

HEIGHT GROWTH OF LOBLOLLY PINE IMPROVED ONLY SLIGHTLY AFTER TEN YEARS OF TIP MOTH CONTROL

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This study was designed to measure the influence of Nantucket pine tip moth (*Rhyacionia frustrana* Comst.) attack on height growth of loblolly pine (*Pinus taeda* L.).

Two groups of four 0.10-acre plots were planted with loblolly pine seedlings at a 6 x 6 foot spacing in January 1957. The trees on one group of plots were sprayed each week between March and October with a mixture of 2 pounds of DDT in 100 gallons of water. The trees on the other group served as controls and were allowed to grow unprotected. Spraying was discontinued after seven growing seasons, because of the physical limitations of reaching the top of 25-foot trees with ground equipment.

The pattern of height growth and the height advantage resulting from the spraying treatment are shown in table 1 and figure 1. The additional height growth resulting from tip moth control was evident at the end of the first growing season and

TABLE 1.—Average total height of treated and untreated loblolly pine

Age (years)	Total height	
	Treated	Untreated
	<i>Feet</i>	<i>Feet</i>
1_____	1.7	1.7
2_____	4.0	3.4
3_____	8.5	7.1
4_____	12.6	10.8
5_____	18.6	16.3
6_____	22.3	20.2
7_____	26.3	24.3
8_____	30.0	28.2
9_____	33.2	31.8
10_____	36.1	35.0

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increased to 2.3 feet at the end of the fifth growing season. Since the fifth year, there has been a gradual decrease in this height advantage to 1.1 feet at the end of the tenth growing season. There appears to be no difference in stem form resulting from the spraying treatment.

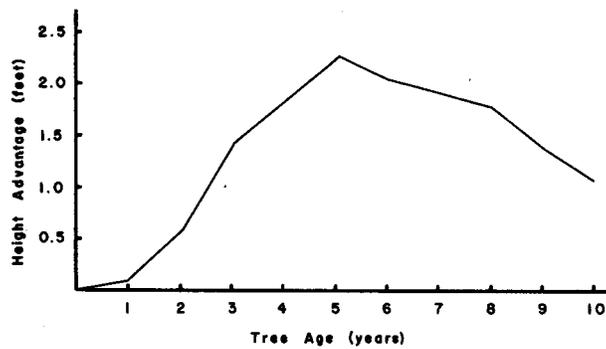


Figure 1.—Height advantage of loblolly pine resulting from control of Nantucket pine tip moth tapers off with age.

The results obtained thus far seem to indicate that loblolly pine is most susceptible to injury from tip moth attack up to a height of 15 to 20 feet. The decreasing height advantage of the sprayed trees after age 5 would suggest that there is a recovery trend taking place and the effect of tip

moth injury on height growth will eventually disappear. An examination of the terminals of the unsprayed trees at age 5 revealed that there were fewer larvae in taller trees, though the buds were much larger than on smaller trees, thus providing more material for larvae to feed on.

It would appear now that, although damage from tip moth attack may seem severe on plantations less than 10 feet in height, this damage is gradually dissipated with only an insignificant loss in height growth. This conclusion would only apply to those stands of loblolly pine growing on sites of near equal or superior quality to the one on which this study was located.

At age 10, average annual height growth on the study area has been 3.5 feet. Trees growing at a lesser rate would probably be slower to recover from tip moth attack and if growth is extremely poor, e.g., less than 2 feet per year, a substantial loss in height growth would be very likely.