



Efficacy and Crop Safety of Pyraziflumid for the Control of *Alternaria* in Greenhouse-Grown Lettuce

Project No. P12795

Date: 06/2022

PROJECT TITLE:

Efficacy and Crop Safety of Pyraziflumid for the Control of *Alternaria* in Greenhouse-Grown Lettuce.

PROJECT JUSTIFICATION AND OBJECTIVES:

IR-4 received a request for the use of pyraziflumid on greenhouse-grown lettuce for the control of *Alternaria*. The purpose of this research is to collect efficacy and crop safety data to support registration of the proposed use pattern for pyraziflumid on this specialty crop.

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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Principal Entomologist and Plant Pathologist,
IR-4 Project Headquarters
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Signature of IR-4 Research Coordinator
Alice Axtell

6/22/2022

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MATERIALS & METHODS:

Host plant: Lettuce (Butterhead varieties only) - Use a locally grown commercial variety that is susceptible to the test pathogen and is suitable for greenhouse production.

Pathogen: *Alternaria*

Inoculum: Yes – Artificial inoculation should occur 1 day after the first treatment application. The goal is to simulate preventative applications of the product.

Treatments:

Product	MFG	EPA Reg. #	AI	Appl. Type	Rate	Adjuvant	No. of Appl., RTI* & PHI	GPA
UTC	N/A							
Procure-480SC [Industry Standard]	UPL	400-518	Triflumizole	Foliar Spray	8 fl oz/A	No	Make the first application 1 day prior to inoculum; make the second application after 14 days	50-100 gal/A
Pyraziflumid 20SC	NAI	N/A	Pyraziflumid	Foliar Spray	4.6 fl oz/A 3.2 fl oz/A	Use a non-ionic surfactant at the labeled concentration	Make the first application 1 day prior to inoculum; make the second application after 7 (± 1) days PHI= 1 day	

*RTI: re-treatment interval

Test Substances Manipulation & Application: 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.

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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 conduct four replicates of each treatment. 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:

If feasible, disease incidence and severity should be rated 1-2 days prior to the very first treatment application. Ratings should continue on a weekly basis. For incidence, evaluate plants in each replicate and calculate the number of infected plants (% of infection). For severity, evaluate each plant for percent surface infection (% of leaf area infected) using a known scale (e.g. Horsfall-Barratt scale).

Crop Injury:

Assess phytotoxicity in the plot(s) preferably 7-14 days after each application of the test substance, using the damage scale indicated below. If an application interval is less than 7 days, then the assessment may be done at the next application date. The untreated plot should be assessed on each date that any treated plot 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 plot. If a rating of 1 or higher is given to a 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



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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.

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.

TRIAL SITE INFORMATION

Researcher	Field ID NO.	RFC
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RESEARCH FIELD COORDINATORS

SOR: Dr. Janine Spies, IR-4 Southern Region Field Coordinator's Office, Univ 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