# A Comparison of the Strength of Experimental Chestnut Hybrids to Functionally Extinct Castanea dentata

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This study gathered data on the breaking strengths of four groups of chestnut lumber, American chestnut (Castanea dentata), Chinese chestnut (Castanea mollissima), BC3 hybrid chestnut, and BC4 hybrid chestnut. Hybrid chestnuts tested were used in the American Chestnut Foundation’s experimental breeding program. BC3 hybrids were 15/16th’s American chestnut and 1/16th Chinese chestnut and BC4 hybrids were 31/32nd’s American chestnut and 1/32nd Chinese chestnut. Wood for each group was collected from experimental orchards and prepared into groups of thirty beams. All beams were of the same size and moisture content. Breaking strength was then determined by a three point static bending test to failure. The mean breaking strength of American, Chinese, BC3 hybrid, and BC4 hybrid chestnuts were 1870N, 2778N, 1770N, and 2552N respectively. The mean breaking strength of the BC3 and BC4 hybrid chestnut groups were 94.65% and 136.5% of the mean breaking strength of the American chestnut group respectively. The mean breaking strength of the Chinese chestnut group was 148.5% of the mean breaking strength of the American chestnut group. An analysis of variance (ANOVA) test produced a p-value of 1.932 ?×10?^(-6), indicating the results of this study did not happen by chance. Limitations in the availability of resources prompted caution in these results.

**Awards Won:**