STATE OF THE INDUSTRY

Status of Thrips Control in Canadian Greenhouses

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Canadian Greenhouse Conference 2018
Thrips Control Then and Now

• Most growers in Canada relying entirely on biological control

1990s+: “Kitchen Sink”
• Mass trapping
• Hypoaspis miles
• Hypoaspis aculeifer
• Swirski
• Cucumeris
• Atheta
• Beauveria
• Met 52 in the soil
• Nematodes
• Orius
• Exclusion screen

2018: “Boiled Down”

Mite broadcasts

Mite sachets

Beauveria
Where We Stand: 2018

**BUT** growers still list thrips as #1 pest issue - **WHY?** (VRIC Survey 2018)

1. **HIGH COSTS** of control
   - Most crops, year round

2. **DIFFICULTY**
   - Complicated programs

3. **FAILURES**
   - Sprays, losses, returns

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**Thrips = 75% of biocontrol inputs**
Failures from:

1. High Thrips Pressure in Cuttings

Data courtesy of Dr. Rose Buitenhuis, VRIC

![Bar chart showing thrips pressure over days after receipt](chart.png)
2. FLY-IN’s

![Graph showing Average WFT counts/card throughout farm, 2016]

Normal average

Failures from:

3. OTHER Thrips Species???

Western flower thrips

Echinothrips

Unknowns?
Methods:
- 8 large commercial operations
- 6 main crops
  - chrysanthemums
  - impatiens
  - gerbera
  - mandevilla
  - hibiscus
  - geranium
- Plant taps, May – Aug
Thrips Species in ON Flower GHs

WFT - UofF

Percent of Thrips Species Found

WFT 65%
Thrips Species in ON Flower GHs

Percent of Thrips Species Found

- Onion thrips 33%
- WFT 65%
- Echinothrips 1%
- Other 1%

Onion thrips – Cornell univ.

WFT – UofF
Other crops where we see Onion thrips:

- Osteospermum
- GH herbs
- Cyclamen
- Gloxinia
Thrips Species

Can vary by year…

2 Chrysanthemum Greenhouses

Greenhouse A

Greenhouse B

2016 2017 2016 2017

Why?:
• Fly-ins?
• Pesticide use?
3. Onion thrips populations:

- Cause **INTENSIVE** damage
- **Clustered** on small groups of plants
- **Hard to monitor:** Damage on plants, few thrips on cards
- **Uncontrolled** by biocontrol (?)
- Occur **year round** (?)
3. OTHER Thrips Species – Issue World-Wide?

Improving knowledge on thrips diversity and ecology in French greenhouses: inputs of barcoding approaches for a better pest management

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Abstract

47% = Onion thrips
Thrips Species

3. OTHER Thrips Species – Greenhouse Vegetables?
Failures From Other Thrips

- Onion thrips: 33%
- Echinothrips: 1%
- Other: 1%

Includes:
- A. obscurus
- Greenhouse banded thrips
- Chrysanthemum thrips
- Chili thrips

Percent of Thrips Species Found
Chili Thrips

• Has been confirmed in Ontario on imports
  – Remains a border risk
  – From shipments from Florida and other high-risk States
  – Often on tropicals
  – Also causes intense damage
    • Looks more like broad mite damage
Know Thine Enemy

• **Why?** Unlike WFT, *Onion thrips* / *Chili thrips* susceptible to chemicals

![](Image)

Onion thrips: Photo courtesy UKY.edu

Think before you spray
Know Thine Enemy

- **Avoid “diagnostic sprays”**
  
  Eg. Direct contact of Success: (spinosad) > 90% mortality of *A. cucumeris*
  
  Residual toxicity (LD25): min. 3 days
• Simple **Thrips ID key** for growers
  – Monitor species ratios or **ID thrips on problem plants**
  – Requires microscope

A. Summerfield and S. Jandricic, 2018

Find on **ONFloriculture** or **GreenhouseIPM.Org**
“If most ocelli are grey, go ahead and spray. If most ocelli are red, use more bios instead” *

(*Unless it’s Chili thrips, ’cause that’s a border issue)

After the ID: Putting it all Together

Onion thrips:
- Use chemical control in target areas
- Choose chemicals with low residual toxicity

Western flower thrips:
- What tools haven’t you tried?
- Put something back in that you took away?
- Can you do more of something?
Next Steps

• Expand current IPM/biocontrol programs to account for other thrips
  – Chili thrips: Post Doctoral research project in Florida
  – Onion thrips - ???

*Beauveria* infecting thrips. Photo courtesy of M. Brownbridge

*Swirski* eating thrips larvae. Photo courtesy of R. Buitenhuis
Questions?

Thanks for listening!

Thank you to all the summer students and growers that were part of this project!