



**RESEARCH
 PROTOCOLS**

**Potting Soil Comparison for Vegetable Seedling
 Quality**

Objective: Determine which potting soil produces the best transplants in each farm's production system.

Hypothesis: We expect Vermont Compost, the most expensive choice, to perform better than Cowsmo and Beautiful Land Products.

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 July 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:

- Farmers will arrange seedling trays in a randomized, replicated pattern to measure the impact of soil potting mix on broccoli and tomato seedling production.
- Farmers may use whichever seed starting trays or blocks they prefer for their system.
- Potting mix compared are: Beautiful Land Products (#10) Cowsmo (Green Mix), and Vermont Compost Company (Fort Vee mix)
- Farmers will need to have a Vernier caliper (or other preferred caliper) to measure stem diameter.

Tray layout example of four replications of each treatment (potting mix). The trial will run include four replications of broccoli and four replications of tomatoes. Growers may split trays, if needed.

Cowsmo	VT Com	BLP	Cowsmo
BLP	Cowsmo	VT Com	BLP
VT Com	BLP	Cowsmo	VT Com

Data to Collect:

- **Potting mix evaluation:** Ease of work (wetting, mixing, filling flats), Texture, \$/volume, volume needed to fill tray.
- **Tray data:** date seeded, date germinated, un-germinated cells (count), date of first true leaf, date transplant-ready, uniformity of tray.
- **Seedling Measurements:** farmers will measure 10 seedlings in each rep for the following:
 - Stem diameter, number of leaves, color

Photo List:

- Potting mix pre-wetting and post-wetting
- Set-up of trays with germinated plants.
- Seedlings tray comparison at transplant
- Close-up of seedlings labeled with mix type
- Farmer working with plants
- Farmer collecting data

Project Timeline

<ul style="list-style-type: none">• Review research protocol• Complete MOU and pre-project survey
<p>April</p> <ul style="list-style-type: none">• Prepare soil mixes and complete “mix evaluation” section of data sheet.• Label and fill trays, creating a randomized, replicated trial design with four replications of the three potting mixes. Do this for the broccoli trial and tomato trial (four reps for each crop!).• Seed trays and begin recording “tray data” as seedlings progress (see datasheet)• Take photos (see photo list)! <p>May</p> <ul style="list-style-type: none">• When seedlings are mature, take seedling measurements as directed on “seedling measurements” tab in datasheet.• Take photos (see photo list)!
<ul style="list-style-type: none">• Enter data and photos to PFI’s google site: https://sites.google.com/practicalfarmers.org/research/home.• Complete post-project survey.

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