Nutrient Management Grower Assessment of Organic Pak Choi in a High Tunnel

Megan Donovan¹, Marilyn E. Swisher², Kaylene Sattanno² and Xin Zhao³

¹School of Natural Resources and Environment, University of Florida, Gainesville, FL
²Department of Family, Youth and Community Sciences, University of Florida, Gainesville, FL
³Horticultural Sciences Department, University of Florida, Gainesville, FL

Overview

- Interdisciplinary research of organic vegetable production in high tunnels
- Goal: Reduce lag time between identifying a problem and generating a solution farmers can use
- Approach: Farmers and technical advisors bring experience-based expertise to research design and implementation
- Example: Grower assessment of biological research

Procedure

Grower Assessment

Stage 1: Group Discussion

Stage 2: Field Observations

Objective: Recommendations

Results

Performance of Treatments

<table>
<thead>
<tr>
<th>Plot</th>
<th>Fertilization</th>
<th>Compost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Solid fertilizer</td>
<td>Cow manure</td>
</tr>
<tr>
<td>2</td>
<td>Solid fertilizer</td>
<td>No compost</td>
</tr>
<tr>
<td>3</td>
<td>Solid fertilizer</td>
<td>Yard waste</td>
</tr>
<tr>
<td>4</td>
<td>Solid fertilizer</td>
<td>Vermicompost</td>
</tr>
<tr>
<td>5</td>
<td>Liquid fertilizer</td>
<td>No compost</td>
</tr>
<tr>
<td>6</td>
<td>Liquid fertilizer</td>
<td>Yard waste</td>
</tr>
<tr>
<td>7</td>
<td>Liquid fertilizer</td>
<td>Vermicompost</td>
</tr>
<tr>
<td>8</td>
<td>Liquid fertilizer</td>
<td>Cow manure</td>
</tr>
</tbody>
</table>

Multiple Split Plot Treatments

1st Split: Cover Crop

- None
- Iron Clay Cowpea 100 lbs/acre

2nd Split: Fertilization

- Preplant granular fertilizer
  - Nutrasafe 10-2-8
  - K₂SO₄ (0-0-50)

- Liquid fertilizer (5-1-1)
  - Aqua power 5-1-1
  - K₂SO₄ (0-0-50) applied weekly via irrigation

3rd Split: Compost

- None
- Cow manure 10 tons/acre 15:1 (C:N)
- Vermicompost 2.5 tons/acre 17:1 (C:N)
- Yard waste 10 tons/acre 15:1 (C:N)

Group Discussion

- Clear observable differences in fertilizer and compost treatments
- Liquid fertilizer most consistent best performing treatment
- Little to no evidence of pest and disease pressure
- Inconsistent light exposure within plots
- Primary fertilization factors in determining plot performance:
  - Immediate effects of nutrient regime
  - Potential long-term effects of nutrient regime
  - Nutritional quality
  - Price largely determines treatment choices

Recommendations

Keep:
- Liquid fertilizer
- Cow manure

Eliminate:
- Nothing
- Vermicompost

Add:
- Other manures (e.g., poultry litter)
- Compost tea

Additional Data to Collect:
- Water quality
- Nutritional value
- Location differences of plots
- Taste

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