

Strawberry Disease Roundup: Crown Rots, Neopestalotiopsis, and Botrytis

Natalia Peres, Professor, Plant Pathology

University of Florida

Gulf Coast Research and Education Center



Charcoal Rot



* Similar to symptoms caused by *Colletotrichum* and *Phytophthora*

Refresher on Charcoal Rot

- ✓ Caused by *Macrophomina phaseolina* (strawberry-specific strains)
- ✓ Favored by warm conditions, sand, and dry soils
- ✓ Not as dependent on leaf wetness
- ✓ Inoculum oversummer in soil and crop debris



Summary recommendations for fields with a history of Charcoal Rot

Most effective are pre-plant practices:

- ✓ **Early crop destruction and disking**
- ✓ **Pre plant fumigation with Telone C35 or PicClor at highest label rate**

Areas with a history of charcoal rot:

- ✓ **Avoid Medallion and Encore; Ember (or Brilliance) preferable**
- ✓ **White plastic (reduces temperature and disease)**
- ✓ **Later planting**

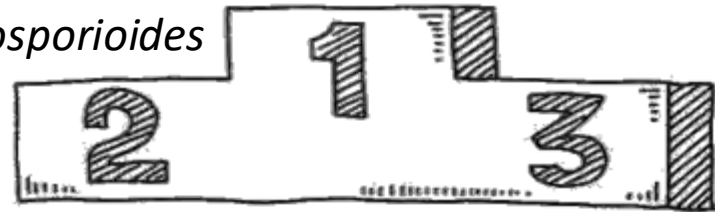
Colletotrichum crown rot

Colletotrichum crown rot



Colletotrichum gloeosporioides

C. gloeosporioides

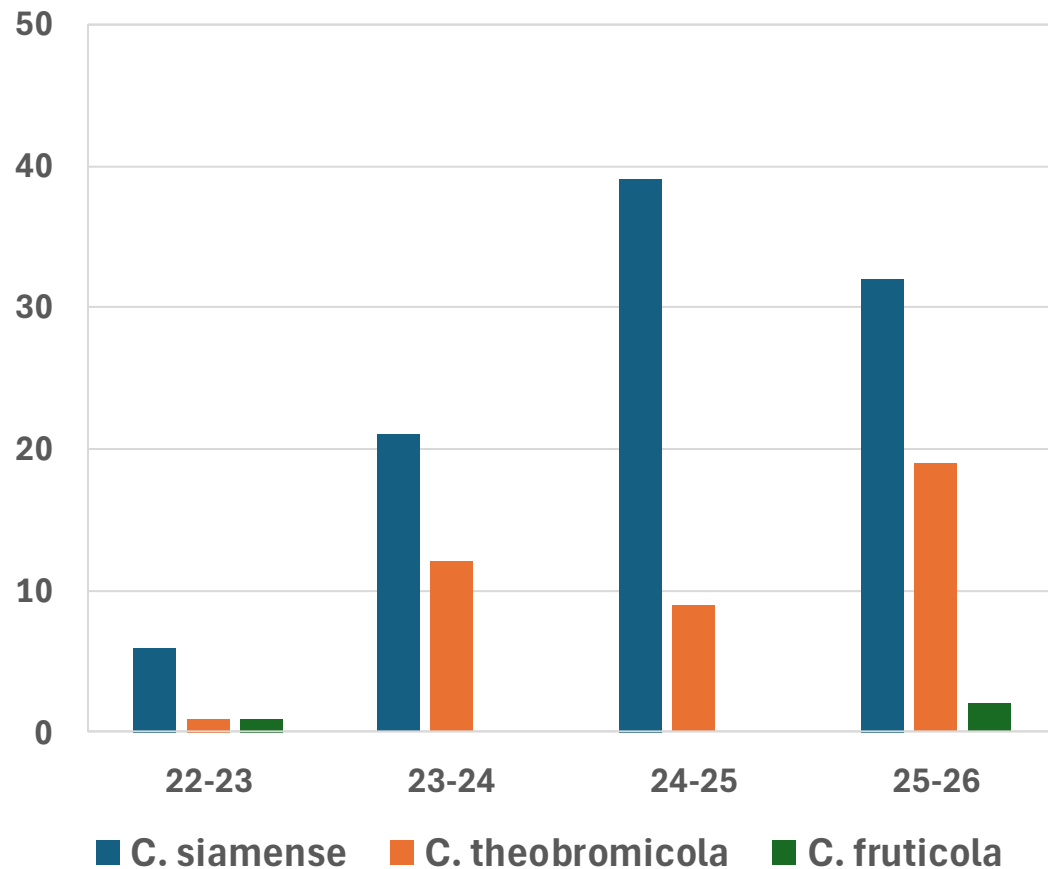


Refresher on Colletotrichum crown rot

- ✓ Caused by *Colletotrichum gloeosporioides* species complex
[*C. siamense*, *C. fructicola*, *C. theobromicola* (syn. *C. fragariae*)]
- ✓ Favored by warm conditions; not as dependent on leaf wetness
- ✓ Does not overwinter in soil or debris
- ✓ Inoculum from alternative hosts around strawberry fields (air potato, oak, Virginia creeper, wax myrtle, wild grape)



Increasing number of *Colletotrichum theobromicola* samples in past three seasons



Questions:

- ✓ Are fungicides similarly effective on *C. siamense* and *C. theobromicola*?
- ✓ Is strawberry resistance to the different *Colletotrichum* species specific?
- ✓ Are there some specific hosts around strawberry fields harboring *C. theobromicola*?

Summary recommendations for managing *Colletotrichum* crown rot

Pre plant-planning:

- ✓ If possible, Medallion or Sensation along field edges close to other vegetation rather than Encore or Brilliance

In season:

- ✓ Correct diagnosis!
- ✓ Preventive applications captan
- ✓ Targeted applications in warm weather
 - SDHIs (FRAC 7: Fontelis only one effective)
 - QoI (FRAC 11: Cabrio more effective than Abound)
 - Switch only when targeting multiple diseases

Disease Resistance Overview

Disease	Sensation	Brilliance	Medallion	Encore	Ember	22.52R-47
Anthracnose fruit rot (<i>Colletotrichum acutatum</i>)	R	MR	HS	MS	MR	HS
Colletotrichum crown rot (<i>Colletotrichum gloeosporioides</i>)	MR	MS	MR	S	MR	R
Charcoal rot (<i>Macrophomina phaseolina</i>)	MR	MR	HS	S	MR	S
Phytophthora crown rot (<i>Phytophthora cactorum</i>)	S	MS	MS	MR	MS	S
Pestalotia leaf spot (<i>Neopestalotiopsis</i> spp.)	HS	HS	S	S	MS	HS

HS = highly susceptible, S = susceptible, MS = moderately susceptible
MR = moderately resistant, R = resistant

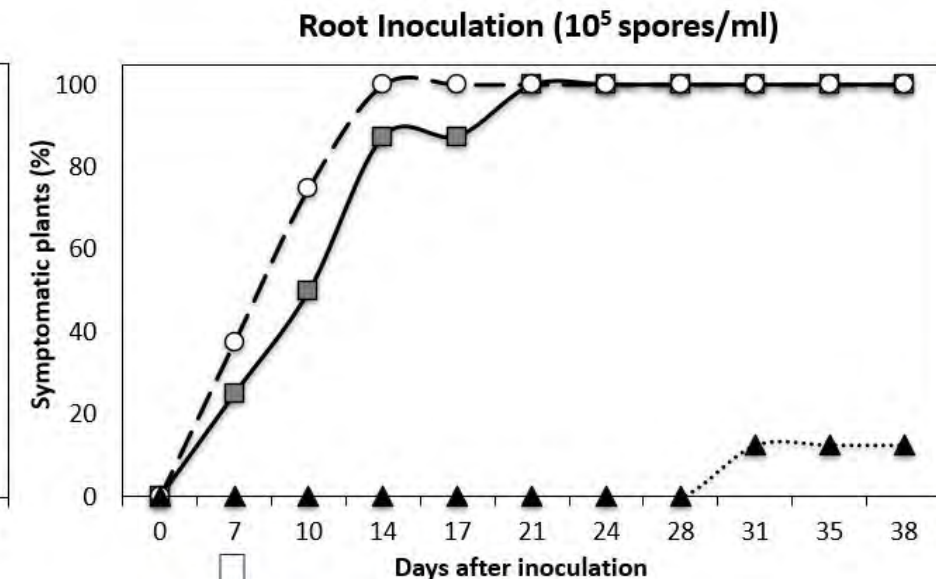
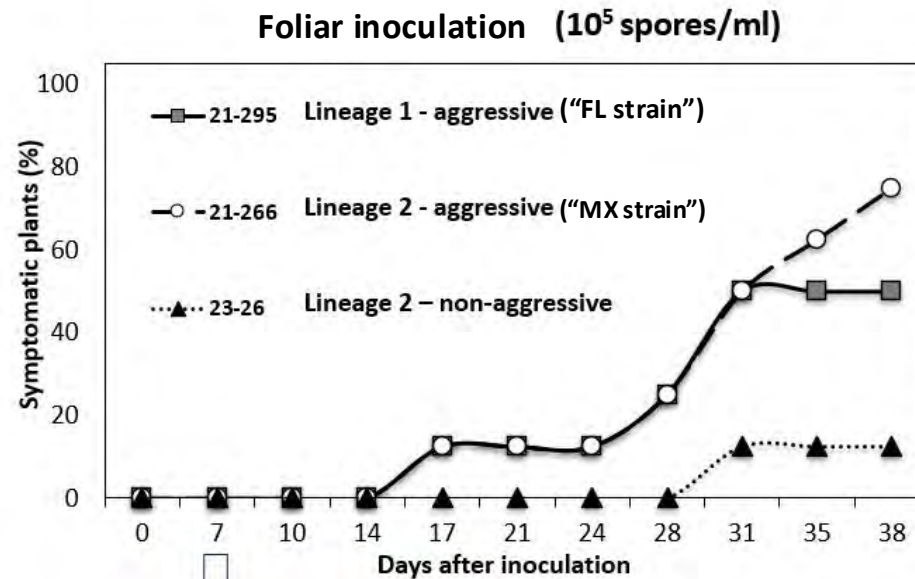
Pestalotia leaf spot and crown rot



Pestalotia crown rot observed in particular during 'dry seasons' such as 2025-2026

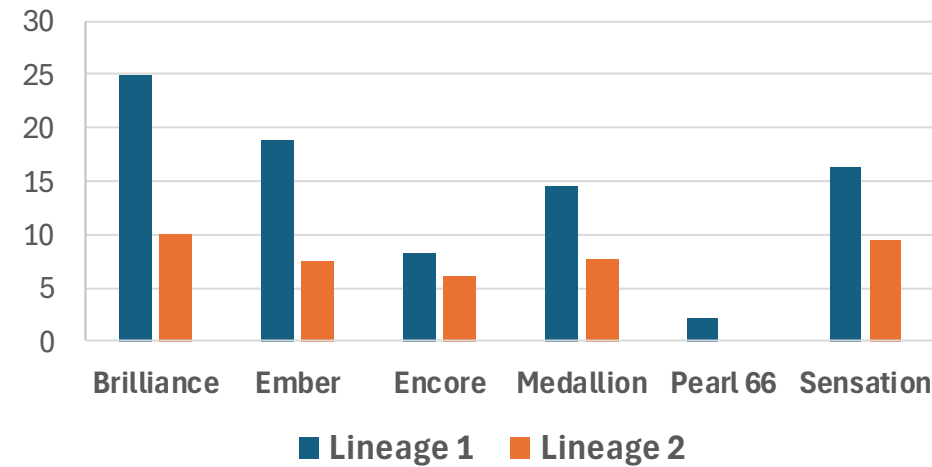


Crown symptoms can occur via foliar or root inoculation with both aggressive lineages of *Neopestalotiopsis*

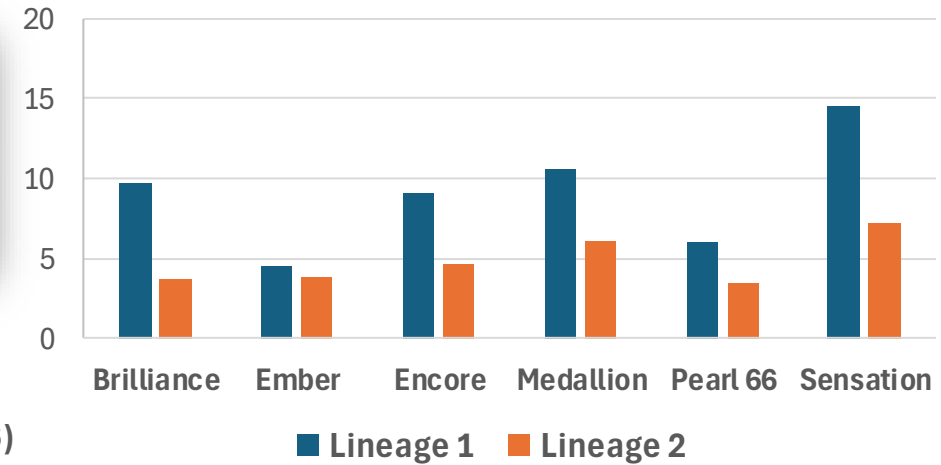


Lineage 1 (FL) more aggressive than Lineage 2

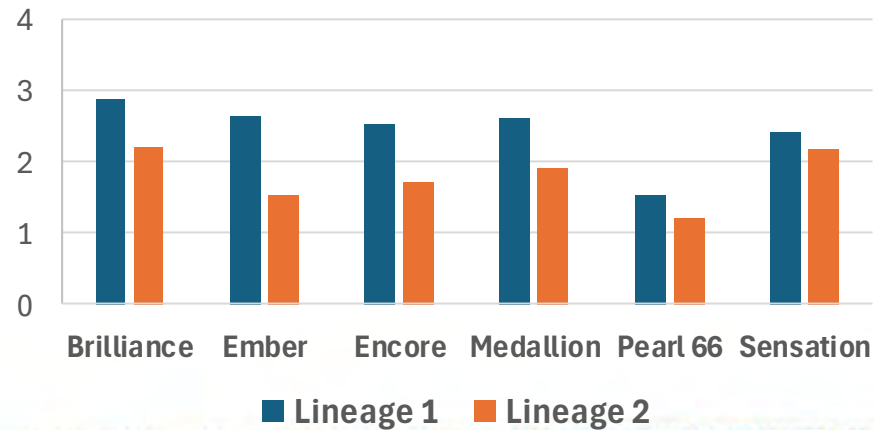
Crown Rot (%)



Fruit Rot (%)



Leaf Spot Rating (0-6)



Lessons learned in managing Pestalotia leaf spot and crown rot



'Less susceptible' cultivars

Host



Disease

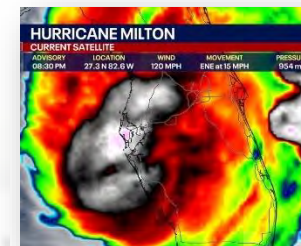
'Low' initial inoculum



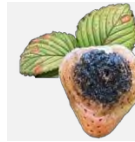
Pathogen

Environment

Faith in good weather



Sensation® 'Florida127' (HS)



Florida Pearl™ 'FL 16.78-109' (MS)



Non-inoculated

10 spores/ml

100 spores/ml



1,000 spores/ml

10,000 spores/ml

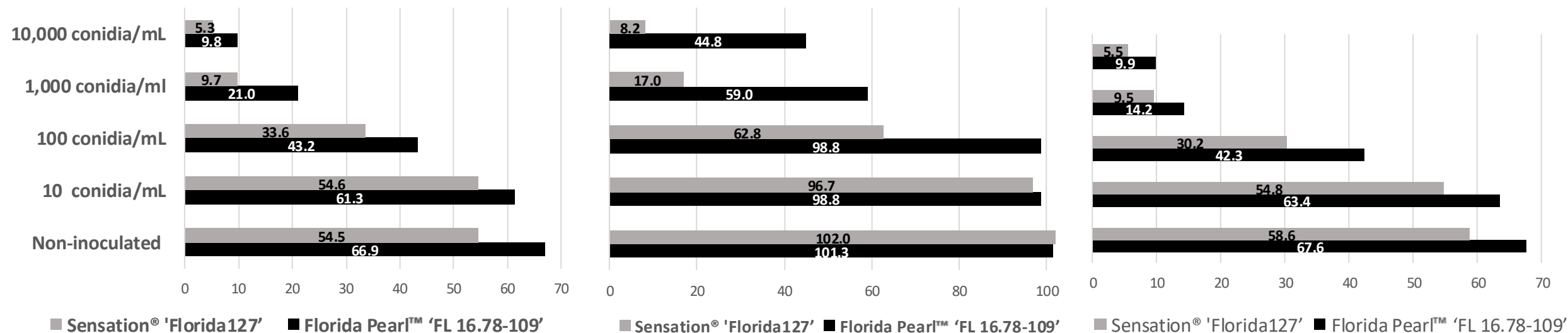


‘Incubation period’: time required for symptom development
Lower inoculum, less susceptible cultivars, and unfavorable conditions → longer for disease symptoms to appear

2023-2024

2024-2025

2025-2026



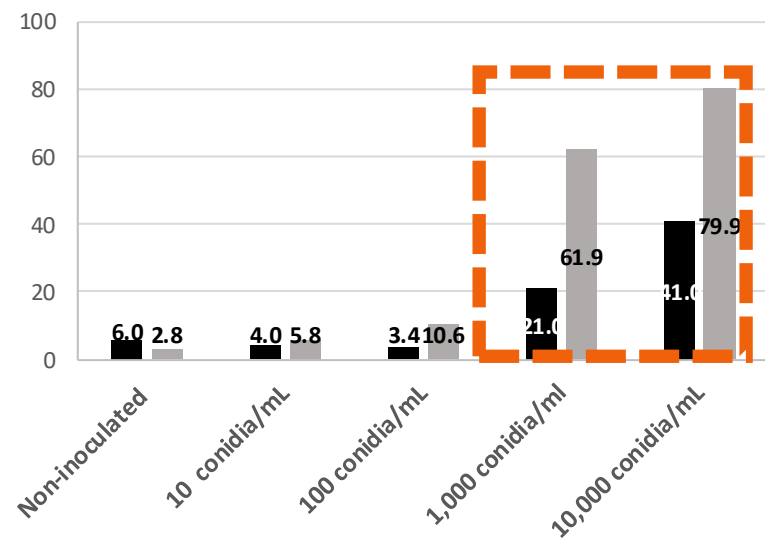
5-10 days with high inoculum levels vs 55-70 days clean plants

(Ember similar to Pearl)

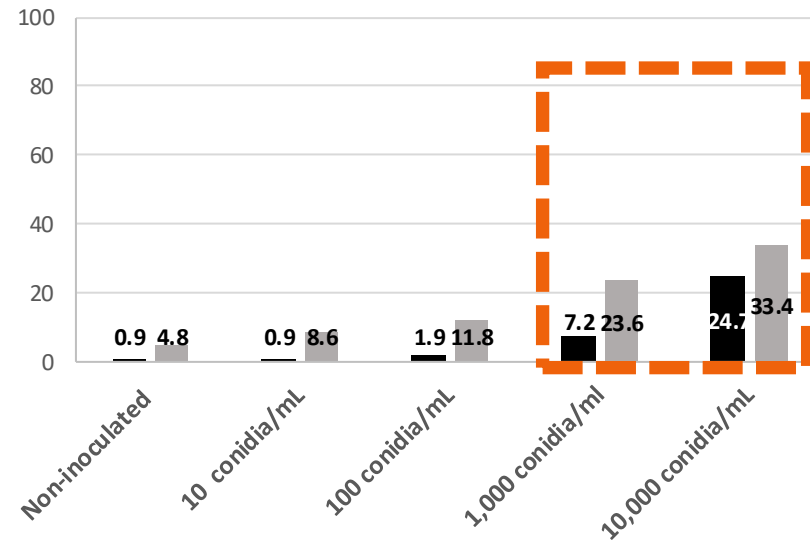
Overall disease incidence (% Fruit Rot)

Lower inoculum, less susceptible cultivars, and less favorable conditions → lower disease incidence

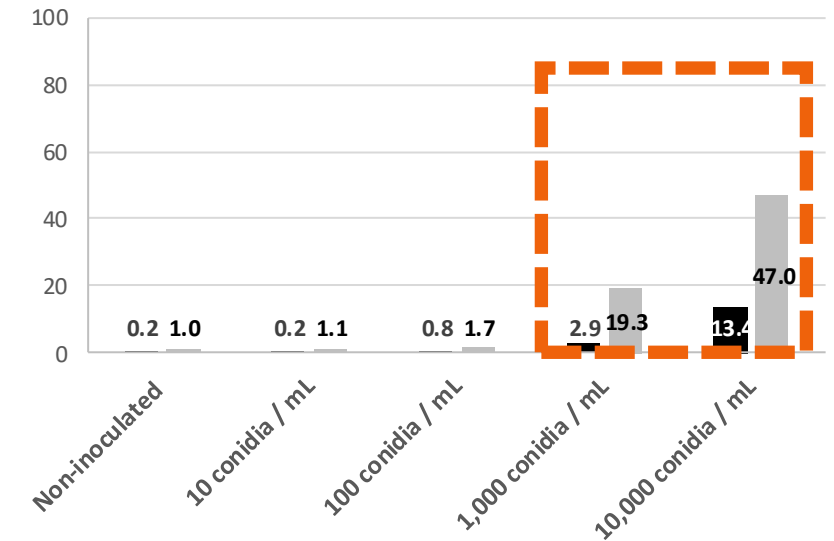
2023-2024



2024-2025



2025-2026



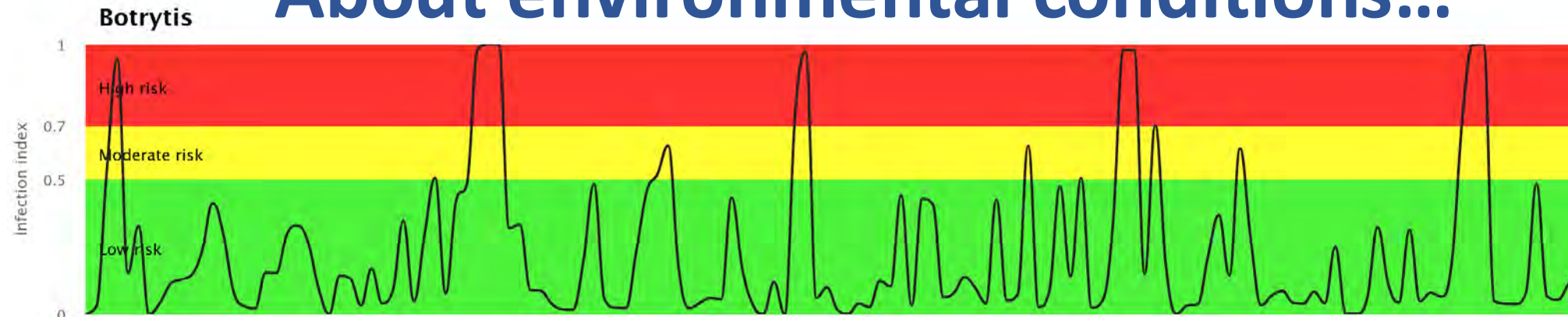
■ Florida Pearl™ 'FL 16.78-109' ■ Sensation® 'Florida127'

20-80% fruit rot incidence with high inoculum levels vs 0-10% with clean(er) plants

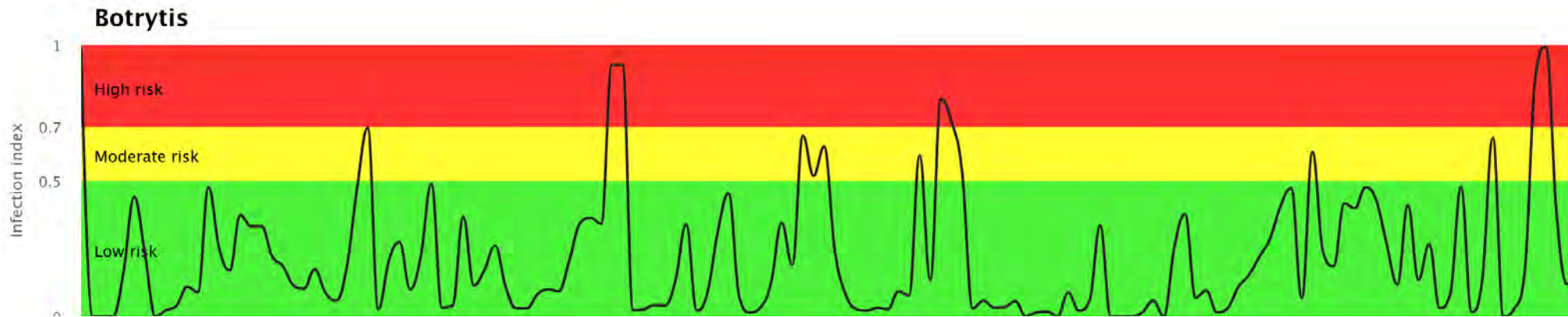


About environmental conditions...

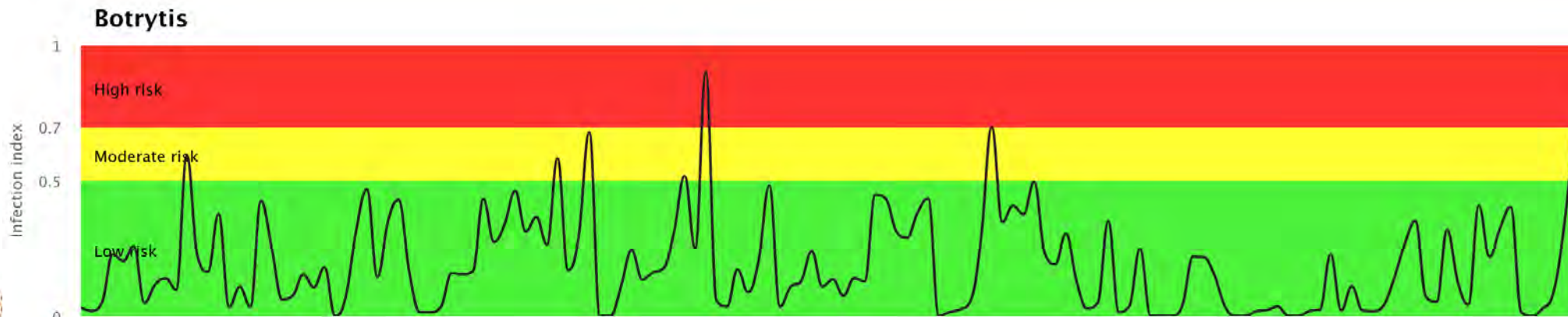
Plant City



2023-24



2024-25



2025-26

2025-26 Neopestalotiopsis fungicide trial

- Weekly applications (16) with fungicide choice based on weather (SAS alerts)
 - 4 applications 'high risk' conditions
 - 12 applications 'low/moderate' conditions
- Bi-weekly harvests for disease incidence (%) and yield (25 harvests total)



Neopestalotiopsis fungicide trial

Treatment

Alert weeks (4 applications)*	Other weeks (12 applications)	Fruit Rot (%)	Yield (lb/A)
Switch + JMS	Thiram + JMS	7.9 i	37228 abcd
Switch	Thiram + Megafol alt Prophyt biweekly	8.1 i	41916 a
Switch	Captan	8.2 hi	38491 abc
Switch	Thiram + Megafol biweekly	9.4 hi	37942 abc
Switch	Thiram	11.7 gh	37564 abcd
Gotablanca 1.5% v/v, weekly		14.5 fg	34652 bcde
Switch	OxiDate 5.0 alt Captan	16.6 ef	35729 bcde
Captan 80WDG 2.5 lb, weekly		17.0 ef	33682 cdef
Thiram SC 2.5 qt, weekly		18.6 ef	37488 abcd
Switch	Agrauxine program	20.3 de	33152 def
Rhyme	Thiram	20.7 de	37464 abcd
Inspire	Thiram	24.4 cd	32191 efg
Oso 5% SC alt. Howler EVO		29.8 bc	25809 h
Switch	Thiram + Prophyt biweekly	33.0 ab	29947 fgh
Inoculated control		37.4 a	28193 gh

*Nov 24, Dec 3, Mar 1, Mar 17 (no alert applications in Jan and Feb!)

Neopestalotiopsis fungicide trial

Treatment

Alert weeks (4 applications)*	Other weeks (12 applications)	Fruit Rot (%)	Yield (lb/A)
Switch + JMS	Thiram + JMS	7.9 i	37228 abcd
Switch	Thiram + Megafol alt Prophyt biweekly	8.1 i	41916 a
Switch	Captan	8.2 hi	38491 abc
Switch	Thiram + Megafol biweekly	9.4 hi	37942 abc
Switch	Thiram	11.7 gh	37564 abcd
Gotablanca 1.5% v/v, weekly		14.5 fg	34652 bcde
Switch	OxiDate 5.0 alt Captan	16.6 ef	35729 bcde
Captan 80WDG 2.5 lb, weekly		17.0 ef	33682 cdef
Thiram SC 2.5 qt, weekly		18.6 ef	37488 abcd
Switch	Agrauxine program	20.3 de	33152 def
Rhyme	Thiram	20.7 de	37464 abcd
Inspire	Thiram	24.4 cd	32191 efg
Oso 5% SC alt. Howler EVO		29.8 bc	25809 h
Switch	Thiram + Prophyt biweekly	33.0 ab	29947 fgh
Inoculated control		37.4 a	28193 gh

*Nov 24, Dec 3, Mar 1, Mar 17 (no alert applications in Jan and Feb!)

Neopestalotiopsis fungicide trial

Treatment			
Alert weeks (4 applications)*	Other weeks (12 applications)	Fruit Rot (%)	Yield (lb/A)
Switch + JMS	Thiram + JMS	7.9 i	37228 abcd
Switch	Thiram + Megafol alt Prophyt biweekly	8.1 i	41916 a
Switch	Captan	8.2 hi	38491 abc
Switch	Thiram + Megafol biweekly	9.4 hi	37942 abc
Switch	Thiram	11.7 gh	37564 abcd
Gotablanca 1.5% v/v, weekly		14.5 fg	34652 bcde
Switch	OxiDate 5.0 alt Captan	16.6 ef	35729 bcde
Captan 80WDG 2.5 lb, weekly		17.0 ef	33682 cdef
Thiram SC 2.5 qt, weekly		18.6 ef	37488 abcd
Switch	Agrauxine program	20.3 de	33152 def
Rhyme	Thiram	20.7 de	37464 abcd
Inspire	Thiram	24.4 cd	32191 efg
Oso 5% SC alt. Howler EVO		29.8 bc	25809 h
Switch	Thiram + Prophyt biweekly	33.0 ab	29947 fgh
Inoculated control		37.4 a	28193 gh

*Nov 24, Dec 3, Mar 1, Mar 17 (no alert applications in Jan and Feb!)

Neopestalotiopsis fungicide trial

Treatment

Alert weeks (4 applications)*	Other weeks (12 applications)	Fruit Rot (%)	Yield (lb/A)
Switch + JMS	Thiram + JMS	7.9 i	37228 abcd
Switch	Thiram + Megafol alt Prophyt biweekly	8.1 i	41916 a
Switch	Captan 80WDG 2.5 lb	8.2 hi	38491 abc
Switch	Thiram + Megafol biweekly	9.4 hi	37942 abc
Switch	Thiram	11.7 gh	37564 abcd
Gotablanca 1.5% v/v, weekly		14.5 fg	34652 bcde
Switch	OxiDate 5.0 alt Captan	16.6 ef	35729 bcde
Captan 80WDG 2.5 lb, weekly		17.0 ef	33682 cdef
Thiram SC 2.5 qt, weekly		18.6 ef	37488 abcd
Switch	Agrauxine program	20.3 de	33152 def
Rhyme	Thiram	20.7 de	37464 abcd
Inspire	Thiram	24.4 cd	32191 efg
Oso 5% SC alt. Howler EVO		29.8 bc	25809 h
Switch	Thiram + Prophyt biweekly	33.0 ab	29947 fgh
Inoculated control		37.4 a	28193 gh

*Nov 24, Dec 3, Mar 1, Mar 17 (no alert applications in Jan and Feb!)

Neopestalotiopsis fungicide trial

Treatment

Alert weeks (4 applications)*	Other weeks (12 applications)	Fruit Rot (%)	Yield (lb/A)
Switch + JMS	Thiram + JMS	7.9 i	37228 abcd
Switch	Thiram + Megafol alt Prophyt biweekly	8.1 i	41916 a
Switch	Captan	8.2 hi	38491 abc
Switch	Thiram + Megafol biweekly	9.4 hi	37942 abc
Switch	Thiram	11.7 gh	37564 abcd
Gotablanca 1.5% v/v, weekly		14.5 fg	34652 bcde
Switch	OxiDate 5.0 alt Captan	16.6 ef	35729 bcde
Captan 80WDG 2.5 lb, weekly		17.0 ef	33682 cdef
Thiram SC 2.5 qt, weekly		18.6 ef	37488 abcd
Switch	Agrauxine program	20.3 de	33152 def
Rhyme	Thiram	20.7 de	37464 abcd
Inspire	Thiram	24.4 cd	32191 efg
Oso 5% SC alt. Howler EVO		29.8 bc	25809 h
Switch	Thiram + Prophyt biweekly	33.0 ab	29947 fgh
Inoculated control		37.4 a	28193 gh

*Nov 24, Dec 3, Mar 1, Mar 17 (no alert applications in Jan and Feb!)

Neopestalotiopsis fungicide trial

Treatment

Alert weeks (4 applications)*	Other weeks (12 applications)	Fruit Rot (%)	Yield (lb/A)
Switch + JMS	Thiram + JMS	7.9 i	37228 abcd
Switch	Thiram + Megafol alt Prophyt biweekly	8.1 i	41916 a
Switch	Captan	8.2 hi	38491 abc
Switch	Thiram + Megafol biweekly	9.4 hi	37942 abc
Switch	Thiram	11.7 gh	37564 abcd
Gotablanca 1.5% v/v, weekly		14.5 fg	34652 bcde
Switch	OxiDate 5.0 alt Captan	16.6 ef	35729 bcde
Captan 80WDG 2.5 lb, weekly		17.0 ef	33682 cdef
Thiram SC 2.5 qt, weekly		18.6 ef	37488 abcd
Switch	Agrauxine program	20.3 de	33152 def
Rhyme	Thiram	20.7 de	37464 abcd
Inspire	Thiram	24.4 cd	32191 efg
Oso 5% SC alt. Howler EVO		29.8 bc	25809 h
Switch	Thiram + Prophyt biweekly	33.0 ab	29947 fgh
Inoculated control		37.4 a	28193 gh

*Nov 24, Dec 3, Mar 1, Mar 17 (no alert applications in Jan and Feb!)

Neopestalotiopsis summary

- ✓ Start with clean plants!
 - ✓ But remember inoculum is in our fields...
- ✓ Time applications of Switch during (or right after) high alerts for Botrytis ('rainy weeks' i.e. long wetness);
 - ✓ In the absence of thiram, captan will be our best choice for rotation
- ✓ Use less susceptible cultivars as they become available – better chance to manage disease with fungicides
- ✓ Weather... (looking forward to what Vinicius has to say)

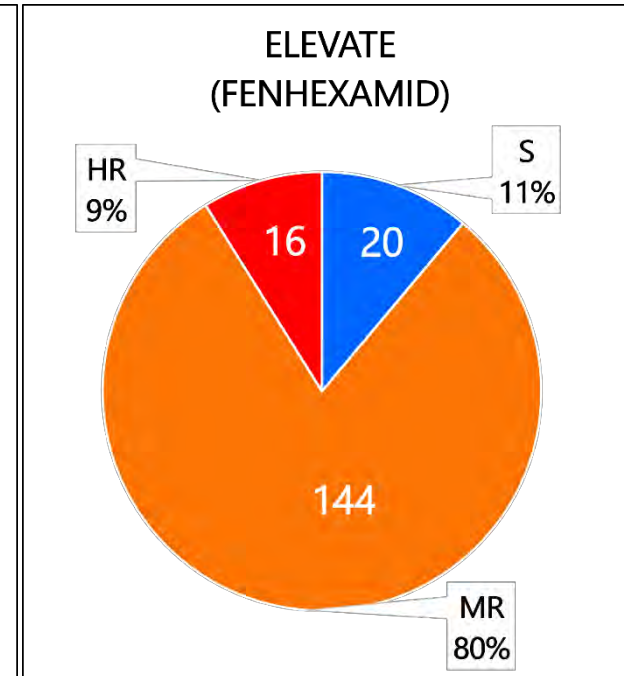
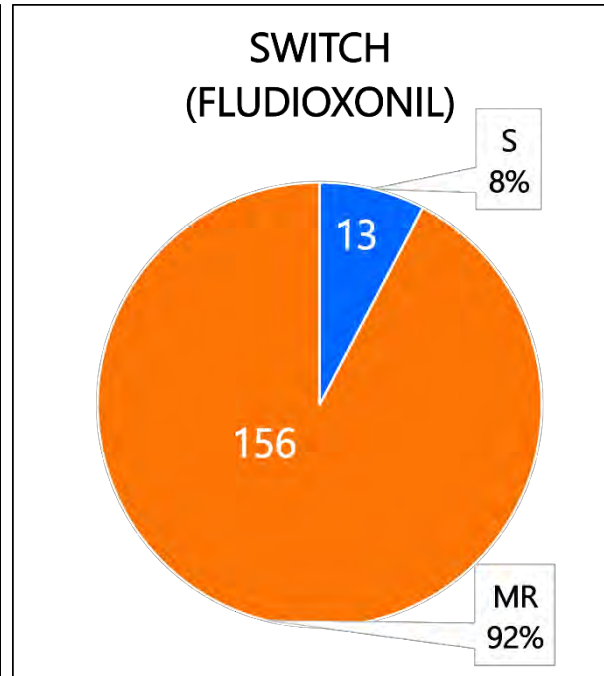
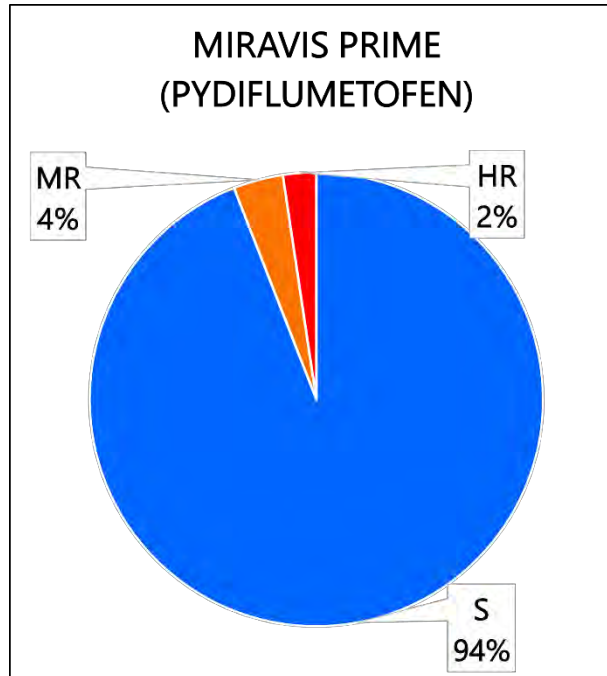
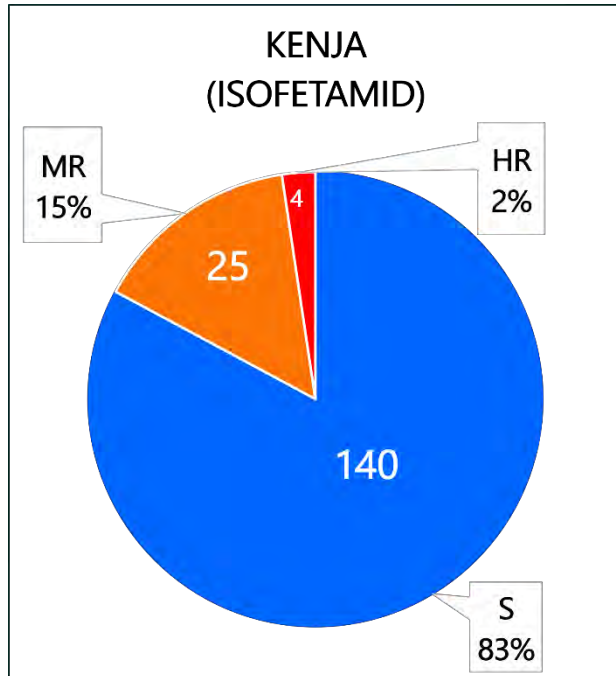


Botrytis fruit rot



Botrytis cinerea

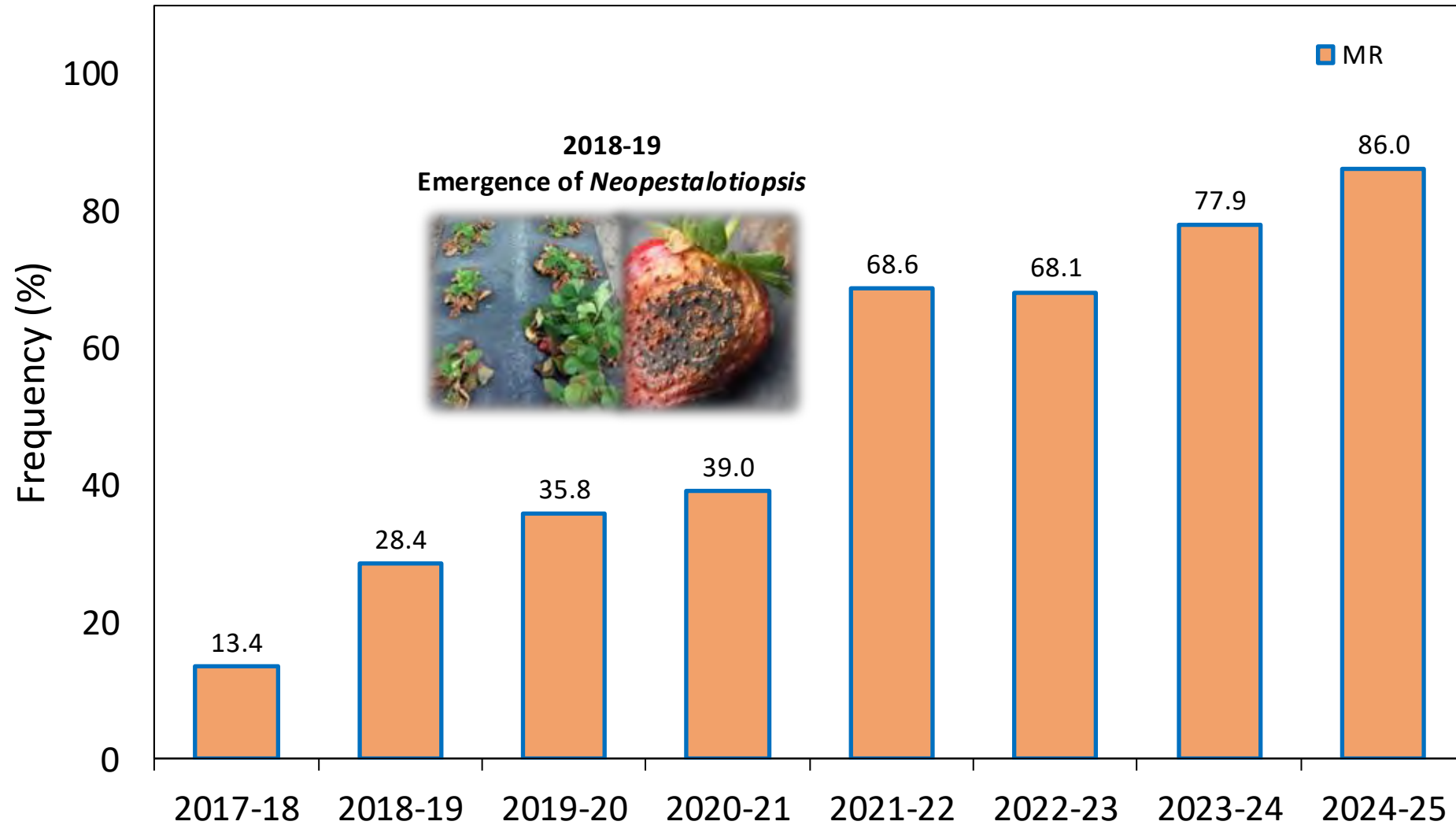
2025-26 Fungicide resistance screening



218 isolates collected from 8 fields



Increased frequency of MR isolates to fludioxonil



2025-26 Botrytis fungicide trial

- Weekly applications (14) with fungicide choice based on weather (SAS alerts)
 - 4 applications 'high risk' conditions
 - 10 applications 'low/moderate' conditions
- Bi-weekly harvests for disease incidence (%) and yield (25 harvests total)



2025-26 Botrytis fungicide trial

Treatment description		BFR%		Yield (lb/A)	
Switch	Thiram + Megafol alt Prophyt biweekly	3.8	h	34662	abc
Elisys + Microthiol 3 lbs	Thiram	4.3	h	35443	ab
Switch	Captan	8.0	fg	31261	abcde
Oso alt. Howler		8.1	f	33075	abcde
Miravis Prime	Captan	8.3	ef	31598	abcde
Elisys	Captan	8.7	ef	34130	abcd
Kenja	Captan	9.8	def	27826	def
Switch + Spectra	Captan	11.1	cdef	31095	abcde
Switch	Regev	10.1	def	37056	a
Elevate	Captan	10.9	def	28128	cdef
Switch	OxiDate alt Captan	11.0	cdef	33273	abcd
Switch	Agrauxine program	11.4	bcdef	33996	abcd
Regev 8.5 oz, weekly		12.1	abcdef	36459	ab
Switch	EcoSwing alt. Captan	13.0	abcde	26586	ef
Non-treated control		14.1	abcd	34089	abcd
Switch	Spectra	15.9	abc	33658	abcd
EcoSwing 2 pt, weekly		17.2	a	32863	abcde
Guarda, weekly		16.8	ab	28882	cdef

2025-26 Botrytis fungicide trial

Treatment description		BFR%		Yield (lb/A)	
Switch	Thiram + Megafol alt Prophyt biweekly	3.8	h	34662	abc
Elisys + Microthiol 3 lbs	Thiram	4.3	h	35443	ab
Switch	Captan	8.0	fg	31261	abcde
Oso alt. Howler		8.1	f	33075	abcde
Miravis Prime	Captan	8.3	ef	31598	abcde
Elisys	Captan	8.7	ef	34130	abcd
Kenja	Captan	9.8	def	27826	def
Switch + Spectra	Captan	11.1	cdef	31095	abcde
Switch	Regev	10.1	def	37056	a
Elevate	Captan	10.9	def	28128	cdef
Switch	OxiDate alt Captan	11.0	cdef	33273	abcd
Switch	Agrauxine program	11.4	bcdef	33996	abcd
Regev 8.5 oz, weekly		12.1	abcdef	36459	ab
Switch	EcoSwing alt. Captan	13.0	abcde	26586	ef
Non-treated control		14.1	abcd	34089	abcd
Switch	Spectra	15.9	abc	33658	abcd
EcoSwing 2 pt, weekly		17.2	a	32863	abcde
Guarda, weekly		16.8	ab	28882	cdef

2025-26 Botrytis fungicide trial

Treatment description		BFR%		Yield (lb/A)	
Switch	Thiram + Megafol alt Prophyt biweekly	3.8	h	34662	abc
Elisys + Microthiol 3 lbs	Thiram	4.3	h	35443	ab
Switch	Captan	8.0	fg	31261	abcde
Oso alt. Howler		8.1	f	33075	abcde
Miravis Prime	Captan	8.3	ef	31598	abcde
Elisys	Captan	8.7	ef	34130	abcd
Kenja	Captan	9.8	def	27826	def
Switch + Spectra	Captan	11.1	cdef	31095	abcde
Switch	Regev	10.1	def	37056	a
Elevate	Captan	10.9	def	28128	cdef
Switch	OxiDate alt Captan	11.0	cdef	33273	abcd
Switch	Agrauxine program	11.4	bcdef	33996	abcd
Regev 8.5 oz, weekly		12.1	abcdef	36459	ab
Switch	EcoSwing alt. Captan	13.0	abcde	26586	ef
Non-treated control		14.1	abcd	34089	abcd
Switch	Spectra	15.9	abc	33658	abcd
EcoSwing 2 pt, weekly		17.2	a	32863	abcde
Guarda		16.8	ab	28882	cdef

2025-26 Botrytis fungicide trial

Treatment description		BFR%		Yield (lb/A)	
Switch	Thiram + Megafol alt Prophyt biweekly	3.8	h	34662	abc
Elisys + Microthiol 3 lbs	Thiram	4.3	h	35443	ab
Switch	Captan	8.0	fg	31261	abcde
Oso alt. Howler		8.1	f	33075	abcde
Miravis Prime	Captan	8.3	ef	31598	abcde
Elisys	Captan	8.7	ef	34130	abcd
Kenja	Captan	9.8	def	27826	def
Switch + Spectra	Captan	11.1	cdef	31095	abcde
Switch	Regev	10.1	def	37056	a
Elevate	Captan	10.9	def	28128	cdef
Switch	OxiDate alt Captan	11.0	cdef	33273	abcd
Switch	Agrauxine program	11.4	bcdef	33996	abcd
Regev 8.5 oz, weekly		12.1	abcdef	36459	ab
Switch	EcoSwing alt. Captan	13.0	abcde	26586	ef
Non-treated control		14.1	abcd	34089	abcd
Switch	Spectra	15.9	abc	33658	abcd
EcoSwing 2 pt, weekly		17.2	a	32863	abcde
Guarda		16.8	ab	28882	cdef

2025-26 Botrytis fungicide trial

Treatment description		BFR%		Yield (lb/A)	
Switch	Thiram + Megafol alt Prophyt biweekly	3.8	h	34662	abc
Elisys + Microthiol 3 lbs	Thiram	4.3	h	35443	ab
Switch	Captan	8.0	fg	31261	abcde
Oso alt. Howler		8.1	f	33075	abcde
Miravis Prime	Captan	8.3	ef	31598	abcde
Elisys	Captan	8.7	ef	34130	abcd
Kenja	Captan	9.8	def	27826	def
Switch + Spectra	Captan	11.1	cdef	31095	abcde
Switch	Regev	10.1	def	37056	a
Elevate	Captan	10.9	def	28128	cdef
Switch	OxiDate alt Captan	11.0	cdef	33273	abcd
Switch	Agrauxine program	11.4	bcdef	33996	abcd
Regev 8.5 oz, weekly		12.1	abcdef	36459	ab
Switch	EcoSwing alt. Captan	13.0	abcde	26586	ef
Non-treated control		14.1	abcd	34089	abcd
Switch	Spectra	15.9	abc	33658	abcd
EcoSwing 2 pt, weekly		17.2	a	32863	abcde
Guarda		16.8	ab	28882	cdef

Botrytis summary

- ✓ Captan (alternation w other materials to extend number apps)
 - ✓ Switch and Miravis Prime; limit to no more than four app total
 - ✓ Elysis
 - ✓ Kenja
 - ✓ Oso and Howler
-
- ✓ Ember and other cultivars with reduced susceptibility great help to limited fungicide options

Thank you!!

Natalia A. Peres
nperes@ufl.edu
813-419-6602

Marcus V. Marin
marin.m@ufl.edu
813-419-6617

