

SX 80300 Q
INTERIM REPORT
SPRING 1981 ASSESSMENT
SPOT SEEDING TRIAL

D. Wallinger 1981

SX80300Q SPOT SEEDING TRIAL

**SILVICULTURE
BRANCH**

PROGRESS REPORT - SPRING 1981

Corrections to Fall 1980 Data

During the examination in the Spring of 1981 of the plots sown the previous Spring, some errors were discovered in data compiled from the Fall 1980 examination of these plots. Below are the corrected summary tables of the Fall 1980 data.

Lillooet Series - Fall 1980 Examination

Treatment	% of Spots Stocked (1 or more germinants)			Average Germinants per Stocked Spot:		
	Spruce	Fir	Py	Spruce	Fir	Py
Not Covered	45.0	1.7	6.7	2.1	1.0	4.0
Soil-Covered	55.0	10.0	11.7	2.8	2.0	2.6
Sheltercone (in-place)	88.6	5.0	8.8	5.0	3.5	1.0
Sheltercone (displaced)	75.0	10.0	3.8	5.1	4.0	1.0

Golden Series - Fall 1980 Examination

Treatment	% of Spots Stocked (1 or more germinants)			Average Germinants per Stocked Spot:		
	Spruce	Fir	P1	Spruce	Fir	P1
Not Covered	10.0	1.7	11.7	2.3	2.0	1.3
Soil-Covered	61.7	15.0	50.0	2.8	1.4	1.6
Sheltercone (in-place)	97.9	100.0	100.0	4.9	4.6	5.4
Sheltercone (displaced)	46.2	4.5	N/A	3.0	3.0	N/A

Quesnel Series - Fall 1980 Examination

Treatment	% of Spots Stocked (1 or more germinants)		Average Germinants per Stocked Spot:		
	Spruce	P1	Spruce	P1	
Not covered	1.7	15.0	1.0	1.6	
Soil-Covered	66.7	71.7	N/A	2.0	3.2 N/A
Sheltercone (in place)	100.0	98.3		3.2	4.1
Sheltercone (displaced)	33.3	N/A		1.0	N/A

Lumby Series - Fall 1980 Examination

Treatment	% of Spots Stocked (1 or more germinants)			Average Germinants per Stocked Spot:		
	Spruce	Fir	P1	Spruce	Fir	P1
Not covered	5.0	1.6	16.7	1.0	1.0	1.1
Soil-Covered	63.3	25.0	25.0	1.6	1.9	1.4
Sheltercone (in-place)	93.9	93.9	100.0	4.6	5.3	5.3
Shelterceon (displaced)	54.5	63.6	100.0	3.2	3.3	4.6

Fernie Series - Fall 1980 Examination

Treatment	% of Spots Stocked (1 or more germinants)			Average Germinants per Stocked Spot:		
	Spruce	Fir	Larch	Spruce	Fir	Larch
Not covered	10.0	3.3	1.7	1.3	1.0	1.0
Soil-Covered	71.4	30.0	61.7	3.5	1.3	2.2
Sheltercone (in place)	97.9	92.9	100.0	5.0	4.9	4.2
Sheltercone (displaced)	100.0	100.0	93.3	4.3	4.3	4.2

SPRING 1981 ACTIVITY

Quesnel Series

1980 Sowing (Examined May 6, 1981)

1. Lodgepole Pine

On the unfavorable site, there was a significant fall-down in survival of germinants in the uncovered and soil-covered spots. This is due to the exposed germinants being frost-heaved. Frost-heaved germinants were still green so the heaving must have occurred during late winter or early spring.

On the favorable site, fall-down in survival of the uncovered and soil covered germinants was considerably less than on the unfavorable site but significant nevertheless. Only two germinants were lost overwinter under the sheltercones - one on each of the sites. No evidence of frost-heaving of the sheltercones themselves was noted.

2. Spruce

Very heavy losses were sustained overwinter in all uncovered and soil-covered treatments. Again, this was due to frost-heaving. Overwinter losses under the sheltercones was relatively insignificant.

After one complete year, results appear to indicate that sheltercones provide an excellent environment for germination of stratified seed as opposed to uncovered or soil-covered seed. They also provide good protection against frost-heaving of germinants during the first winter/spring on this exposed burned-over site where little or no vegetation exists.

Treatment	% of Spots Stocked (1 or more germinants)		Average Germinants per Stocked Spot:			
	Spruce	P1	Spruce	P1		
Not covered	-	10.0	-	1.8		
Soil-covered	28.3	56.7	N/A	1.9	3.1	N/A
Sheltercone (in place)	100.0	98.1	3.0	4.1		
Sheltercone (displaced)	77.8	85.7	2.3	4.3		

1981 Sowing (Carried out May 6, 1981)

Plots adjacent to 1980 sowing. Soil moisture conditions were very good. Weather during sowing was overcast and cool with moderate wind. Spots were marked with wire flags placed at odd-numbered spots and at the last spot (#30) in each line.

Lillooet Series

1980 Sowing (Examined May 7-8)

1. McGillvary Creek (Fir-Py)

There was very little change from the Fall 1980 assessment. A small reduction of Py survivors on the favorable site appears to be due to damping-off fungus.

Because the results of the 1980 sowing here are so poor, these plots are not considered to be of much value in this overall trial. It is hoped that the 1981 sowing will provide better information.

2. Enterprise Creek (Spruce)

Overwinter mortality on the uncovered and soil-covered treatments has been severe. This fall-down in number of surviving germinants is undoubtedly the result of the rapid and total occupation of the mineral soil patches by the grass which was sown after logging. Newly-germinated grass-seed has completely taken over the scarified spots and fallen vegetation from the previous autumn has no doubt smothered many germinants. Many of the seeded patches have also been trampled by deer.

Overwinter survival of germinants protected by the sheltercones is significantly better and only a very few sheltercones contain grass plants, although the remainder of the patch surrounding the sheltercone is well-stocked with grass.

After one complete year, it is apparent that the sheltercones have favored germination and protected the germinants against competition from sown grass.

Treatment	% of Spots Stocked (1 or more germinants)			Average Germinants per Stocked Spot:		
	Spruce	Fir	Py	Spruce	Fir	Py
Not covered	8.3	1.7	6.7	1.6	1.0	3.5
Soil-covered	16.7	10.0	11.7	2.3	1.8	2.4
Sheltercone (in place)	88.1	5.0	3.1	4.9	3.5	1.0
Sheltercone (displaced)	38.9	4.0	10.7	4.7	4.0	1.0

1981 Sowing

1. McGillivray Creek (carried out April 30, 1981)

Soil moisture conditions were excellent with no frost encountered on either site. Weather at time of sowing was overcast and cool.

2. Enterprise Creek (Carried out May 8, 1981)

Originally schedule for sowing on May 5th, the sowing was postponed for several days because of new snow arriving during the night of May 4th. As a result, soil conditions were ideal at time of sowing and weather conditions were much warmer.

Golden Series

1980 Sowing (Examined May 9, 1981)

There is very little change in the number of survivors of all species and treatments since last fall. However, the majority of sheltercones were crushed quite noticeably and this is thought to be due to heavy snow with high water content and the weakened (semi-degraded) condition of the sheltercones. Where the germinants beneath are of appreciable size (e.g. P1), they are somewhat flattened but nevertheless still alive.

After one complete year, the sheltercones have significantly improved germination and survival of all species. However, the susceptibility of the cones to pressure from heavy snow is a factor to consider in areas where deep wet snow is to be expected. In such areas, the thicker-walled, straight-sided sheltercone may be recommended. This aspect will be discussed further in Spring 1982 after the 1981 sowing has had a winter.

Treatment	% of Spots Stocked (1 or more germinants)			Average Germinants per Stocked Spot:		
	Spruce	Fir	PI	Spruce	Fir	PI
Not covered	6.7	-	11.7	2.3	-	1.3
Soil-covered	55.7	13.3	48.3	2.8	1.5	1.6
Sheltercone (in place)	100.0	100.0	100.0	4.9	4.3	5.4
Sheltercone (displaced)	42.9	2.0	N/A	2.8	1.0	N/A

1981 Sowing (carried out May 10, 1981)

Soil conditions were excellent. Parts of the blocks still had standing water in places. Weather was cloudy with sunny intervals and occasional light showers.

A spot-check of this sowing undertaken on May 27th (17 days after sowing) provides the following information:

<u>Spp./Treatment</u>	<u>Favorable Site</u>	<u>Unfavorable Site</u>
	<u>Spots with 1 or more germinants (out of 30)</u>	
PI Soil Covered	7	7
PI Uncovered	1	1
PI Sheltercone	21	29
F Soil Covered	0	2
F Uncovered	0	0
F Sheltercone	25	23
S Soil Covered	0	9
S Uncovered	0	3
S Sheltercone	16	16

It appears, therefore, that the sheltercones significantly benefit early germination of stratified seed of all species on both sites. It was noted that a few sheltercones had already been displaced.

Fernie Series

1980 Sowing (Examined May 24-25, 1981)

Where the seeded spots are exposed, there has been a significant reduction in the number of surviving germinants of spruce and Larch. The Fir appears to be less affected. Under the sheltercones, however, there has been only minimal overwinter mortality even where the cones have been displaced.

At this point there seems to be little difference in general between the favorable and unfavorable sites for any of the species.

Treatment	% of Spots Stocked (1 or more germinants)			Average Germinants per Stocked Spot:		
	Spruce	Fir	Larch	Spruce	Fir	Larch
Not Covered	3.3	1.7	-	1.0	1.0	-
Soil Covered	53.6	26.7	38.3	3.5	1.3	1.9
Sheltercone (in place)	97.4	100.0	100.0	4.9	4.9	4.5
Sheltercone (displaced)	95.5	88.2	76.7	4.2	4.1	3.7

1981 Sowing (carried out May 24-25, 1981)

Plots were established alongside the 1980 sowings. This year, 50 seeded spots were established in each species/treatment line in order to determine if 20 additional spots will strengthen the value of the data.

Ground and weather conditions were ideal - good soil moisture, warming soil and scattered local showers.

Lumby Series

1980 Sowing (Examined May 21, 1981)

Only minor losses were recorded after the winter in this area. Half the mortality occurred to the spruce germinants, mainly on the unfavorable site.

Surprisingly there was very little change in the number of sheltercones displaced. As at Golden, many of the sheltercones had been squashed almost flat by heavy wet snow.

Treatment	% of Spots Stocked (1 or more germinants)			Average Germinants per Stocked Spot:		
	Spruce	Fir	P1	Spruce	Fir	P1
Not Covered	1.7	1.6	15.0	1.0	1.0	1.1
Soil-Covered	50.0	23.3	21.6	1.6	1.8	1.5
Sheltercone (in place)	93.9	95.7	100.0	4.5	5.2	5.3
Sheltercone (displaced)	54.6	64.3	100.0	3.0	3.7	4.6

1981 Sowing (carried out May 21, 1981)

Sowing was undertaken according to plan except for the fact that the "unfavorable" block had to be relocated owing to a lack of space at the initial site. A suitable exposed area was located near by and seeding was completed with no problems.

Weather and ground conditions were optimal.

Photographs of representative seed spots and germinants were taken at all locations except Lumby (out of film).

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