## **Promoting Resilience to Western Flower Thrips in Florida Lettuce Production**

# UTERSITY of FLORIDA

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## BACKGROUND



- Florida is the third largest US lettuce producer with over 11,000 acres cultivated annually.
- Impatiens necrotic spot virus (INSV), transmitted by the Western flower thrips (WFT), poses a significant threat to lettuce production, leading to 100% yield loss in extreme cases

## **RESEARCH OUTLOOK**

## **1. Screening potential presence of INSV in Florida lettuce**



#### as reported in California.

- There are no reports of INSV in Florida lettuce as of April 2025, but it was reported in ornamental crops, such as Phalaeonopsis orchid and Lisianthus. Additionally, WFT are common pests in Florida lettuce and other crops which raises concern in Florida lettuce production.
- Understanding INSV prevalence and its vector is crucial for protecting lettuce. However, there is limited information on INSV and thrips prevalence in Florida's lettuce crops.
- The aim of this study is to provide insights into INSV and thrips populations as well as exploring readiness measures to enhance disease resilience in lettuce cultivation in Florida.

## **OBJECTIVES**

- To screen for potential presence of INSV in different lettuce farms in EAA.
- $\succ$  To monitor thrips population in the fields.
- > To evaluate lettuce cultivars resistance against WFT.





#### **Current status**

- As of March 2025, no positive sample has been detected out of 10 tested.
- Additional screenings are in progress.
- This study will help stakeholders to know the status of INSV in lettuce for better informed planning.

## 2. Monitoring thrips population



- Blue pan traps are used in two commercial farms and one research farm.
- Data is collected at weekly interval.
  - Thrips populations show a fluctuation over time.
  - Periodic surges of thrips poses a potential INSV transmission risk.

## **LETTUCE-THRIPS INTERACTION**



- Identification of all thrips found in pan traps to species is undergoing.
- Knowledge of the population dynamics and species composition will help in planning for pest management.

#### **3.Evaluation of cultivar resistance**



Each plant was infested by 7 female Western flower thrips

Number of immatures and adult thrips are counted after 14 days.



- Study goal is to screen 40 lettuce cultivars including wild-types, breeding lines, and commercial varieties for thrips resistance.
- Western flower thrips are reared in the Okeechobee cultivar, known for its susceptibility to other piercing-sucking pests such as aphids.

#### INSV symptoms in lettuce in California

A. Healthy lettuce, B. *Frankliniella occidentalis* (Western flower thrips), C. Lettuce damaged by thrips feeding and oviposition. D. Dark brown to black necrotic spots on young leaves caused by INSV transmitted by thrips. E. Necrotic spots and marginal lesions on leaves caused by INSV transmitted by thrips, F. Dead lettuce due to INSV.

- Preliminary evaluations of 21 lettuce cultivars indicate that La Brillante, PI667690, Hacienda, and 50100 exhibit resistance to Western Flower Thrips.
- Findings will support breeding thrips-resistant cultivars.

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