

### Greenhouse Lab Notebook and Project Requirements

**Lab Notebook** (50 points): Each student is required to keep a lab notebook. This notebook will be collected at the end of the semester for a grade. The grade will be part of the lab project.

The notebook should include the following information:

- Summary of each week's lab activities
- Crops grown and name of cultivars
- Growing systems used (containers, media, pruning methods, trellis systems, plant density, etc.) and sizes and amounts of materials used.
- Data collected from crops and production system each week:
  1. Plant measurements (indicate growth stage, plant height, size and number of fruit, etc)
  2. Date of transplanting, first flowering, first fruit development, etc.
  3. Check emitter flow rates and uniformity (flow meter readings)
  4. Light meter readings
  5. Delivered solution (from emitter) EC, pH and nutrient concentration (ex. NO<sub>3</sub>-N, K, etc.)
  6. Leachate (from media) EC, pH and nutrient concentration (ex. NO<sub>3</sub>-N, K, etc.)
  7. Petiole sap nitrate readings (Cardy meter)
  8. Fertilizer stock recipes and calculations, date made, how much, frequency of fertigation, length of time of each fertigation cycle, etc.
  9. Heating fuel consumption
  10. Temperatures outside and inside greenhouse, weather, etc.
- Schematic drawings of fertigation system, plant characteristics, trellising system, etc.
- Insect and disease data using Scouting Record Sheet and any control strategies used
- Activities and data collection associated with alternative hydroponic production, i.e. VertiGro, floating garden, microgreen flats, etc.
- Harvest data
- Photos
- Lab field trip summary
- Any other information you feel is important to keep as a record

\*\*\* Please spend the last 5-10 minutes of lab helping to clean the greenhouse, including sweeping, cleaning up spills, flushing accumulated leachate, algae or dirt from the gutters, etc. Also please help to keep the area surrounding the greenhouse free of weeds.

**Lab Project (50 points):** The class will be divided into 6 groups, each led by a graduate student (Table 1). Every person in the class will be responsible for one plant of each of the seven crop types (two types of pepper, three types of tomato and two types of cucumber – see Table 2). For each crop type, half of a group will grow the crop in pine bark and the other half will grow the crop in perlite (see plot map). The purpose is to learn how to grow each crop and note any differences between the two medias. Additionally, each group will grow an extra plant for each crop type that will serve as an experimental plant. They may subject this plant to unfavorable growing conditions to learn how to identify signs of plant stress or they may experiment with different media mixtures, fertilizer recipes, pruning or trellising systems, etc. Students will be expected to maintain their plants each week and keep good records. Students will also help build and grow plants in some alternative hydroponic production systems, including VertiGro, floating gardens and microgreen flats. At the end of the semester, each group will

give a presentation on one of the crops and each member of a group must have a part in the presentation. The presentation will include a summary of:

1. The whole production system
  - What varieties were grown?
  - How were they grown?
2. Growth and plant data (measurement data)
3. Media performance
4. Insect/Disease/Nutrition data
  - What were the major pests, disease and nutrition problems?
  - How did you solve these problems?
5. Results from harvest data
  - Projected yields
  - Fruit number per plant
  - Fruit size and quality
6. Any other information you feel is important, i.e., results from experimental plant, observations from the alternative hydroponic production systems, etc.

**Table 1. Lab Groups – first name in each group is the graduate leader.**

<b>Group 1:</b>	<b>FRIEDMAN, SETH ISAAC</b> ARISTIZABAL, FERNANDO BALLESTEROS, JOANNA C BARAS, TYLER M CAIBIO, MICHELLE D CHEN, ANDY	<b>seth.friedman@ufl.edu</b> fernandoa@ufl.edu joba@ufl.edu tylrmbar@ufl.edu mcaibio@ufl.edu achen17@ufl.edu	<b>Group 4:</b>	<b>ALVES, CRISTIANE</b> KNEALE, KYLE RICHARD KODADEK, MICHAEL J LE, TUAN V LENCKI, ROBERT A MAGEE, TODD A MCDAVID, APRIL RENEE	<b>calves@ufl.edu</b> flyfishr@ufl.edu mike.jk89@ufl.edu tuanle@ufl.edu robertl@ufl.edu oogamt@ufl.edu amcdavid@ufl.edu
<b>Group 2:</b>	<b>HUANG, PEI-WEN</b> CLEVELAND, SARAH DAY COHENOUR, KARLY L DURRANCE, JUSTIN FRANK EVENSON, KRISTINA JULI EVILLE, ANDREW PAUL	<b>agnespei@ufl.edu</b> scleveland07@ufl.edu kcohenour@ufl.edu jdurance@ufl.edu kjeverson@ufl.edu eville86@ufl.edu	<b>Group 5:</b>	<b>ADKINS, JOSHUA IRA</b> MOSELEY, ADAM JOSEPH OUTLAW, ELIZABETH P SALAMA, DAVID Y SHARP, KATRINA RACHEL SHIM, NAKITA A STEPHENS, SEAN A	<b>jia84@ufl.edu</b> aj072485@ufl.edu epoutlaw@ufl.edu dsalama@ufl.edu trini@ufl.edu nshim08@ufl.edu edsg123@ufl.edu
<b>Group 3:</b>	<b>BARRETT, CHARLES E</b> CHAPA, ROBERT M JR ELURI, TARIK A FANCHER, CRAIG GERALDSON, STEFFEN GRE HOHENSTEIN, KRISTEN A KING, BENJAMIN SCOTT	<b>soulpole@ufl.edu</b> napkin@ufl.edu teluri@ufl.edu steffeng33@ufl.edu hohensteinkr@ufl.edu king.bee@ufl.edu	<b>Group 6:</b>	<b>JACOBY, TYLER P</b> TAYLOR, CRYSTAL JOANN TERRY, NATHAN ANDREW THURSTON, TAYLOR E TUCKER, ZACHARY A WALLIS, REGINA COLLEEN	<b>tjacoby3@ufl.edu</b> crystaljtaylor@ufl.edu nterry@ufl.edu taylor09@ufl.edu tucker@ufl.edu r.wallis.06@ufl.edu

**Table 2. Crop type and seed information**

<b>Crop</b>	<b>Type</b>	<b>Scientific Name</b>	<b>Variety Name</b>	<b>Seed Source</b>	<b>Date seeded</b>
Pepper	Red	Capsicum annuum	Fantasy FI	De Ruiter	Dec 22 and Jan7
Pepper	Yellow	Capsicum annuum	Gretsky	Paramount	Dec 22 and Jan7
Tomato	Plum cherry/plum	Solanum lycopersicum	Cello	Paramount	Dec 22 and Jan7
Tomato	Cherry	Solanum lycopersicum	Favorita	Paramount	Dec 22 and Jan7
Tomato	Beefsteak/cluster	Solanum lycopersicum	Trust	Paramount	Dec 22 and Jan7
Cucumber	European	Cucumis sativus	Bologna	Paramount	Dec 22 and Jan7
Cucumber	Beita alpha	Cucumis sativus	Dishon	Hazera	Jan 6

## 2010 Greenhouse Course (HOS3222) Lab Plot Map

DOOR

Perlite	Pine Bark
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	<b>Seth</b>	<b>Pei-wen</b>	<b>Charles</b>	<b>Cristiane</b>	<b>Josh</b>	<b>Tyler</b>	<b>Overflow</b>
<b>Red Pepper</b>	4   3	4   3	4   4	4   4	4   4	4   3	5   5
<b>Yellow Pepper</b>	4   3	4   3	4   4	4   4	4   4	4   3	5   5
<b>Cello Tomato</b>	4   3	4   3	4   4	4   4	4   4	4   3	5   5
<b>Trust Tomato</b>	4   3	4   3	4   4	4   4	4   4	4   3	5   5
<b>Favorita Tomato</b>	4   3	4   3	4   4	4   4	4   4	4   3	5   5
<b>Beit Alpha Cuc</b>	4   3	4   3	4   4	4   4	4   4	4   3	5   5
<b>European Cuc</b>	4   3	4   3	4   4	4   4	4   4	4   3	5   5