



LSU FORESTRY NOTES

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STAIN ASSOCIATED WITH NAILS IN TREES ON PERMANENT PLOTS

In studies involving the measurement and subsequent remeasurement of trees, such as CFI plots or silviculture research plots, the trees are commonly identified by metal tags fastened to the trees by means of nails. In 1957 a study was begun to determine whether this practice would lead to degrade or scalable defect in the trees.

Nails were set in fifteen trees each of loblolly pine (Pinus taeda L.), southern red oak (Quercus falcata Michx.), white oak (Q. alba L.), and sweetgum (Liquidambar styraciflua L.). In each tree one copper, one steel, one galvanized steel, and one aluminum nail were set, at 90° intervals around the circumference at breast height. In October, 1958, after one full year, five trees of each species were felled, and each nail was sectioned out to determine whether any stain or fungous infection had developed.

No fungous infection was observed.

Every nail was accompanied by stain, in the hardwoods, or pitch streak, in the pine. The stain accompanying the steel nail was blacker than the others, among which no difference was apparent. The tangential thickness of the stain or streak was equal to the diameter of the nail plus approximately 0.1 inch. The radial depth of the stain or streak was equal to the depth of penetration of the nail plus approximately 0.15 inch. Vertical extent of the stain or streak is shown in Table 1. Differences between types of nail and between species were not statistically significant.

Table 1. Wood Stain Associated With Various Types of Nails.

Species	Type of Nail			
	Copper	Steel	Galvanized	Aluminum
Vertical Extent Of Stain After One Year, In Inches				
Loblolly pine	2.62	2.12	1.87	1.50
Sweetgum	1.25	1.50	1.38	1.38
Southern red oak	1.12	1.50	1.00	1.00
White oak	1.50	1.12	1.12	1.62
Mean, all species	1.62	1.56	1.34	1.38

Summarizing, one year after nails were set in living trees, every nail, regardless of type, was accompanied by stain or pitch streak. The radial and tangential extent of staining barely exceeded the dimensions of the nail, but the vertical length was as much as four inches, averaging 1.48 inches. The stain with steel nails was darker than that with the other types.

If the present rate of spread continues, in ten years the vertical length of staining will average nearly 15 inches and will reach a maximum of 40 inches. Such extensive stains will sharply restrict clear cuttings in hardwoods and lower the grade on certain classes of pine. Obviously, alternative methods of marking trees on permanent plots should be explored.

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