Efficacy and Crop Safety of Azoxystrobin for the Control of Root Rot in Mint (GH Transplant)

Project No. P13108
Date: 02/2024

PROJECT TITLE:

Efficacy and crop safety of azoxystrobin for the control of root rot in mint (GH transplant)

PROJECT JUSTIFICATION AND OBJECTIVES:

IR-4 received a request for the use of azoxystrobin for control of root rot in mint. The purpose of this research is to collect efficacy and crop safety data to support registration of azoxystrobin for use on mint greenhouse transplants.

Adherence to Good Laboratory Practices (GLPs) is not required for trials conducted under this research plan.

IR-4 RESEARCH COORDINATOR:

Consult with the Research Coordinator listed below regarding desired changes in this research plan prior to occurrence.

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Signature of IR-4 Research Coordinator
Jaimin Patel

02/19/2024
Date

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MATERIALS & METHODS:

Host plant: Mint - Use locally grown commercial varieties that is susceptible to the test pathogen.

Disease / Pathogen: Root rot / *Pythium* spp.

Test site: Greenhouse.

Treatments:

Treatment[1]	MFG	EPA Reg. #	AI	Target rate of A.I.	Rate & application method	Application details	Spray volume**
Untreated control (No inoculation)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Untreated (inoculated soil)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Standard registered control	Depends on the product	Depends on the product	Depends on the product	Depends on product	Read label	Read label	Read label
Heritage 50 WG	Syngenta	100-1093	Azoxystrobin	3.40 lb ai/acre	1.0 oz or 2 oz/100 gal water; Drench	Make 3 container drench applications at 7 (± 1) day RTI with the last application one day prior to plants leaving the greenhouse	1 or 2 pints (473 or 946 mL) (±1%) diluted solution per 1 ft^2 surface area***

[1]Trial should consider inoculating test pathogen to all treatments (except treatment 1). Record the method of inoculation and add it in the final report.
**Make the application at 2 pints/ft^2 using a solution of 1 oz Heritage 50 WG/100 gal = 3.40 lb a.i./A
Make the application at 1 pints/ft^2 using a solution of 2 oz Heritage 50 WG/100 gal = 3.40 lb a.i./A
***If using a graduated cylinder, syringe or one nozzle boom, it is surface area of each pot
If using a sprayer with a multiple nozzle boom, it is surface area of the treated area.

Test Substances Manipulation: Read product use directions prior to manipulation and application. Applicators and handlers must wear the personal protective equipment listed on the product label. Do not use old/expired products for trials conducted under this research plan. The IR-4 Research Coordinator will arrange for new test substance to be delivered.

Upon receipt of the test substance(s), document the corresponding lot/batch number. Store the test substance in a secure, clean, dry area at temperature ranges noted in the product label. Use application equipment that will provide uniform application of the test substance and simulates the intended commercial application technique. To ensure accurate delivery, calibrate test application equipment prior to application of the test substance(s).

Experimental Design: Each test site should include four (4) blocks and each block should include all treatments. Arrange plots in a randomized complete block design or other appropriate statistical design. The individual plots should be large enough to permit accurate application of the test substance in a manner that represents the major application technique that will be used commercially.

Supplemental Crop treatments: The integrity of the study should be protected by managing pests causing significant damage to the crop other than the test target pest. Only EPA-registered maintenance pesticides should be used at labeled rates and applied to all experimental units. Document all supplemental crop treatments.

DATA COLLECTION:

Efficacy:

Assess disease incidence (number of affected plants over totality of plants evaluated for disease presence) and severity (average degree of infection) weekly starting from first appearance of the disease symptoms. Use the appropriate defined scale to measure the disease severity.

Phytotoxicity:

Assess phytotoxicity in the plot(s) preferably 7-14 days after each application of the test substance, using the damage scale indicated below. The untreated plants should be assessed on the same date that any treated plants is assessed. If the crop is to be harvested/sampled within 14 days of the last application, then make the assessment on the day of harvest. The rating is an assessment of the damage throughout the entire treatment. If a rating of one (1) or higher is given to a treated plot, a follow up rating is needed 7-14 days after that, even if there is no additional test substance application in the interim, unless this rating is given to the crop at harvest.

Scale:

- 0 = no damage seen in the plot
- 1 = damage in ≤10% of the plot
- 2 = damage in 11-25% of the plot
- 3 = damage in 26-50% of the plot
- 4 = damage in >50% of the plot

Keep a record of type of phytotoxicity observed (i.e. leaf burning, leaf falling, leaf necrosis, stunted plants, etc.)

STATISTICAL ANALYSIS:

Conduct appropriate statistical analysis to determine if significant differences exist between treatments. Statistical analysis from commonly used agricultural data programs, such as but not limited to Agricultural Research Manager (ARM), SAS, Minitab, etc. is acceptable.

DATA REPORTING:

At trial completion, please submit a final report and the raw data in two separate files to the IR-4 Research Coordinator and the appropriate Regional Field Coordinator (RFC) listed below.

For the sake of consistency and to avoid missing information, IR-4 encourages collaborators to adopt and fill out the Final Report Research Template provided by the Research Coordinator prior to trial conclusion.

The final report and the raw data should be submitted to IR-4 within 60 days of last data collection.

DATA PUBLICATION:

For non-confidential test substances, IR-4 encourages researchers to publish the results obtained from the study. Any publications should acknowledge support by IR-4 and consider including our plant pathologist, Dr. Jaimin Patel, as one of the authors when you publish any article resulting from this protocol. IR-4 Plant Pathologist spends a considerable amount of time in preparing protocol and providing technical details in this protocol.

TRIAL SITE INFORMATION

Researcher	Field ID NO.	RFC
Fulya Baysal-Gurel, PhD Interim Associate Dean of Research Associate Professor Otis L. Floyd Nursery Research Center College of Agriculture Tennessee State University 472 Cadillac Lane McMinnville, TN 37110 Office phone: 931-815-5143 email: fbaysalg@tnstate.edu **Shipping address is same as above**	P13108.24-TNP01	SOR

RESEARCH FIELD COORDINATORS (RFC)

SOR: Dr. Janine Spies, University of Florida, 1642 SW 23rd Drive, Bldg 685, PO Box 110720, Gainesville, FL 32611-0720; Tel: (352) 294-3991, FAX# 352-392-1988; e-mail: jrazze@ufl.edu