Planting Strategies for Onion Production in North Dakota

Growers in North Dakota are turning to onion production as a way to diversify and expand their irrigated-crop options. **Hatterman-Valenti and Hendrickson (p. 12)** evaluated the effect of raised beds, small reservoirs, and a companion crop (canola) on onion yield and grade. Raised beds did not affect total yield; however, raised beds with reservoir tillage increased the number of large-diameter onions. The lack of chemical control options for canola limited its usefulness as a companion crop to reduce soil erosion from wind.

Bioregulators Affect Storability and Sensory Acceptance of Apples

Aminoethoxyvinylglycine (AVG) reduced soluble solids, fruit color, and sensory acceptance in 'Scarletspur Delicious' and 'Gale Gala' **(Drake et al., p. 16)**. AVG enhanced firmness retention and storability, and eliminated fruit cracking in 'Gale Gala'. Ethephon enhanced fruit color, soluble solids, and sensory acceptance, but reduced firmness. Fruit texture, color, soluble solids, and sensory acceptance were improved when AVG and ethephon were applied in combination. Application of 1-methylcyclopropene (MCP) aided in the maintenance of firmness and enhanced sensory texture. MCP reduced sensory acceptance of juice where flesh texture was not a factor in the evaluation. Sensory scores for 'Scarletspur Delicious' were more modified by bioregulators than for 'Gale Gala'.

New High-capacity Harvest Container for Wild Blueberries

Wild lowbush blueberry production in northeastern North America continues to increase substantially each year. To efficiently handle increasing volumes of fruit, containers larger than the 20-lb lugs currently used are needed to transport fruit from the field to processing facilities. **Forney et al. (p. 33)** examined design criteria for new high-capacity containers and determined their effects on fruit quality following harvesting, transport, and processing. Large pallet-size containers with a fruit depth of 10 inches were successfully transported and dumped at processing facilities without increasing damage to fruit when compared with 20-lb lugs.

Rapid Nitrogen (N) Availability from High-N Organic Fertilizers

Maintaining adequate soil N fertility is a common problem in organic vegetable production. **Hartz and Johnstone (p. 39)** evaluated N availability from four high-N organic fertilizers (seabird guano, hydrolyzed fish powder, feather meal, and blood meal) using an 8-week soil incubation at temperatures ranging from 10 to 25 °C. Rapid net N mineralization was observed from all fertilizers, even at low soil temperature; within 2 weeks at least 47% of organic N had been mineralized. Across temperatures the fertilizers behaved similarly, averaging about 65% net N mineralization after 8 weeks of incubation.

Strawberry Plants Established with Less Water using Plug Plants Compared with Bare-root Transplants

Annual-hill strawberry producers in Florida use bare-root transplants that require sprinkler-applied water during the 3-week plant establishment period. **Hochmuth et al. (p. 46)** found that strawberry plug plants could be established with 290 gal/acre water applied with the transplant at planting time compared with 1 million gal/acre from sprinkler irrigation. Water applied with the bare-root transplant only at planting did not keep the plant alive during the establishment period. Root, shoot, and crown dry matter of plug plants increased during the establishment period while leaf area and root and crown mass of irrigated bare-root plants declined.

Outdoor Visits May Improve Health among Older People Living in Long-term Care

Poor perceived health is common among older people living in long-term care. Although many chronic diseases and impairments encountered in older ages are not treatable, the study of **Rappe et al. (p. 55)** found that it may be possible to promote the well-being of older people by providing opportunities for outdoor visits. A positive association between the reported frequency of outdoor visits and self-rated health was found among older women living in long-term care, even when health-related distresses were taken into account.

Postbloom Zinc Spray Composition Influences Leaf Zinc Status of Apple Trees

Zinc is an essential plant nutrient, but also a potentially ecohazardous heavy metal. Annual zinc maintenance sprays are applied in many western U.S. apple orchards. **Peryea (p. 60)** compared 12 zinc spray products applied postbloom to 'Golden Delicious' apple trees. All of the sprays produced desirable leaf zinc concentrations; however, zinc nitrate and organically complexed zinc products usually produced higher values than inorganic zinc products. Adopting more phytoavailable Zn products would lower zinc fertilizer requirements and reduce total zinc released into the environment. None of the sprays enhanced long-term tree zinc status, validating current recommendations for use of zinc maintenance sprays.

Chemical Thinners Show Promise as Crop Load Management Tools for High-density Cherry Production

Sweet cherry growers have been reluctant to adopt new precocious, productive, and dwarfing rootstocks due to the lack of practical crop load management tools. **Whiting et al. (p. 66)** report on the potential for chemical blossom thinning to reduce fruit set and improve fruit quality on the new rootstock 'Gisela 5'. Application of 2% ammonium thiosulphate and 2% fish oil + 2.5% lime sulphur at about 10% and 90% of full bloom consistently reduced fruit set and improved fruit quality. However, 3% to 4% vegetable oil emulsion was inconsistent as a thinning agent.

Mechanical Removal of Dodder in Cranberry

A conventional hand-held bamboo rake was used to break and remove large strands of dodder that connected cranberry and weed hosts. Removing dodder one time per season reduced percent weed

cover by more than 74% in both years **(Hunsberger et al., p. 78)**. No additional benefits were obtained by removing the weed cover more than once, and multiple removals may increase yield loss. Although dodder seed production may be lowered by this technique, mechanical removal could not compensate for overall yield loss caused by the parasite. However, the few fruit produced in the infested areas were of marketable size.

Ethylene Allows Earlier Marketing of 'Comice' Pears

Pears typically need exposure to low temperatures (<45 °F) after harvest in order to develop the capacity to ripen uniformly to a buttery, juicy texture at room temperature. Exposure to ethylene gas (~100 ppm) can replace all or part of the chilling requirement. **Sugar and Basile (p. 89)** found that 48 hours in ethylene reduced the chilling needed for 'Comice' pears from 30 days to 17 days. Fruit exposed to ethylene for 72 hours had the capacity to ripen after only 3 days of chilling, but were too soft for shipping. These methods can facilitate earlier marketing of 'Comice' pears.

Fresh Raspberry Production in an Annual Winter System

Production of raspberries in the off-season, when demand is high but supply is limited, can result in high returns to growers. **Darnell et al. (p. 92)** examined the feasibility of growing raspberries in an annual system in subtropical and tropical areas. Over a 3-year period, long cane cultivars Tulameen, Willamette, and Cascade Delight were planted in the winter and ripe fruit were harvested from mid-March through May. Yields varied with cultivar, but ranged from ~80 to 600 g/cane. Economic analysis indicates returns would be marginal; however, increasing cane density and pollination efficiency may increase yields and therefore returns.

Low-pressure Intermodal Container Kills Fruit Fly Eggs and Larvae while Preserving Freshness of Perishable Commodities

Davenport et al. (p. 98) report that the vacuum conditions provided by the VacuFresh intermodal container preserved fresh commodities during shipment and killed caribbean fruit fly eggs and larvae during transit. This technology promises to revolutionize the way fresh produce is shipped and marketed. Fully mature fruit, vegetables, and cut flowers can be preserved during long voyages without loss of fresh-picked quality while satisfying USDA quarantine requirements needed to protect U.S. farmers.

Phosphorous Acid Is an Effective Soil Drench for Providing Phosphorus

There is controversy as to whether phosphorous acid can serve as a phosphorus (P) source for plants, or whether the observed responses to its application are merely due to its well-known fungicidal properties. **Broschat (p. 105)** tested phosphorous acid as a soil drench and as a foliar spray against phosphoric acid and metalaxyl, a fungicide with activity similar to that of phosphorous acid. When applied as a soil drench, phosphorous acid worked as well as phosphoric acid (phosphate) in providing P to plants. There was no increase in foliar P concentrations when phosphorous acid was applied to the foliage.

Cost-effective Methyl Bromide Alternatives for Strawberry Production in the Southeastern U.S.

Strawberry growers in the southeastern U.S. need methyl bromide (MeBr) alternatives that control key pests and are cost-effective. **Sydorovych et al. (p. 118)** used partial budget analysis to evaluate soil treatment alternatives to MeBr based on their cost-effectiveness. The most cost-effective soil treatment for strawberry production in the piedmont and coastal plain areas of North Carolina and Georgia was chloropicrin, with an additional return of $1670/acre relative to MeBr. In the mountain area, all of the alternatives resulted in a projected increase in net returns relative to MeBr.

Joint Effort Results in Training Seminars for Green Industry Professionals

The large and growing green industry is made up of both production and service sectors. This diverse group of professionals has varied educational and training needs. **VanDerZanden et al. (p. 143)** describe a successful collaboration that resulted in an educational seminar series for landscape professionals in Oregon. Over 80% of the participants who completed the post-seminar evaluation gave the seminars a very positive rating, showed a significant increase in understanding of a subject after participating in the seminar(s), reported applying information learned at the seminar(s), and made multiple changes in their practices or recommendations to clients.

Pinot Noir Clones Evaluated for Winegrape Production in Oregon

Twenty clonal selections of 'Pinot noir' were evaluated from 1995 to 1999 in the Willamette Valley of Oregon **(Castagnoli and Vasconcelos, p. 153)**. Yield components and fruit composition varied widely among the 20 clones, with clone × year interactions for most responses. Consistently early-maturing clones included Dijon 115, Foundation Plant Services 10, Dijon 114, FPS 29, FPS 4, and Dijon 113; consistently late-maturing clones included FPS 22, FPS 31, and Dijon 10/18. FPS 17 and FPS 23 had skin anthocyanin concentrations that were consistently higher than all other clones evaluated.

Spinach Cultivars Resistant to Bolting and White Rust

Early bolting and white rust limit spinach production for winter harvest. **Goreta and Leskovar (p. 162)** report the bolting and white rust tolerance of 18 spinach cultivars. 'Fidalgo', 'Springfield', and 'Springer' had low bolting rates and could be suitable for areas with low white rust pressure. 'ASR-318', 'DMC 66-09', 'Fall Green', 'Samish', and 'San Juan' are recommended for areas where white rust is prevalent. Due to bolting susceptibility of 'DMC 66-09' and 'Samish', these two cultivars should not be considered for plantings after late December.

Caladium Cultivars Evaluated for Sensitivity to Chilling

Sixteen caladium cultivars were evaluated for their sensitivity to chilling injury **(Deng and Harbaugh, p. 172)**, a major factor restricting the use of caladiums in the landscape and increasing fuel costs in greenhouse production of pot plants. Chilling injury appeared first as dark necrotic areas at or near leaf tips and along margins and then symptoms became more widespread over entire leaves. Exposing detached mature leaves to 7.2 °C for 3 days revealed significant differences among the cultivars. 'Florida Red Ruffles', 'Marie Moir', and "Miss Muffet' showed resistance to chilling injury.

Onion Cultivars Evaluated for Fusarium Basal Rot Resistance

Twenty-two intermediate-day onion cultivars were evaluated for fusarium basal rot resistance for which resistance is lacking currently **(Gutierrez et al., p. 177)**. NMSU 99-30, 'NuMex Arthur', and 'NuMex Jose Fernandez' exhibited the lowest disease severities and incidences and would be suitable for disease-infested fields. Bulbs of all cultivars showed greater disease severity and incidence after 4 weeks of storage vs. at harvest time.