

RESEARCH PROTOCOL: HORTICULTURE 2017

Cabbage Seed Production Trial

Farmer-researchers

Nicola Inglefield and Rebecca Ivanoff, Whole Circle Farm

This document outlines the steps that Nicola and Rebecca will follow to execute their research trial, *Cabbage Seed Production Methods*, including design, execution, data collection and data sharing. It also serves as a Memorandum of Understanding between Nicola, Rebecca, and the EFAO.

Experimental Design

Rebecca and Nicola will compare two methods of cabbage seed production:

1. The “Fruition” or “pyramid” method, learned from Petra and Matthew at Fruition Seeds, where the head is trimmed like a pyramid such that leaves are usable but not sellable, to
2. An alternative “Meadowlark” or “chop” method, learned from Beth and Nathan at Meadowlark Hearth Biodynamic Seeds, that removes the head in a way that it can be sold at winter or spring markets.

They selected 100 ideal cabbage heads (round, medium size, no splitting) last fall and these were harvested and stored with roots in plastic bags in the rafters of their walk-in cooler. They expect at least 80 plants will survive until April/May, when they will replant them in the field. They will assign each cabbage to a specific method by choosing plants at random from the cooler. They will mark plants cut in the “fruition/pyramid” method with flagging tape tied around the stalk.

For both methods, Nicola and Rebecca will plant the cabbages 2’ apart, in two rows per 4’ bed, for a total of approximately 80 - 100 bed feet, depending on survival rate.

Nicola and Rebecca will divide each bed into 20’ blocks, each growing 10 cabbages in two rows for a total of 4-5 sections. Each of the 20’ blocks will contain two 10’ sections randomly assigned to either the “Fruition/pyramid” method or the “Meadowlark/chop” method section, for a randomized complete block design with 4-5 replicates.

Randomized complete block design with 4-5 blocks/replicates

Control: Fruition method

Treatment: Meadowlark Hearth method

Block 1		Block 2		Block 3		Block 4		Block 5	
200'									
10'	10'	10'	10'	10'	10'	10'	10'	10'	10'

Predictions

Greater volume of seed from pyramid (control) method but greater value from treatment (chopped off head), both in terms of higher quality seed + sellable cabbage

General management

Selection and roguing happened in the first year. Selection for storage-ability happened in the cooler with those not surviving not being planted out in year two. Rebecca and Nicola will not rogue this year (2017; year 2), as it would impact the data.

They will stake cabbages to keep the seedheads off the ground. T-posts will be placed every 10 feet (for a total of 9-11 t-posts needed). Baler twine will be used in the florida weave method for support.

Measurements

They will record how many cabbages they are able to send to market using the “Meadowlark/chop” method, and document a potential revenue from these heads.

For harvesting, they will harvest cabbage seeds on tarps: “Fruition/pyramid” method to one side of the bed and the “Meadowlark/chop” method to the other side. They will have 10 tarps with seed that will need to be dried down under cover, threshed, and winnowed separately.

They will measure seed quantity (weight of total seed per treatment) and quality (weight of seeds after heavy cleaning and removal of lightest seeds)

Statistical test

Paired t-test of control vs treatment for seed quantity and quality.

Research Expense Budget (prices are approximate)

- 6'x6' tarps, \$15.99 each x 10 tarps = \$159.90
- Flagging tape, \$6.99
- T-posts, \$8.99 each x 9-11 as needed, ~ \$100
- Additional research expenses pending approval

Memorandum of Understanding

Compensation for farmer-researchers

- Farmer-fee of \$500 per farm per experiment
 - \$250 receivable upon acceptance of this Research Protocol and Memorandum Of Understanding (MOU)
Acceptance form: <https://goo.gl/forms/0wMjDHmoLzRwLJIE3>
 - \$250 receivable upon remittance of the experimental data and photos, no later than October 31, 2017
- Reimbursement for approved research expenses
 - See budget above for approved research expenses
 - Fill out Reimbursement Form and send receipts (digital or hard copy)
Reimbursement form: <https://goo.gl/forms/6Rkj75dU7QGxBNDj2>
- Reimbursement for hotel stay, one per farm per experiment, for the Farmer-led Research Workshop, November 28, 2017 in conjunction with the EFAO Conference in Collingwood, Ontario.

In addition to the compensation above, the EFAO will

- Help set up Research Protocol, write and post Protocol in the Research Library
- Monitor progress of project, including check-ins and help with troubleshooting
- Deliver or mail a Farmer-Researcher farm gate sign
- Conduct training program related to on-farm research (training webinar link [here](#))
- Help analyze data, write and post a Research Report in the Research Library

Farmer-researchers will

- Maintain current membership in EFAO
- Establish and conduct experiment as outlined in Research Protocol above
- Record data outlined in Protocol and/or data collection sheet
- Take high quality photos throughout the project
- Keep in contact with EFAO with updates, problems, and questions
- Turn in data in a digital format and 3-10 best photos by October 31, 2017
- Complete feedback surveys related to the program
- Whole Circle Farm will host a Biennial Seed Production and Participatory Plant Breeding field day in August, as organized by Aabir Dey, EFAO, and Whole Circle Farm
- Provide upto 1 hour of mentoring, including reviewing related protocols in 2017 and/or 2018, and phone consultation with fellow farmer-researchers on related projects.

If possible, the farmer-researchers will

- Attend and present at the Farmer-led Research Workshop November 28, 2017 in conjunction with the EFAO Conference in Collingwood, Ontario

Contact

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Ontario
Trillium Foundation



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