**Mintues: NC1186 Working Group Meeting June 14, 2017, NC State University, Raleigh, NC**

Attendees

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| --- | --- | --- | --- |
| Amy Fulcher | University of Tennessee |  |  |
| Anthony LeBude | NC State University  | Sarah White | Clemson University |
| James Altland | USDA-ARS | Tom Fernandez | Michigan State University |
| Jim Own | Virginia Tech  | Win Dunwell | University of Kentucky |
| John Lea-Cox | University of Maryland | Yan Chen | Louisiana State University |
| John Majsztrik | Clemson University | Graduate Students |  |
| Llyod Nackley | Oregon State University |  | Virginia Tech |
| Loren Oki | UC Davis | Damon | Michigan State University |
| Mandy Bayer | UMass Amherst | Megan | Clemson University |
| Paul Fisher | University of Florida | Natasha | Clemson University |
| Raul Cabrera | Rutgers University | Lauren | Clemson University |

**9:00 am Welcome by Anthony LeBude**

**9:15 am: Station Reports:**

Lorin Oki – University of California Davis: Modeling of nursery runoff (part of Clean WatR3 project). Tomato mosaic virus removal with vegetative filters. Residential runoff monitoring. Landscape plant irrigation trials – CA is requiring calculation of irrigation budget for landscape plant installation.

Anthony LeBude – NC State: Source water quality evaluation (pH, EC, mineral concentration). He is looking at high pH issues that can be common in North Carolina, and the impact on xylem sap and ABA. He has found decreased growth because of partial ABA signaling and stomatal closure. Future study comparing regulated pH of 6 to nursery pH in summer when pH is normally high.

Tom Fernandez (and Damon) – Michigan State: Experimental nursery (part of Clean WatR3 group) with raised beds was constructed to compare irrigation and fertilizer treatments, collection leachate for testing for nutrients and pesticides. Small scale bioreactor for treatment. Response of nursery crops to chlorphyrifos. Also reported for Bert Cregg: first experiment looked at physiological response of nursery crops to different phosphorus levels. Another study looked at the use of nitrogen stabilizers in a conifer nursery and Christmas tree production. Also reported on Bridget Behe’s study on the perception of water use related to landscape plants. Finally Tom gave an update on RFID technology and the potential for its use in precision irrigation – where is the plant, and keeping track of water and nutrients.

John Lea-Cox – University of Maryland: John gave an update on the status of the PlantPoint system from the SCRI-MINDS project (on hold). He also discussed a new protype node for irrigation control. They are looking at a node capable of pump control. New developments with nodes including cloud-based control.

Win Dunwell – University of Kentucky: Win discussed his group’s work on management of pathogens in blueberry production. There have been issues with the buying and selling of diseased plants. They are also working on water control and improved decision making for production.

Amy Fulcher – University of Tennessee: Amy discussed her research comparing a leaching fraction based automated irrigation system to a sensor-based system and tri-daily water use. They have also been looking at water use of hydrangea grown with biochar amendments. She also discussed grower success stories as well as current work with a grower that heavily irrigated dogwood.

Sarah White (John Majsztrik, Megan, Natasha, and Lauren) – Clemson University: Clean WatR3 group. Multiple projects looking at the use of floating treatment wetlands (FTW) for treatment nursery/greenhouse effluent and nutrient remediation. Success in removing nitrogen with floating treatment wetlands, found pH and alkalinity effects. Also looking at monoculture FTW or mixed plantings. Current study looking at economics of installing FTW and the potential for FTW as being an extra production area. Other research is looking at phosphorus filtration systems for nurseries. Other research is looking at ecological treatment technologies to treat phytophthora in irrigation water. Lab scale bioreactors for controlling phytophthora. Modelling phytophthora susceptibility.

Jim Owen – Virginia Tech: Experimental nursery part with raised beds to compare irrigation and fertilizer treatments, collection leachate and testing for nutrients and pesticides (similar to MSU), part of Clean WatR3 group. Other research includes taxa and geographic area impact on phosphorus needs during production. They found phosphorus correlated to plant growth rate. They are also looking at what is happening to phosphorus is the container. Development of hydraulic conductance moisture characteristic curve. Good results using coir as a substrate component. Looking at solute transport and leaching of CRFs – changing placement reduced leaching of CRF by 25%. Study looking at use of filter socks – found good in areas with hills but with flat areas. Future study looking at understanding nitrogen fate in container production.

James Altland – USDA-ARS: Impact of pH and lime rate on pine park substrate. The impact of irrigation water pH on boxwood. Methods for measuring anion exchange capacity in bark substrate. Chemical additives for increasing nitrate and phosphate retention in substrates. RNA analysis to document microbial communities in substrate. Small fruit production in large containers.

Yan Chen – LSU: Rice hull ash as a substrate amendment -has a high WHC and can increase by 100%. Ed Busch did a survey on nursery irrigation practices and found growers under-watering but thought were over-watering. They also found uniformity had variability up to 200%– causes including clogged nozzles, different nozzles, wind, etc.

Raul Cabrera – Rutgers University: Use of greywater and reclaimed water for landscape irrigation and in nurseries. Biological activity on sites irrigated with reclaimed irrigation water. Evaluating nutrient diagnosis methods to improve fertilizer use efficiency in greenhouse crops.

Llyod Nackley – Oregon State: Llyod recently started as Oregon State and was previously a post-doc with Lorin Oki at UC Davis. He is looking at the sse of sap flow sensors for irrigation control. He is also doing projects looking at phytotoxicity and the use of biostimulants.

Mandy Bayer – UMass: Impact of substrate volumetric water content (VWC), and alternating low and high VWC during production on growth and flowering of herbaceous perennials. Impact of irrigation timing on elongation.

Paul Fisher – University of Florida: Removal of agrichemicals using granular activated carbon materials as filters. They are also evaluating biofilm control agents. Other studies are looking at root growth and water-air balance for propagation, nitrogen draw-down from wood fiber and wood chips, and providing residual fertilizer for consumer success with dual-coated slow-release fertilizers. Tom Yeager – growers getting metered for collected water in FL.

**11:00 am**: Presentation by Robin Smith, Robin Smith Law Office – state water policy, regulations, and laws. Water in North Carolina.

**12:30 pm:** lunch

**1:30 pm: Business Meeting**

Doug Buhler – Next year will be a mid-term review for the group.

Congratulations everyone! – NC1186 won the national award.

Old business/new business:

 For future meetings it has been suggested that station reports should be “5 minutes” (but host should allow for 10 minutes)

Meeting next year will be hosted by Lorin Oki and will be in Monterey California in June

Lorin has already started brainstorming and has many ideas. Options include non-ag tours (Muir Woods, City of San Francisco, and Monterey Bay Aquarium), non-nursery ag operation including premix salad operation, broccoli hydrocooling, and strawberry hydroponics, and greenhouse and nursery visits. Possibly have a pre-meeting tour, followed by NC1186 meeting, grower conference, and day of tours. Possibility of professional development for the group. Many other potential ideas shared. Question if our prize money from the national award can be used for travel or the workshop for next year’s meeting. There was a motion to use the money from the national award for this meeting (if possible). Also proposed that the S-1065 economic group be asked to join next year’s meeting.

Possibility of mixing presentation during the tour with the growers instead of a separate day of talks and tours.

**Nomination and election of incoming secretary:** Paul Fisher (University of Florida) was nominated and unanimously voted in favor.

**Discussion of future research areas included:** urban agriculture, stormwater, container grown ag. production (fruit and vegetable).

**2:45 pm: Meeting Adjourned**