collected after 63 days included rooting percentage, growth index (new shoots), cutting quality (0–5, with 0 = no roots and 5 = transplant-ready cutting), total root number, average root length (of three longest roots), and root quality. Data were analyzed using linear mixed models and generalized linear mixed models with the GLIMMIX procedure of SAS (ver. 9.4; SAS Institute Inc., Cary, NC). Treatment comparisons were as follows: wounded vs. non-wounded; Hortus IBA vs. no auxin; Dip'N Grow versus no auxin; Hortus IBA + KNAA vs. no auxin; Hortus IBA vs. Dip'N Grow; Dip'N Grow vs. Hortus IBA + KNAA; Hortus IBA vs. Hortus IBA + KNAA; Hortus IBA at 5000 vs. 1000 ppm IBA; Dip'N Grow at 5000 vs. 1000 ppm IBA; and Hortus IBA + KNAA at 5000 ppm IBA vs. 1000 ppm IBA. Treatment had no impact on rooting percentage, root count, average of three longest roots, root quality, or cutting quality. These results suggest that hardwood cuttings of 'Tishomingo' crape myrtle can be successfully rooted without wounding or use of an auxin treatment.

Specified Source(s) of Funding: This project was funded by USDA–ARS Cooperative Project 6062-21430-002-05S.

Safety of Alcohol in Auxin Solutions Applied to Stem Cuttings of *Impatiens*

(Poster Board #274)

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Anecdotal reports of phytotoxicity (stem or leaf burn) on stem cuttings caused by alcohol-based solutions of auxin in commercial propagation have raised questions from propagators about safe rates and use of such alcohol-containing solutions. As part of a study examining this issue, two experiments were conducted using stem cuttings of *Impatiens* (interspecific) 'Coral'. Solutions were prepared with three rates of isopropyl alcohol (0%, 25%, or 50%) in combination with three rates of indole-3-butyric acid (IBA; as water-soluble salts): 0, 1000, or 2000 ppm in Expt. 1 for application using a basal quick-dip; or 0, 100, or 200 ppm in Expt. 2 for application using total immersion. Cuttings were rooted in plug trays under intermittent mist in a greenhouse. None of the alcohol/IBA treatments produced stem or leaf burn using either application method in the two experiments. After transplanting rooted cuttings into 10-cm pots and growing to saleable size, stem epinasty was observed on plants grown from cuttings that had been immersed in solutions containing 50% alcohol in combination with 100 ppm or 200 ppm IBA in Expt. 2, whereas no epinasty was observed on any plants from Expt. 1. Following harvest of shoots from plants grown in the 10-cm pots from cuttings initially treated with the nine alcohol/IBA treatments using a basal quick-dip in Expt. 1, shoot dry weights were similar among IBA rates in combination with both 0% and 25% alcohol, whereas shoot dry weight was greater for 0 ppm IBA than for either 100 ppm or 200 ppm IBA in combination with 50% alcohol. In Expt. 2, shoot dry weight was greatest when cuttings had been treated using total immersion in alcohol/IBA solutions containing 50% alcohol, regardless of IBA rate.

Specified Source(s) of Funding: This project was funded in part by USDA–ARS Cooperative Project 6062-21430-002-05S and by USDA-NIFA Hatch Project MIS-219060.

The Timing of Scion Foliar Trimming Relative to Grafting Date and Its Effects on Healing and Regrowth in Pepper

(Poster Board #275)

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Graft union development involves complex signaling pathways and cell proliferation and differentiation responses, which are regulated by endogenous and exogenous factors. Wounding before grafting may trigger responses that speed graft union development and the resumption of plant growth. However, these wound-activated responses would need to be directed to the graft union, to start more or less immediately, and to result in an uncompromised root-shoot connection at the graft union. We set out to determine if the timing of 50% scion foliar trimming influences grafting success or regrowth rate of newly grafted pepper plants. 'Aristotle' (scion) and 'Foundation' (rootstock) seedlings were grown from seed in a climate-controlled greenhouse at OARDC. On Day 7 before grafting, non-destructive and destructive measures were taken on representative plants to record plant biomass and other variables. Fifty percent of the leaf area was then removed from another set of identical plants on the same day with before and after measures confirming that treatment targets were met. The process was repeated on Days 2 and 0 before grafting, with untrimmed seedlings. Scion seedlings trimmed on Days 7, 2, and 0 before grafting and untrimmed scions were then splice-grafted to untrimmed rootstock seedlings. Grafted plant condition was assessed fifteen days after grafting using four measures describing the change in stem diameter (rootstock, scion), leaf area, and fresh and dry weight (total aboveground tissue, leaf, stem). The experiment was

repeated twice in two, 50-day runs concluding on 13 Nov. 2015, and 28 Apr. 2016. Graft success was unaffected by treatment as plant survivorship exceeded 95% in all treatments in both runs. However, interestingly, trimming and trimming timing effects differed between runs. For example, except for leaf fresh and dry weight, grafted plants made with scions trimmed 2 days before grafting were similar to plants made with untrimmed scions. Effects of trimming 7 or 0 days before grafting differed between runs; e.g., absolute values of response variable values for plants made with scions trimmed 7 days before grafting were larger than for control plants (untrimmed scion) in Run 1 but often lower in Run 2. The opposite trend was true for plants made with scions trimmed on Day 0. Still, percent leaf area increase followed the pattern Day 7 > Day 2 > Day 0 > untrimmed. Percent increase in stem diameter followed the opposite pattern.

Specified Source(s) of Funding: Ministry of Higher Education and Scientific Research, the Arab Republic of Egypt (Egyptian Cultural and Educational Bureau/Center in Washington).

Rooting Response of Pacific Lovegrass (*Eragrostis deflexa*) Clumps to Rooting Hormone Soaks

(Poster Board #276)

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Pacific lovegrass (*Eragrostis deflexa*) is a Hawaiian endemic found on the dry to mesic areas of Hawaii and Lanai islands. Its upright growth and clumping habit make it a potential native ornamental grass for landscapes. To evaluate its use as an ornamental, mass propagation techniques must be explored. In this study, the viability of vegetative propagation through division and the use of rooting hormone soaks on increasing rooting of clumps were assessed. Field grown *E. deflexa* was divided into bareroot clumps consisting of ten stems with about 3–4 new shoots per clump. Top portions of the clumps were cut to 20 cm in length and roots cut to 10 cm length. Clumps were soaked for 24 hours in 0, 1:20, or 1:10 dilution of Dip'N Grow (tap water; 500 ppm indolebutyric acid [IBA] and 250 ppm naphthalene acetic acid [NAA]; and 1000 ppm IBA and 500 ppm NAA). Non-soaked clumps served as the control. Clumps were planted in 1:1 by volume mix of perlite:vermiculite and placed under shaded intermittent mist conditions (15 seconds every 5 minutes). A total of ten clumps per treatment were planted per replicate (n = 3). Percent rooting and number of green shoots were recorded 46 days after planting. Untreated (non-soaked) clumps exhibited significantly higher percent rooting (73%) compared with clumps soaked in tap water (3%). Number of green shoots between non-soaked and tap water soaked clumps were not significantly different. Soaking clumps in rooting hormone (1:20 and 1:10 dilutions) resulted in complete death of all clumps. Results of the study indicate that division (without soaking in water) can be an option for *E. deflexa* propagation. However, this may only result in moderate success.

Specified Source(s) of Funding: Hatch

Rooting Response of Two *Chenopodium Oahuense* Selections to Indolebutyric Acid (IBA) Application

(Poster Board #277)

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Chenopodium oahuense is a Hawaiian endemic plant that varies in growth forms. This underutilized species is drought resistant and requires little to no maintenance, making it a superb candidate for landscaping or ornamental use. Two *C. oahuense* selections, a prostrate and a compact form, are currently being evaluated for use as a landscape and container plant. In this propagation study, the effect of growth form (prostrate versus compact) and rooting hormone [indolebutyric acid (IBA)] application on rooting of stem cuttings were evaluated. Semi-hardwood cuttings (10–15 cm long), harvested from each selection and graded according to size, were treated with Hormex 3 (0.3% = 3000 ppm IBA) or no rooting hormone (0 ppm IBA). Cuttings were rooted in a 1:1 mix of perlite:vermiculite media on a shaded mist bench. Percent rooting, rooting index, and length of the longest root were recorded 23 days after planting (DAP). Percent rooting and rooting index data did not show significant differences between hormone treatment, selection, and their interaction. Percent rooting across treatment combinations were greater than 90% and rooting indices were above 3.5 (light to medium rooting). A significant difference in longest root length were observed between selections, but not between treatments or their interaction. The compact selection exhibited longer roots (9.7 cm) compared with the prostrate selection (6.1 cm). Results from this study indicate that *Chenopodium oahuense* is generally an easy to root species with slight differences in rooting characteristics between growth forms.

Specified Source(s) of Funding: Hatch Project HAW08040-H, CTAHR, UH Manoa

Rooting Response of Native Hawaiian *Peperomia* Leaf Cuttings to Indolebutyric Acid Application

(Poster Board #278)

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Native and endemic *Peperomia* species found in Hawaii have high indoor ornamental potential due to their compact growth and attractive foliage. To evaluate their potential use as houseplants, methods to mass propagate plants must be researched and