Efficacy and Crop Injury of Inpyrfluxam for management of Southern Blight in Processing and Fresh Tomatoes

Project No. P13511
Date: 01/2024

PROJECT TITLE:

Efficacy and crop injury of inpyrfluxam for management of southern blight in processing and fresh tomatoes.

PROJECT JUSTIFICATION AND OBJECTIVES:

IR-4 received a request for the management of southern blight in tomatoes. The purpose of this research is to collect efficacy and crop safety data to support registration of test fungicides for control of southern blight of processing and fresh tomatoes.

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.

Jaimin Patel, Ph.D.
Principal Plant Pathologist
IR-4 Project Headquarters
1730 Varsity Drive, Venture IV Suite 210
Raleigh, NC 27606
Office: (919) 515-4287
E-mail: jpatel38@ncsu.edu

Signature of IR-4 Research Coordinator
Jaimin Patel

01/23/2024
Date

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MATERIALS & METHODS:

Host plant: Tomato (**processing tomatoes in CA and fresh tomatoes in FL**) - Use locally grown commercial varieties that is susceptible to the test pest. Report variety/source, lot number, etc.

Test Site: Field

Disease/Pathogens(s): Southern blight / Fungi: *Athelia rolfsii* (formerly *Sclerotium rolfsii*)

Treatments:

Treatment	MFG	EPA Reg. #	AI	Application Method	Product Rate	No. of Appl. & RTI[1]; Any note
Untreated	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	Read label	Read label	Read label
Excalia **(Only in CA for processing tomatoes)**	Valent	59639-230	Inpyrfluxam	Drench (directed to the base of the plant) followed by drip applications	2 fl oz/A	1st drench application at transplanting in 500 gal/A volume; 2nd to 4th drip applications in 70 gal/A volume at 30, 60 and 90 days after 1st drench; 1 day PHI
Excalia **(Only in FL for fresh tomatoes)**	Valent	59639-230	Inpyrfluxam	Drench (directed to the base of the plant) followed by drip applications	2 fl oz/A	1st drench application at transplanting in 500 gal/A volume; 2nd to 4th drip applications in 70 gal/A volume at 30, 60 and 90 days after 1st drench; 1 day PHI

[1] RTI= Re-treatment Interval

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 within 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: Please select a tomato field that has a history of southern blight.. If field site does not have a history of southern blight, please perform artificial inoculation. Please keep a record of inoculum concentration and a plant stage when inoculum is applied. Inoculate with pathogen when soil has an optimum conditions (i.e. soil moisture & temperature) for *S. rolfsii* growth. Each test site should include four (4) blocks and each block should contain 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. Conduct appropriate statistical analysis to determine if significant differences exist between treatments.

Supplemental Crop treatments: To protect the integrity of this study, manage pests causing significant damage to the crop other than the 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:

Collect disease severity and incidence from each treated plot weekly starting from first appearance of the symptoms. Disease severity should be recorded as the percent of affected tissue per plant. Incidence should be recorded as the number of plants showing disease symptoms or signs in percentage. Record type of disease symptoms observed (i.e. wilted plants, lesion on stem, girdling of the stem, etc.). When submitting report, please provide percent increase or decrease in disease severity/incidence compared to untreated control.

Crop Injury:

Crop health should be evaluated and reported on all plots weekly after each application and once at trial conclusion. Assess enough number of plants in each treatment. Use visual ratings on a 0 to 5 scale:

- For foliage injury: 0 = no adverse effect on foliage; 3 = moderate foliage damage; and 5 = severe foliage damage including defoliation and numerous spotting
- If damage appears to affect plant stand, record such data with type of injury.

Specify the type of injury (Stunted plant, dying branch, leaf burn, leaf cupping or twisting, chlorosis, etc.). If injury observed on tomato fruits, please record injury on a similar scale as well. Please provide an overall assessment (if the level of phytotoxicity would be acceptable in commercial production).

Yield:

Determine the marketable yield (i.e. weight). Provide percent increase or decrease in marketable yield compared to untreated control.

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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.

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 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
Dr. Jaspreet Sidhu Vegetable Crops Farm Advisor Cooperative Extension Kern County 1031 South Mount Vernon Avenue Bakersfield, CA 93307 661-868-6222 jaksidhu@ucanr.edu **Shipping address is same as above**	P13511.24-CAP14	WSR
Dr. Gary Vallad Professor of Plant Pathology UF/IFAS GCREC 14625 County Road 672 Wimauma, FL 33579 Phone: 813-419-6577 Email: gvallad@ufl.edu **Shipping address same as above**	P13511.24-FLP10	SOR

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RESEARCH FIELD COORDINATOR (RFC)

WSR: Dr. Kari Arnold, Regional Field Coordinator, Western Region, Western Region IR-4 Project, Cell: (530) 574-9181; email: klarnold@ucdavis.edu

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