

EFAO HORTICULTURE 2020: Research Protocol

Efficacy of mycorrhizal inoculants on vegetable transplants

Farmer-Researcher: Dianne Kretschmar, Grenville Farms - North

Research Priorities: Soil Health, Disease Control

EFAO Contact: Sarah Hargreaves, sarah@efao.ca, 226-582-0626

Objective

To determine if there is a benefit - yield and /or pest and disease resistance - to using mycorrhizal inoculants on vegetable transplants.

Background

Dianne did test runs in the summer of 2019. She observed an amazing response to inoculant, which warrants a more sophisticated trial.

Experimental Design

Treatments:

- No inoculant (control)
- Root Rescue Transplanter, applied to the seed at seeding
- Myco-Grow®, applied to the seed at seeding

Crops - $\frac{1}{3}$ of **each variety** will receive one of the three treatments:

- Lettuce (at least 4 successions)
 - Green butterhead (Adriana)
 - Red butterhead (Skyphos)
 - Red oakleaf
- Onions - grown down centre of raised beds (at least 3 successions)
 - Patterson

Design:

- Dianne will seed the crops in paper pots, keeping the control seeds in separate trays, and using wood stakes to identify the different treatments.
- For at least 4 successions of lettuce and 3 of onion, Dianne will plant all treatments of a single variety on the same day. She will randomly assign the location of each variety within the bed in the field.
- In the field, Dianne will use repurposed venetian blinds to mark the location of treatments for each variety.
 - Location of succession 1 and 2: fall cover crop in 2019
 - Location of succession 3: inoculant used in in 2019
 - Location of succession 4: no inoculant used in in 2019

EFAO HORTICULTURE 2020: Research Protocol

- Other successions TBD

Analysis: Randomized complete block design

Example design for lettuce, with ~ 50 plants per section

succession 1	red oakleaf	green butterhead	red butterhead	other varieties...
succession 2	red butterhead	red oakleaf	green butterhead	other varieties...
succession 3	red butterhead	green butterhead	red oakleaf	other varieties...
succession 4	red oakleaf	red butterhead	green butterhead	other varieties...
etc...				

Research Plan

Time	Task	Methods & Measurements or Action Item
Throughout	Seed	<ul style="list-style-type: none"> • 1/3 of each variety in the trial seeded with one of three treatments; keeping the controls in a different tray than the inoculated trays. • Record seeding date and any other relevant information.
Throughout	Germination	Do you want to record % germination?
Throughout	Transplant	Transplant in the field, keeping treatments clearly marked for each variety.
Throughout	Measurements	<p>Yield</p> <ul style="list-style-type: none"> • For each variety and treatment section, select 10 plants from the middle of the section • Record marketable yield of the 10 plants, using tared crates. <p>Disease resistance</p> <ul style="list-style-type: none"> • Throughout the growing season, take notes and observations on disease resistance and

EFAO HORTICULTURE 2020: Research Protocol

		overall crop help.
October 31, 2020	Submit data and photos	Submit data and photos to Sarah
After deadline	Invoice	Send Sarah invoice for farmer-fee

Materials

Please list all the equipment that you need for this project. Indicate “in-kind” under Total Cost for any materials that you already own or have access to. For pre-approved research expenses, for which you will be reimbursed, please indicate cost.

Material	Quantity Required	Total Cost*
Inoculant - Myco-Grow®		
Inoculant - Root Rescue		
Seeds		
Potting soil		
Paper chain pots		
Total		\$900 max

* For approved research expenses

Farmer-fee: \$500, invoiced to EFAO after farmer-researcher submits data.

Memorandum of Understanding

Farmer-researchers agree to keep an active membership with EFAO throughout the duration of their trial. Reimbursement for research expenses and farmer-fees will be paid to current members only.

Please also refer to efao.ca/farmer-led_research for a **Memorandum of Understanding** of other responsibilities. Specifically refer to sections:

- *What is expected of me as a farmer-researcher?*
- *What support will I receive from EFAO as a farmer-researcher?*

To check the status of your membership, log in here:

<https://efao.z2systems.com/np/clients/efao/login.jsp> or contact Martina, martina@efao.ca.