

Public Abstract

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Title:Vegetative Growth and Fruiting Characteristics of Black Walnut

Three studies were conducted to evaluate sequential vegetative and fruiting characteristics of black walnut. In the first study, 'Sparrow' vegetative shoots or those with one fruit were smaller in diameter than shoots with three fruits in 2009. Also, 2009 vegetative shoots were most likely to remain non-bearing in 2010. However, 2009 bearing shoots were equally likely to produce 0, 1, 2, or 3 nuts in 2010. Step-wise regression revealed that greater 2009 shoot diameter resulted in greater 2010 nut number. However, greater 2009 shoot length or nut number resulted in reduced 2010 nut number. In another study, sequential fruiting of 2009- labeled 'Sparrow', 'Surprise', 'Kwik Krop', and 'Emma K' shoots with two fruits each was evaluated. All cultivars had similar odds of producing 0, 1, 2, or 3 fruits the following year except 'Emma K'. All but one 2009-labeled 'Emma K' shoots were vegetative in 2010. When crop yields for 15 cultivars were evaluated from 2008 to 2010, 'Bowser' and 'Elmer/Myer' produced low (less than or equal to 378 nuts/tree), but consistent annual yields. In contrast, 'Emma K', 'Kwik Krop', and 'Sparrow' had high cumulative yields (greater than or equal to 3000 nuts/tree). 'Emma K' and 'Thomas/Myer' exhibited a biennial bearing habit, while 'Davidson', 'Hare', 'Kwik Krop', 'Sparrow', 'Surprise', and 'Tomboy' had two consecutive low production years followed by high yields the third year. Also, 'Davidson', 'Emma K', 'Kwik Krop', 'Sparks 127', 'Sparrow', and 'Tomboy' were more yield efficient than 'Bowser' and 'Elmer/Myer' from 2008 to 2010. The incidence of ambers was similar among black walnut cultivars and averaged less than or equal to 7% per tree.