



## RESEARCH PROTOCOLS

### Comparing Winstrip Trays and Soil Blocks for Cabbage Production

**Objective:** Are there differences in germination rates or plant vigor for cabbage seedlings planted in Winstrip trays versus soil blocks, and do any differences extend through final yield?

**Hypothesis:** We expect Winstrip trays to produce more, healthier transplants resulting in higher yields.

#### **Farmer-Cooperator will:**

- Follow Research Protocols for study
- Take photos throughout the project
- Keep in contact with PFI with updates and questions
- Turn in all data by November 2020

#### **Practical Farmers of Iowa will:**

- Help set up research protocol.
- Monitor progress of project and provide support when needed.
- Publish results in a PFI research report, on PFI website, and potentially other outlets.
- Provide \$550 cooperator payment at conclusion of project year.

#### **Project Design:**

- For seedling phase: Paired, randomized, replicated trial layout of Winstrip trays and soil blocks in the greenhouse. Seed the same number of cells and blocks for each treatment in each replication.  
Treatment 1: Farao planted into Winstrip trays.  
Treatment 2: Farao planted into soil blocks.
- For field phase: Maintain the trial layout of the treatments in the greenhouse, transplanting seedlings to the field.

Layout example of four replications of each treatment in seedling portion in high tunnel or germ room; follow same pattern in field when transplanting.

Winstrip	Blocks	Blocks	Winstrip
Blocks	Winstrip	Winstrip	Blocks

**Photo List:**

- Winstrip trays and soil blocks trial setup, with seedlings emerged.
- Seedlings at transplant
- Any issues to document (damping off, etc)
- Early-season field-shot of trial
- Mid/late-season field-shot of trial
- groups of cabbages during harvest, in bins, labeled, etc.
- harvest-time with farmer in the photo
- bonus for photo of farmer entering data in the field!

- **Data to Collect:**

- For seedlings by “plot” (tray/group of blocks):
  - Days to >50% germination
  - Count of cells that never germinate
  - Number of leaves/plant on 10 seedlings (just prior to transplant)
  - Number of non-viable seedlings (excluding cells/blocks with no germination)
- For harvest by plot:
  - Head count and plot weight (lbs).

- **Information to Report:**

- Dates of: seeding, transplant, harvest
- Potting media used and \$/vol
- Volume of potting media needed for each cell or block
- Spacing in field (within and btwn rows)
- Plot area (ft<sup>2</sup>)
- Number of plants/plot

**Project Timeline**

<ul style="list-style-type: none"> <li>• Review research protocol</li> <li>• Complete MOU and pre-project survey</li> </ul>
<p><b>May</b></p> <ul style="list-style-type: none"> <li>• Seed cabbage</li> <li>• Collect and record germination data</li> </ul> <p><b>June</b></p> <ul style="list-style-type: none"> <li>• Collect and record seedling data</li> <li>• Transplant to field and mark plots</li> </ul> <p><b>June – September</b></p> <ul style="list-style-type: none"> <li>• Manage crop normally, maintain plot markers.</li> </ul> <p><b>September</b></p> <ul style="list-style-type: none"> <li>• Harvest cabbage by plot and record data in accordance with data collection sheet</li> </ul>
<ul style="list-style-type: none"> <li>• Enter data and photos to PFI’s google site:  <a href="https://sites.google.com/practicalfarmers.org/research/home">https://sites.google.com/practicalfarmers.org/research/home</a>.</li> <li>• Complete post-project survey.</li> </ul>

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