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Compost teas are new products in the organic agriculture industry typically being used to control plant disease. However, organic farmers are also experimenting with this product as a "stand alone" product, one that may be beneficial because it impacts a plant more quickly than nutrients applied to the root zone. This research will investigate these claims by directly comparing the effects of non-aerated compost teas from different compost sources, composts, and fertilizer on the nutrient content and fruit quality of strawberries and raspberries grown in the field. Furthermore, recommendations on compost tea production methods have been debated for some time and so other experiments will focus on comparing compost tea nutrient content of aerated and non-aerated compost teas made from difference compost sources and their ability to provide nutrients to plants. Finally, it is claimed that compost tea properties begin to shift within 24 h after production, so compost tea properties, including nutrient content and microbial community structure, will be monitored in aerated and non-aerated compost teas made from different sources for 6 wk after production. The findings of this project will greatly aid in filling data gaps in compost tea research and help determine the suitability of these amendments for practical farming purposes. Preliminary results will be presented, specifically, the effects of storage on compost tea properties and results from the first harvest.

Effect of mulch applications on nitrogen fertility and the growth and productivity of organically managed highbush blueberry plants. N.E. Burkhard¹*, D.H. Lynch¹, D.C. Percival².

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Weed management is a significant challenge in organic highbush blueberry (*Vaccinium corymbosum* L.) production due to an inability of existing registered herbicides to control within-row weeds. Mulch application may be a promising alternative; however, it can greatly influence soil nitrogen (N) dynamics. In 2005, a study was initiated at a commercial highbush blueberry operation in Nova Scotia to: 1) test the ability of 20 cm-thick mulches to suppress weeds and 2) assess their influence on N fertility, plant growth and crop yield. A split-plot experimental design was used with five blocks, six treatments and five plants (cv. Duke) per split plot. The whole plot factor consisted of mulch/fertility treatments and included: (i) control (no amendment), (ii) ammonium sulphate fertilizer (30 kg N ha⁻¹), (iii) pelletized poultry manure (60 kg N ha⁻¹), (iv) pine needles (80 t ha⁻¹), (v) horse manure and sawdust compost (550 t ha⁻¹), and (vi) seafood waste compost (360 t ha⁻¹). The split plot factor consisted of level of hand weeding (±). Preliminary results of mineralizable soil N (monitored *in situ* using PRSTM anion/cation exchange membranes), seasonal changes in soil mineral N (NO₃⁻-N and NH₄⁺-N), and plant response (leaf N, crop yield, plant canopy index) will be presented.

Associations of citrus tree decline, soil variability and *Diaprepes abbreviatus* (L.) root weevil: two-case study in Florida. Hong Li¹*, Stephen H. Futch², Robin J. Stuart², James P. Syvertsen², and Clay W. McCoy².

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The hypothesis of associations of environmental soil heterogeneity with citrus tree decline and *Diaprepes abbreviatus* (L.) root weevil variability was tested in two flatwoods citrus groves in Florida. Studies were conducted on a loamy, poorly drained Mollisol in Osceola County, central Florida in 2002, and on a sandy, poorly drained Spodosol in DeSoto County, south-west Florida during 2001–2003. Adult weevils were monitored using 50 Tedders traps arranged in a 34 × 25 m grid at the Osceola site, and using 100 identical traps in a 30 × 15 m grid at the DeSoto site. Soil water content (SWC), texture, pH, Ca, Mg, Fe, Cu and other nutrients were measured at each trap. Soil was strongly acidic (pH 4.9 ± 0.4) at the Osceola site but near neutral (pH 6.6 ± 0.4) at the DeSoto site. The Mehlich-I extractable soil Mg and Ca were correlated to soil pH and SWC in both soils, and extractable Fe was related to pH, SWC and Mg in the Spodosol (0.30 < R² < 0.65, P < 0.01). The weevil density was high in areas low in soil Mg and Ca in the acidic Mollisol, but high in areas with high soil pH, and Mg and low sand content in the near neutral Spodosol (P < 0.05). Tree decline was associated with soil Fe concentrations > 40 mg kg⁻¹ in the Mollisol (P < 0.01), and weevil density was low at soil pH between 5.7 and 6.2. The range of spatial dependence of weevil population, soil pH, SWC, Fe, Mg and sand varied between 60–100 m in the Mollisol and the Spodosol. Soil-weevil-tree simple and multivariate linear models were established to put into practices for predicting and controlling the weevil population and tree decline in the future. Differences in site characteristics suggested the need for site-specific weevil and citrus tree management.

Use of plant growth regulators to increase bioactive compounds in the wild blueberry. Joanna MacKenzie* and David Percival., Nova Scotia Agricultural College, Truro, Nova Scotia, Canada.

With increasing awareness of the antioxidant properties of the wild blueberry (*Vaccinium angustifolium* Ait.), more emphasis has been placed on developing cultural management practices to enhance fruit polyphenolic levels and use processing byproducts as potential polyphenolic sources for the nutraceutical market. Trials were initiated in 2004 and 2005, with four plant growth regulators (methyl jasmonate, abscisic acid, riboflavin and Retain[®]) applied to maturing berries of the select clone Fundy at the Wild Blueberry Research Centre (Debert, NS). Berries were harvested approximately one month after treatment applications, with collections of green leaf tissues at harvest and red leaf tissues 2 wk after harvest in 2005. Assessment of polyphenolic and anthocyanin levels within the berry and leaf tissues followed the Folin-Ciocalteu and pH differential methods, respectively. Overall, substantially higher levels of polyphenolic compounds were found within the leaf tissues, although anthocyanin content was highest in the berries. The application of methyl jasmonate elevated levels of bioactives within the harvested berry and leaf tissues. This increase in bioactives occurred, however, at the expense of harvestable yields, with lower yield in plots treated with methyl jasmonate in 2004. Results thus suggest that the use of some PGRs may effectively increase bioactives, but their value must be assessed against a possible yield reduction. In addition, these studies indicate that leaf debris may provide a superior polyphenolic source for the nutraceutical market.

The impact of "surround" on leaf gas exchange of Ginger Gold apple trees in New Brunswick. J.P. Privé*, L. Russell, and A. LeBlanc. Agriculture and Agri-Food Canada; Atlantic Food and Horticulture Research Centre, Bouctouche, New Brunswick, Canada.