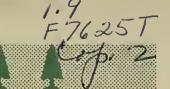
## Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.





## TECHNICAL NOTES

CURRENT SERIAL RECORDS



LAKE STATES FOREST EXPERIMENT STATION U.S. DEPARTMENT OF AGRICULTURE . P. SFOREST SERVICE

FEI, 3 1 1351

No. 595

Jack Pine From Lake States Seed Sources Differ in Susceptibility to Attack by the White-Pine Weevil

During the 1953 and 1954 growing seasons 17 jack pine seed source plantations were established in the three Lake States. 1/2 The plantations consist of four replications of a randomized block design, each replication with 30 seed sources. Sixty-four trees of 2-0 stock from each source were set out in 40-foot square blocks with a 5x5-foot spacing. One of these plantations was established on the Chippewa National Forest near Cass Lake, Minn. Measurements of this plantation in August 1958 (fifth year) showed that as high as 23 percent of the trees of a seed source were found to be currently damaged by the white-pine weevil. This afforded an opportunity to study susceptibility of seed sources to damage by this pest.

Preliminary analysis of the 1958 attacks revealed a highly significant difference between seed sources. To obtain stronger evidence the plantation was examined again during August 1959. The data for 1958 and 1959 were combined and subjected to an analysis of variance. Appropriate precautions were taken to insure additivity and homogeneity of variance. The analysis of variance is as follows:

Source of variation	Degrees of freedom	Mean squares	
Replications	3	1.05**	
Seed sources	29	1.11**	
Error	87	.22	
Total	119	<del></del>	

\*\*Significant at the 1-percent level.

Table 1 shows a comparison between sources for mean numbers of trees weeviled per acre per year. Significantly more weeviling occurred in the sources from Pine County, Minn.; Douglas, Burnett, Marinette, Oneida, and Wood Counties, Wis.; and Gogebic County, Mich., than was observed in the local source. No source had significantly less damage than the local stock. The basic cause for the difference is obscure, but it is believed to be some characteristic of these trees. It is also possible that these sources planted elsewhere may respond differently to other weevil populations. Further investigation is necessary before the responsible factors are known.

It is apparent that considerable care should be exercised when selecting seed for planting stock, even within the natural range of jack pine. Over the entire rotation of these trees it will be difficult to evaluate the growth characteristics of the different seed sources that are due to genetic differences because weeviling may mask them.

January 1961

H. O. BATZER Entomologist

(over)

<sup>1/ &</sup>quot;Work plan for a regional jack pine seed source study in the Lake States" by Paul O. Rudolf and T. Schantz-Hansen, July 7, 1953; on file at the Lake States Forest Experiment Station.

Table 1.--Mean number of trees weeviled per acre per year during 1958 and 1959. Chippewa National Forest plantation, regional jack pine seed source study.

State and county	of :	Seed	:	Mean no. of trees
origin	:	source	:	weeviled per
	:	number	:	acre per year
IINNESOTA				
Cass		1589		34.4
Cass		1590		32.5
Itasca		1591		26.3
Lake		1592		33.5
Cook		1593		36.7
St. Louis		1594		35.8
Pine		1595		125.6**
Pine		1596		114.1**
Becker		1597		48.2
Cass		1600		47.1
Beltrami		1601		30.2
Itasca		1602		49.8
Cass		Local		33.5
WISCONSIN				
Douglas		1604		99.1**
Bayfield		1605		12.1
Forest		1606		50.9
Oneida		1607		60.3
Burnett		1608		97.6**
Marinette		1609		114.1**
Oneida		1610		108.5**
Wood		1611		116.5**
MICHIGAN				
Gogebic		1612		104.5**
Ontonagon		1613		47.1
Alger		1614		56.1
Chippewa		1615		60.3
Manistee		1616		44.9
Ogemaw		1617		56.1
Alpena		1618		63.3
Grand Traverse		1620		30.8
Luce		1621		32.1

<sup>\*\*</sup>Significant at the 1-percent level when compared with local source.