Effect of ploidy level on vegetative propagation of two *Prunus laurocerasus* 'Schipkaensis' cytotypes©

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Chromosome doubling (ploidy manipulation) is a useful tool in ornamental plant breeding. One application is reducing fertility of weedy species. While many studies have compared morphological variability between cytotypes (ploidy levels), we have found none that focused on rooting potential. A plant's ability to root at a high percentage is an important consideration in determining its potential for large-scale production. *Prunus laurocerasus* L. 'Schipkaensis' is a common ornamental shrub widely used in the landscape. This study was conducted to determine if rooting potential varied between natural (2*n*=22*x*=176) and chromosome doubled (2*n*=44*x*=352) cytotypes of this cultivar.

Polyploid plants previously developed were confirmed using flow cytometry the spring before the current study was initiated. Cuttings of polyploids (44x) and standard cytotype (22x) were collected from Blue Heron Farm in Corvallis, Oregon, and from container-grown plants maintained in our program, respectively. In late July, 24 cuttings of each cytotype were collected and arranged in a randomized-block design with three blocks. All cuttings were dipped for 10 sec in a solution of 1000 ppm indole-3-butyric acid and 500 ppm 1-naphthaleneacetic acid (Woods Rooting Compound, Earth Science Products, Wilsonville, Oregon), and set in a perlite and Metro-Mix 840PC (SunGro Horticulture, Agawam, Massachusetts) (2:1, v/v) under intermittent mist. Cuttings were between 7.5 cm and 10 cm in length with 4 to 5 nodes. Three leaves were left on each cutting and these were bisected to reduce water loss.

After 1 month, the polyploid and the standard cytotype showed rooting percentages of 87.5% and 62.5%, respectively. Average root length was not different between cytotypes, but average number of roots per rooted cutting was 16.2±1.8 and 27.1±3.6, respectively. The polyploid, while having fewer roots per cutting, rooted at a higher percentage with similar average root lengths. It is likely that large-scale propagation of this alternative cytotype is a viable option. Interestingly, block 1 showed evidence of an unknown pathogen that reduced the rooting percentages of both cytotypes. However, the polyploid showed fewer signs of disease while rooting at a higher percentage. This may indicate that the polyploid has increased disease resistance and, if so, represents an option to develop cultivars with improved resistance or tolerance to shothole disease.

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