



Economic Returns for Rabbiteye Blueberry in Georgia

Rabbiteye blueberry is the most important species of blueberry grown in Georgia. Due to price and yield fluctuations and other factors (e.g., variety, locality, target market, timing, cost of production), profit margins are difficult to determine. **Fonsah et al. (p. 506)** estimated the first-year establishment and maintenance costs at \$5022/acre, and the expected return over total production cost as \$679/acre 63% of the time.

Banana Variety Trial in Southern Georgia

A trial of 33 banana varieties was conducted at Savannah, GA (**Krewer et al., p. 529**). Some of the most attractive tall-growing varieties were 'Belle', 'Ice Cream', 'Kandarian', 'Manzano', 'Saba', and '1780'. Among the most attractive medium-height varieties were 'Dwarf Namwah', 'Dwarf Orinoco', 'Goldfinger', 'Raja Puri', and 'Super Plantain'. In the short category, the varieties Dwarf Nino, Gran Nain, Kru, and Sum X Cross were among the most attractive ornamentals. Varieties also were rated for their ability to produce valuable suckers that can be used for propagation.

Consumption of Native Grasses and Sedge by European Chafer Larvae

Six grass species representing vegetative and seeded types of native, warm-season, and cool-season grasses, and one sedge species were evaluated in the greenhouse for resistance to root-feeding larvae of European chafer. Pots were all infested with 84 or 182 larvae per 0.1 m². **Bughrara et al. (p. 329)** observed that the relative root mass production of grass and sedge species is related to tolerance to European chafer larvae. Survival rates were similar for low and high larval densities. With comparable densities of larvae, root loss tended to be proportionately less in zoysiagrass and bermudagrass than in other species.

Morphology, Identification, and Delineation of Cultivated Liriopogons

Liriopogons (*Liriope* spp. and *Ophiopogon* spp.) are versatile landscape plants that historically present a number of prob-

lems with delineation, identification, and correct naming in the green industry. Based on a 15-year taxonomic program focused on liriopogon taxa, **Fantz (p. 334)** describes the plant morphology (terms defined) and patterns of variegation, notes reliable characters of segregation, discusses the various common names used in the industry, and presents a key segregating genera. Two genera of liriopogons are recognized along with two imposters.

Delineation and Identification of Cultivated Lilyturfs

Lilyturfs (*Liriope* spp.) are prominent landscape plants in the southeastern United States. Two species are well known in the green industry. A taxonomic study by **Fantz (p. 343)** reports six species. Each species is given a quantitative morphological description, and observational notes. Taxonomic terms used in morphological descriptions are defined. A key is presented for delineation and identification of each species.

National U.S. Shiitake Mushroom Survey

Gold et al. (p. 489) describe production details and competitive market forces in the shiitake mushroom industry. Outdoor producers using logs outnumber indoor producers, but generate a much smaller overall volume and income. Large firms growing on sawdust produce with higher efficiency and dominate distribution channels. Returns to outdoor log-grown producers are increased by adding indoor log- and sawdust-grown production facilities, and through sales of value-added products. Prices for fresh shiitake mushrooms vary significantly by season and market outlet from \$5 to \$16 per pound. U.S. market demand for shiitake mushrooms is increasing at the retail, food service, and individual consumption levels.

Release Rates of Boron Fertilizers Vary Greatly

Boron (B) deficiency is one of the most important problems in the production of a wide variety of crops. Water-soluble B fertilizers can provide rapid release of B, but have a greater potential for phytotoxicity than slow-release sources. **Broschat (p. 471)** compared the release rates of nine different B fertilizers in regularly leached sand columns. He found that Solubor provided B for only about 3 weeks, whereas boric oxide lasted about 7 weeks and Dehybor and Granubor lasted about 12–13 weeks. However, most of the calcium sodium borate products were still releasing B after 2 years of leaching.

Smoke-technology Improves Growth and Yield of Greenhouse Tomatoes

Smoke is currently extensively studied due to its stimulatory properties. Butenolide (a biologically active compound isolated from burnt cellulose) and plant-derived smoke show good potential for improving growth of agricultural and

horticultural crops (**Van Staden et al., p. 449**). Smoke-water and butenolide treatments increased height, number of leaves, and stem thickness of tomato plants from 57 to 78 days after sowing. Smoke-water-treated plants yielded 35% more marketable tomatoes than untreated plants without affecting quality. The harvest indices of smoke-water and butenolide-treated plants improved significantly.

Increased Bell Pepper Yields with Slow-release Fertilizer

Two formulations of methylene-urea slow-release fertilizer were evaluated on bell peppers in the eastern coastal plain and western mountains of North Carolina (**Reyes et al., p. 393**). Liquid and granular formulations of slow-release fertilizer showed potential to be used on bell pepper production across the state at reduced nitrogen rates, but the granular formulation provided higher yields in coarse-textured soils in the coastal plain. This formulation's attribute of promoting a robust early marketable yield could contribute to a grower's objective of gaining maximum net returns while eliminating the fertigation costs associated with liquid formulations.

Students Approve Online Landscape Management Case Study

Horticulture graduates entering the landscape segment of the green industry will be faced with many complicated decision scenarios. **VanDerZanden et al. (p. 520)** developed an online landscape management case study to provide students the opportunity to practice problem-solving skills. Overall student attitudes and perceptions of the online case study were positive. Participants felt comfortable using the web-based format (4.3 out of 5), and felt it was an effective way to deliver information (4.1). Further, participants felt confident in their ability (4.1) to make a landscape management recommendation to the homeowner after reviewing the case study data.

Texas Consumers Respond to Pecan Survey

Recent research has shown that pecan kernels are rich in antioxidants, monounsaturated fatty acids, and other health-promoting phytochemicals. **Lombardini et al. (p. 481)** report the results of a survey of Texas consumers' knowledge of pecan nutritional attributes, storage guidelines, and their preferences of consumption and usage. About half of the respondents knew that pecans contain minerals (54%) and antioxidants (58.6%). Most respondents (96.6%) knew that pecans contain heart-healthy fats. The healthy attributes of pecans were the second most important decision factor in determining why people ate pecans, preceded only by taste.

Grow Better Pumpkins with Leaf Mulch

Farmland near urban areas may benefit from leaves collected from municipal shade trees. **Wyenandt et al. (p. 361)** found that applying a 6-inch layer of leaf mulch to pumpkin

fields may help increase fruit size, quality, and yield. Other benefits may include increased soil moisture retention and soil organic matter content, and a reduction in soil erosion. Leaf mulch may also help create an attractive environment for consumers in small, roadside farm U-pick operations.

Air Induction Nozzles Reduce Drift but Alter Spray Efficacy

Many U.S. apple orchards apply plant protection materials using axial fan sprayers fitted with conventional nozzles. The droplets produced by such nozzles may drift even under moderate wind speeds, wasting costly spray materials and increasing the potential for human exposure and environmental contamination. **McArtney and Obermiller (p. 365)** report that air induction (AI) nozzles result in reduced drift and increased spray coverage in the row nearest the sprayer compared to conventional nozzles. The efficacy of sprays applied with AI nozzles, however, was reduced in orchards with more widely planted rows, presumably because of less carry-over of spray compared to conventional nozzles.

Saltgrass Flower Production Affected by Sampling Time, Nitrogen, and Burning

The influence of sampling time from the field, nitrogen fertilization, and burning on flowering spike production of five saltgrass clones from three cold hardiness zones were evaluated over 2 years by **Rukavina and Hughes (p. 379)**. Length of exposure to short days and/or low temperatures in the field was likely an important factor influencing differences in spike number among clones. Nitrogen fertilization increased number of spikes in saltgrass regardless of clone origin or sampling time. Burning had the greatest effect on number of spikes in August, and also increased the effect of fertilizer on flower production.

Physical Properties of Ground Fresh Rice Hulls versus Peat

Peat is one of the most common components used in greenhouse root substrates, but environmental concerns are limiting its use, pushing researchers to develop alternative substrates. **Sambo et al. (p. 384)** describe the most important hydraulic characteristics of fresh rice hulls ground at different dimensions (1-, 2-, 4-, and 6-mm diameter). Reduction in particle size increased bulk density and the ability of the media to hold water, but reduced air filled porosity. Particles of 4- and 6-mm diameter demonstrated optimal characteristics, having more air filled porosity and holding more available water than peat.

Early Season Withholding of Irrigation Reduces Water Inputs and Improves Bell Pepper Yield

Due to plant size and weather conditions, water demand of vegetable transplants in their early stages of growth is

low in plasticulture systems. Existing soil moisture is usually sufficient to meet early season needs. **Ngouajio et al. (p. 397)** found irrigation during early stages did not increase yield of bell peppers. Withholding water until first flower decreased water use 40% to 50% and increased yields of large fruit. Leaf chlorophyll content also increased in those treatments where irrigation was started later. However, it is important to have adequate soil moisture at transplanting to ensure adequate transplant establishment.

Nondestructive Measurement of Soluble Solids and Individual Sugars in Ripening Mangoes

Near-infrared (NIR) spectroscopy is well suited as an alternative to destructive procedures for soluble solids (SSC) measurement in mangoes such as refractometry. **Delwiche et al. (p. 410)** determined the potential of NIR spectroscopy (interactance at 750–1088 nm wavelength region) to predict SSC, as well as individual and combined concentrations of sucrose, glucose, and fructose in mangoes over an 11-day ripening period. In addition to gauging NIR calibration performance (good for SSC, poor for individual sugars), the relationships between the spectral response and the underlying chemistry of these sugars are described.

Undergraduate Research Fosters Home-grown Hispanic Scientists

Hispanics are the largest minority group in the United States; however, they are the least educated: 21.9% behind African Americans and 31.4% behind Whites in education attainment. Of the total number of scientists employed in all science careers, Hispanics account for about 3.5%. For the U.S. to continue to be competitive in the global economy, strategies need to be implemented to attract Hispanics to science. **Louzada et al. (p. 516)** used undergraduate research to channel several Hispanics to graduate school. To date, more than 50 students benefited from the program; 20 were channeled to graduate school, 4 at the doctoral level.

Diurnal Control of Electrical Conductivity Improves the Quality of Hydroponic Cherry Tomatoes

Increasing electrical conductivity (EC) is commercially practiced to increase cherry tomato quality, but its drawback is reduction in yield. **Buck et al. (p. 460)** reported that “premium” grade yield for a mid-day reduction of high EC (MDR) treatment was comparable to that for the continuous high EC treatment. Although the response was variety specific, the “premium” yield for low EC was lower than that for high EC or MDR, demonstrating that MDR could be a potential alternative, especially for greenhouses with limited environmental control capabilities.

Collard Variety Performance in Northern Florida

Olson and Freeman (p. 536) evaluated nine collard varieties (five hybrid and four open pollinated) over six planting dates that spanned 4 years at a single location in northern Florida. Experiments were performed during fall, spring, and summer seasons. They found that the top-performing varieties for head weight and yield were all hybrids. Substantial bolting was observed only during one experiment, but there was no significant difference in bolting among varieties.

Delphinium Varieties Tested for Resistance to Powdery Mildew

Delphiniums add to our enjoyment of gardens and the landscape, and are grown commercially for cut flowers. Powdery mildew, one of the major diseases affecting delphiniums, significantly lowers yield and quality by disfiguring leaves, stems, and flower buds. **Wegulo and Vilchez (p. 407)** screened nine delphinium varieties in a lath house and in the field for resistance to powdery mildew. The Pacific hybrid varieties Blue Bird, Cameliard, Galahad, and King Arthur were highly resistant. ‘Oriental Blue’ was moderately resistant; whereas the varieties Bellamosum, Blue Shadow, Belladonna, and Casa Blanca were susceptible.

Propagation of Taiwanese Wild Grape using a Floating Culture System

The effects of propagation medium and auxin treatment on rooting rates of taiwanese wild grape (*Vitis thunbergii*) softwood cuttings in a floating culture system were studied by **Peng et al. (p. 389)**. Among the four types of media, 30 °C circulating water resulted in the highest rooting (88%). Treatment with 1.25 uM 1-naphthalenacetic acid (NAA) solution resulted in a 92% rooting, which was significantly better than the untreated control (82%).

Performance of Garden Roses in North-central Texas

Mackay et al. (p. 417) tested 116 rose varieties under minimal input conditions in north-central Texas and found that own-root varieties performed significantly better than grafted varieties and had significantly better survival. As a class, Polyantha varieties exhibited the best overall performance, mean bloom percentage, final vigor, and survival. Hybrid Tea varieties had the worst performance. Black spot was the most severe disease and was closely correlated to overall performance and final vigor, but was not the only factor determining overall performance.

Consumer Attitudes toward Asian Vegetables in Direct Markets

Production of exotic Asian vegetables can potentially increase revenue for direct marketers; however, consumer behaviors regarding these crops are poorly understood.

Walters et al. (p. 500) surveyed consumers over 2 years in two direct markets in Illinois to measure their familiarity and preferences for Asian vegetables. Although most participants were unfamiliar with Asian vegetables and did not consume them regularly, they expressed a strong interest in learning about them. Compared to advertising, recipes at the point of purchase were more than twice as likely to induce consumption.

Nitrogen Release Pattern of a Controlled-release Fertilizer for Citrus

Using laboratory and field evaluations, **Medina et al. (p. 475)** measured the nitrogen (N) release pattern of a controlled-release fertilizer blend (CitriBlen®) designed for mature Florida citrus trees. Differential N release provided by three coated fertilizer components combined to produce a long-term release pattern that matched well with the current Florida citrus fertilization strategy recommended as a best management practice (BMP). CitriBlen® could effectively be used in a citrus fertilization BMP program while potentially decreasing N losses to the environment.

Response of 'Desirable' and 'Kiowa' Pecan to a Late-spring Freeze

Late-spring freezes can have a serious effect on pecan tree physiology and crop development. **Wells (p. 455)** observed a variety of responses of pecan to a late-spring freeze in Georgia. Freeze-injured 'Desirable' trees developed abnormal flowers, increased fruit abortion, reduced shoot length, reductions in leaf nitrogen (N), and lower chlorophyll index. 'Kiowa' responded to freezing temperatures with the loss of pistillate flowers, increased shoot growth, an increase in mouse-ear symptomatic shoots, and reductions in leaf N, magnesium, and chlorophyll index.

Organic Methods Increase Melon Yields and Decrease Numbers of Cucumber Beetles

Cucumber beetles damage cucurbit crops by feeding on shoots and roots and by transmitting the pathogen responsible for bacterial wilt disease. **Cline et al. (p. 436)** reported that organic cropping methods increased muskmelon yields and reduced numbers of cucumber beetles in muskmelon and watermelon plantings grown on plastic mulch. These methods included use of rowcovers, aluminum-coated plastic mulch, and companion plants thought to repel cucumber beetles (e.g., radish) and attract beneficial insects (e.g., buckwheat). Beneficial effects were obtained by combining these methods.

Post-sown Priming of Lettuce Seeds Improves Emergence at High Temperature

Lettuce growers in nurseries are troubled by low emergence rates at high temperatures. **Takahata et al. (p. 433)**

developed a new priming method, post-sown priming. Seeding mixtures adjusted to 45% or 55% moisture content were sown with lettuce in cell trays. Post-sown priming was performed at 30 °C for 3 or 5 days, and terminated by fully watering and transferring to emergence rooms (32.5 °C). Emergence after 2 days in the emergence rooms were 9%–16%, 76%, and 78%–79% in non-primed controls, 55% moisture/3 days, and 45%–55% moisture/5 days, respectively. Post-sown priming was very effective, practical, and economical.

Responses of Onion Varieties to Iris Yellow Spot Virus

Following the emergence in the early 2000s of iris yellow spot virus (IYSV) as an onion disease in Oregon and Idaho, growers began reporting yield losses potentially related to IYSV. Long-day onion varieties grown at the Oregon State University Malheur Experiment Station showed increased virus symptom severity from 2004 to 2006. IYSV symptom severity ratings showed strong negative correlations with yield in 2005 and 2006 (**Shock et al., p. 539**). A few varieties showed a combination of high yield, large bulb size, low incidence of virus symptoms, and a predominance of single-centered bulbs.

Horticulture Curriculum Evaluation at Iowa State University

Regular and systematic outcomes assessment is one means to evaluate an undergraduate curriculum. The Iowa State University Department of Horticulture completed an outcomes assessment of recent graduates to determine their preparedness when entering the workforce and their perceptions on how well they met departmental learner outcomes. **Duncan et al. (p. 524)** reported that graduates were well prepared with responses of 15.5% as exceptionally well prepared, 37.9% more than adequately prepared, and 41.8% adequately prepared. These rankings were similar for respondents in their current employment. Respondents also ranked their abilities related to the 33 learner outcomes questions as good to excellent.

New Alternative Substrate Performs Well for Annuals

As substrate costs continue to rise in the U.S., the search for alternative substrates for greenhouse growers has gained momentum. A new material, a forest by-product called clean chip residual (CCR), was evaluated as a replacement for pine bark for producing ageratum, salvia, and impatiens. **Boyer et al. (p. 423)** reported that two out of three annual species grown in CCR-based substrates had similar growth when compared to standard pine bark substrates. Substrates composed primarily or partially of CCR are locally grown, economical, sustainable, and have the potential to meet the substrate needs of the greenhouse industry.