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1984

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TRERISE, R.
SHELTERCONE SEEDING TRIAL
IN THE BOUNDARY DISTRICT:
CDCF c. 1 ma Main.....

SX 83104N

SHELTERCONE SEEDING TRIAL IN THE
BOUNDARY DISTRICT

Interim Report
1984

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(Pope and Talbot Ltd.)

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Sheltercone Seeding: Update on further results from trial SX83104N along with data from seeding done in the fall of 1983

1. OBJECTIVE

Our objectives were: (1) to examine second year survival of lodgepole pine germinants and to look for evidence of second year germination on areas seeded in trial SX83104N; (2) to report on areas seeded in the fall of 1983, and; (3) to compare the results for tool planted and hand planted cerbels.

2. METHODS

i) Spring Seeding

The methods used are explained in our 1983 report on trial SX83104N.

ii) Fall Seeding

We fall seeded 3 blocks (15-21, 28-61, and 28-64) using ground adjacent to our spring seedings with the same procedures as for the spring seedings and using the same seedlot (04277).

iii) Tool Seeding

We used the sheltercone tool to establish and distribute seed into cerbel cones on units 15-21 and 28-61. This seeding was done in the fall adjacent to and with the same seed used in (ii) above.

iv) Sampling Procedures

All areas were checked once in October 1984 and the number of cones with live germinants was recorded.

3. RESULTS (Tables 1 and 2 refer to areas seeded under trial SX83104N)

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Table 1 Comparison of number of cones with live germinants for 1983 versus 1984 on areas seeded in 1983 (SX83104N)

Unit	Seedlot No.	Germ. %	Species	Cerbél		Loss %	Cerkon		Loss %
				1983%	1984%		1983%	1984%	
TFL 8 15-21	4277	90	P1	73	57	16	78	29	49
13B-2	4277	90	P1	59	44	15	82	80	2
A18969 28-61	4277	90	P1	49	33	16	44	40	4
28-64	4277	90	P1	23	17	6	88	73	15
28-65	4277	90	P1	33	18	15	70	72	-2

Table 2: Second year germination in cerbels and cerkons (SX83104N)

Unit	% of cones with second year germinants	
	Cerbél	Cerkon
13B-2	3	7
28-61	2	3
28-64	1	8
28-65	0	15

Table 3: Comparison of areas seeded in the fall of 1983 versus the spring of 1983 and the spring of 1984

Loc.	Seed lot No.	Germ. %	Species	% of cones with live germinants					
				Spring 1983		Fall 1983		Spring 1984	
				Cerbél	Cerkon	Cerbél	Cerkon	Cerbél	Cerkon
15-21	4277	90	P1	57	29	48	22	72	38
28-61	4277	90	P1	33	40	20	66	-	-
28-64	4277	90	P1	17	73	18	48	-	-

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Table 4: Comparison of hand seeding versus tool seeding with cerbel cones

Unit	Tool seeding % of cones with live germinants	Hand seeding % of cones with live germinants
15-21	32	48
28-61	8	20

4. DISCUSSION

On the dry, south facing slope (Table 1, unit 15-21), the cerbel provided much better second year survival. We experienced some very warm, dry weather this summer, which the germinants under cerbels were able to withstand much better than those under cerkons. The root collar shading provided by the cerbels may have made the difference.

On our other sites, where surface temperatures and moisture availability are not as critical (Table 1, units 13B-2, 28-61 to 65) to seedling survival, the cerkon cone produced superior results. These results were generally due to better first year germination rates using cerkons. Also, the second year mortality rate was lower under cerkons on 3 out of 4 of these sites. We are at a loss to explain why the cerkon should provide better results once the seeds have germinated.

Second year germination rates were consistently higher with the cerkon (Table 2). The environment provided for overwintering and germinating seeds appears to be better under the cerkon than the cerbel on the sites tested. However, second year germination was significantly less than first year germination in all cases. If first year germination is poor, it does not appear that it can be made up for by better germination in the second year.

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4. DISCUSSION CONTINUED

Fall seeding was not an overwhelming success (Table 3). Seeds that overwintered under a sheltercone in the field did poorer than spring seeded areas in 3 out of 4 cases with both the cerbels and cerkons. We had hoped that fall seeding would provide a useful technique, however, from these results we see no advantage to fall seeding with sheltercones.

Seeding with the sheltercone tool gave poorer results than hand seeding (Table 4). The tool's seed delivery mechanism has a screw adjustment to regulate the number of seeds dropped into each cone. Prior to seeding, we attempted to adjust this mechanism to produce 2 to 5 seeds at a time. However, the results seem to indicate that we did not get as consistent a seed fall from the tool as from hand seeding. Unless the tool can be shown to produce results comparable to hand seeding, we would not consider using it on an operational basis. Cone establishment with the tool was 20% to 30% faster than doing it by hand. Therefore, if the tool is perfected, it could produce substantial savings in the cost of establishing shelter cones.

2nd year

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Sheltercone seeding trial in the Boundary District

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Location Copperkettle

Region/District N/Boundary

Objective To determine the viability of sheltercone seeding at different elevations and moisture regimes in the Boundary TSA.

Status Remeasurements on five blocks in 1984, to compare with 1983 data.

Report Distribution Working Plan: March 22, 1983
Silviculture Branch Library and other designated distribution.

Results Second year survival on a hot, dry, south facing site was superior under the cerbel cone. On four cooler moister sites the second year survival was best under the cerkon cone.
The percentage of cones with new (second year) germinants ranged from 0 to 15 indicating that germination during the second growing season is not a major factor contributing to the success of sheltercone seeding. Fall seeding of sheltercones produced poorer results than spring seeding in 3 out of 4 cases. Seeding with the sheltercone tool produced poorer results than hand seeding on the two areas tested.