



QUANTIFYING PEOPLE'S PERCEPTION TO PLANTS AND LANDSCAPES

Interactions between people and plants must be investigated using sound scientific methods. **Brascamp (p. 546)** uses a study on people's perceptions of outdoor ornamental plants to describe conjoint analysis as a tool to quantify individuals' responses to plants, plant products, and landscapes. Conjoint analysis is the most commonly applied methodology in consumer research to measure consumers' reactions to products and product features. The author demonstrates potential applications of the technique for human issues in horticulture.

LONGEVITY OF GROWTH REGULATOR SOLUTIONS FOR DIPPING LILY BULBS

Forcers commonly dip hybrid lily bulbs into growth regulators before planting to reduce final plant height. What is the duration of solution effectiveness as bulbs are dipped into the solution? **Ranwala et al. (p. 551)** found that at least 208 lily bulbs could be sequentially dipped into 1 gal of paclobutrazol or unicanazole dip solution without loss of effectiveness. Pre-dip bulb washing slightly reduced PGR effectiveness (i.e., yielding taller plants) by reducing the amount of liquid retained, and presumably absorbed, by the bulb.

CONTAINER SIZE AND PLANTING ZONE INFLUENCE TRANSPLANT SURVIVAL AND GROWTH OF INKBERRY

Survival and growth of two beach species produced in containers of differing volume and depth were evaluated following transplanting at Santa Rosa Island, Fla. **Thetford et al. (p. 554)** report that gulf bluestem survived at 100% regardless of container size. Inkberry planted 92 m from the Gulf of Mexico died; at other distances, survival of plants grown in 3-gal containers was two to six times greater than plants grown in 1-gal containers. Plants from larger containers remained larger than plants from smaller containers.

IRRIGATION FOLLOWING TERBACIL SPRAYING PROTECTS STRAWBERRY PLANTS

The Sinbar (terbacil) product label permits application of the herbicide immediately after strawberry planting and again late in the summer. Terbacil may cause leaf chlorosis and stunt plants. **Polter et al. (p. 560)** investigated the use of irrigation to remove herbicide deposits from strawberry leaves and thereby mitigate these effects. Irrigation applied immediately after terbacil spraying reduced leaf chlorosis significantly, but did not reduce weed control. Fruit yield the following June was unaffected by terbacil or irrigation treatments.

OPTIMUM NITROGEN FOR GREENHOUSE CUCUMBERS GROWN IN PERLITE HYDROPONIC CULTURE

'Bologna' (European type) and 'Sarig' (Beit-alpha type) greenhouse cucumbers responded similarly to nitrogen (N) in perlite culture in Florida. **Jasso-Chaverria et al. (p. 565)** found that fruit firmness decreased with increased N fertilization over two seasons. For most combinations of experiment, sampling date, and variety, cucumber epidermal color was greener with increased N concentration. The color was darkest and most intense with intermediate to higher N concentrations. Best yield and fruit quality were obtained from frequent (10 times daily) irrigations with 225 to 250 ppm N.

INSTRUMENTS AND CONTRACT SERVICES THAT CALCULATE DEGREE-DAYS

Numerous instruments and contract services can calculate degree-days. **Richardson and Caron (p. 572)** compared six instruments and two services. The degree-day accumulation of each instrument and service was checked weekly. The instruments' algorithms, durability, cost, temperature sampling interval, ease of use, time input required by the user, and other distinctive factors were evaluated. There were no significant differences in degree-day accumulations among instruments/services. Cost and time required to access/interpret data and personal preference should be major considerations in choosing an instrument or service to measure degree-days.

INCORPORATED BIOSOLID COMPOST DELAYS TURFGRASS ESTABLISHMENT

Linde and Hepner (p. 577) evaluated turfgrass seed and sod establishment on subsoil amended with various rates of biosolid compost. High salinity and excessive ammonium nitrogen in the compost-amended soil caused a 2- to 3-week delay in establishment. After the 2 to 3 weeks, the compost-amended plots outperformed the one-time fertilized plots in turfgrass color and density. A 2- to 3-inch depth of compost appeared to be the best incorporation rate.

AUTOMATED IRRIGATION BASED ON SOIL MOISTURE FEEDBACK SAVES WATER IN SOUTHERN FLORIDA TOMATOES

Muñoz-Carpena et al. (p. 584) found that yields of tomatoes irrigated via a drip irrigation system based on tensiometers and granular matrix sensors (GMS) were similar to those achieved with standard commercial irrigation schedules. However, total applied water was reduced by up to 73%. Under conditions in southern Florida, tensiometers performed best, although they required very frequent maintenance. GMS were not effective due to slow response to frequent wetting cycles.

ACETIC ACID VAPOR PREVENTS SPREAD OF PLANT PATHOGENS ON NURSERY STOCK

Acetic acid, the common ingredient in vinegar, was used to eradicate plant pathogens such as causal agents of fire blight and bacterial canker from apple shoots, and powdery mildew from dormant apple buds. **Sholberg et al. (p. 591)** describe a method for safely using acetic acid with details on rates, treatment times, and other considerations. Once the method is established and thoroughly tested under commercial conditions, it could become an important tool in preventing the spread of plant pathogens from one area to another.

HIGHLY RETENTIVE FILMS REDUCE METHYL BROMIDE APPLICATION RATES FOR BELL PEPPER PRODUCTION

Reducing application rates of methyl bromide can allow mulched-pepper growers to survive while suitable alternatives to the soil fumigant are found. Santos et al. (p. 596) determined that using virtually impermeable films with only 50% of the regular methyl bromide rate (175 lb/acre) can provide the same nutsedge and root-knot nematode control levels as the full-rate (350 lb/acre), without reducing bell pepper yields.

RESIDUAL PEACH ROOT FRAGMENTS IN REPLANT ORCHARDS QUANTIFIED WITH GROUND-PENETRATING RADAR

Residual roots are sources of primary inoculum for armillaria root disease in peach orchards. Cox et al. (p. 600) investigated the potential of ground-penetrating radar (GPR) to characterize and quantify residual roots in replant conditions. In a controlled burial experiment, root fragments of varying diameters could be discerned at depths of 11 to 114 cm. In commercial replant conditions, a GPR survey revealed that characteristic radar signals corresponded to roots with good disease inoculum potential with a high degree of accuracy. Further inferences from radar profiles suggested an aggregated distribution of roots in the upper 40 cm of soil.

PREDICTING INDIVIDUAL FRUIT SIZE FROM TOTAL YIELD IN NAVEL ORANGE

Two midseason navel orange varieties, unlike two early maturing varieties, demonstrated a consistent linear relationship between the total number of fruit produced per unit area and the number of these fruit that were in commercially valuable size classes (Kallsen, p. 608). Knowing this relationship, referred to as the commercial fruit production function, may aid growers in making fruit thinning and tree pruning decisions.

FRUIT MATURITY AFFECTS THE RESPONSE OF TOMATOES TO ETHYLENE-ACTION INHIBITION

Huber et al. (p. 617) evaluated the effect of 1-methylcyclopropane (1-MCP) on fresh-market 'Florida 47' tomato fruit harvested at immature-green through light-red stages of development. Fruit of all stages exposed to the ethylene action inhibitor responded with delayed ripening. Green fruit responded strongly, but subsequent ripening (color and firmness) was severely compromised and delayed, particularly in immature-green fruit. Ripening of turning through light-red fruit was delayed by 1-MCP, but complete recovery of color and softening attributes was observed. The difficulty in easily distinguishing mature- and immature-green tomatoes comprising traditional "green" harvests render these fruit unsuitable candidates for 1-MCP treatment.

PHENOLOGICAL CYCLES OF CARAMBOLA NOT AFFECTED BY SOIL WATER DEPLETION.

In southern Florida, Al-Yahyai et al. (p. 623) subjected carambola (star fruit) trees in an orchard or containers in the field to four levels of soil water depletion, from near field capacity to levels substantially below what is typical in commercial orchards. While the study elucidated the timing and intensity of shoot flushing, extension shoot growth, flowering and fruiting cycles, these phenological events were not affected by soil water depletion.

CALADIUM VARIETIES EVALUATED FOR PYTHIUM ROOT ROT RESISTANCE

Pythium root rot is one of the most damaging diseases in caladium, severely reducing plant growth, aesthetic value, and tuber

yield. Deng et al. (p. 631) evaluated 23 caladium varieties for their resistance to three aggressive isolates of *Pythium myriotylum*. 'Apple Blossom', 'Blizzard', and 'Etta Moore' were found to have a moderate level of resistance. The other varieties were susceptible or highly susceptible to Pythium infection.

BIOSOLID SOIL AMENDMENT SUPPRESSES ROOT-KNOT NEMATODES IN CANTALOUPE

Meyer et al. (p. 635) tested the soil amendment N-Viro Soil (NVS) and the bacterium *Streptomyces* as potential nematode management options on cantaloupe. In a greenhouse study, 3% NVS (dry wt/dry wt soil) application suppressed nematode egg numbers on cantaloupe roots. The *Streptomyces* isolate produced a compound active against the nematode in laboratory assays, but the bacterium did not suppress egg populations on roots in the greenhouse. NVS application suppressed egg numbers through accumulation of lethal levels of ammonia in soil.

CHEMICAL VECTOR CONTROL SLOWS THE DEVELOPMENT OF PHONY PEACH AND PLUM LEAF SCALD DISEASES

Phony peach and plum leaf scald diseases currently are controlled by rouging infected trees. Dutcher et al. (p. 642) report an effective treatment for the insect vectors of these diseases. Treatment of the trees with imidacloprid as a soil drench around the base of newly planted peach, nectarine, and plum trees each year for 5 years slowed the development of phony peach disease and plum leaf scald. Treated peach and nectarine trees were productive and alive for one or two seasons longer than the untreated trees.

TOMATO PERFORMANCE UNDER COMMERCIALLY AVAILABLE GROWING LAMPS

Zheng et al. (p. 646) evaluated the performance of four lamp types by growing tomato plants under 100% artificial light. High-pressure-sodium high-output lamps [HPS(HO)] had the highest electrical energy use efficiency (EUE) ($0.98 \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}\cdot\text{W}^{-1}$). High-pressure-sodium standard lamps (HPS), metal-halide (MH) warm deluxe lamps, and MH cool deluxe lamps had 93%, 72%, and 61% of the EUE of the HPS(HO), respectively. Plants growing under HPS(H) and HPS were taller, and flowered/fruited earlier, than plants under the two MH lamps. Leaves were greener under the two MH lamps than under HPS(HO) or HPS.

REDUCTION OF ONION DRIP IRRIGATION INTENSITY AND DRIP TAPE EMITTER FLOW RATE DOES NOT CHANGE IRRIGATION PERFORMANCE OR ONION YIELD

Shock et al. (p. 652) submitted onion to eight combinations of four drip irrigation intensities and two drip tape emitter flow rates. Irrigations frequencies increased up to eight times per day with decreasing irrigation intensity. Irrigations automatically replenished soil water as needed. The highest irrigation intensity (lowest frequency) and the higher tape emitter flow rate resulted in higher onion yield and size. Soil water potential and total water applied did not differ among treatments.

DESIGN AND OPERATION OF TURFGRASS RESEARCH UNITS

A survey reported by Miller (p. 660) highlights the design and operation of turfgrass research units in the southern U.S. Turf area and turf research type were the primary focus, but building facilities, equipment, maintenance issues, and monetary support also were documented. Results from this survey provided ideas that could be used to design and staff a new turfgrass research unit or

support for updating an existing unit. Comparison data were useful to university administrators and turfgrass industry representatives to evaluate material and budget allocations.

ADAPTABLE PROGRAM AVAILABLE FOR TRACKING OF PEDIGREES

Lineage tracking remains an important part of the plant sciences; however, breeding programs frequently are burdened with a proliferation of crossing data often stored in cumbersome spreadsheet-like environments. In a simple database system that allows for quick and accurate querying, **Stafne and Clark (p. 666)** introduce PediTrack, which generates pedigrees in an easily understandable format. PediTrack is customizable for personal use and is available free of charge from the authors.

EDAMAME EVALUATED IN PENNSYLVANIA

A field trial of edamame (soybean) varieties was conducted in Pennsylvania from 2002 to 2004 by **Sánchez et al. (p. 672)**. Several varieties exhibited suitable bean and pod quality; however, sub-optimal plant populations were observed for all eight varieties. Four edamame varieties were evaluated in growth chambers and sub-optimal seedling emergence was observed. Sub-optimal seedling emergence and inadequate plant populations present a serious constraint to commercial edamame production.

CHALLENGES ASSOCIATED WITH RECRUITING QUALITY GRADUATE STUDENTS INTO THE PLANT SCIENCES

Graduate student enrollment in horticulture has suffered a 20% decrease since the mid-1990s. Data compiled by **Darnell and Cheek (p. 677)** revealed that financial support was the biggest obstacle to recruiting quality graduate students. Costs associated with graduate student training are shifting to individual faculty members, resulting in an increased inability/reluctance of faculty to invest grant funds in graduate education. Since grant funding is the primary source of support for graduate students, support is most available in molecular biology/genetics. More applied research areas are particularly vulnerable to low graduate enrollment.

SAM'S DILEMMA: A DECISION CASE ON VOLUNTEER MANAGEMENT

Training and management of volunteers is often neglected at botanical gardens and arboreta, even though volunteers often contribute thousands of hours to these organizations. **Jutila and Meyer (p. 682)** provide a decision case to use in training volunteers that helps to bridge the gap between staff and volunteers. In this practical, hands-on method of training, volunteers assume a role and discuss how to respond to changing dynamics at a botanic garden. The decision case and teaching notes provide a ready-to-use-training package that can be helpful for volunteers in many settings.

FIRE FLASH: AN EXOTIC ORNAMENTAL FOLIAGE PLANT

Interior plantscapers and homeowners constantly search for unusual colorful plants that can be used indoors to provide a distinctive appearance, and commercial growers always look for novel plants to offer customers something new. **Chen et al. (p. 686)** report that Fire Flash (*Chlorophytum amaniense*) fulfills these criteria. Coral-colored petioles and midribs contrasting with dark green leaves make it a sought after specimen. Fire Flash is grown as a potted foliage plant, and finished plants are able to maintain their aesthetic appearances under light levels as low as $8 \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ for 8 months or longer in building interiors.

VIDALIA ONION VARIETIES EVALUATED IN SOUTHEASTERN GEORGIA

Boyhan et al. (p. 694) evaluated 58 short-day onion varieties in 2000–03, but only 10 entries appeared in all 4 years of the trials. Eight varieties ('Century', 'EX 19013', 'Georgia Boy', 'Mr. Buck', 'Sapelo Sweet', 'Savannah Sweet', 'Sweet Vidalia', 'WI-609') had jumbo (≥ 3 inches diameter) yields that did not differ from the top jumbo-yielding variety in 2 of 4 years. Early varieties were strongly daylength-responsive with tops falling over uniformly. Late varieties were more prone to bacterial diseases, which was more evident if postharvest heat curing was employed.

PANSIES EVALUATED FOR GARDEN/LANDSCAPE PERFORMANCE IN THE SOUTHERN U.S.

Kelly et al. (p. 706) evaluated 210 pansy varieties in ground beds via replicated class trials from 2000 to 2004. Outstanding best-of-class selections were the following varieties: 'Accord/Banner Black Beauty', 'Nature Blue', 'Nature Ocean', 'Panola Clear Mixture', 'Nature Pink Shades', 'Nature Beacon', 'Panola Purple With Face', 'Baby Bingo Lavender Blue', 'Nature White', 'Nature Yellow', 'Iona Purple & Yellow With Blotch', 'Bingo Red & Yellow', 'Panola Yellow With Blotch', and 'Whiskers Yellow'.

RASPBERRY VARIETIES COMPARED IN UPPER MIDWESTERN U.S.

Twenty-two raspberry varieties were characterized in field trials in southern Michigan (**Hanson et al., p. 716**). 'Caroline' was the most productive of seven fall-fruiting varieties, and also excelled in berry size and resistance to gray mold. 'Autumn Bliss' was the most productive of the earliest fall-fruiting varieties. Summer-fruiting varieties were assessed for fruit quality/yield and winter hardiness. 'Nova' and 'Prelude' were ranked high in most characteristics. 'Boyne', 'Killarney', 'Latham', 'Nova', and 'Prelude' were the hardiest varieties. 'Tulameen', 'Malahat', and 'Lauren' were not hardy at this location.

HYDROPONIC PRODUCTION OF "BABY" SQUASH IN SOUTHEASTERN U.S.

Shaw and Cantliffe (p. 722) report that high yields of superior-quality squash fruit can be achieved using soilless media in a passively ventilated greenhouse. Baby squash traditionally are grown in South America and Central America, air-freighted to the U.S., and distributed by local wholesalers. With immediate proximity to markets, greenhouse growers in Florida and the southeastern U.S. can compete with imports and grow "baby" squash using integrated pest management techniques that eliminate the use of most pesticides.

VIRTUAL GARDEN TOUR BRINGS DISTANCE-EDUCATION STUDENTS CLOSER

University students attending classes in remote locations can view course material in a new way. **Wilson and Danielson (p. 729)** developed an interactive website containing a virtual panoramic tour of a 1-acre garden. The web viewer can navigate through the garden and click on selected plants to generate high resolution plant information data sheets. Using this web browser-based interface, landscape design principles and seasonal plant characteristics, such as flower, fruiting, leaf structure, and form, can be viewed year-round.