

A STUDY OF JACK PINE SEEDFALL ON THE
SANDILANDS FOREST RESERVE, MANITOBA

Project MS-207

by

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INTRODUCTION¹

A project was begun in 1959 to determine the annual seedfall of jack pine (*Pinus banksiana* Lamb.) in stands of three age classes and two density classes on dry sand flats in the Sandilands Forest Reserve in southeastern Manitoba. The data collected will determine whether natural seedfall is sufficient to regenerate jack pine in this area.

WORK COMPLETED - 1966

Seed Collection

Seed collections for each stand were made during the period October 1965 to October 1966 on the following dates:

April 26, 1966
June 3, 1966
June 28, 1966
July 27, 1966
August 30, 1966
October 5, 1966
October 25, 1966

Seed collections were not obtained from the 40-year-dense and 40-year-open stands on April 26, 1966 as most of the traps were partially filled with snow.

Cutting tests were performed on all collected seed to determine their soundness.

Seedfall By Stand Condition

A summary of seedfall for the period October 26, 1965 to October 25, 1966 is shown in Table 1. Seedfall was greatest in the 20-year-dense stand. Sound seedfall per acre was greatest in the 20-year-open stand and least in the 40-year-dense stand.

¹For further information the reader is referred to the establishment and progress reports prepared on this project. (Cayford 1960, 1961, Cayford and Sims 1962, Walker 1963, 1964, 1965, 1966).

TABLE 1
SUMMARY OF JACK PINE SEEDFALL
OCTOBER 26, 1965 to OCTOBER 25, 1966

Stand	Collection period (months)	No. seeds per acre	No. sound seeds per acre	Pounds of sound seeds per acre	Per cent seeds sound
20 year open	12	4,200	1,386	.01	33
20 year dense	12	18,080	10,848	.08	60
40 year open	12	4,060	2,720	.02	67
40 year dense	12	2,000	660	.005	33
60 year open	12	15,220	6,545	.05	43
60 year dense	12	5,180	881	.007	17

Seasonal seedfall

The distribution of seedfall by collection period is shown in Table 2. More than half the total seedfall occurred in the period June 3, 1966 to October 5, 1966. The period July 27, 1966 to August 30, 1966 showed the greatest daily total seedfall.

Seedfall 1959 - 1966

Seedfall from 1959 to 1966 is shown by stand age and density in Table 3. More seed has been dispersed in the 20-year stands than either the 40-year or 60-year stands. The least amount has been dispersed in the 40-year stands. There appears to be little difference between the open and dense stands.

Regeneration Survey

The 1/20-milacre scalped spots adjacent to each seed trap were examined for jack pine regeneration on August 10, 1966. All seedlings found were recorded and removed. One hundred and eighty scalped spots were examined. Three seedlings were found in the 20-year-dense stand. No seedlings were found in the other stands. After examination the scalps were raked to mineral soil.

Litterfall

Collections were obtained from the litter traps each time seed collections were made. Litterfall was greatest in the 60-year-dense stand and least in the 20-year-open stand (Table 4).

TABLE 2

SEASONAL DISTRIBUTION OF SEEDFALL OCTOBER 26/65 - OCTOBER 25/66

TOTAL SEEDFALL PER ACRE PER DAY

Stand	Period of seedfall						
	Oct. 26/65 ¹ Apr. 26/66 ¹	Apr. 26/66 ¹ June 3/66 ¹	June 3/66 June 28/66	June 28/66 July 27/66	July 27/66 Aug. 30/66	Aug. 30/66 Oct. 5/66	Oct. 5/66 Oct. 25/66
20 year open	12	17	0	23	19	0	0
20 year dense	31	132	55	69	19	96	0
40 year open	Not collected	0 ²	0	25	59	0	67
40 year dense	Not collected	6 ²	0	0	19	0	0
60 year open	38	35	27	26	122	38	0
60 year dense	15	44	0	0	0	0	40

¹Seed collections gathered on these dates do not necessarily represent the total seedfall for that period. As the traps are covered with snow for several months seeds falling at this time may be dispersed by the wind or eaten by birds or rodents.

²These collections are for the period October 26, 1965 to June 3, 1966.

TABLE 3
SUMMARY OF ANNUAL SEEDFALL

Stand	Period of collection	Number of months	Total seed per acre	Average seed fall per month
20 year open	Sept.-Oct. 1960	2	39,320	19,660
	Nov. 1960-Oct. 1961	12	33,760	2,813
	Nov. 1961 - Oct. 1962	12	78,160	6,513
	Nov. 1962 - Nov. 1963	12	26,300	2,192
	Nov. 1963 - Nov. 1964	12	10,940	912
	Nov. 1964 - Oct. 1965	11	7,180	653
	Oct. 1965 - Oct. 1966	12	4,200	350
20 year dense	Sept. - Oct. 1960	2	32,430	16,215
	Nov. 1960 - Oct. 1961	12	50,140	4,178
	Aug. - Oct. 1962	3	25,320	8,440
	Nov. 1962 - Nov. 1963	12	34,900	2,908
	Nov. 1963 - Nov. 1964	12	35,460	2,955
	Nov. 1964 - Oct. 1965	11	16,420	1,493
	Oct. 1965 - Oct. 1966	12	18,080	1,507
40 year open	July - Oct. 1959	4	2,660	665
	Nov. 1959 - Oct. 1960	12	6,790	566
	Nov. 1960 - Oct. 1961	12	4,560	380
	Nov. 1961 - Oct. 1962	12	9,320	777
	Nov. 1962 - Nov. 1963	12	8,640	720
	Nov. 1963 - Nov. 1964	12	7,780	648
	Nov. 1964 - Oct. 1965	11	2,020	184
	Oct. 1965 - Oct. 1966	12	4,060	338
40 year dense	July - Oct. 1959	4	660	165
	Nov. 1959 - Oct. 1960	12	5,420	452
	Nov. 1960 - Oct. 1961	12	9,140	762
	Nov. 1961 - Oct. 1962	12	5,920	493
	Nov. 1962 - Nov. 1963	12	2,800	233
	Nov. 1963 - Nov. 1964	12	2,660	222
	Nov. 1964 - Oct. 1965	11	660	60
	Oct. 1965 - Oct. 1966	12	2,000	167
60 year open	July - Oct. 1959	4	0	0
	Nov. 1959 - Oct. 1960	12	17,730	1,478
	Nov. 1960 - Oct. 1961	12	16,710	1,392
	Nov. 1961 - Oct. 1962	12	11,300	942
	Nov. 1962 - Nov. 1963	12	14,080	1,173
	Nov. 1963 - Nov. 1964	12	4,760	397
	Nov. 1964 - Oct. 1965	11	2,000	182
	Oct. 1965 - Oct. 1966	12	15,220	1,268
60 year dense	July - Oct. 1959	4	0	0
	Nov. 1959 - Oct. 1960	12	19,370	1,614
	Nov. 1960 - Oct. 1961	12	16,040	1,337
	Nov. 1961 - Oct. 1962	12	14,700	1,225
	Nov. 1962 - Nov. 1963	12	5,520	460
	Nov. 1963 - Nov. 1964	12	4,840	403
	Nov. 1964 - Oct. 1965	11	2,240	204
	Oct. 1965 - Oct. 1966	12	5,180	432

TABLE 4
LITTER COLLECTIONS 1966

Date	20 year open		20 year dense		40 year open		40 year dense		60 year open		60 year dense	
	lbs. per acre	depth (in.)	lbs. per acre	depth (in.)	lbs. per acre	depth (in.)	lbs. per acre	depth (in.)	lbs. per acre	depth (in.)	lbs. per acre	depth (in.)
April 26/66	128	.013	246	.025					403	.041	318	.033
June 2	101	.010	175	.018	900	.092	501	.052	192	.020	379	.039
June 28	102	.010	254	.026	187	.019	213	.022	144	.015	184	.019
July 27	58	.006	124	.013	114	.012	188	.019	147	.015	200	.020
Aug. 30	50	.005	96	.010	78	.008	122	.012	84	.009	109	.011
Oct. 5	81	.008	296	.030	221	.023	300	.031	319	.033	488	.050
Oct. 25	154	.016	522	.054	544	.056	634	.065	414	.042	887	.091
Total	674	.069	1713	.176	2044	.210	1958	.201	1703	.175	2565	.264

WORK PROPOSED FOR 1967

Seed collections will be made at monthly intervals throughout the snow-free months. All seeds gathered will be submitted to cutting tests to determine soundness.

Litter will be collected, oven dried, weighed and recorded according to stand age and density.

The 1/20-milacre scalped spots adjacent to the seed traps will be examined in August. Number of seedlings on each scalp will be recorded. All scalps will be raked to mineral soil after examination.

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