Spotlight

Dogs Trained to Detect Laurel Wilt Pathogen and Diseased Wood

In cases where the agricultural diseases kill and spread rapidly, the earliest detection to allow the appropriate mitigation action is paramount. **Mendel et al. (p. 102)** report that scent-discriminating canines could be trained to detect laurel wilt-diseased avocado wood and the pathogen. The canines demonstrated 99.4% detection accuracy over the course of 229 training trials. Only a few false alerts were observed (12) or failures to alert (12). This study provides proof of principle for the use of canines as a powerful tool for the management of agricultural diseases.

Dogs Used for Early Detection of Laurel Wilt in Avocado

Laurel wilt has led to the devastation of wild laurel forest and large losses in the Florida avocado industry. The disease kills rapidly and there is no cure. **Mendel et al. (p. 109)** tested the use of trained detector canines to detect pre-symptomatic avocado trees. The study resulted in the detection of 165 pre-symptomatic trees; 155 were treated and 151 (97%) remained healthy and productive. In addition, they found that infected trees could be detected as early as 40-46 days prior to visual symptom development and potentially save growers $300 to $4350 depending on the number of trees detected.

Preemergence Weed Control in Watermelon

Cover crops are vital to the sustainability of weed control in agriculture. Herbicides are essential to provide season-long weed control in cover crop systems, but cover crop residues can intercept preemergence herbicide, reducing its efficacy. **Hand et al. (p. 117)** report that applying preemergence herbicides prior to crimping and rolling a cereal rye cover crop can lead to improved weed control. Although there were no statistical differences, yield was increased in all pre-crimp treatments compared to the nontreated control.

Labor Productivity in a Vertical Lettuce Farm

Ohyama et al. (p. 121) evaluated labor productivity in a model system for lettuce production using light emitting diodes (LEDs). The system can produce lettuce plants at a maximum daily rate of approximately 5000 plants/day when the relative harvest rate is 100%. Increasing the weight of plants chosen for harvest and increasing the relative harvest rate were necessary to maintain a high level of labor productivity. Processing time for harvesting was longest in all operations, suggesting the reduction of harvesting time made labor productivity higher.

Fungicide Drenches Improve Storability of Vidalia Onions

Fludioxonil, fluopyram/pyrimethanil, and boscalid/pyraclostrobin fungicides used as pre-storage drenches resulted in significantly greater percentages of marketable short-day onions compared to using water alone or doing nothing. In a 2-year study, **Manish et al. (p. 129)** also found that there was no improvement in storability with the use of bactericide drenches of copper hydroxide or copper sulfate pentahydrate.

Low-phosphorus Growth Control of Angelonia and Impatiens

Restricting phosphorus (P) nutrition is known to limit plant stem elongation, but this effect had not been directly compared with that of plant growth retardants (PGRs). **Henry et al. (p. 136)** grew angelonia and new guinea impatiens with a range of P rates. Half of the plants from each rate received an application of a PGR, paclobutrazol. Fertigation with 3–5 ppm P and no PGR application provided similar height control to that of 20 ppm P and a standard PGR application.

Submist Aeroponics: An Alternative to Overhead Mist

Overhead mist is an important tool for propagation, but it has drawbacks, and not all growers have or want permanent overhead mist systems. **Peterson et al. (p. 143)** compared overhead mist to subirrigation, subfog aeroponic and submist aeroponic systems. They found that cuttings of coleus in sub-mist systems consistently produced more and longer roots than those in overhead mist. Rooted cuttings transplanted readily to a solid medium, where they acclimated and grew normally. Fertilizer solution in the sub-mist system did not affect root system quality during propagation, but post-transplant growth was greater for cuttings rooted with fertilizer.

Mycorrhizal Fungus Affects Adventitious Root Formation

Justice et al. (p. 149) developed a novel method for introducing a mycorrhizal-like fungus, *Piriformospora indica*, to propagation media in an effort to improve adventitious root formation. The fungus was inoculated in bags of sterilized perlite before incorporating the perlite into a standard peat-based propagation medium. Rooting was measured on six floriculture species. Improved root growth was observed on poinsettia and dahlia, while scaevola and cape daisy responded negatively.

High Tunnel Strawberry Production in Central U.S.

The use of high tunnels has greatly expanded in the central U.S. Strawberry may be a viable high-value crop for high tunnel growers. **Gude et al. (p. 154)** report that production of day-neutral strawberries in high tunnels is feasible in Kansas. During 2 years of high tunnel production, 'Portola' consistently produced the largest total (0.60 and 0.51 kg/plant) and marketable (0.51 and 0.42 kg/plant) fruit weight, which was maintained during the mid-season when daily temperatures reached over 85 °F; this may be a desirable characteristic for growers.

Marigolds Are Moderately Sensitive to Salinity

Salt-tolerant ornamental plants are needed to maintain aesthetically appealing landscape when alternative water sources are used for landscape irrigation in water-scarce regions. **Sun et al. (p. 166)** evaluated the impact of saline irrigation water with low to moderate salinity levels on eight marigold varieties. All varieties exhibited foliar damage when irrigated with saline solution with elevated salinity; however, differences existed among varieties. 'Discovery Orange', 'Taishan Yellow', 'Discovery Yellow', and 'Taishan Gold' were more tolerant to salinity than 'Hot Pak Gold', 'Hot Pak Orange', 'Hot Pak Yellow', and 'Taishan Orange'.

Weed Management Using Intercropped Watermelon

Organic and low-input vegetable producers have limited options for weed control. Intercropping using crops with different growth forms may be a useful tool to reduce weeds. **Franco et al. (p. 172)** found that an intercropping system containing a low-growing crop such as watermelon can reduce weed biomass by as much as 92% compared to monocropped vegetables. They found a strong negative relationship between total crop yield and total weed biomass, indicating reducing weed pressure is crucial for maximizing yields.

Wheat Cover Crops Are Hosts for Root Lesion Nematode

Root lesion nematode (RLN) is a ubiquitous parasite of red raspberry. Winter wheat is a common rotational crop between red raspberry removal and replanting, and is also a host for RLN. In multiple field trials implemented in western Washington, **Rudolph et al. (p. 182)** observed that winter wheat provides a green bridge for RLN populations to infect the subsequent red raspberry crop. They also report that modifying the management of winter wheat, altering the planting date, termination date, and termination method of winter wheat, did not affect RLN population densities in the following red raspberry crop.

Fruit Quality Variation of Southeast Peach Varieties

Belisle et al. (p. 189) surveyed the fruit quality characteristics of a representative group of peach varieties grown in the southeastern U.S. Variations in soluble solids concentration, titratable acidity, textures, and skin and flesh color among 30 varieties and across seasons were identified. Sugars ranged from 8.3% to 15.6% and acids ranged from 0.22% to 1.11%. By understanding the variation of quality, future research will focus in understanding how this variation relates to consumer perception and what quality characteristics can be targeted to improve the quality of southeastern U.S. peaches.

Training Systems for Cold-climate Grapes

Cold-climate grapes can be particularly challenging to manage in the vineyard due to their excessive vegetative vigor and procumbent growth habit. **Wimmer et al. (p. 202)** evaluated three training systems (high cordon, mid-wire vertical shoot positioning, and modified Scott Henry) on four cold-climate grape varieties for yield, fruit composition, and vine growth. The divided canopy-training system, Scott Henry, produced the highest yields in all varieties. Fruit composition at harvest and vine size was similar for all training systems.

Snapshop of 21st Century Extension Master Gardener Volunteers

Extension Master Gardener (EMG) volunteers remain a valid means for extension outreach; however, as we move farther into the 21st century, program coordinators need to find ways to attract new volunteers. Traditionalists and Baby Boomers have kept the program torch blazing, and now it needs to be handed on to younger generations. In a 2016 national survey of EMG volunteers, **Dorn et al. (p. 218)** determined that the EMG program has appeal for younger generations X and Y, but the lack of diversity remains a concern.