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# Woody Shrub Production With Alternative Substrates: Aged vs. Fresh<sup>®</sup>

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## INTRODUCTION

Recent research has identified two potential materials to meet nursery grower's needs: Clean Chip Residual (CCR) and WholeTree (WT). Both of these alternative substrates contain higher wood content than pine bark alone. The CCR is a product composed of approximately 50% wood, 40% bark, and 10% needles (Boyer et al., 2008a). It is created when transportable in-field harvesters are used to process pines into "clean chips" that can be used by pulp mills. One study evaluating CCR as an alternative substrate in annual species production (Boyer et al., 2008b) reported that two out of three species tested had similar growth when compared to standard PB substrates. Another study evaluating perennial species production in CCR (Boyer et al., 2008a) determined that there were few differences in growth at the conclusion of the study for most species. In 2009, Boyer et al. also reported that CCR as an alternative nursery crop substrate for container-grown ornamentals was acceptable for use at several screen sizes 3.2, 1.9, 1.3, 1.0 cm ( $1\frac{1}{4}$ ,  $\frac{3}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{8}$  in.) (Boyer et al., 2009). In general, studies indicate that plants grown in CCR are comparable to those grown in a traditional PB substrate.

WholeTree is different from CCR in that it consists of the entire pine tree harvested from pine plantations at the thinning stage, therefore having a higher wood content than CCR (Fain et al., 2008). Just as with CCR, several studies have been conducted to assess the value of WT as a comparable substrate to traditional PB (Fain et al., 2006). A study evaluating annual vinca grown in WT showed plant growth similar to growth of plants grown in PB (Fain and Gilliam, 2006). Another study by Fain et al. (2006) evaluating WT in production of herbaceous greenhouse crops indicated mixed results. In general, plants grown in WT substrates were smaller than plants in other blends, but plants increased in size with increasing peat moss percentage.

Most of the studies thus far have used fresh WT and CCR. However, PB is often aged for several months before use in nursery crop production. Many growers prefer to have aged PB and have asked if additional benefits could occur with aging WT or CCR. The objective of this study was to compare growth of several woody nursery crops in fresh and aged CCR and WT.