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DEMONSTRATE EFFECTIVENESS OF BRUSHSAW HERBICIDE APPLICATOR IN THE TREATMENT OF WILLOW (Salix spp.) USING THREE SELECTED HERBICIDES

Working Plan
1984

D. Monchak
DEMONSTRATE EFFECTIVENESS OF BRUSHSAW HERBICIDE
APPLICATION IN THE TREATMENT OF WILLOW
(Salix spp.) USING 3 SELECTED HERBICIDES

SX NO.
8 4702 P

WORKING PLAN

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INTRODUCTION

The proposed treatment area is located approximately 1.5 km. west of the village of Granisle (figure 1).


A very dense cover of willow (Salix spp) has become established on the site affecting both the survival and growth of the planted trees, and some natural regeneration.

The intent of the project is to: 1) compare the effects of 2,4-D, glyphosate and triclopyr on willow, 2) determine if the brushsaw herbicide applicator system is a suitable method of chemical delivery, and 3) assess the operator's exposure to the herbicide using this system.

OBJECTIVES

The objectives of the project are:

1. Compare the effectiveness of the herbicides 2,4-D, glyphosate, triclopyr and manual treatments for the control of willow (Salix spp).
2. Determine the suitability of the brushsaw herbicide applicator system for chemical delivery to target species.
3. Assess operator's herbicide exposure using the brushsaw herbicide applicator system.
4. Observe conifer response to the treatments.
DESIGN AND LAYOUT

There will be five (5) separate treatments:

1. Control (i.e. no treatment)
2. Manual brushsaw with no chemical
3. 2,4-D (DEA 500) applied at 0.5 ml a.i./stem
4. Glyphosate (Roundup) applied at 0.1 ml a.i./stem
5. Triclopyr (Garlon 3A) applied at 0.1 ml a.i./stem

Each of the five treatment units will be 0.5 ha in size, and will be laid out in the following design.

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<table>
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Each treatment unit will contain 30 fixed, uniformly-distributed plots for assessment and all the plots will be at least 5 metres away from the unit boundary.

PROCEDURES

1. Pretreatment Assessments And Layout

A representative area will be identified in the field and the treatment units will be flagged out. Fixed plots will then be established in each treatment unit.
2. During Treatment

A red coloured dye will be used as a tracer. The cut stumps will be examined to determine the surface coverage, and this surface coverage will be related to effectiveness. For treatment unit 2 (manual brushsaw with no chemical), coloured water will be used to determine the timing of chemical release in the other treatment units.

The procedure for determining the applicator's exposure to the herbicide will be supplied by the Protection Branch.

3. Following Treatment

The plots will be assessed at years 1, 3 and 5 following treatment.

The Protection Branch will assess the applicator's exposure.

ASSESSMENTS

1. Previous Assessments

Previous regeneration and walk through surveys have shown the proposed treatment area to be stocked with lodgepole pine and off-site balsam (Abies lasiocarpa). There are approximately 47,000 stems per hectare of willow averaging 3.5 metres in height.

2. Pretreatment Information

Thirty plots, each with 1.26m. radius, will be distributed uniformly on two grid lines within each treatment unit. Each plot will be staked and numbered for future assessment.
Brush information will include:
1) number of stems by species
2) stem diameters
3) brush height

Conifer information will include:
1) species
2) diameter
3) height
4) leader length
5) physiological condition and vigour

One conifer within or near each plot will be tagged for monitoring the response to the treatments.

4. During Treatment

Information to be collected will include:

1) % herbicide basal area coverage of target stems by plot
2) chemical application rates (kg. a.i. /ha)

The rates of application will be determined using coloured water during treatment of Unit 2 (manual brush saw with no chemical).
3) weather
4) mechanical repair and maintenance of brushesaws
5) exposure of applicator to the herbicide (methodology to be supplied by Protection Branch).
5. Post-Treatment Evaluations

All the plots will be assessed 1, 3 and 5 years after the treatment.

Brush information to be collected will include:

1) number of stems by species
2) stem diameters
3) regrowth height
4) regrowth vigour
5) damage code (e.g. dead/no sprouting, sprouting)
6) stems per sprout

Conifer information will include:

1) species
2) diameter
3) height
4) height increment by year
5) physiological condition and vigour

MATERIALS

A partial list of materials required for the project is detailed below:

1) 12 corner posts (10X10X100 cm) and aluminum tags
2) 150 plot centre stakes (5X5X100 cm)
3) 150 numbered tree tags
4) flagging tape
5) red tracer dye
6) 6 Husqvarna Model 165R brushuards with herbicide attachment
7) chemicals
8) On-Site wash-up and first-aid facilities
9) plastic buckets for mixing chemicals, water and dye
10) plastic garbage bags for transportation of soiled clothing
11) 2 signs denoting treatment in progress and road closure.

Any additional materials used for the project will be included in the project completion report.

RESPONSIBILITIES AND COSTS

1. District
   The District will be responsible for the layout, administration and assessment of the project. The treatment unit boundaries will be maintained and the area will be used for demonstration purposes after the 5th year plot measurements have been taken. The plots will be maintained for the first 5 years only.
   All the costs for the layout, administration, assessment and maintenance of the project, except those detailed under Protection Branch responsibilities will be borne by the District.

2. Protection Branch
   The Protection Branch will provide the methodology for determining the applicator's exposure to the chemicals and be responsible for the costs involved in the chemical analysis.
CONDITIONS

The boundaries and plots will be maintained for the first 5 years. After that only the treatment unit boundaries will be maintained.

APPENDICES

Project report appendices will include:

1) plantation maps and reports
2) pre-treatment assessment plot results and maps
3) copies of air photos
4) weather information
5) list of equipment used
6) post treatment assessment plot results and maps.