

VARIATION IN PIN KNOT FREQUENCY IN BLACK WALNUT LUMBER
CUT FROM A SMALL PROVENANCE/PROGENY TEST

Peter Y. S. Chen, Robert E. Bodkin, and J. W. Van Sambeek¹

Abstract: This small study examined the frequency of knots (> 1 growth ring), pin knots (latent or suppressed buds), and pin knot clusters in 4/4 black walnut (*Juglans nigra* L.) lumber from 42 logs, 18 to 21 cm dbh, cut from a 14-year-old provenance/progeny test. Two boards from opposite sides of each log were analyzed for number of knots, pin knots, and pin knot clusters. The boards averaged 1.4 knots per linear meter across all sources with no differences among logs within a source or between the apical and basal halves. From 50 to 56% of the pin knots occurred as 2, 3, or 4 pin knots clustered within 3 cm of each other. Boards from Missouri "super" seedlings had fewer pin knot clusters than boards from nursery bedrun seedlings. On an average, the boards from all sources had 8.1 pin knots or pin knot clusters per linear meter with no differences between the apical and basal halves. In most cases, highly significant differences in pin knot numbers existed among the logs originating from the same seed or seedling sources. Selecting parent trees for desirable nut or timber characteristics did not affect the number of knots, pin knots, or pin knot clusters in their progeny. These results suggest that retention of suppressed buds is controlled by environmental and not genetic factors.

¹Research Forest Products Technologist, Physical Science Technician, and Research Plant Physiologist, USDA Forestry Sciences Laboratory, Mailcode 4630, Southern Illinois University, Carbondale, IL 62901-4630.