOREST REGION</b>	<b>glyphosate</b>	<b>2, 4-D</b>	<b>hexazinone</b>	<b>picloram</b>	<b><i>B.t.k.</i></b>	<b>Others</b>	<b>Totals</b>
VANCOUVER	8,153.390	189.010	0.000	0.000	0.000	125.600	8,468.000
PRINCE RUPERT	2,470.870	0.000	0.000	0.000	0.000	8.710	2,479.580
PRINCE GEORGE	19,464.060	0.000	0.000	113.828	553.00	229.330	20,360.218
KAMLOOPS	1,623.310	0.000	0.000	347.510	3,180.000	1,107.010	6,257.830
NELSON	813.910	0.000	0.000	90.335	0.000	212.300	1,116.545
CARIBOO	2,163.820	0.000	7.400	0.000	0.000	4.550	2,175.770
<b>TOTALS:</b>	<b>34,689.360</b>	<b>189.010</b>	<b>7.400</b>	<b>551.673</b>	<b>3,733.000</b>	<b>1,687.500</b>	<b>40,857.943</b>
(%)	84.90	0.46	0.02	1.35	9.14	4.13	100.00

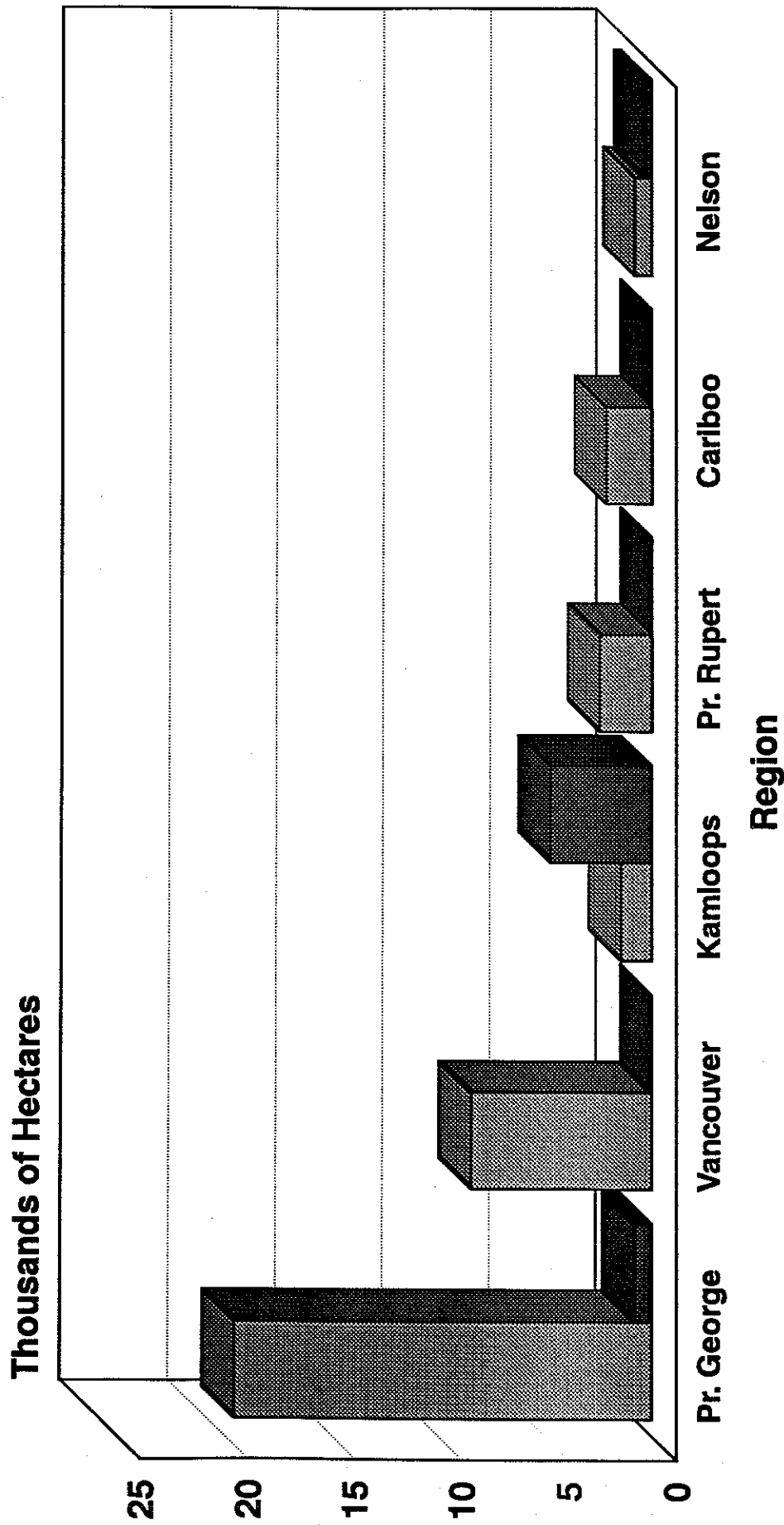
TABLE V

REGIONAL SUMMARY OF AREA (ha)  
TREATED BY CONTROL PURPOSE, 1991  
BCFS AND FOREST INDUSTRY

FOREST REGION	VEGETATION MANAGEMENT	INSECT MANAGEMENT	RANGE MANAGEMENT	TOTALS
VANCOUVER	8,468.000	0.000	0.000	8,468.000
PRINCE RUPERT	2,470.870	8.710	0.000	2,479.580
PRINCE GEORGE	19,519.670	779.830	60.718	20,360.218
KAMLOOPS	1,461.520	4,249.840	546.470	6,257.830
NELSON	806.090	212.300	98.155	1,116.545
CARIBOO	2,168.500	4.550	2.720	2,175.770
<b>TOTALS:</b>	<b>34,894.650</b>	<b>5,255.230</b>	<b>708.063</b>	<b>40,857.943</b>
(%)	85.40	12.86	1.73	100.00

# Area Treated with Pesticides

## Provincial Summary by Forest Region, 1991<sup>1</sup>



■ Vegetation Mgmt. ■ Insect, Range & Other

<sup>1</sup> B.C. Forest Service & Industry Combined

**TABLE VI**  
**REGIONAL SUMMARY OF AREA (ha)**  
**TREATED BY METHOD OF APPLICATION, 1991**  
**BCFS AND FOREST INDUSTRY**

<b>FOREST REGION</b>	<b>AERIAL SPRAY</b>	<b>GROUND APPLICATION</b>	<b>STEM INJECTION</b>	<b>TOTALS</b>
VANCOUVER	2,946.150	2,556.890	2,964.960	8,468.000
PRINCE RUPERT	1,878.100	593.270	8.210	2,479.580
PRINCE GEORGE	19,428.620	618.968	312.630	20,360.218
KAMLOOPS	3,792.410	977.880	1,487.540	6,257.830
NELSON	767.490	136.755	212.300	1,116.545
CARIBOO	2,149.600	21.620	4.550	2,175.770
<b>TOTALS:</b>	<b>30,962.370</b>	<b>4,905.383</b>	<b>4,990.190</b>	<b>40,857.943</b>
(%)	<b>75.78</b>	<b>12.01</b>	<b>12.21</b>	<b>100.00</b>

REGIONAL SUMMARY OF PESTICIDE USE, 1991  
FOREST INDUSTRY

REGION: VANCOUVER

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	4,503.670	2, 4-D amine	0.000	74.00	30.010
		glyphosate	1,394.850	504.030	2,500.280
		Na Meta	0.000	0.500	0.000
FOREST CONIFER RELEASE	615.610	2, 4-D amine	0.000	0.000	70.000
		glyphosate	223.000	247.900	35.310
		triclopyr	0.000	39.400	0.000
FOREST PRE-HARVEST TREATMENT	7.500	glyphosate	0.000	7.500	0.000
FOREST RIGHT-OF-WAY MAINTENANCE	654.800	2, 4-D amine	0.000	15.000	0.000
		glyphosate	0.000	639.800	0.000
FOREST SITE PREPARATION	246.400	glyphosate	75.000	85.700	0.000
		triclopyr	0.000	85.700	0.000
<b>REGION TOTALS:</b>	<b>6,027.980</b>		<b>1,692.850</b>	<b>1,699.530</b>	<b>2,635.600</b>

REGIONAL SUMMARY OF PESTICIDE USE, 1991  
BCFS

REGION: VANCOUVER

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	911.060	glyphosate	725.100	185.960	0.000
FOREST CONIFER RELEASE	955.760	glyphosate	0.000	626.400	329.360
FOREST SITE PREPARATION	388.600	glyphosate	388.600	0.000	0.000
FOREST SITE REHABILITATION	184.600	glyphosate	139.600	45.000	0.000
<b>REGION TOTALS:</b>	<b>2,440.020</b>		<b>1,253.300</b>	<b>857.360</b>	<b>329.360</b>

REGIONAL SUMMARY OF PESTICIDE USE, 1991  
FOREST INDUSTRY

REGION: PRINCE RUPERT

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	534.970	glyphosate	473.000	61.970	0.000
FOREST CONIFER RELEASE	723.800	glyphosate	647.100	76.700	0.000
FOREST RIGHT-OF-WAY MAINTENANCE	194.800	glyphosate	0.000	194.800	0.000
FOREST SITE PREPARATION	77.200	glyphosate	77.200	0.000	0.000
<b>REGION TOTALS:</b>	<b>1,530.770</b>		<b>1,197.300</b>	<b>333.470</b>	<b>0.000</b>

REGIONAL SUMMARY OF PESTICIDE USE, 1991  
BCFS

REGION: PRINCE RUPERT

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	555.100	glyphosate	439.300	115.800	0.000
FOREST CONIFER RELEASE	241.500	glyphosate	241.500	0.000	0.000
FOREST INSECT CONTROL	8.710	carbaryl MSMA	0.000 0.000	0.500 0.000	0.000 8.210
FOREST SITE PREPARATION	103.000	glyphosate	0.000	103.000	0.000
FOREST SITE REHABILITATION	40.500	glyphosate	0.000	40.500	0.000
<b>REGION TOTALS:</b>	<b>948.810</b>		<b>680.800</b>	<b>259.800</b>	<b>8.210</b>

REGIONAL SUMMARY OF PESTICIDE USE, 1991  
FOREST INDUSTRY

REGION: PRINCE GEORGE

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	7,265.020	glyphosate	7,145.020	120.000	0.000
FOREST CONIFER RELEASE	2,964.880	glyphosate	2,964.880	0.000	0.000
FOREST INSECT CONTROL	3.330	MSMA	0.000	0.000	3.330
FOREST PRE-HARVEST TREATMENT	75.800	glyphosate	0.000	0.000	75.800
FOREST RIGHT-OF-WAY MAINTENANCE	69.450	picloram	0.000	69.450	0.000
FOREST SITE PREPARATION	1,433.120	glyphosate	1,433.120	0.000	0.000
<b>REGION TOTALS:</b>	<b>11,811.600</b>		<b>11,543.020</b>	<b>189.450</b>	<b>79.130</b>

REGIONAL SUMMARY OF PESTICIDE USE, 1991  
BCFS

REGION: PRINCE GEORGE

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	5,036.420	glyphosate	4,925.020	111.400	0.000
FOREST CONIFER RELEASE	944.700	glyphosate	691.800	252.900	0.000
FOREST INSECT CONTROL	776.500	<i>B.t.k.</i> MSMA	553.000 0.000	0.000 0.000	0.000 223.500
FOREST RANGE MANAGEMENT	60.718	glyphosate picloram	0.000 0.000	16.340 34.378	0.000 10.000
FOREST RIGHT-OF-WAY MAINTENANCE	2.500	2,4-D dicamba	0.000 0.000	1.250 1.250	0.000 0.000
FOREST SITE PREPARATION	1,727.780	glyphosate	1,715.780	12.000	0.000
<b>REGION TOTALS:</b>	<b>8,548.618</b>		<b>7,885.600</b>	<b>429.518</b>	<b>233.500</b>

REGIONAL SUMMARY OF PESTICIDE USE, 1991  
FOREST INDUSTRY

REGION: KAMLOOPS

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	284.900	glyphosate	180.500	104.400	0.000
FOREST CONIFER RELEASE	130.200	glyphosate	14.000	116.200	0.000
FOREST CONIFER THINNING	0.410	glyphosate picloram triclopyr	0.000 0.000 0.000	0.000 0.000 0.000	0.200 0.200 0.010
FOREST INSECT CONTROL	755.780	MSMA	0.000	0.000	755.780
FOREST SITE PREPARATION	32.000	glyphosate	32.000	0.000	0.000
FOREST WEED SEED TREE	21.700	glyphosate	0.000	0.000	21.700
<b>REGION TOTALS:</b>	<b>1,224.990</b>		<b>226.500</b>	<b>220.600</b>	<b>777.890</b>

REGIONAL SUMMARY OF PESTICIDE USE, 1991  
BCFS

REGION: KAMLOOPS

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	252.050	glyphosate	0.000	149.850	102.200
FOREST CONIFER RELEASE	452.160	glyphosate	101.210	12.000	338.950
FOREST INSECT CONTROL		<i>B.t.k.</i>	3,180.000	0.000	0.000
		carbaryl	0.000	0.120	0.000
		MSMA	0.000	0.000	27.940
		NPV	200.000	0.000	0.000
		verbenone	0.000	86.000	0.000
	3,494.060				
FOREST RANGE MANAGEMENT		glyphosate	0.000	162.000	0.000
		MSMA	0.000	0.000	37.160
		picloram	0.000	347.310	0.000
	546.470				
FOREST SITE PREPARATION	84.700	glyphosate	84.700	0.000	0.000
FOREST WEED SEED TREE	203.400	glyphosate	0.000	0.000	203.400
<b>REGION TOTALS:</b>	<b>5,032.840</b>		<b>3,565.910</b>	<b>757.280</b>	<b>709.650</b>

REGIONAL SUMMARY OF PESTICIDE USE, 1991  
FOREST INDUSTRY

REGION: NELSON

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	66.800	glyphosate	66.800	0.000	0.000
FOREST CONIFER RELEASE	2.700	glyphosate	2.700	0.000	0.000
FOREST SITE PREPARATION	158.200	glyphosate	158.200	0.000	0.000
<b>REGION TOTALS:</b>	<b>227.700</b>		<b>227.700</b>	<b>0.000</b>	<b>0.000</b>

REGIONAL SUMMARY OF PESTICIDE USE, 1991  
BCFS

REGION: NELSON

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	539.890	glyphosate	501.290	38.600	0.000
FOREST INSECT CONTROL	212.300	MSMA	0.000	0.000	212.300
FOREST RANGE MANAGEMENT	98.155	glyphosate picloram	0.000 0.000	7.820 90.335	0.000 0.000
FOREST SITE PREPARATION	38.500	glyphosate	38.500	0.000	0.000
<b>REGION TOTALS:</b>	<b>888.845</b>		<b>539.790</b>	<b>136.755</b>	<b>212.300</b>

REGIONAL SUMMARY OF PESTICIDE USE, 1991  
FOREST INDUSTRY

REGION: CARIBOO

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	1,067.300	glyphosate	1,067.300	0.000	0.000
FOREST CONIFER RELEASE	467.400	glyphosate hexazinone	453.00 0.000	7.000 7.400	0.000 0.000
FOREST INSECT CONTROL	4.550	MSMA	0.000	0.000	4.550
FOREST SITE REHABILITATION	270.700	glyphosate	270.700	0.000	0.000
<b>REGION TOTALS:</b>	<b>1,809.950</b>		<b>1,791.000</b>	<b>14.400</b>	<b>4.550</b>

REGIONAL SUMMARY OF PESTICIDE USE, 1991  
BCFS

REGION: CARIBOO

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	213.600	glyphosate	209.100	4.500	0.000
FOREST RANGE MANAGEMENT	2.720	glyphosate	0.000	2.720	0.000
FOREST SITE PREPARATION	149.500	glyphosate	149.500	0.000	0.000
<b>REGION TOTALS:</b>	<b>365.820</b>		<b>358.600</b>	<b>7.220</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: VANCOUVER**

**DISTRICT: CHILLIWACK**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	221.830	glyphosate	190.700	31.130	0.000
FOREST PRE-HARVEST TREATMENT	7.500	glyphosate	0.000	7.500	0.000
FOREST SITE PREPARATION	59.900	glyphosate	59.900	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>289.230</b>		<b>250.600</b>	<b>38.630</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: VANCOUVER**

**DISTRICT: CHILLIWACK**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	592.200	glyphosate	543.100	49.100	0.000
FOREST CONIFER RELEASE	41.000	glyphosate	0.000	0.000	41.000
FOREST SITE PREPARATION	388.600	glyphosate	388.600	0.000	0.000
FOREST SITE REHABILITATION	139.600	glyphosate	139.600	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>1,161.400</b>		<b>1,071.300</b>	<b>49.100</b>	<b>41.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: VANCOUVER**

**DISTRICT: SQUAMISH**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST BRUSHING AND WEEDING	61.750	glyphosate	61.750	0.000	0.000
FOREST CONIFER RELEASE	57.100	glyphosate	57.100	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>118.850</b>		<b>118.850</b>	<b>0.000</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: VANCOUVER**

**DISTRICT: SQUAMISH**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST BRUSHING AND WEEDING	90.740	glyphosate	84.500	6.240	0.000
FOREST CONIFER RELEASE	2.200	glyphosate	0.000	2.200	0.000
FOREST SITE REHABILITATION	45.000	glyphosate	0.000	45.000	0.000
<b>DISTRICT TOTALS:</b>	<b>137.940</b>		<b>84.500</b>	<b>53.440</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: VANCOUVER**

**DISTRICT: SUNSHINE COAST**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST BRUSHING AND WEEDING	394.300	glyphosate	335.700	12.100	46.500
FOREST CONIFER RELEASE	255.400	glyphosate	101.600	153.800	0.000
<b>DISTRICT TOTALS:</b>	<b>649.700</b>		<b>437.300</b>	<b>165.900</b>	<b>46.500</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: VANCOUVER**

**DISTRICT: DUNCAN**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	5.000	glyphosate	0.000	5.000	0.000
FOREST CONIFER RELEASE	72.810	glyphosate	0.000	41.500	31.310
FOREST SITE PREPARATION	171.400	glyphosate triclopyr	0.000 0.000	85.700 85.700	0.000 0.000
<b>DISTRICT TOTALS:</b>	<b>249.210</b>		<b>0.000</b>	<b>217.900</b>	<b>31.310</b>

SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS

REGION: VANCOUVER

DISTRICT: DUNCAN

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	0.220	glyphosate	0.000	0.220	0.000
<b>DISTRICT TOTALS:</b>	<b>0.220</b>		<b>0.000</b>	<b>0.220</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: VANCOUVER**

**DISTRICT: PORT ALBERNI**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	1,017.890	2,4-D amine glyphosate	0.000 237.700	0.000 125.800	30.010 624.380
FOREST RIGHT-OF-WAY MAINTENANCE		191.000	glyphosate	0.000	191.000
<b>DISTRICT TOTALS:</b>	<b>1,208.890</b>		<b>237.700</b>	<b>316.800</b>	<b>654.390</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: VANCOUVER**

**DISTRICT: CAMPBELL RIVER**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	1,073.500	2,4-D amine	0.000	74.000	0.000
		glyphosate	322.500	186.300	490.700
FOREST CONIFER RELEASE	186.200	2,4-D amine	0.000	0.000	70.000
		glyphosate	64.300	8.500	4.000
		triclopyr	0.000	39.400	0.000
FOREST RIGHT-OF-WAY MAINTENANCE	350.500	2,4-D amine	0.000	15.000	0.000
		glyphosate	0.000	335.500	0.000
FOREST SITE PREPARATION	15.100	glyphosate	15.100	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>1,625.300</b>		<b>401.900</b>	<b>658.700</b>	<b>564.700</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: VANCOUVER**

**DISTRICT: CAMPBELL RIVER**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST BRUSHING AND WEEDING	206.900	glyphosate	97.500	109.400	0.000
FOREST CONIFER RELEASE	615.200	glyphosate	0.000	615.200	0.000
<b>DISTRICT TOTALS:</b>	<b>822.100</b>		<b>97.500</b>	<b>724.600</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: VANCOUVER**

**DISTRICT: PORT MCNEILL**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST BRUSHING AND WEEDING	1,645.600	glyphosate	246.500	116.700	1,282.400
FOREST CONIFER RELEASE	44.100	glyphosate	0.000	44.100	0.000
FOREST RIGHT-OF-WAY MAINTENANCE	113.300	glyphosate	0.000	113.300	0.000
<b>DISTRICT TOTALS:</b>	<b>1,803.000</b>		<b>246.500</b>	<b>274.100</b>	<b>1,282.400</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: VANCOUVER**

**DISTRICT: PORT NCNEILL**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST CONIFER RELEASE	288.360	glyphosate	0.000	0.000	288.360
<b>DISTRICT TOTALS:</b>	<b>288.360</b>		<b>0.000</b>	<b>0.000</b>	<b>288.360</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: VANCOUVER**

**DISTRICT: MID-COAST**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST BRUSHING AND WEEDING	27.500	glyphosate	0.000	27.000	0.000
		Na Meta	0.000	0.500	0.000
<b>DISTRICT TOTALS:</b>	<b>27.500</b>		<b>0.000</b>	<b>27.500</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: VANCOUVER**

**DISTRICT: MID-COAST**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	21.000	glyphosate	0.000	21.000	0.000
FOREST CONIFER RELEASE	9.000	glyphosate	0.000	9.000	0.000
<b>DISTRICT TOTALS:</b>	<b>30.000</b>		<b>0.000</b>	<b>30.000</b>	<b>0.000</b>

SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY

REGION: VANCOUVER

DISTRICT: QUEEN CHARLOTTE ISLANDS

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	56.300	glyphosate	0.000	0.000	56.300
<b>DISTRICT TOTALS:</b>	<b>56.300</b>		<b>0.000</b>	<b>0.000</b>	<b>56.300</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: PRINCE RUPERT**

**DISTRICT: LAKES**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST CONIFER RELEASE	241.500	glyphosate	241.500	0.000	0.000
FOREST INSECT CONTROL	0.500	carbaryl	0.000	0.500	0.000
<b>DISTRICT TOTALS:</b>	<b>242.000</b>		<b>241.500</b>	<b>0.500</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: PRINCE RUPERT**

**DISTRICT: MORICE**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST BRUSHING AND WEEDING	182.570	glyphosate	140.900	41.670	0.000
FOREST CONIFER RELEASE	539.800	glyphosate	539.800	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>722.370</b>		<b>680.700</b>	<b>41.670</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

REGION: PRINCE RUPERT

DISTRICT: MORICE

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	83.700	glyphosate	8.700	75.000	0.000
FOREST INSECT CONTROL	7.710	MSMA	0.000	0.000	7.710
<b>DISTRICT TOTALS:</b>	<b>91.410</b>		<b>8.700</b>	<b>75.000</b>	<b>7.710</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: PRINCE RUPERT**

**DISTRICT: BULKLEY**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST BRUSHING AND WEEDING	326.600	glyphosate	326.100	0.500	0.000
FOREST CONIFER RELEASE	107.300	glyphosate	107.300	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>433.900</b>		<b>433.400</b>	<b>0.500</b>	<b>0.000</b>

SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS

REGION: PRINCE RUPERT

DISTRICT: BULKLEY

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	250.000	glyphosate	250.000	0.000	0.000
FOREST INSECT CONTROL	0.500	MSMA	0.000	0.000	0.500
<b>DISTRICT TOTALS:</b>	<b>250.500</b>		<b>250.000</b>	<b>0.000</b>	<b>0.500</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: PRINCE RUPERT**

**DISTRICT: KALUM**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST CONIFER RELEASE	76.700	glyphosate	0.000	76.700	0.000
FOREST RIGHT-OF-WAY MAINTENANCE	194.800	glyphosate	0.000	194.800	0.000
<b>DISTRICT TOTALS:</b>	<b>271.500</b>		<b>0.000</b>	<b>271.500</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: PRINCE RUPERT**

**DISTRICT: KALUM**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST BRUSHING AND WEEDING	40.800	glyphosate	0.000	40.800	0.000
FOREST SITE REHABILITATION	40.500	glyphosate	0.000	40.500	0.000
<b>DISTRICT TOTALS:</b>	<b>81.300</b>		<b>0.000</b>	<b>81.300</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: PRINCE RUPERT**

**DISTRICT: NORTH COAST**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	25.800	glyphosate	6.000	19.800	0.000
FOREST SITE PREPARATION	77.200	glyphosate	77.200	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>103.000</b>		<b>83.200</b>	<b>19.800</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: PRINCE RUPERT**

**DISTRICT: NORTH COAST**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST BRUSHING AND WEEDING	180.600	glyphosate	180.600	0.000	0.000
FOREST SITE PREPARATION	103.000	glyphosate	0.000	103.000	0.000
<b>DISTRICT TOTALS:</b>	<b>283.600</b>		<b>180.600</b>	<b>103.000</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: PRINCE GEORGE**

**DISTRICT: PRINCE GEORGE**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST BRUSHING AND WEEDING	2,794.200	glyphosate	2,794.200	0.000	0.000
FOREST CONIFER RELEASE	1,899.640	glyphosate	1,899.640	0.000	0.000
FOREST SITE PREPARATION	980.720	glyphosate	980.720	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>5,674.560</b>		<b>5,674.560</b>	<b>0.000</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: PRINCE GEORGE**

**DISTRICT: PRINCE GEORGE**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	742.750	glyphosate	740.500	2.250	0.000
FOREST CONIFER RELEASE	339.700	glyphosate	257.000	82.700	0.000
FOREST INSECT CONTROL	3.050	MSMA	0.000	0.000	3.050
FOREST RANGE MANAGEMENT	1.648	picloram	0.000	1.648	0.000
FOREST SITE PREPARATION	39.000	glyphosate	39.000	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>1,126.148</b>		<b>1036.500</b>	<b>85.598</b>	<b>3.050</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: PRINCE GEORGE**

**DISTRICT: ROBSON VALLEY**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST BRUSHING AND WEEDING	374.820	glyphosate	374.820	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>374.820</b>		<b>374.820</b>	<b>0.000</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: PRINCE GEORGE**

**DISTRICT: ROBSON VALLEY**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST INSECT CONTROL	0.150	MSMA	0.000	0.000	0.150
FOREST RANGE MANAGEMENT	24.310	glyphosate picloram	0.000 0.000	16.340 7.970	0.000 0.000
<b>DISTRICT TOTALS:</b>	<b>24.460</b>		<b>0.000</b>	<b>24.310</b>	<b>0.150</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: PRINCE GEORGE**

**DISTRICT: VANDERHOOF**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST PRE-HARVEST TREATMENT	75.800	glyphosate	0.000	0.000	75.800
<b>DISTRICT TOTALS:</b>	<b>75.800</b>		<b>0.000</b>	<b>0.000</b>	<b>75.800</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: PRINCE GEORGE**

**DISTRICT: VANDERHOOF**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	368.250	glyphosate	366.000	2.250	0.000
FOREST CONIFER RELEASE	73.000	glyphosate	73.000	0.000	0.000
FOREST INSECT CONTROL	75.000	MSMA	0.000	0.000	75.000
FOREST RANGE MANAGEMENT	2.000	picloram	0.000	2.000	0.000
<b>DISTRICT TOTALS:</b>	<b>518.250</b>		<b>439.000</b>	<b>4.250</b>	<b>75.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: PRINCE GEORGE**

**DISTRICT: FORT ST. JAMES**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	1,067.500	glyphosate	1,067.500	0.000	0.000
FOREST INSECT CONTROL	3.330	MSMA	0.000	0.000	3.330
FOREST SITE PREPARATION	155.400	glyphosate	155.400	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>1,226.230</b>		<b>1,222.900</b>	<b>0.000</b>	<b>3.330</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: PRINCE GEORGE**

**DISTRICT: FORT ST. JAMES**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST BRUSHING AND WEEDING	546.550	glyphosate	544.300	2.250	0.000
FOREST INSECT CONTROL	145.000	MSMA	0.000	0.000	145.000
<b>DISTRICT TOTALS:</b>	<b>691.550</b>		<b>544.300</b>	<b>2.250</b>	<b>145.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: PRINCE GEORGE**

**DISTRICT: MACKENZIE**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST CONIFER RELEASE	1,065.040	glyphosate	1,065.040	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>1,065.040</b>		<b>1,065.040</b>	<b>0.000</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: PRINCE GEORGE**

**DISTRICT: MACKENZIE**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	323.850	glyphosate	219.600	104.250	0.000
FOREST CONIFER RELEASE	258.400	glyphosate	88.200	170.200	0.000
FOREST INSECT CONTROL	0.300	MSMA	0.000	0.000	0.300
FOREST SITE PREPARATION	12.000	glyphosate	0.000	12.000	0.000
<b>DISTRICT TOTALS:</b>	<b>594.550</b>		<b>307.800</b>	<b>286.450</b>	<b>0.300</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: PRINCE GEORGE**

**DISTRICT: DAWSON CREEK**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	1,195.800	glyphosate	1,075.800	120.000	0.000
FOREST RIGHT-OF-WAY MAINTENANCE	69.450	picloram	0.000	69.450	0.000
FOREST SITE PREPARATION	297.000	glyphosate	297.000	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>1,562.250</b>		<b>1,372.800</b>	<b>189.450</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: PRINCE GEORGE**

**DISTRICT: DAWSON CREEK**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	626.600	glyphosate	626.600	0.000	0.000
FOREST RANGE MANAGEMENT	30.320	picloram	0.000	20.320	10.000
FOREST RIGHT-OF-WAY MAINTENANCE	2.500	2,4-D dicamba	0.000 0.000	1.250 1.250	0.000 0.000
FOREST SITE PREPARATION	358.100	glyphosate	358.100	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>1,017.520</b>		<b>984.700</b>	<b>22.820</b>	<b>10.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: PRINCE GEORGE**

**DISTRICT: FORT ST. JOHN**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST BRUSHING AND WEEDING	1,832.700	glyphosate	1,832.700	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>1,832.700</b>		<b>1,832.700</b>	<b>0.000</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: PRINCE GEORGE**

**DISTRICT: FORT ST. JOHN**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	415.000	glyphosate	415.000	0.000	0.000
FOREST CONIFER RELEASE	102.600	glyphosate	102.600	0.000	0.000
FOREST RANGE MANAGEMENT	2.440	picloram	0.000	2.440	0.000
FOREST SITE PREPARATION	826.400	glyphosate	826.400	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>1,346.440</b>		<b>1,344.000</b>	<b>2.440</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: PRINCE GEORGE**

**DISTRICT: FORT NELSON**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	2,013.420	glyphosate	2,013.020	0.400	0.000
FOREST CONIFER RELEASE	171.000	glyphosate	171.000	0.000	0.000
FOREST INSECT CONTROL	553.000	<i>B.t.k.</i>	553.000	0.000	0.000
FOREST SITE PREPARATION	492.280	glyphosate	492.280	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>3,229.700</b>		<b>3,229.300</b>	<b>0.400</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: KAMLOOPS**

**DISTRICT: CLEARWATER**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST BRUSHING AND WEEDING	11.600	glyphosate	0.000	11.600	0.000
FOREST CONIFER RELEASE	105.410	glyphosate	93.410	12.000	0.000
<b>DISTRICT TOTALS:</b>	<b>117.010</b>		<b>93.410</b>	<b>23.600</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: KAMLOOPS**

**DISTRICT: KAMLOOPS**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST INSECT CONTROL	40.000	MSMA	0.000	0.000	40.000
<b>DISTRICT TOTALS:</b>	<b>40.000</b>		<b>0.000</b>	<b>0.000</b>	<b>40.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: KAMLOOPS**

**DISTRICT: KAMLOOPS**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST INSECT CONTROL	201.840	MSMA	0.000	0.000	1.840
		NPV	200.000	0.000	0.000
		verbenone	0.000	0.000	0.000
FOREST RANGE MANAGEMENT	217.510	glyphosate	0.000	162.000	0.000
		picloram	0.000	55.510	0.000
FOREST WEED SEED TREE	203.400	glyphosate	0.000	0.000	203.400
<b>DISTRICT TOTALS:</b>	<b>622.750</b>		<b>200.000</b>	<b>217.510</b>	<b>205.240</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: KAMLOOPS**

**DISTRICT: SALMON ARM**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	51.000	glyphosate	51.000	0.000	0.000
FOREST CONIFER RELEASE	17.000	glyphosate	0.000	17.000	0.000
FOREST INSECT CONTROL	1.780	MSMA	0.000	0.000	1.780
FOREST SITE PREPARATION	32.000	glyphosate	32.000	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>101.780</b>		<b>83.000</b>	<b>17.000</b>	<b>1.780</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: KAMLOOPS**

**DISTRICT: SALMON ARM**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	102.250	glyphosate	0.000	0.050	102.200
FOREST RANGE MANAGEMENT	10.560	picloram	0.000	10.560	0.000
FOREST SITE PREPARATION	84.700	glyphosate	84.700	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>197.510</b>		<b>84.700</b>	<b>10.610</b>	<b>102.200</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: KAMLOOPS**

**DISTRICT: VERNON**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	220.900	glyphosate	129.500	91.400	0.000
FOREST CONIFER RELEASE	113.200	glyphosate	14.000	99.200	0.000
FOREST WEED SEED TREE	21.700	glyphosate	0.000	0.000	21.700
<b>DISTRICT TOTALS:</b>	<b>355.800</b>		<b>143.500</b>	<b>190.600</b>	<b>21.700</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: KAMLOOPS**

**DISTRICT: VERNON**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	138.200	glyphosate	0.000	138.200	0.000
FOREST INSECT CONTROL	3,190.920	<i>B.t.k.</i>	3,180.000	0.000	0.000
		carbaryl	0.000	0.120	0.000
		MSMA	0.000	0.000	10.800
FOREST RANGE MANAGEMENT	17.960	picloram	0.000	17.960	0.000
<b>DISTRICT TOTALS:</b>	<b>3,347.080</b>		<b>3,180.000</b>	<b>156.280</b>	<b>10.800</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: KAMLOOPS**

**DISTRICT: PENTICTON**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	13.000	glyphosate	0.000	13.000	0.000
FOREST CONIFER THINNING	0.410	glyphosate picloram triclopyr	0.000 0.000 0.000	0.000 0.000 0.000	0.200 0.200 0.010
FOREST INSECT CONTROL	714.000	MSMA	0.000	0.000	714.000
<b>DISTRICT TOTALS:</b>	<b>727.410</b>		<b>0.000</b>	<b>13.000</b>	<b>714.410</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: KAMLOOPS**

**DISTRICT: PENTICTON**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST CONIFER RELEASE	338.950	glyphosate	0.000	0.000	338.950
FOREST INSECT CONTROL	101.300	MSMA verbenone	0.000 0.000	0.000 86.000	15.300 0.000
FOREST RANGE MANAGEMENT	89.700	picloram	0.000	89.700	0.000
<b>DISTRICT TOTALS:</b>	<b>529.950</b>		<b>0.000</b>	<b>175.700</b>	<b>354.250</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: KAMLOOPS**

**DISTRICT: MERRITT**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST RANGE MANAGEMENT	191.160	MSMA	0.000	0.000	37.160
		picloram	0.000	154.000	0.000
<b>DISTRICT TOTALS:</b>	<b>191.160</b>		<b>0.000</b>	<b>154.000</b>	<b>37.160</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: KAMLOOPS**

**DISTRICT: LILLOOET**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST CONIFER RELEASE	7.800	glyphosate	7.800	0.000	0.000
FOREST RANGE MANAGEMENT	19.580	picloram	0.000	19.580	0.000
<b>DISTRICT TOTALS:</b>	<b>27.380</b>		<b>7.800</b>	<b>19.580</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: NELSON**

**DISTRICT: CRANBROOK**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST RANGE MANAGEMENT	20.000	glyphosate	0.000	2.500	0.000
		picloram	0.000	17.500	0.000
<b>DISTRICT TOTALS:</b>	<b>20.000</b>		<b>0.000</b>	<b>20.000</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: NELSON**

**DISTRICT: INVERMERE**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST INSECT CONTROL	3.200	MSMA	0.000	0.000	3.200
FOREST RANGE MANAGEMENT	1.676	picloram	0.000	1.676	0.000
<b>DISTRICT TOTALS:</b>	<b>4.876</b>		<b>0.000</b>	<b>1.676</b>	<b>3.200</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: NELSON**

**DISTRICT: GOLDEN**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST CONIFER RELEASE	2.700	glyphosate	2.700	0.000	0.000
FOREST SITE PREPARATION	158.200	glyphosate	158.200	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>160.900</b>		<b>160.900</b>	<b>0.000</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: NELSON**

**DISTRICT: REVELSTOKE**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST BRUSHING AND WEEDING	66.800	glyphosate	66.800	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>66.800</b>		<b>66.800</b>	<b>0.000</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: NELSON**

**DISTRICT: REVELSTOKE**

<b>PURPOSE</b>	<b>TOTAL (ha) TREATED</b>	<b>PESTICIDES</b>	<b>AREA (ha) BREAKDOWN BY TREATMENT METHODS</b>		
			<b>AERIAL SPRAY</b>	<b>GROUND APPLIC.</b>	<b>STEM INJECTION</b>
FOREST BRUSHING AND WEEDING	539.890	glyphosate	501.290	38.600	0.000
FOREST SITE PREPARATION	38.500	glyphosate	38.500	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>578.390</b>		<b>539.790</b>	<b>38.600</b>	<b>0.000</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: NELSON**

**DISTRICT: BOUNDARY**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST INSECT CONTROL	209.100	MSMA	0.000	0.000	209.100
FOREST RANGE MANAGEMENT	76.479	glyphosate picloram	0.000 0.000	5.320 71.159	0.000 0.000
<b>DISTRICT TOTALS:</b>	<b>285.579</b>		<b>0.000</b>	<b>76.479</b>	<b>209.100</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
FOREST INDUSTRY**

**REGION: CARIBOO**

**DISTRICT: QUESNEL**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	1,067.300	glyphosate	1,067.300	0.000	0.000
FOREST CONIFER RELEASE	467.400	glyphosate hexazinone	453.000 0.000	7.000 7.400	0.000 0.000
FOREST INSECT CONTROL	4.550	MSMA	0.000	0.000	4.550
FOREST SITE REHABILITATION	270.700	glyphosate	270.700	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>1,809.950</b>		<b>1,791.000</b>	<b>14.400</b>	<b>4.550</b>

**SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS**

**REGION: CARIBOO**

**DISTRICT: QUESNEL**

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	211.350	glyphosate	209.100	2.250	0.000
FOREST RANGE MANAGEMENT	2.720	glyphosate	0.000	2.720	0.000
FOREST SITE PREPARATION	149.500	glyphosate	149.500	0.000	0.000
<b>DISTRICT TOTALS:</b>	<b>363.570</b>		<b>358.600</b>	<b>4.970</b>	<b>0.000</b>

SUMMARIES OF PESTICIDE USE  
BY FOREST REGION AND DISTRICT, 1991  
BCFS

REGION: CARIBOO

DISTRICT: WILLIAMS LAKE

PURPOSE	TOTAL (ha) TREATED	PESTICIDES	AREA (ha) BREAKDOWN BY TREATMENT METHODS		
			AERIAL SPRAY	GROUND APPLIC.	STEM INJECTION
FOREST BRUSHING AND WEEDING	2.250	glyphosate	0.000	2.250	0.000
<b>DISTRICT TOTALS:</b>	<b>2.250</b>		<b>0.000</b>	<b>2.250</b>	<b>0.000</b>

TABLE VII

PROVINCIAL SUMMARY OF AREA (ha)  
TREATED BY CONTROL PURPOSE, 1991

PURPOSE	PESTICIDE	BC FOREST SERVICE ha Treated	FOREST INDUSTRY ha Treated
FOREST BRUSHING AND WEEDING	2,4-D amine	0.000	104.010
	glyphosate	7,700.210	14,957.010
	Na Meta	0.000	0.500
<b>Total ha</b>		<b>22,761.730</b>	
FOREST CONIFER RELEASE	2,4-D amine	90.800	70.000
	glyphosate	2,648.750	5,435.360
	hexazinone	0.000	7.400
	triclopyr	0.000	39.400
<b>Total ha</b>		<b>8,291.710</b>	
FOREST CONIFER THINNING	glyphosate	0.000	0.200
	picloram	0.000	0.200
	triclopyr	0.000	0.010
	verbenone	0.000	2.500
<b>Total ha</b>		<b>2.910</b>	
FOREST FUNGUS CONTROL	1,3-dichloro	0.000	0.478
	glyphosate	0.000	0.250
<b>Total ha</b>		<b>0.728</b>	
FOREST INSECT CONTROL	<i>B.t.k.</i>	3,733.000	0.000
	carbaryl	3.260	0.000
	dimethoate	0.150	0.000
	mineral oil	0.050	0.000
	MSMA	481.950	763.660
	NPV	200.000	0.000
	oxydemeton	0.150	0.000
	verbenone	86.680	0.000
<b>Total ha</b>		<b>5,268.900</b>	
FOREST PRE-HARVEST TREATMENT	glyphosate	0.000	83.300
<b>Total ha</b>		<b>83.300</b>	

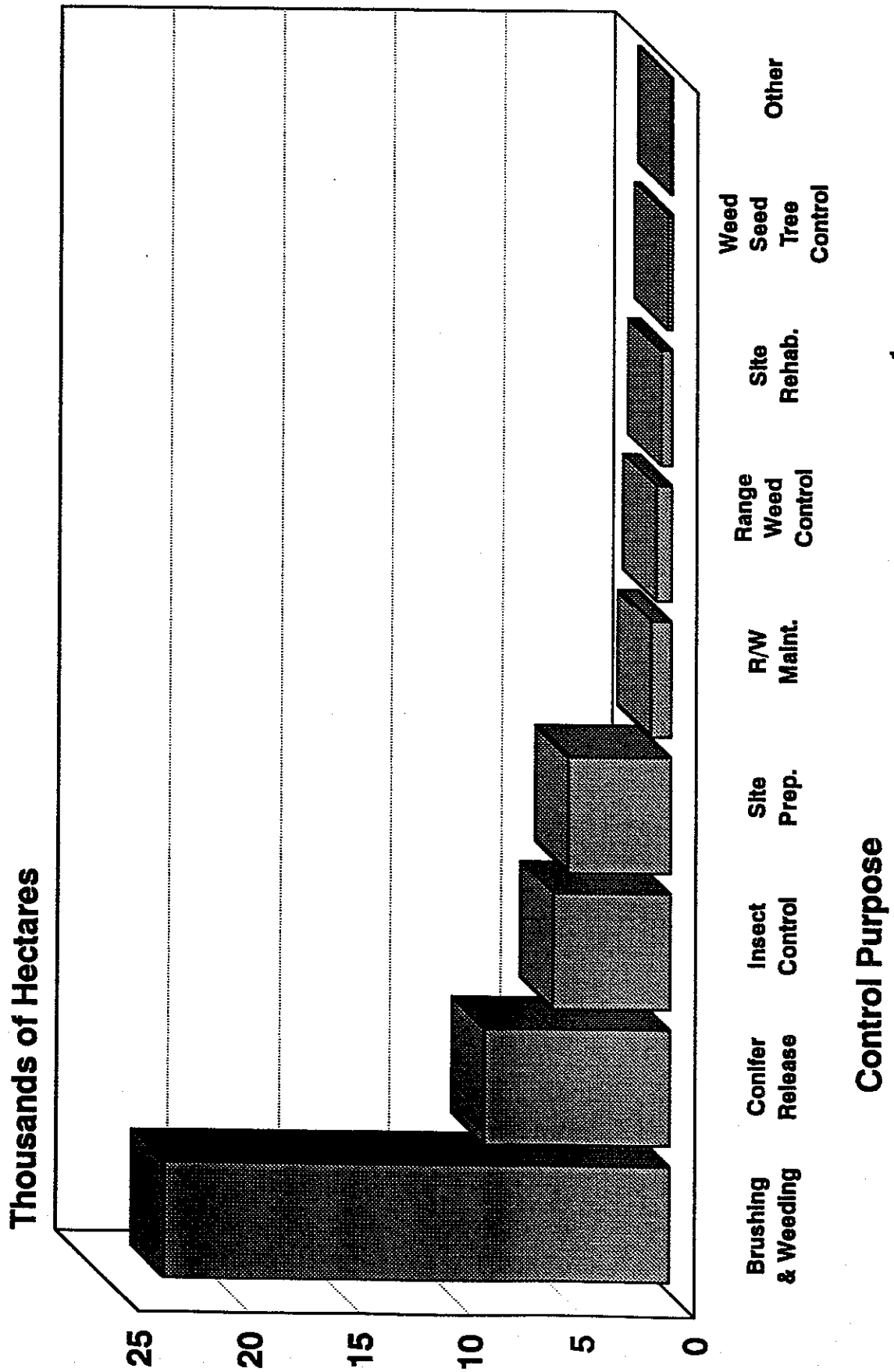
TABLE VII (CON'T)

PROVINCIAL SUMMARY OF AREA (ha)  
TREATED BY CONTROL PURPOSE, 1991

PURPOSE	PESTICIDE	BC FOREST SERVICE ha Treated	FOREST INDUSTRY ha Treated
FOREST RANGE MANAGEMENT	glyphosate	191.003	0.000
	MSMA	37.160	0.000
	picloram	482.023	0.000
<b>Total ha</b>	<b>710.186</b>		
FOREST RIGHT-OF-WAY MAINTENANCE	2,4-D	1.250	0.000
	2,4-D amine	0.000	15.000
	dicamba	1.250	0.000
	glyphosate	0.000	834.600
	picloram	0.000	69.450
<b>Total ha</b>	<b>921.550</b>		
FOREST SEED AND CONE	permethrin	0.022	0.000
<b>Total ha</b>	<b>0.022</b>		
FOREST SITE PREPARATION	glyphosate	2,585.080	1,941.520
	triclopyr	0.000	85.700
<b>Total ha</b>	<b>4,612.300</b>		
FOREST SITE REHABILITATION	glyphosate	225.100	270.700
<b>Total ha</b>	<b>495.800</b>		
FOREST WEED SEED TREE	glyphosate	203.400	21.700
<b>Total ha</b>	<b>225.100</b>		

# Provincial Summary of Area (ha) Treated

with Pesticides by Control Purpose, 1991<sup>1</sup>



<sup>1</sup> B.C. Forest Service & Industry Combined

TABLE VIII

PROVINCIAL SUMMARY OF AREA (ha)  
TREATED BY CONTROL METHOD, 1991

METHOD	PESTICIDES	BC FOREST SERVICE ha Treated	FOREST INDUSTRY ha Treated
TRUCK MOUNTED SPRAY BOOM	2,4-D	1.250	0.000
	dicamba	1.250	0.000
	glyphosate	232.503	469.370
	picloram	428.879	0.000
	triclopyr	0.000	85.700
<b>Total ha</b>	<b>1,218.952</b>		
BACK PACK SPRAYER	carbaryl	3.260	0.000
	glyphosate	722.440	580.900
	picloram	17.638	0.000
	triclopyr	0.000	39.400
<b>Total ha</b>	<b>1,363.638</b>		
MIST BLOWER	glyphosate	84.400	296.800
<b>Total ha</b>	<b>381.200</b>		
POWER HOSE/NOZZLE	2,4-D amine	0.000	89.000
	glyphosate	314.400	880.930
	hexazinone	0.000	7.400
	permethrin	0.022	0.000
	picloram	23.996	69.450
<b>Total ha</b>	<b>1,385.198</b>		
HAND BROADCAST	glyphosate	0.000	17.800
	Na Meta	0.000	0.500
	picloram	1.510	0.000
<b>Total ha</b>	<b>19.810</b>		
STEM INJECTION	2,4-D amine	0.000	0.400
	dimethoate	0.150	0.000
	glyphosate	532.760	2,066.410
	mineral oil	0.050	0.000
	MSMA	478.750	763.660
	oxydemeton	0.150	0.000
	picloram	0.000	0.200
	triclopyr	0.000	0.010
<b>Total ha</b>	<b>3,842.540</b>		

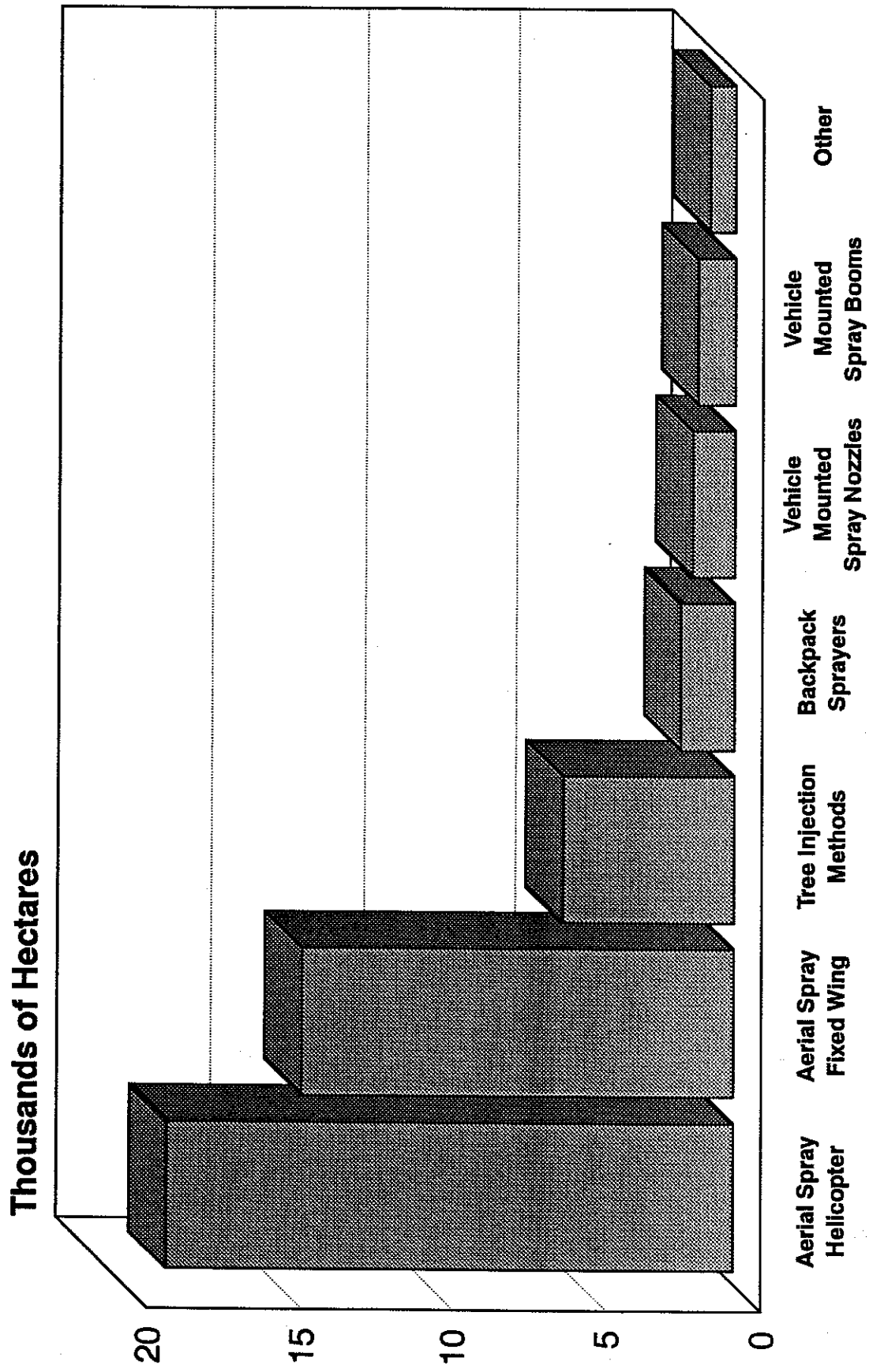
TABLE VIII (CON'T)

PROVINCIAL SUMMARY OF AREA (ha)  
TREATED BY CONTROL METHOD, 1991

METHOD	PESTICIDES	BC FOREST SERVICE ha Treated	FOREST INDUSTRY ha Treated
STUMP APPLICATION	1,3-dichloro	0.000	0.478
	2,4-D amine	90.800	99.610
	glyphosate	474.750	998.830
	picloram	10.000	0.000
<b>Total ha</b>	<b>1,674.468</b>		
GRANULAR SPREADER	verbenone	0.680	0.000
<b>Total ha</b>	<b>0.680</b>		
FIXED WING	<i>B.t.k.</i>	3,733.000	0.000
	glyphosate	2,492.540	7,900.940
<b>Total ha</b>	<b>14,126.480</b>		
HELICOPTER	glyphosate	8,084.550	10,224.260
	NPV	200.000	0.000
	verbenone	0.000	0.000
<b>Total ha</b>	<b>18,508.810</b>		
COMBINED GROUND METHODS	glyphosate	615.200	108.400
<b>Total ha</b>	<b>723.600</b>		
BRUSH SAW APPLICATOR	MSMA	40.360	0.000
<b>Total ha</b>	<b>40.360</b>		
BACK PACK SPRAYER MOTOR	verbenone	0.000	2.500
<b>Total ha</b>	<b>2.500</b>		
OTHER	verbenone	86.000	0.000
<b>Total ha</b>	<b>86.000</b>		
<b>GRAND TOTALS</b>		<b>18,671.28</b>	<b>24,702.948</b>

# Provincial Summary of Area (ha) Treated

with Pesticides by Method of Application, 1991<sup>1</sup>

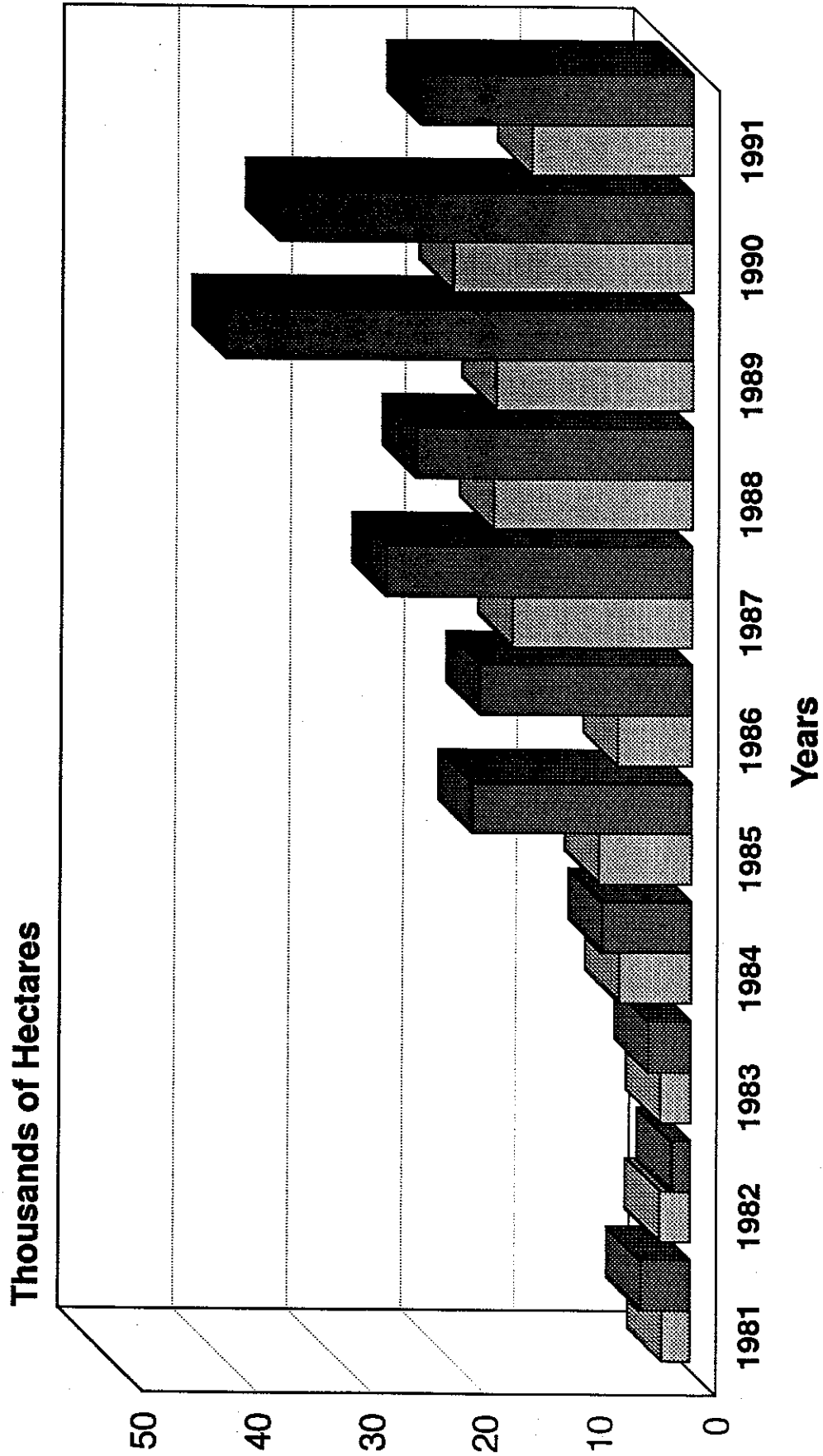


**Method of Application**

<sup>1</sup> B.C. Forest Service & Industry Combined

# Area Treated with Herbicides

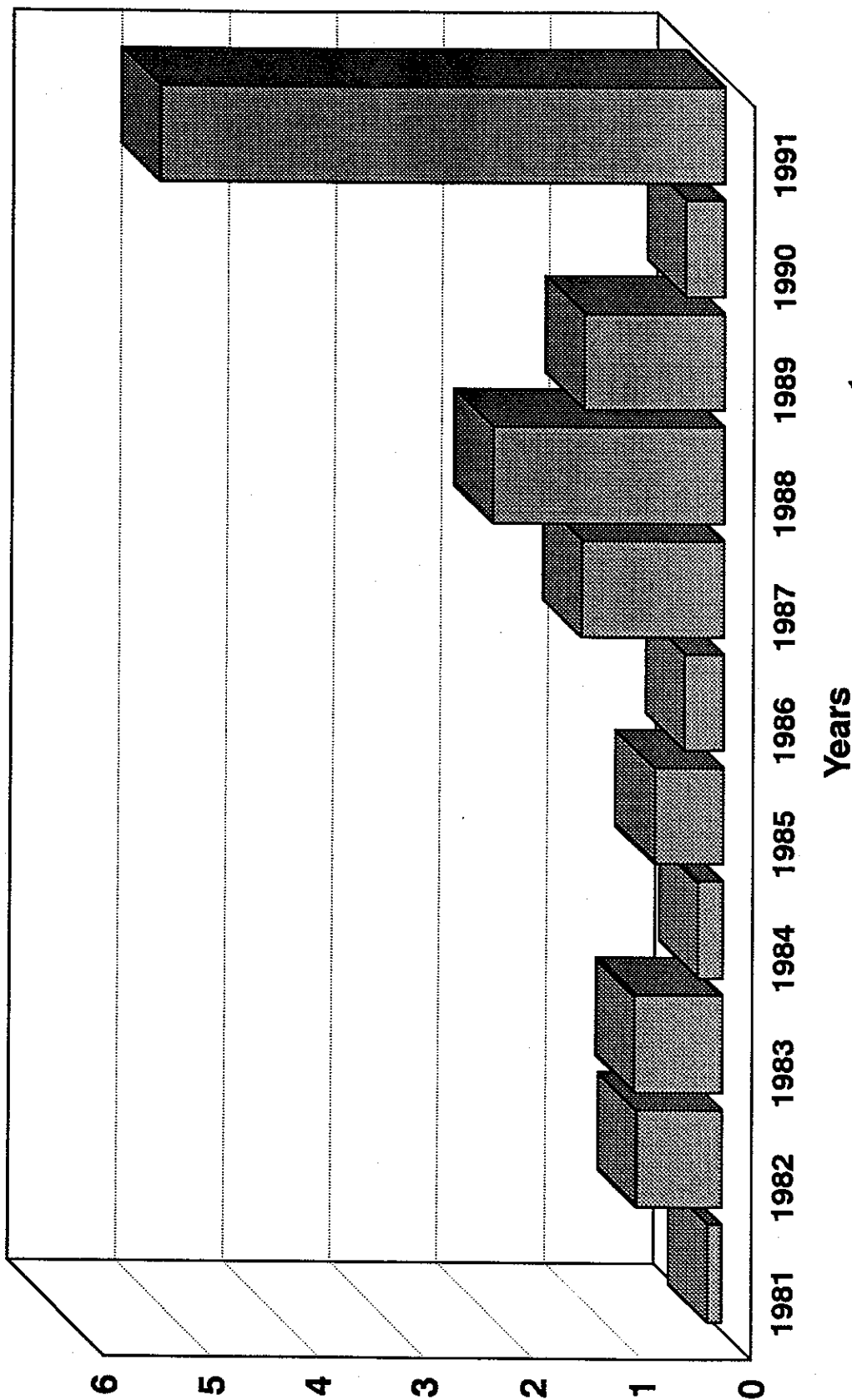
for Forestry Purposes, 1981-1991



# Area Treated with Insecticides

for Forestry Purposes, 1981-1991<sup>1</sup>

Thousands of Hectares Treated



<sup>1</sup> B.C. Forest Service & Industry Combined

## DISCUSSIONS AND CONCLUSIONS

Pesticides were applied to 43 374 ha of British Columbia forest and rangeland in 1991, down by approximately 14 288 ha from the previous year. Forest companies were responsible for 57% of the total area treated and the Forest Service for 43%, as compared to 64% and 36%, respectively, in 1990.

Glyphosate was applied to over 85% of the provincial area treated with pesticides in 1991. The use of 2,4-D has declined from 1 052 ha treated in 1990 to 281 ha in 1991, while MSMA use has increased to 1 283 ha in 1991, as compared to 431 ha in 1990. As a result of recent population increases of defoliating insects in the interior of British Columbia, a biological insecticide, *B.t.k.*, was applied to almost 4 000. Due to natural insect population fluctuations this level of use will not likely continue for more than a few successive years.

Herbicide applications for the purpose of controlling unwanted vegetation remained the major forestry related use of pesticides.

Helicopters and fixed-wing aircraft were used to apply pesticides to approximately 75% of the total provincial area treated in 1991, as compared to 68% in 1990.

### **ACKNOWLEDGEMENTS**

The author would like to thank the Ministry of Environment, Pesticide Management Branch for its ongoing cooperation in providing this data.