incidence of *phytophthora* blight, leaf net photosynthesis, stomatal conductance, Photosystem II efficiency, and photosynthetic water use efficiency were not affected by the microbial inoculant. Marketable and total yields and individual fruit weight were not significantly influenced by microbial inoculant. In conclusion, microbial inoculant had no significant effect on bell pepper plant growth and function, incidence of *phytophthora* blight, fruit yields, fruit size, or incidences of blossom-end rot and sunscald.

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Time-dependent Microclimate Effects on Yield and Anthocyanin Levels in Leafy Vegetables

(Poster Board #308)

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Rates of primary and secondary metabolism, the latter affecting well-known compounds contributing to nutritional value and sensory appeal, are rarely high simultaneously. However, promoting both within the same cropping cycle can benefit growers and consumers in multiple ways. The process is difficult, perhaps especially in fall-to-spring high tunnel production in mid to upper latitudes known for dynamic and often limiting temperature and light conditions. This research examines the extent to which aboveground biomass and anthocyanin concentrations are affected by microenvironments imposed during specific portions of baby lettuce and choi production cycles. The experiment was repeated October–December and February–April in 2015–16 and 2016–17 in a single-layer, 9.1 m × 24.4 m high tunnel located at the Ohio Agricultural Research and Development Center in Wooster, OH. Twenty, 4.46-m^2 main plots were divided into 2.23-m^2 subplots, each containing either 'Outredgeous' lettuce (*Lactuca sativa*) or 'Red Pac' choi (*Brassica rapa* var. chinensis) direct-seeded at 3875 seeds/m^2 on 10/9/15, 2/16/16, 10/7/16, and 2/21/17. Each subplot was assigned to one of five treatments based on when they were covered with standard, vented (178 1-cm holes/m^2), 1.1 mil polyethylene film: 1) uncovered all 8 weeks, 2) covered first 4 weeks, 3) covered middle 4 weeks, 4) covered last 4 weeks, and 5) covered all 8 weeks. Analyzing digital images obtained biweekly assisted in calculating percent canopy cover and plant density. Air and soil temperatures were recorded every 15 minutes using Hobo U23 Pro v2 External Temperature Data Loggers. Destructive sampling of a 0.093-m^2 quadrat within each subplot at 2, 4, 6, and 8 weeks after seeding permitted the measurement of fresh and dry weight, anthocyanin concentrations, soluble solids, leaf area (cm^2), and average daily growth rate. Lettuce and choi data from Spring and Fall 2016, especially of Treatments 1, 3, 4, and 5, provide additional evidence that yield and anthocyanin levels are usually negatively related, although this result varied slightly with season. Interestingly, Treatment 2 resulted in moderately high yield and anthocyanin levels in both seasons. Overall, these data indicate that the timing of certain microenvironments within the cropping cycle are likely to affect processes underlying the relative accumulation of aboveground biomass and anthocyanin. More specifically, the data suggest that promoting growth early in the cycle and secondary product accumulation late in the cycle may result in the much-needed balance between yield and quality.

Commercial Horticulture/Marketing and Economics

Management of Rough Sweetpotato Weevil, *Blosyrus asellus* (Coleoptera: Curculionidae) in Hawaii Using Insecticides

(Poster Board #034)

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Sweetpotato, *Ipomoea batatas* (Olivier), is an important staple food crop in Hawaii and critical to food security in these geographically isolated islands. Production of this crop faces a new challenge from the rough sweetpotato weevil (RSW), *Blosyrus asellus*, (Coleoptera: Curculionidae). This pest was first detected on a commercial sweetpotato farm on the island of O'ahu in 2008, with subsequent detection on the island of Hawaii in 2014. In contrast to other weevil pests of sweetpotato in Hawaii whose immature stages (grubs) feed inside the storage roots, the grubs of rough sweetpotato weevils feed on the surfaces, severely damaging their appearance and reducing marketability. We conducted replicated trials over two growing seasons to compare efficacy of four insecticides (Sevin, Belay, BotaniGard, Provado) against a control treatment. During first season (2015), Insecticidal treatments showed statistically significant differences ($P < 0.05$) in percent of all damaged storage roots. Plots treated with Sevin or Belay had significantly lower percent of damaged storage roots compared to the other three treatments when plots were harvested 4.5 months after planting. Overall mean percent of damaged roots varied from 19.9 ± 8.0 % (Belay) to 51.9 ± 8.5 % (control). During second season, the overall treatment differences were marginal ($P = .05$); but comparison of means showed that Sevin- and Belay-treated plots had comparable results to that of first season. Percent of damage was significantly higher during second season ($P < 0.05$) probably because of the proximity of the study area to the previous season's study area. The range of damage was also higher during second season [39.0 ± 12.1 % (Sevin) to 78.1 ± 5.75 % (control)] compared to the first season [10.68 ± 5.3 (Sevin) to 51.94 ± 8.5 (control)]. A similar trend was observed when severity of the damage on the storage roots was assessed visually. Plots treated with Belay and Sevin had