Onfarm Research of Photoselective Shade Cloths in Parsley and Basil Herb Production

Kluson, Robert¹ and Kathy Oliver²

¹Extension Agent III, UF/IFAS Sarasota County Extension, Sarasota, FL, 34241; ²Farmer, My Mother’s Garden Farm, Wimauma, FL, and SWFSFN

**INTRODUCTION**

Photoselective shade cloths are being developed to enhance crop production by specific modification of the levels and spectrum, such as in the photosynthetically active radiation (PAR) and/or UV regions, of the incident solar radiation. Recently such shade cloths developed for South African agriculture (Grow-Tex Spectral Net, Apollo Sunguard Company, Sarasota, FL) have been introduced to Florida.

To evaluate their effectiveness under Florida conditions for small farm enterprise application, an onfarm research program was begun with the SW Florida Small Farmers Network (SWFSFN). This poster reports the results of a March to June 2010 study with potted basil and parsley plants grown under 3 treatments of Grow-Tex compared to a non-shaded control.

The following are examples of the spectral transmittance of such photoselective shade cloths:

**MATERIALS AND METHODS**

- Location: My Mother’s Garden Farm, Wimauma, FL
- Growing Season: March to June, 2010
- Growing Details: transplants grown in 4 inch pots of potting soil on outside grow benches (10.5 ft × 4.0 ft)
- Experimental Design: Completely randomized design with 4 replications and 4 plants/replication
- Gro-Tex Spectral Net Treatments: Code 20 White (8% shade; 20% UV block); Code 40 White (15% shade; 40% UV block); Code 40 Black White (32% shade; 40% UV block); control (0% shade; 0% UV block)
- Li-Cor 250 light measurements meter w/ LI-190 Quantum (PAR) and LI-200 Pyranometer Sensors
- Vaisala HMD4 air temperature/humidity meter
- Bi-weekly samplings of plant growth & micro-climate

**RESULTS**

- **Parsley Plants Growth**
  - Increases in height and width only at the last samplings with shade treatments
  - Increases in harvest, total, and % harvest dry weights, as well as marketability
  - Greatest increases of above trends from code 40 B/W followed by code 40 W and code 20 W treatments compared to control (Graph 1)

- **Basil Plants Growth**
  - Increases in height & width at all sampling dates with only the code 40 B/W treatment
  - Increases in harvest and % harvest dry weights but decreases in non harvest weights with the greatest differences from code 40 B/W followed by code 40 W & code 20 W treatments compared to the control. No marketability changes. (Graph 1)

- **Micro-Climate Changes**
  - Levels in temperature and humidity did not differ to the control in all treatments
  - Levels of PAR & total radiation transmittance were changed, i.e., lowest levels with code 40 B/W (50%; 62%) followed by code 40 W (71%; 78%) then code 20 W (83%; 79%), compared to control (100%; 100%)

**CONCLUSIONS**

Overall, the code 40 black/white Grow-Tex Spectral Net produced the greatest benefits to parsley and basil herb production compared to the other treatments & the control.