

THE USE OF SAWDUST AS A MULCH
ON RED, WHITE, AND JACK PINE SEEDBEDS

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The practice in most northern nurseries of the Forest Service is to sow most of the seed in the fall, especially red and white pine and the spruces. Fall seeding has resulted in better germination and bigger seedlings than spring sowing. However, the fall-sown beds apparently need to be mulched to prevent the seed from being uncovered by the wind during the periods they are not covered with snow. The material most used for this mulching has been straw, marsh hay, or in some cases burlap, which must be removed in the spring as soon as germination starts. The removal of the mulch involves considerable labor and, unless the mulch is removed before germination starts, some of the seedlings are destroyed in removing the mulch even if it is removed very carefully.

To eliminate mulch or find a material that could be left on the beds, a series of experiments were started in 1948. Seedbeds of red pine were left unmulched for comparison of germination with mulched seedbeds. Results in 1948 were as follows:

	<u>Unmulched</u>	<u>Mulched</u>
Average number of seedlings germinated per square foot:		
Plot 1	49.8	51.0
Plot 2	40.1	46.2

Mulching did result in a better stand but perhaps not enough better to justify the cost of mulching. For the next 4 years tests were made with seedbeds mulched with straw and sawdust. Results were as follows:

	<u>Sawdust Mulch</u>	<u>Straw Mulch</u>
Average number of seedlings germinated per square foot:		
Jack pine from Upper Michigan	53.2	41.6
Jack pine from Lower Michigan	44.8	33.8
Red pine from Chippewa	49.5	36.9

In these tests better germination resulted from the seedbeds mulched with sawdust than from those mulched with straw.

In the fall of 1953 about 80 percent of the fall-sown red pine beds were mulched with sawdust, and the remaining beds were mulched with straw. The straw mulch was removed as soon as the seed started to sprout in the spring. Germination counting plots (2 square feet in size) were established in about 10 percent of the beds, and germination counts were

made every week throughout the germination period.

Germination was a little slower in the beds mulched with sawdust, but by the second week total germination was about equal in the beds mulched with straw and those mulched with sawdust. The losses from damping off and other causes were about the same under both mulches. Results of these tests are as follows

	<u>Sawdust Mulch</u>	<u>Straw Mulch</u>
Germination, average number per square foot:		
Fall 1953	8.2	9.8
June 1, 1954	51.0	42.0
July 15, 1954 ^{1/4}	44.2	39.6

1/ One percent count of all beds.

It was difficult to apply and keep a uniform layer of sawdust on the beds. A sand spreader of the type used to spread sand on highways was the best spreading machine used. To obtain uniform coverage it was necessary for the men shoveling the sawdust into the spreader to regulate their rate of feeding into the spreader. A manure spreader was tested, but it proved unsatisfactory because it distributed the sawdust into little piles, which had to be spread by hand. Rolling the beds after the sawdust was applied resulted in less blowing away of sawdust and less washing away of the sawdust during rains. A Payer of sawdust 1/4 inch thick was spread over the beds.

Sawdust as a mulch for pine seedbeds in the North appears to be more satisfactory than straw. Where there is a ready available supply of sawdust, it is cheaper to apply than straw and the total cost is much less than straw, which must be removed when germination starts. The sawdust mulch provided a more uniform moisture condition during the germination period. Germination was delayed a few days in the beds mulched with sawdust, and this might prevent injury from a heavy frost that so often occurs just as the seedlings are starting to emerge. Higher germination and a higher final stand per square foot were obtained in the beds mulched with sawdust than those mulched with straw. Seedlings could come through a 1-inch layer of sawdust, but they were slower in emerging and a few less emerged. A 1/4-inch layer was very satisfactory. The sand spreader used for spreading the sawdust does not do as uniform a job as is desired, and a better spreader is needed.

Literature cited Posy, 1 & 6 and May, Jack T. - "Some effects of sawdust mulching of pine seedlings", Leaflet No. 42 Agriculture Experiment Station, Alabama Polytechnic Institute, Auburn, Alabama.