Heat Pump Cooling of Greenhouse Strawberry Plants

Heat pump cooling treatments of strawberry plants were studied by Moritani et al. (p. 570) using two types of soil containers. In one system, cold-water tubes were placed under and over the top of the soil. The other cooling system utilized cold water passing through tubes placed under the soil and within the irrigation channel to facilitate bottom irrigation. Although the setup of the bottom watering system was rather sensitive in that the system required maintenance of constant water level throughout the container, this system effectively produced cooler soil temperatures.

Improving Blackberry Postharvest Quality

Proper harvest/postharvest management practices of blackberries help to avoid fruit quality losses. Lawrence and Melgar (p. 578) examined the effects of time of harvest, delay to cold storage, and duration of cold storage on 10 blackberry varieties to identify best practices by variety. Late-morning harvesting increased leakiness in ‘Chester’ and ‘Triple Crown’, but did not cause weight loss or color change of any variety. ‘Chester’, ‘Triple Crown’, ‘Osage’, ‘Prime-Ark® Traveler’, and ‘Von’ benefited from immediate storage. Long-term storage reduced postharvest quality of most varieties. Time of harvest, delay to cold storage, or storage length did not affect ‘Arapaho’ and ‘Ouachita’.

Cultivated Varieties of Native Plants Have Ecological Value

Growing interest in ecological landscaping has led many to question whether varieties of native plants have the same ecological value as the straight species from which they were derived. To help answer this question, Baisden et al. (p. 596) measured how well six variety traits of woody natives support insects compared to their straight species in feeding trials and a common garden experiment. They found no consistent reduction in the value of varieties to insects in any trait except when green leaves had been selected for red or purple pigmentation.

Mechanical Harvest and Irrigation Alter Olive Oil Quality

Mechanical harvesting and irrigation are key management practices in super-intensive olive orchards. In a 3-year study of ‘Arbequina’ olive, Rufat et al. (p. 607) found that mechanical harvesting tended to damage fruit, resulting in lower oil quality. Deficit irrigation affected neither fruit nor oil characteristics, while subsurface deficit irrigation positively affected oil quality when higher water restrictions were applied. Thus, the use of an early harvest to shorten the time between harvesting and fruit processing as much as possible should be considered.

Strategies to Increase Early Strawberry Yield

Successful early strawberry production in Florida requires heat-tolerant varieties and intensive management during plant establishment. Torres-Quezada et al. (p. 615) demonstrated that ‘Florida127’ strawberry has potential to increase early yield by 25% compared to other varieties when planted in early September in mid-central Florida. They developed an alternative strategy for strawberry establishment. Sprinkler irrigation for 10 consecutive days was replaced by foliar application of kaolin clay after 7 days of irrigation. This new strategy reduced water use for plant establishment by 30% and increased early yield by 19%.

Pest-resistant Hemlock Saves Treatment Costs

Chinese hemlock exhibits a high level of resistance to hemlock woolly adelgid, unlike native eastern hemlock. Dampier et al. (p. 624) modeled and compared costs and benefits of these two species by estimating establishment and insect control costs for 25 years. Insect control treatments included: annual horticultural oil spray, biannual horticultural oil spray, biennial imidacloprid soil drench, and no treatment. The benefits exceed costs only for untreated and healthy chinese hemlock. The authors suggest that chinese hemlock is a viable landscape alternative to eastern hemlock.

Morphology of Cucurbit Rootstocks

Watermelon can be grafted on a wide variety of cucurbit rootstocks to overcome several biotic and abiotic stresses. Bertucci et al. (p. 629) grafted ‘Exclamation’ seedless watermelon on nine commercially available cucurbit rootstocks, and maintained plants under greenhouse conditions. Plants were harvested at 1, 2, and 3 weeks after transplanting. Harvested root systems were analyzed using a root scanner and root system image analysis software to characterize specific morphological traits. These comparisons offered insight into the diverse root systems available for grafting watermelon.
Downy Mildew on Seeds of Resistant Basil Species
Wyenandt et al. (p. 637) report that the causal organism of basil downy mildew was detected on seeds of downy mildew-susceptible sweet basil varieties, but also on seeds of spice basil, lemon basil, holy basil, and lime basil where no disease symptoms were present on the leaves. Basil seeds, regardless of species, and either in the presence or absence of downy mildew symptoms, or from basils that show tolerance or resistance to the pathogen still can test positive for downy mildew.

Pulsed Drip Irrigation for Strawberries
There is a critical need for growers to improve crop water productivity, particularly in highly permeable soils, and pulsed drip irrigation appears to be one solution. In a 3-year study cost-benefit analysis, Gendron et al. (p. 642) report increased yields obtained (2257 lb/acre) using the same amount of water, increased manpower, and investment in automation technology to implement pulsed irrigation. Gross revenue increases with pulsed irrigation relative to standard drip irrigation were enough to cover the full costs of an automated irrigation system, with a short payback period of about 1 year.

Southeastern U.S. Blueberry Frost Protection Practices
Overhead irrigation is a widely used method of active frost protection among growers of low-chill, early season blueberries in Georgia and Florida. A grower survey summarized by Conlan et al. (p. 660) found that growers in both states ranked air temperature, dew point, wind speed, and bud stage as very important factors in their decision to use irrigation for frost protection. Other growers and extension resources commonly were consulted in decision-making processes. Growers from the two states diverged on irrigation water source, sprinkler type, and initiation temperature at several bud stages.

Optimizing Small-scale Graft Healing Chambers
Many growers use simple graft healing chambers in their greenhouses, where it can be difficult to control light and relative humidity. Buajaila et al. (p. 668) showed that survival and growth of grafted eggplant, pepper, and tomato were greatest when the healing chamber environment was 100% relative humidity and 50% or 25% light. Tomato and pepper had 14% greater survival on average than eggplant, while tomato and eggplant tended to have more growth than pepper. SPAD readings and nitrate-nitrogen of fresh petiole sap were not affected by any of the healing treatments tested or by crop species.

Rough Sweetpotato Weevil Control in Hawai‘i
Sweetpotato is an important staple food crop in Hawai‘i, both for local consumption and export. Rough sweetpotato weevil is a new, invasive pest in the Hawaiian Islands, reducing production of marketable sweetpotatoes. Pulakkatu-thodi et al. (p. 676) found that broad spectrum insecticides such as clothianidin and carbaryl were effective in managing this pest, while a bio-insecticide (Beauveria bassiana strain GHA) was not effective at the tested rate.

Asian Citrus Psyllid Control Using Silicon
Asian citrus psyllid (ACP) currently is the most important pest of citrus worldwide. Chemical insecticides have been the primary tool used to protect groves, but other alternatives are being explored to manage ACP. Silicon has been identified as a beneficial element that can induce resistance against arthropods. Ramirez-Godoy et al. (p. 684) investigated the use of potassium silicate on ACP population densities in Columbia. They determined that potassium silicate acted as a physical barrier and can be a potential alternative for ACP management via its negative effect on oviposition.