

## Late-Fall Propagation of Native Woody Plants in Utah Using Nearing Frames<sup>©</sup>

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The selection and propagation of superior native plants for use in landscaping has potential for water conservation in the Intermountain West. We examined the use of a Nearing frame system for cutting propagation as a simpler, more economical alternative to a greenhouse system. The rooting of three species [*Cercocarpus ledifolius* var. *intricatus* USU-CLI-3 (CerLed), *Shepherdia* × *utahensis* ‘Torrey’ (SheUta), and *Berberis aquifolium* var. *repens* (MahRep)] was evaluated in both Nearing frames and a glass greenhouse. Greenhouse conditions were 18/15.5°C D/N, bottom heat 22°C, and natural lighting (85% of ambient PPF at solar noon). Nearing frames were 104 cm<sup>2</sup> and 46 cm deep with a plastic-film cover and oriented with the open side facing north. Frames had bottom heat set at 22°C with unheated air temperatures as low as 5°C, and natural lighting (2% of ambient under the plastic).

The MahRep cuttings were selected from a group of seedling source plants while the other two were clonal materials. During the period 30 Oct. to 4 Nov. 2013, 130 terminal hardwood cuttings of each species were collected, sorted for uniformity, wounded with a 1-cm basal scrape, and treated with either 0.1% IBA as Hormodin<sup>®</sup> 1 (CerLed and SheUta) or 2000 ppm IBA/1000 ppm NAA as Dip’N<sup>®</sup> Grow (MahRep). Cuttings were stuck in Turface<sup>®</sup> calcined clay in individual containers (6.5×6.5×8.9 cm) and randomly assigned to one of two greenhouse benches or Nearing frames. Nearing frame cuttings were irrigated daily until Nov. 23 when irrigation was changed to every second day. Greenhouse cuttings were irrigated identically and also misted during the day using a targeted VPD accumulation value of 60 as determined by a Phytotronics<sup>®</sup> Water Plus VPD mist controller.

On 17 Dec. 2013, cuttings were evaluated for percent rooting, roots per cutting, and length of longest root. The cuttings of CerLed and SheUta had 95 and 98% rooting in the greenhouse with 5 and 11% rooting in the Nearing frame, respectively. Rooting of cuttings of MahRep was much more variable and did not show significant differences between the greenhouse (71%) and the Nearing frame (56%). All species showed significantly increased numbers of roots per rooted cutting in the greenhouse as compared to the Nearing frame (MahRep: 16.1 versus 3.3; CerLed: 10.8 versus 1.7; SheUta: 7.7 versus 2.5). Average length of longest roots (mm) per rooted cutting was (MahRep: 81.6 versus 24.8; CerLed: 83.8 versus 1.5; SheUta: 100.5 versus 12.1). The results indicate that *Cercocarpus* and *Shepherdia* (both of which are full-sun requiring plants) were not well-adapted to Nearing frame propagation system in the fall. In contrast, it appeared that *M. repens*, a more shade-adapted plant, may have potential for propagation in a Nearing frame system.

