

TECHNICAL NOTES

FOREST PRODUCTS LABORATORY

U. S. FOREST SERVICE

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SUITABILITY OF VARIOUS HICKORIES FOR VEHICLE MANUFACTURE

The principal species of hickory are divided botanically into two groups, -true hickories and pecan hickories. True hickories include shellbark, shagbark, mockernut, and pignut or black hickories. Pecans include bitternut, nutmeg, pecan, and water hickories.

The chief difference between true and pecan hickory, as shown by tests at the Forest Products Laboratory, is in toughness or shock-resisting ability. This is the property which is so valuable in wood handles and vehicle parts. In this property true hickories are far superior to the pecans.

The strength properties of pecan are somewhat in excess of those of oak or maple, and for such articles as handles and buggy spokes, carefully selected pecan is probably to be preferred to either of these two woods. In heavy wagon parts, such as axles, spokes, and felloes, maple and oak are reputed to stay in place better than hickory. Except in case of extreme shortage of maple, true hickory, and oak, it would probably be inexpedient to use pecan hickory for these heavy parts.

The sapwood or white wood of hickory, which is usually preferred by the trade, is the better wood in young, thrifty trees; but in over-mature trees it is inferior to the heartwood. A red color does not necessarily make sound hickory unsuitable for vehicle stock.

A more useful criterion than color is the proportion of summerwood, or nonporous wood, in the annual growth rings. In hickory stock intended for the more exacting uses, the nonporous wood should form at least one-half and preferably three-quarters of the annual ring; and the remaining part should contain very few pores. A further precaution to be observed is that the nonporous part of the annual ring should be hard and flinty.

The best criterion of the strength properties of either true or pecan hickory is the weight of a cubic foot of the dry wood. This weight should not be more than 10 per cent below the average for true hickory; or not less than 45 pounds per cubic foot of oven-dry wood.