Establishment Report For Mackay Herbicide Trial
Sx Trial No. 85702C

Objective: The objective of this trial is to compare the effects of three herbicides and a manual brush control method on crop trees and the competing vegetation of a brush prone site in the ESSFL Biogeoclimatic Subzone of the Horsefly Forest District.

Location: The general location of the trial is the Whiskey Bridges area, 51 km. east on the 100 Road from Horsefly. Turn right off of the 100 Road and continue up Whiskey Bridges for approximately 5 km. General location maps are attached.

Trial Layout: Trial design and layout was completed as per the working plan. The following is a brief description of the trial establishment and initial results of the herbicide application.

August 6, 1986, was trial preparation day, with gauging our back pack sprayers, but only using water and dye. Taking part that day was Jane Perry and Don Doidge from the Cariboo Regional Office, and Dirk Trigg and George Newsome from Horsefly District Office. All equipment was given a trial run, including setting up the rain gauge.

The project went ahead the following day, August 7, 1986, with Jane Perry, Dirk Trigg and George Newsome taking part. The application of Herbicide was started shortly after arriving on the site. Each person was to apply only one herbicide type, so as to prevent contamination and possible mixing of effects of the trial.

Each variety of herbicide was applied in three replications of .2 ha. The herbicides were applied by a Back Pack Sprayer. The following is a breakdown of who applied which Herbicide:
- 2,4-D amine: Jane Perry
- 2,4-D ester: Dirk Trigg
- Glyphosate: George Newsome

While the application was taking place, a sign was placed on the road warning people prior to entering the block that there was an active herbicide project in progress. No members of the general public ventured onto the site while the application or cleanup was in progress.

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Wind speeds were monitored during the project. At 07:00 a.m. the air was very still, but near the end of the project, the winds were gusting up to 8 km/hr. Relative humidity was moderately low during the application period. There had been little or no rain in the two weeks prior to application. On the following Sunday, August 10, 1986, a small rain storm passed through, depositing 4.48 mm of rain. The rain gauge was removed on August 11/86. A permanent sign was erected after the completion of the project, and a treatment sign was placed on a corner post of each herbicide treatment plot.

The manual treatments were completed on August 19/86 by Dirk Trigg and George Newsome. Total area treated was approximately .6 ha. An area of 2.52 meters radius was cleared around each of the staked trees, and any other non-staked trees that were encountered.

First Year Results

An initial walk-through five days following the application of the herbicides showed the following results. The 2,4-D ester and amine formulations appear to be very effective in knocking back the fireweed. Glyphosate did not appear to have the same effect, but I was told that Glyphosate should take more than five days to show some effect. Shortly after this date, the first frost hit this area, and then all of the fireweed began to deteriorate. Other vegetation types showed little effect after five days, other than a small amount of leaf edge curl. Please see attached photos.

A full measurement of each sub plot within each treatment replication was completed on September 23 and 24, 1986.

The results of these measurements are summarized below:

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>% of Species Alive Averaged for all Replications</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Fireweed</td>
</tr>
<tr>
<td>2,4-D amine</td>
<td>8</td>
</tr>
<tr>
<td>2,4-D ester</td>
<td>7</td>
</tr>
<tr>
<td>Glyphosate</td>
<td>26</td>
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</tbody>
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From the initial observations it appears that the 2,4-D formulations are more effective in reducing fireweed competition, but less effective than Glyphosate in reducing competition of the other vegetation types. These measurements are from observation only, and may have been affected somewhat by heavy frosts. The true measurement of effectiveness of the treatment will be in vegetation regrowth; how much of the rooting zone was killed by the herbicides.

The next remeasurement will be done in August of 1987.

George Newsome, R.P.F.
District Silviculturist

GN/lw
Attachment
5 days following treatment of 2,4-D Ester
Red foliage and some leaf die back.

2,4-D Amine - Foliage is shrivelled and turning brown on Fireweed. Little effect on other vegetation types 5 days after treatment.
2,4-D Ester in the foreground and right.
Roundup on the left. Some sign of red foliage and shrivelling in both areas. 5 days

2,4-D Amine - Fireweed brown and shrivelled Unit 0 5 days
Effect of Roundup on Thimble Berry and Fireweed. Some curling and red after 5 days.

Close up of Fireweed foliage 5 days following treatment with 2,4-D Amine. Shrivelled and dying foliage.
Manual Treatment Unit before cutting.

2,4-D Ester taken 5 days following treatment, but taken same day as above photo.
Silviculture Trial Sx C8405
Trial of 3 Herbicides and Manual.

Replication Treatment # Se Marked
A  2,4-D Amine  20
   Control  17
B  2,4-D Ester  16
   Roundup  20
   Manual  18
C  2,4-D Amine  17
   Roundup  17
   Manual  15
D  2,4-D Ester  15
   Manual  13
   Control  15
   Manual  13 (Tree # missing)
E  2,4-D Ester  13
   Roundup  18
   Control  11
F  2,4-D Amin  15
Total 237 trees
Roundup treated foliage
5 days following treatment.
Red colour is showing, but foliage is not shrivelling

2,4-D Aamine treated foliage
5 days following application