



Poinsettia

Key Growing Tips: Midseason until Finishing



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Fertilization

- **Use 225–250 ppm N** of a 20-10-20 fertilizer (or similar) for optimum leaf expansion until around Oct. 1st. If plants look strong with good leaf expansion, ideally alternate with high nitrate-containing fertilizers, like 14–0–14, 15–0–15, 13–2–13, 14–4–14, or 15–5–15 until November 1. Then decrease to 80 ppm N of a 14-4-14 or similar until shipping.
- **Media, pH:** 5.8–6.2, **E.C.** 1.6 – 2.0 mS/cm (SME), PourThru: 2.4-3.0 mS/cm.
- **Molybdenum** should be added as supplemental ammonium molybdate or sodium molybdate.
- **The micronutrient package** should have elevated iron, so fertilization supplies **at least 1 ppm Fe**, also later in the crop, when the E.C. is lowered.

VERY IMPORTANT

A complete media analysis should be done every two to three weeks. Tissue analysis should be done periodically to supplement the media analysis, especially if nutrient issues are suspected.

Fertilizer Leaf Burn

- Overhead fertilization from July through October should be avoided.
- If applied overhead, fertilizer solution should be rinsed off immediately after fertilization, to avoid leaf edge burn.



Magnesium Deficiency Symptoms



- Magnesium deficiency commonly occurs early in production when low Magnesium fertilizers (ex. 20-10-20) are being used exclusively.
- Cal-Mag[®] Plus fertilizer formulations (such as 17-5-17) should be used regularly. If not, Magnesium Sulfate should be applied periodically at 1-2 lbs/100 gal.

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Low Nutrition Symptoms



- The tone of leaves, the roots, media EC, and injectors should be checked weekly.
- Medium-green leaf varieties need to be fertilized heavier than dark-green leaf varieties.
- EC levels should be at 1.6 – 2.0 mS/cm (with SME method), with PourThru method at 2.2 – 3.0 mS/cm.

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Iron Deficiency Symptoms

- Iron deficiency symptoms show up on the young foliage and are usually caused by high pH.
- The pH should be between pH 5.8-6.2. It is critical to it check weekly.
- Media analysis should be done every two weeks.
- If needed, plants should periodically be fertilized with Fe-chelate or Fe-sulfate (4 oz/100 gal).



Plant Growth Regulation after Pinching

- **Weekly height tracking is critical.**
- After the initial Florel[®] (or other PGR) sprays done prior and after the pinch, other PGR alternatives should be used if needed.
- Cycocel[®] sprays at 750-1,000 ppm is the most common.
- For very vigorous varieties, Cycocel[®] (750-1,000 ppm) + B-Nine[®] WSG (1,000-1,500ppm) or Bonzi[®] sprays (5-10 ppm) can be used under hot conditions until September 15th. Trials should be done before using these rates large scale.



Bonzi[®] Spray Overdose

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Ideal Growth Regulation in October:

Low Rate (Micro) Bonzi[®] Drenches

- Bonzi[®] drenches at 0.05–0.1 ppm, as needed.
- Drench volumes (higher or lower volumes will influence results):

Azalea 4-inch	1.2 fl. oz.
Azalea 4.5-inch	2.4 fl. oz.
Azalea 6-inch	4.0 fl. oz.
Azalea 8-inch	7.7 fl. oz.
Azalea 10-inch	15.6 fl. oz.

- For more northern climates, the total cumulative Bonzi[®] amount should be: **< 0.25 ppm**
 - Example: 0.1 ppm on Oct. 1, 0.1 ppm on Oct. 14, 0.05 ppm on Oct. 24.
- For southern climates, the total cumulative Bonzi[®] amount can be higher: **< 0.5 ppm**
- Experiment with varieties that tend to stretch every year.

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Late Season Bonzi® Drenches

- For more northern climates, the ideal Bonzi® plant growth regulator drench rates are between 0.5–1 ppm, applied 2-3 weeks before finishing. Generally, the Bonzi® drench should be applied at 1 inch below finished height.
- For southern climates, the ideal Bonzi® drench rates are between 1–2 ppm. The drench can be applied as early as 4 weeks before finishing. Generally the Bonzi® drench should be applied at 1 inch below finished height.
- Under the very hot conditions of southern Florida, a Bonzi® drench at 2 ppm can be applied twice if needed.
- Experiment with varieties that tend to stretch every year.

Always consult the product label for complete use and application information.

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Variety Specific PGR Recommendations

New for 2020



Serena™ Red

**Serena™ Red
Candy™ Bubblegum**

Early-mid timing, 8 weeks,
Nov. 15 – 22

**Bonzi® drench at the
beginning of November,
and only if needed**

Sturdy plants, medium –
vigorous: **average to high
Bonzi® drench rates**



Candy™ Bubblegum



Gemma™ Red

**Gemma™ Red
Draco™ Red**

Mid-late timing, 9 weeks,
Nov. 25 – Dec. 2

**Bonzi® drench in the
second week of November**

Sturdy plants with medium
vigor: **average Bonzi®
drench rates**



Draco™ Red

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Late Bonzi® Drenches



The “Late” Bonzi® plant growth regulator drench was applied too early on the above plants: five weeks, instead of not earlier than 3 (North) – 4 (South) weeks before finishing.

Height Control if Plants are Too Short

- Raise the day temperature.
- Avoid water stress, plants should never dry out, maintain a healthy root system.
- Use a feed with high ammonium and phosphorus for several irrigations (i.e. 20-10-20).
- Spray Fascination[®] or Fresco[®] plant growth regulators 1-3 ppm (additional ~1–3 inches growth).

Always consult the product label for complete use and application information.

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Using Fascination®

- More vigorous varieties will have stronger response to GA spray.
- The best response is when plants are actively growing.
- Plants should have good roots and be well fertilized to maintain the nutrient demand for the new growth.
- Rates: 2-3 ppm
- Use a spray adjuvant (like CapSil®) with the spray to ensure good leaf coverage

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Critical When Spraying Fascination®

Good root system



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Fascination[®] Spray Effect

No Fascination[®] spray.



3 ppm Fascination[®] spray 10 days
after application.

The internode elongation effect ends
about 2-3 weeks after spraying.



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Recommended Light Levels

- Until middle of October: 3,500 – 4,500 foot-candles (15–19 mols/day).
- Middle of October until three weeks before shipping: 3,000 foot-candles (13 mols/day).
- Starting three weeks before shipping: 2,000 – 2,500 foot-candles (10–11 mols/day).

Flowering Delay Caused by Shading

- **Low light intensity** (often caused by overhead or side structures) can lead to flower delay.
- Low light levels combined with late PGR sprays - or heavy Bonzi[®] plant growth regulator drenches applied too early - will cause further flower delay.

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Flowering Delay Caused by Shading



Flower Delay Caused by Overhead Infrared Heaters



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Thank You!

For more information visit our website @

www.syngentaflowers-us.com/webcast/poinsettia

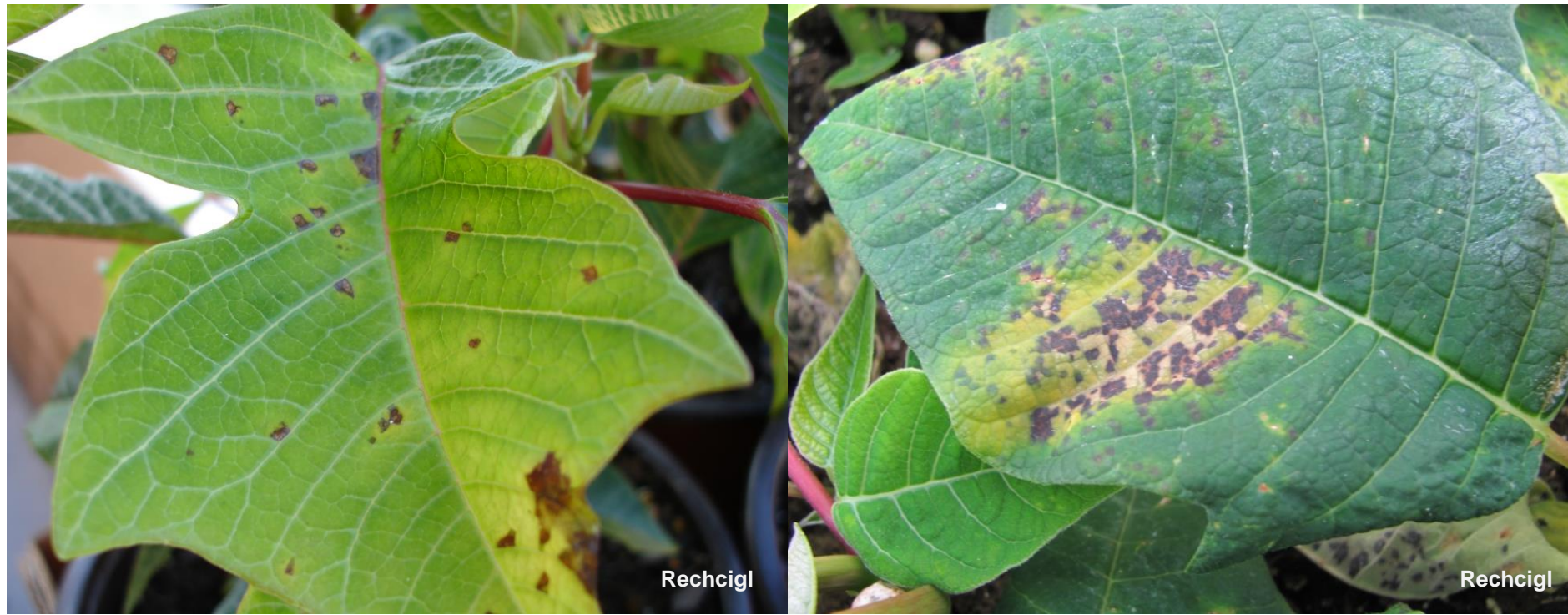
POINSETTIA PLANT PROTECTION TIPS

NANCY REHCIGL- TECHNICAL FIELD MANAGER
SYNGENTA PROFESSIONAL SOLUTIONS



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BACTERIAL LEAF SPOT – *XANTHOMONAS AXONOPODIS*



Keeping water off foliage will help reduce spread

No real cure – remove infected leaves or discard plants

Copper-containing compounds (ex. Phyton 27[®], Camelot[®]) and biologicals (ex. Triathlon[®] BA, Cease[®]) can help prevent spread

Dithane[®] /Daconil[®] Fungicides

ALTERNARIA LEAF SPOT

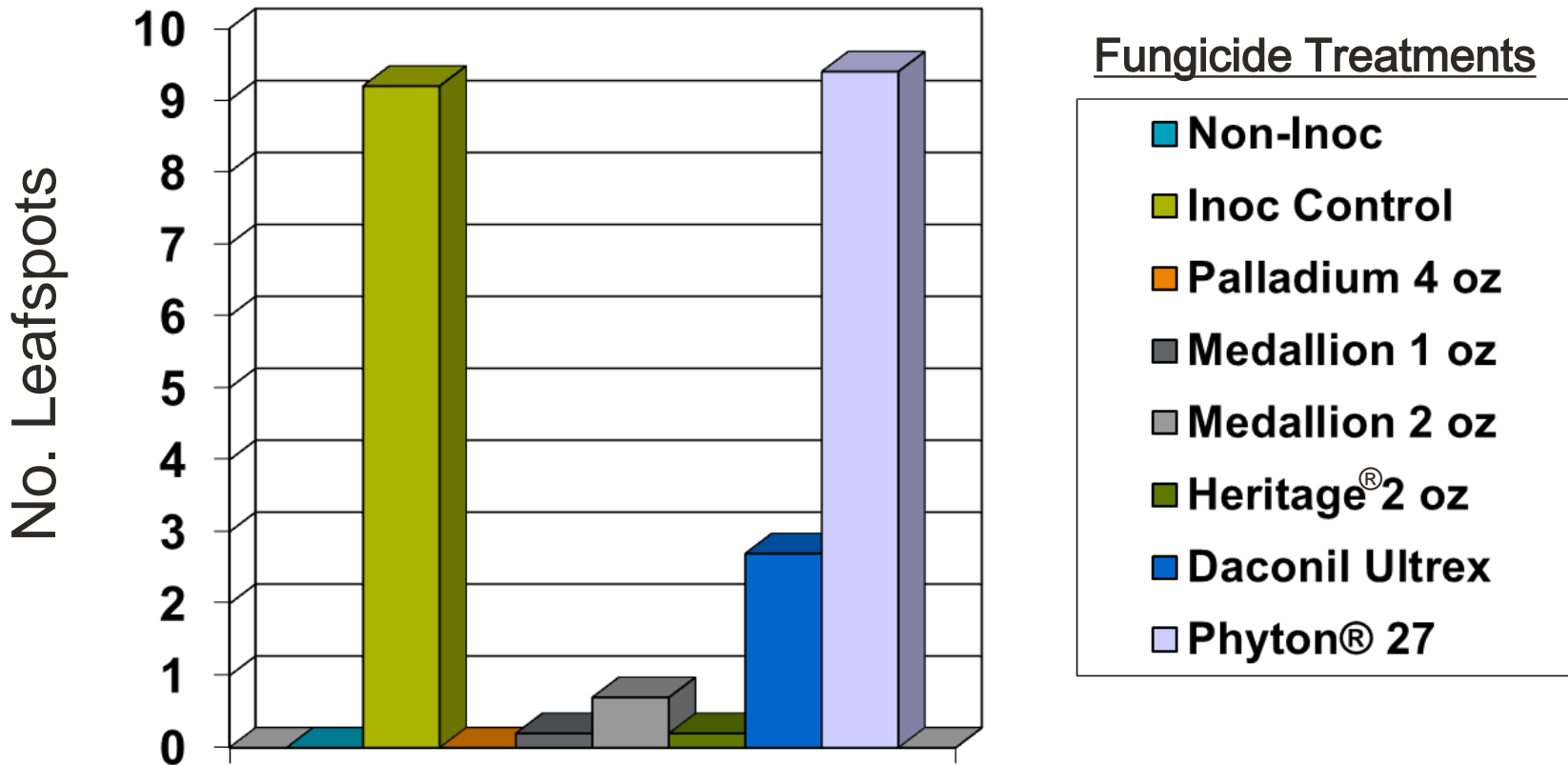


Keeping water off foliage will help reduce spread

Rotation: (M) Dithane®/Daconil® Fungicides, (7+11) Mural® Fungicide, (12+9) Palladium® Fungicide

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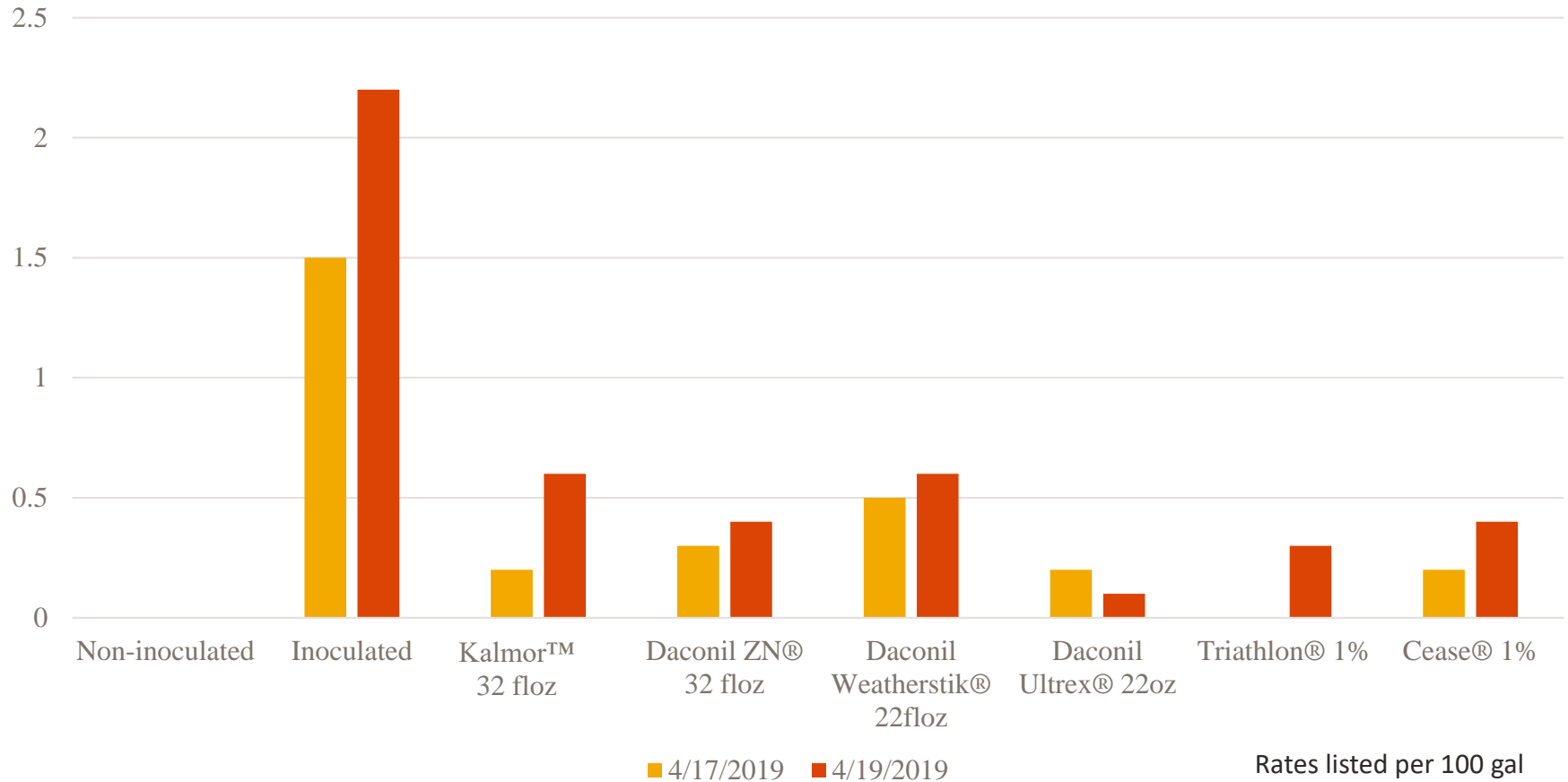
Control of Alternaria Leafspot on Zinnia



Source: Chase 2005

CONTROL OF XANTHOMONAS LEAF SPOT ON RANUNCULUS

of Leaves with Xanthomonas Leaf Spot



2019 – Chase Consulting

Four foliar sprays were applied on 3/19, 4/1, 4/9, 4/15 |
Plants were inoculated 3/21/19

PYTHIUM ROOT & STEM ROT

Root infection restricts water and nutrient uptake causing:

- Plants to wilt during the day, recovering at night
- Plants appear stunted with lower chlorotic foliage
- Dark brown discolored roots
- Outer portion of the root (cortex) will easily slide off leaving the vascular thread

Preventive/Corrective Actions:

- **Keep the planting media moist, avoid drying out or over-watering**
- Monitor EC levels regularly. High salts can damage roots
- Drench with oomycete targeted fungicides:
 - Subdue MAXX[®] 1 oz/100 gal
 - Truban[®] WP (6–8 oz/100 gal) or
 - Segway[®] (1–3 oz/100 gal)

Rotate every 4-6 weeks as needed for protection.



Rechtig



Rechtig

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ADORN PHYTOTOXICITY



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ROOT & STEM ROTS

CATCHING DISEASE EARLY

- Problems resulting from crown rotting pathogens can go undetected until the damage becomes too severe
- By the time indications of a disease appears on the foliage/plant canopy, rotting at the base is usually advanced
- At this stage of infection, fungicides are no longer effective on plants already affected

Preventive/Corrective Actions:

- Avoid transplanting to deeply
- 6-8 weeks after initial application after planting apply:
 - Tank mix of Subdue MAXX[®] at 1 oz/100 gal + Medallion[®] at 1 oz/100 gal alternated with Segway[®] or Truban[®] WP at 8 oz/100 gal + Heritage[®])
 - Mural[®] fungicide can also be drenched at 2-3 oz/100 gal for broad spectrum disease prevention



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Phytophthora Stem Rot – *Phytophthora parasitica*

What to look for:

- Brown canker at or above the soil line with a water soaked margin
- Lesion will girdle stem causing plants to wilt and die
- Discoloration of the pith and vascular tissue above and below the lesion

Preventive/Corrective Actions:

Discard affected plants

Treat the remaining plants with:

Segovis® 1 floz /100 gal

Segway 3 floz/ 100 gal

Frac Group 40- Micora



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RHIZOCTONIA STEM ROT

- Affects plants at the soil line.
- Light-dark brown sunken lesion on stem- may have a dark margin.
- Infected plants will wilt due to moisture stress or may be stunted with yellow lower leaves.
- Grey-brown webbing develops under high humidity by lesion.

Preventive/Corrective Actions:

- Avoid transplanting to deeply
- Drench with:
 - Medallion 1oz/100 gal
 - Heritage 1oz/100 gal
 - Mural 2oz/100 gal
 - Thiophanate-methyl
(Cleary's® 3336 or OHP® 6672) at full label rate.**(Alternate on a 4-week interval)**



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THIOPHANATE METHYL INJURY ON POINSETTIA

Magnesium Deficiency



T- methyl Injury



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THIOPHANATE METHYL INJURY ON POINSETTIA

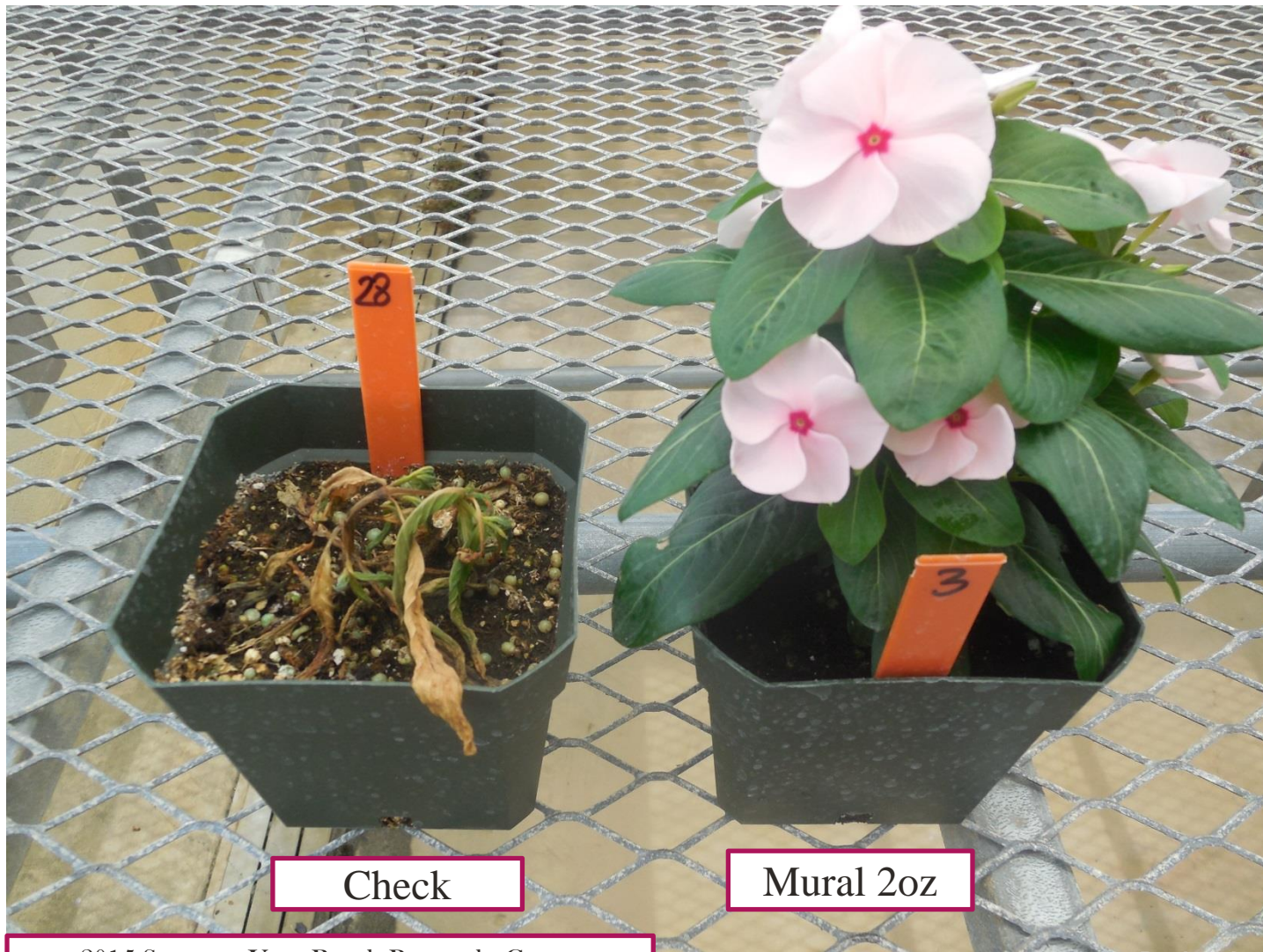


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CONTROL OF RHIZOCTONIA SOLANI IN VINCA



Check

Mural 2oz

2015 Syngenta Vero Beach Research Center

Rechtig

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CONTROL OF PYTHIUM ROOT ROT ON GERANIUM



**Inoculated
Control**

**Inoculated
Orkestra 10 floz**

**Inoculated
Heritage 1.2oz**

**Inoculated
Mural 2oz**

**Non-Inoculated
Mural 2 oz**

**Non-Inoculated
Control**

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ROOT COMPARISON FROM INOCULATED TREATMENTS

Mural 2 oz Drench



Orkestra 10 floz Drench

Heritage 1.2 oz Drench

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COMPARISON OF ROOT MASS WITH DRENCH APPLICATIONS

Root mass is slightly larger than Control

The more roots > the more difficult to clean



Non-inoculated
Control

Non-inoculated
Control

Non-inoculated
Mural 2oz

Non-inoculated
Mural 2oz

Non-inoculated
Mural 2oz

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CLOSE UP OF MURAL 20Z DRENCH TREATMENT



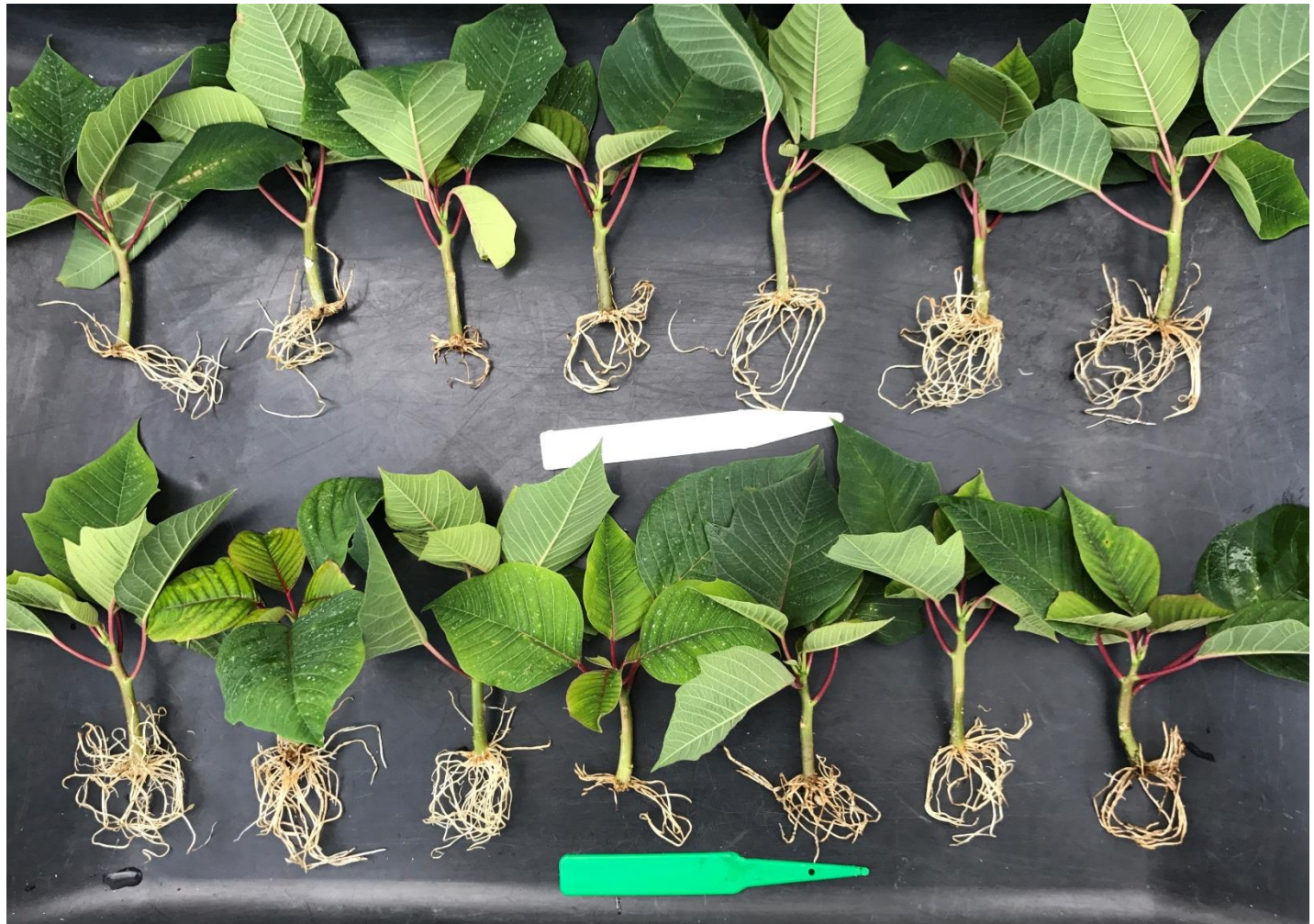
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COMPARISON OF CONTROL VS HERITAGE 2 OZ.

**Non-Treated
Control**



**Heritage 2 oz
Spray**

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COMPARISON OF CONTROL VS MURAL 4 OZ.

Non-Treated Control



Mural 4 oz Spray

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COMPARISON OF FUNGICIDES

Heritage 2 oz Spray



Pageant 4 oz Spray



COMPARISON OF FUNGICIDES

Mural 4 oz Spray



Pageant 4 oz Spray



POWDERY MILDEW ON POINSETTIA

What to look for:

- Begins as chlorotic spots on leaves
- White Powdery coating on leaves, stems and flowers
- Both sides of leaves may develop white colonies
- More of an issue in northern regions

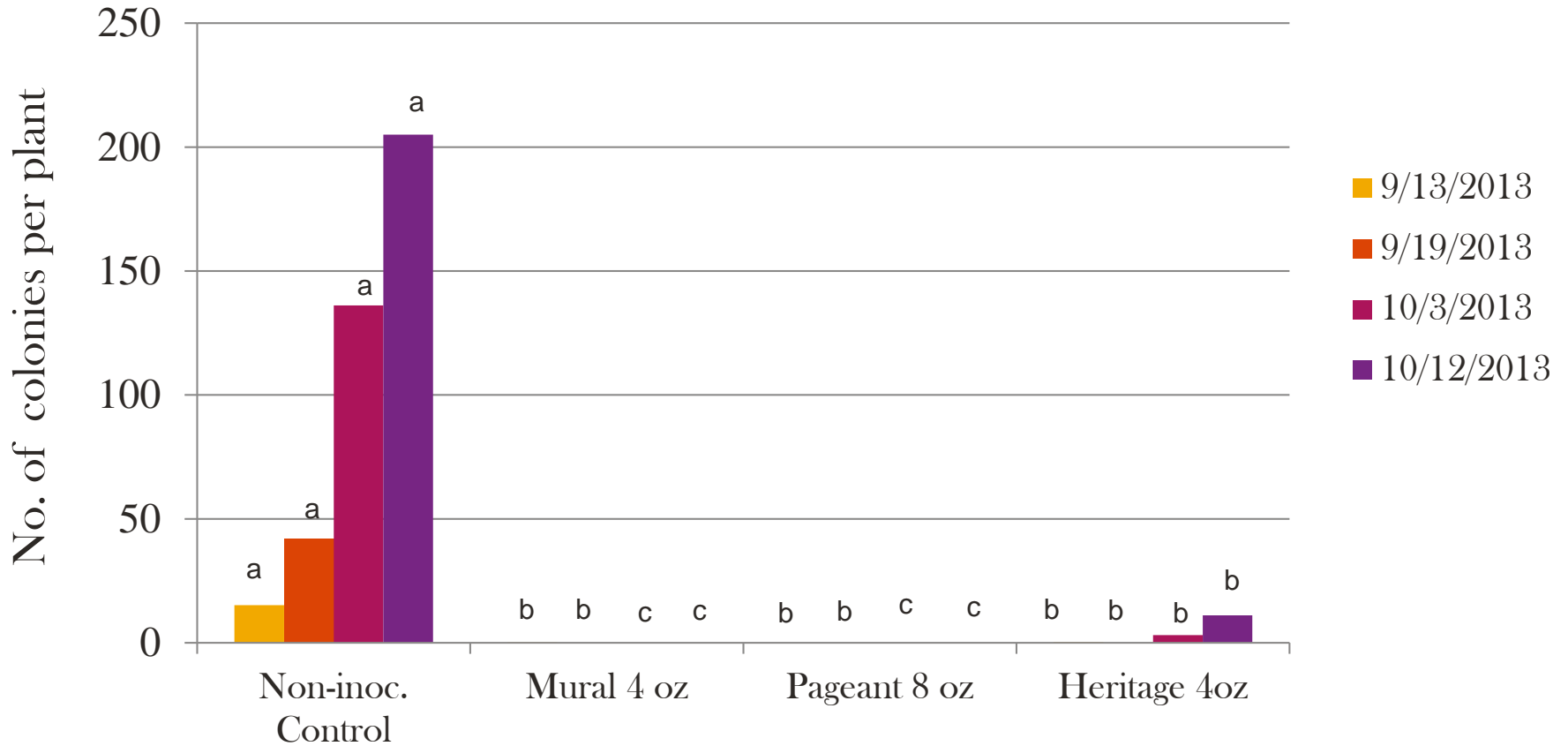
Preventive/Corrective Actions:

- Provide good air movement, maintain low humidity (with heating and venting)
- If there is a history of powdery mildew- Apply preventive fungicide sprays on a 2-week interval (October – November)
- Rotation:
 - (7+11) Mural Fungicide (4-5 oz/100 gal)
 - (12+9) Palladium (4–6 oz/100 gal)
 - (3) Eagle® 20EW (8 oz/100 gal), Terraguard® (8 oz/100 gal)
 - (M) Daconil® (*can be used early in production*)



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CONTROL OF POWDERY MILDEW ON VERBENA



2013 - Sanborn

Treatments:

4 spray applications - 14 day interval

Botrytis – *Botrytis cinerea*

What to look for:

- Commonly seen in propagation~ infecting damaged tissue; often identified as secondary pathogen of rotted cuttings
- In mature crops~ infects lower leaves senescing from lack of light or nutrient deficiency, as well as bracts and cyathia
- Leaf and petal “blights” are common:
~ starts as a light to dark brown lesion at the leaf edge and moves inward
(“V” shaped lesion with a yellow margin)
- Infected tissue appears fuzzy~gray spores

Preventive/Corrective Measures:

- Maintain good air movement and low humidity (less than 75% at night)
- Rotate Mural with Palladium® (4–6 oz/100 gal).
(Both are effective against powdery mildew & Alternaria)



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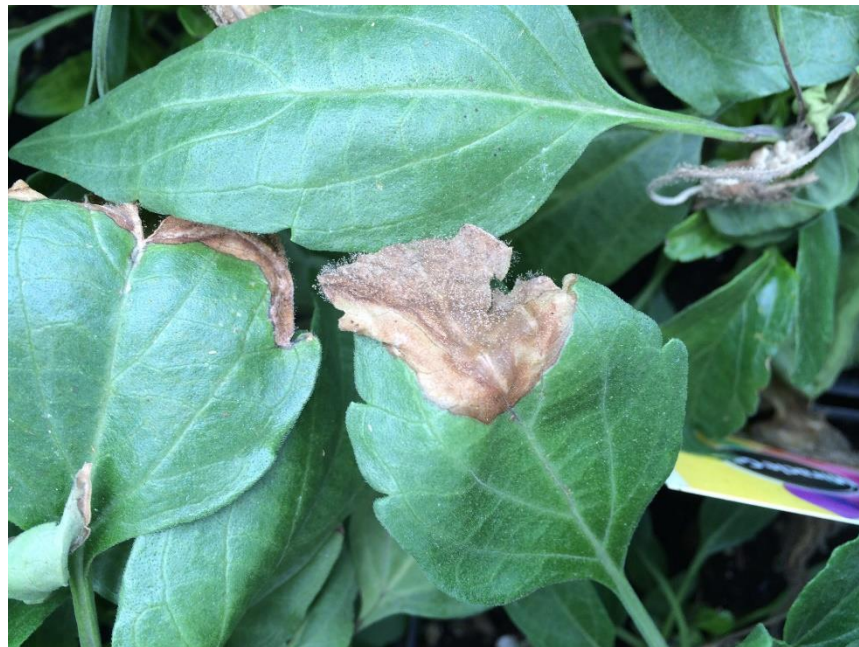
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CONTROL OF BOTRYTIS

FRAC # Fungicides

- (M) Daconil Ultrex®
- (M) Dithane® /Protect™ T/O
- (1) Thiophanate methyl
- (2) Chipco® 26019
- (12+9) Palladium™
- (12) Medallion®
- (11) Heritage®
- (11 + 7) Mural®
- (11+7) Orkestra™ & Pageant™
- (17) Decree®

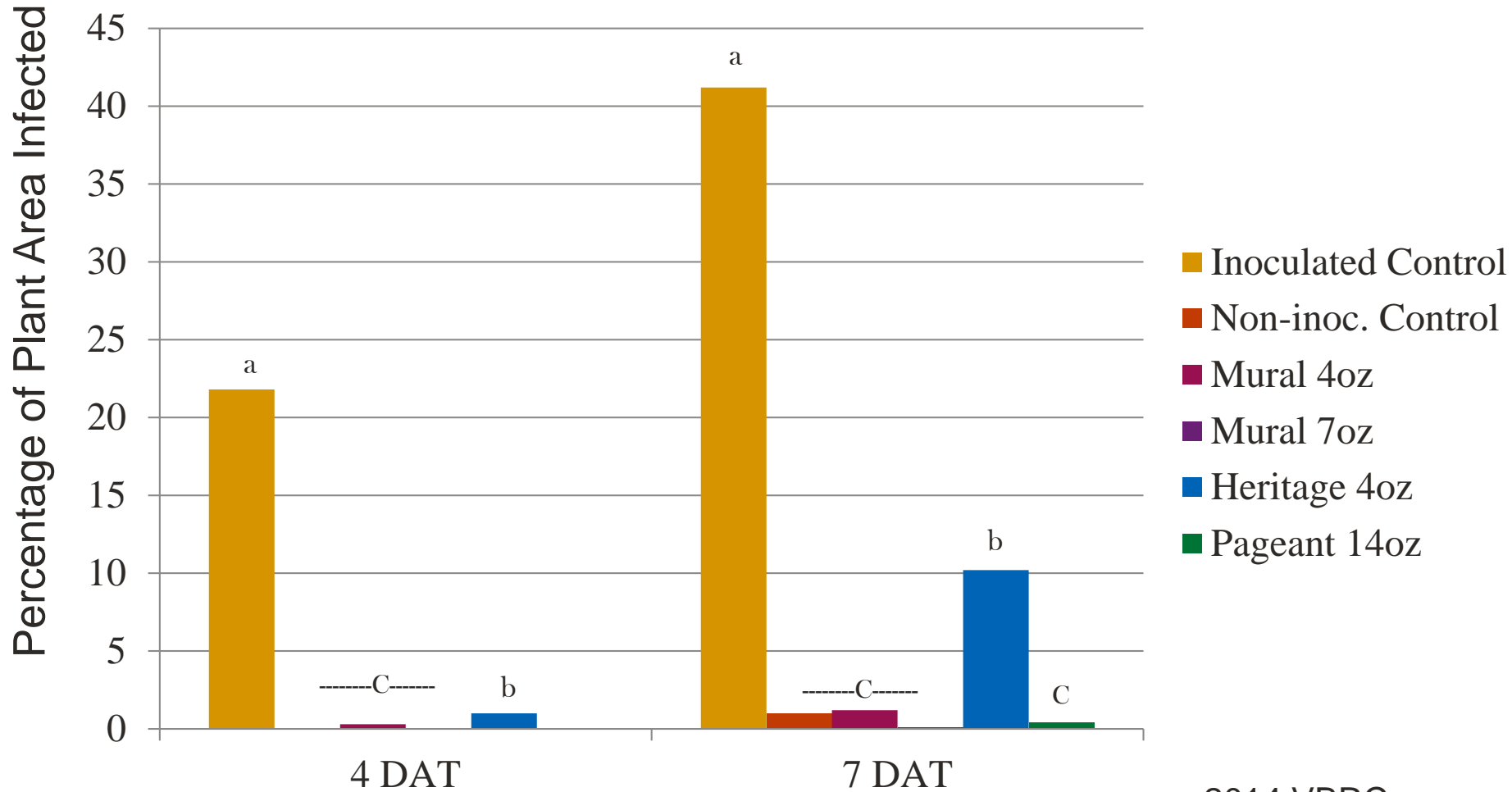


** Use high rates for active infections*

Parenthesis contains mode of action group number

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CONTROL OF BOTRYTIS ON GERANIUM



2014 VBRC

MURAL FUNGICIDE SAFETY ON POINSETTIA

Foliar Application of Mural Fungicide



Mural 7 oz



Mural 7 oz + Capsil 6 floz

2015 - Uber

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Thrips Injury



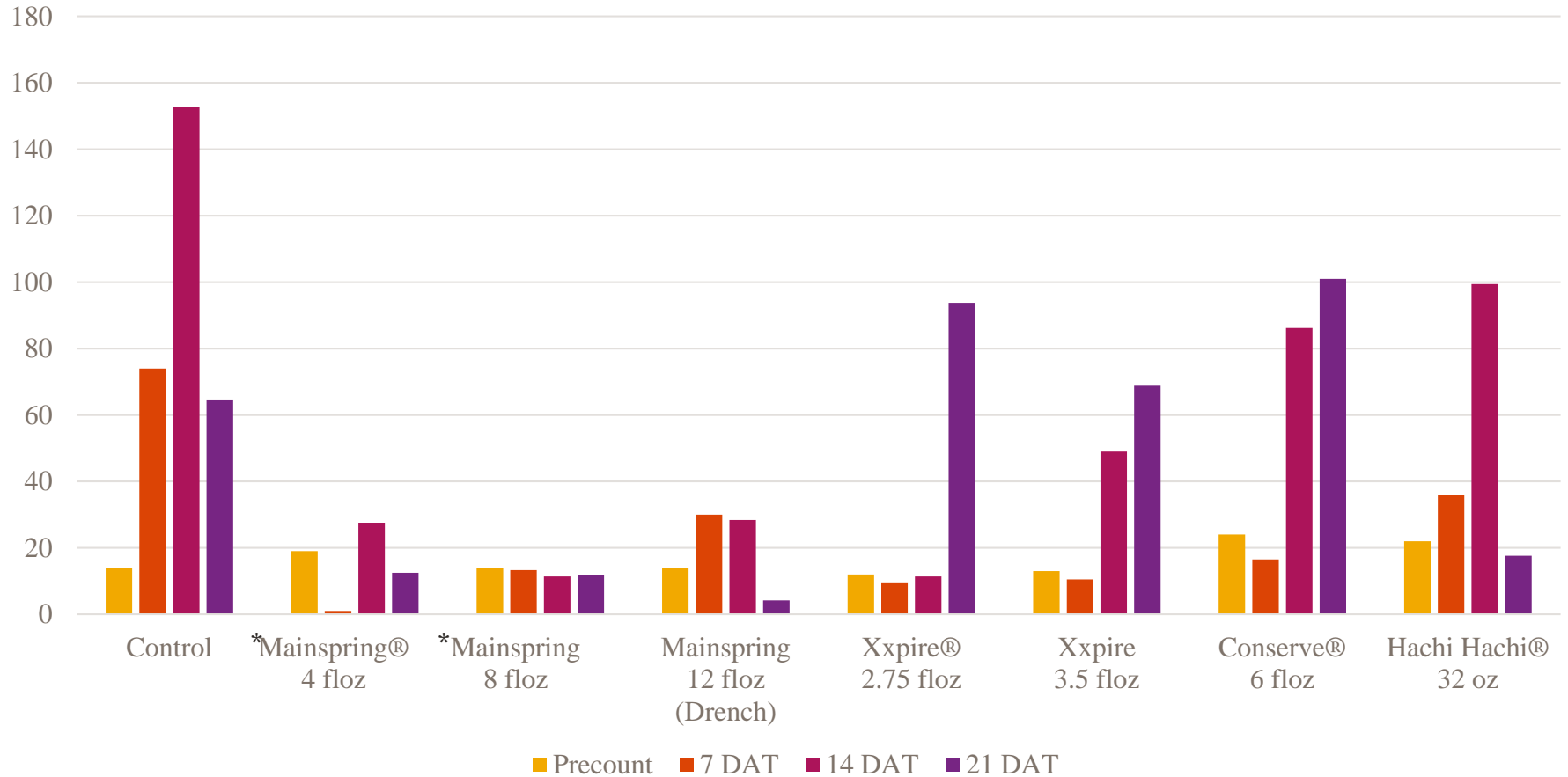
Very damaging to leaves and bracts in color.

- Avid[®] insecticide, Overture[®] insecticide, Mainspring[®] insecticide, XXpire[®] insecticide,
- Be careful with Pylon[®]

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CONTROL OF THRIPS IN MARIGOLD

Immature Thrips



Spray treatments applied twice on 14 day interval
 Counts made on two flowers per rep
 * Capsil 4floz was included with treatment

2015- Kunkel, U of D

WHITEFLY



Greenhouse Whitefly
Trialeurodes vaporariorum



Banded Wing Whitefly
Trialeurodes abutilonea

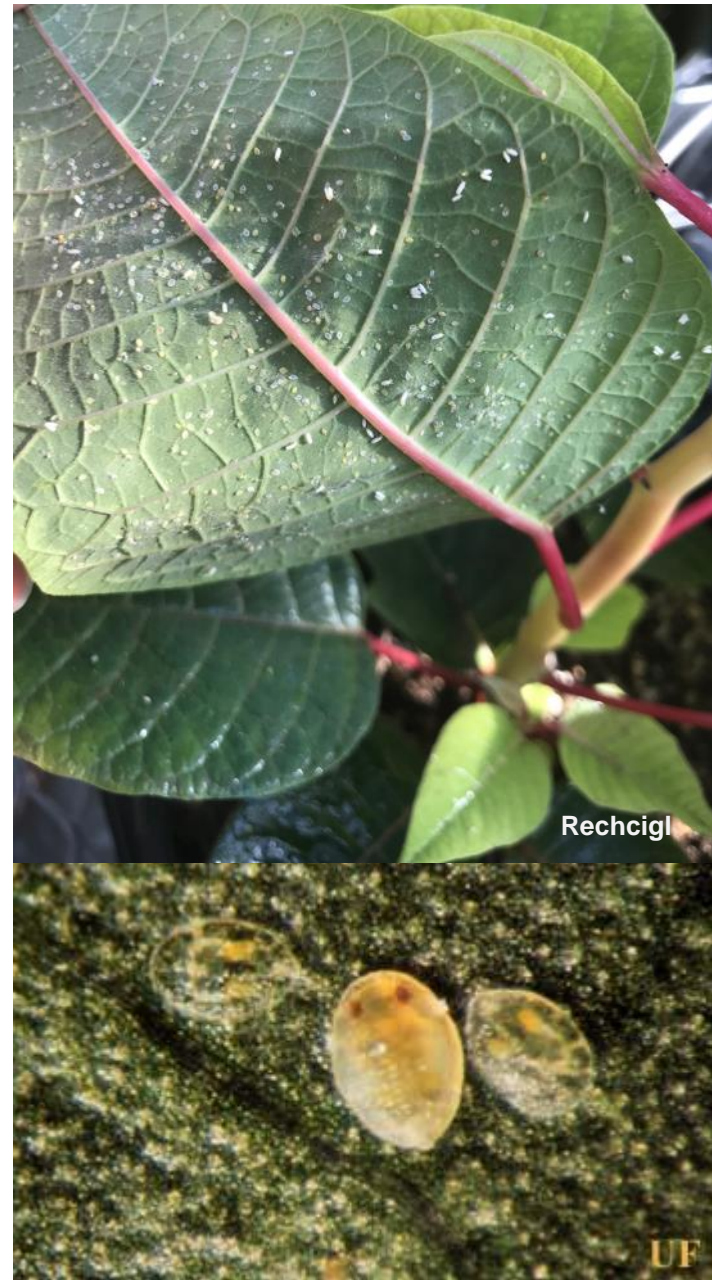


Sweetpotato Whitefly
Bemesia tabaci – Biotype B or Q?

WHITEFLY

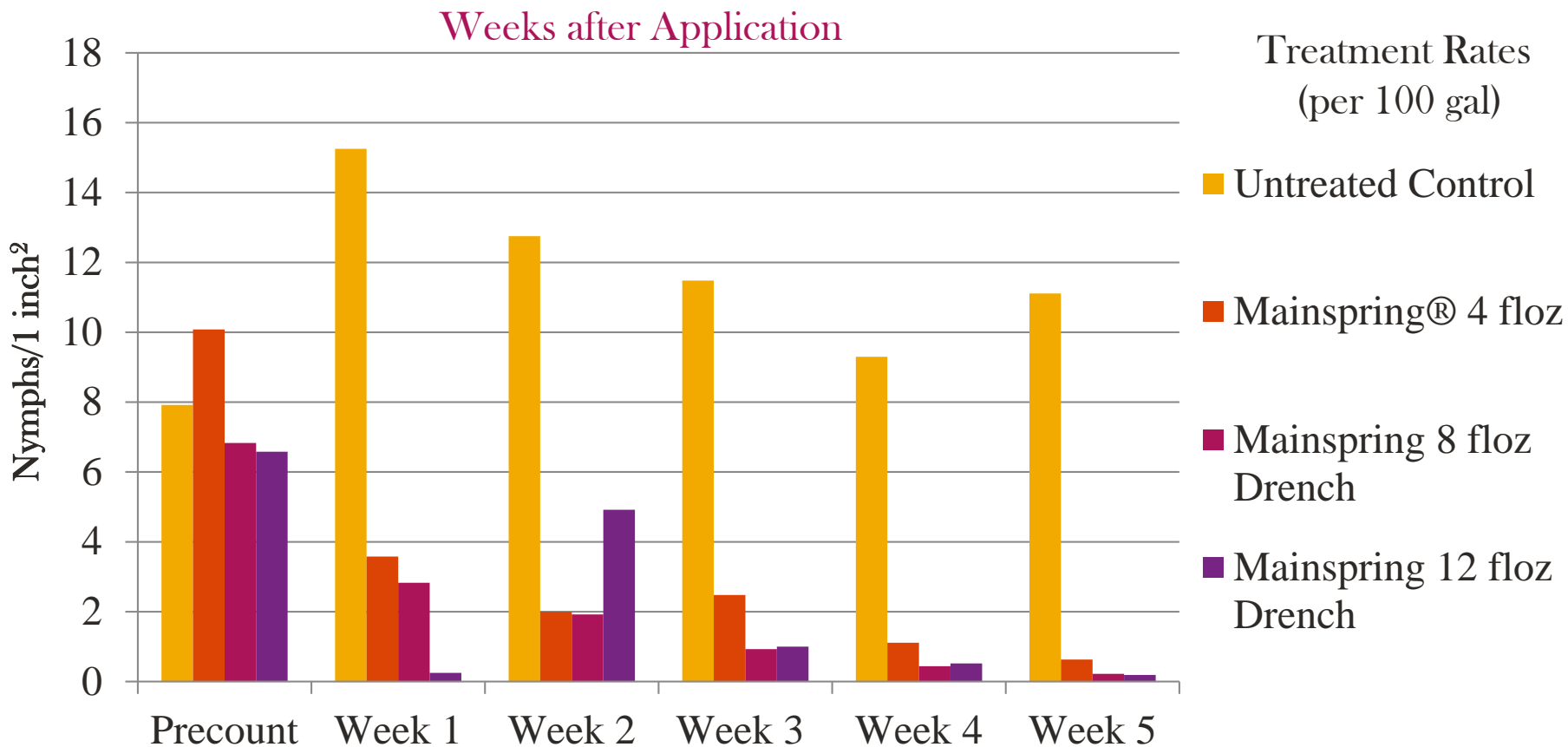
Damage

- Adults and immature stages can be found feeding on the under sides of the leaves
- Upper surface of the leaf may be speckled/chlorotic spots, silvery in appearance, net-veining,
- Presence of Honeydew and Sooty Mold on leaf surface
- Virus Transmission



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CONTROL OF WHITEFLY (*BEMESIA TABACI*, BIOTYPE Q) ON POINSETTIA



2013 - Oetting

Treatments:

Three foliar applications - 14 day interval

Drench application - Once

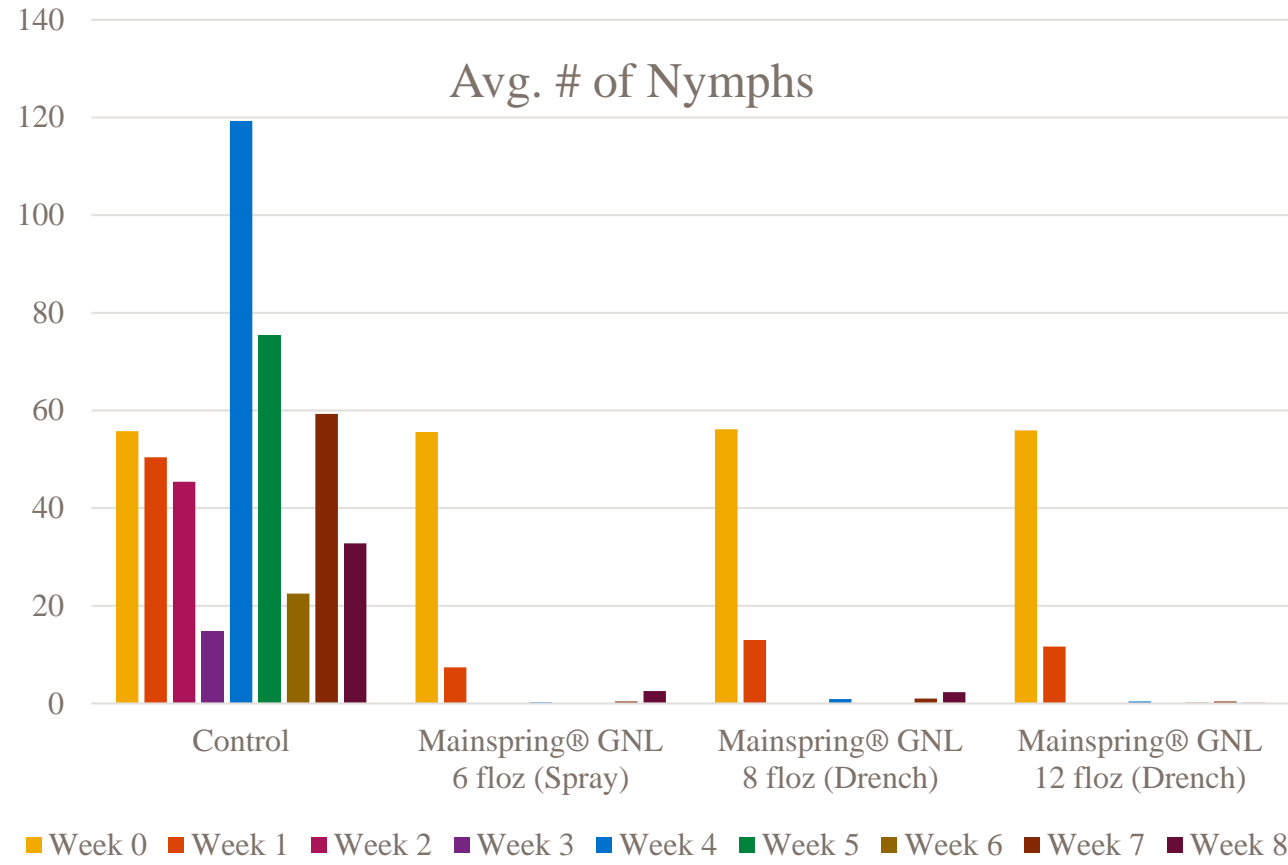
CONTROL OF WHITEFLY (*BEMESIA TABACI* Q-BIOTYPE) ON HIBISCUS



Untreated Control



Mainspring 8 floz drench



2016 – Osborne, UFL- Apopka

Hibiscus plants grown in 4-inch containers
 Drench treatment: 3 floz
 Spray Treatment : Twice on 14 day interval w/ Capsil 6 floz
 Six Replicates: Counts made on two leaves per plant

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CONTROL OF SWEETPOTATO WHITEFLY (BIOTYPE B) ON POINSETTIA

Avg. # nymphs/2 sq.in



1 WAT 2 WAT 3 WAT 4 WAT 5 WAT 6 WAT 7 WAT 8 WAT 9 WAT 10 WAT 11 WAT

2017 – ATOC, Ferguson

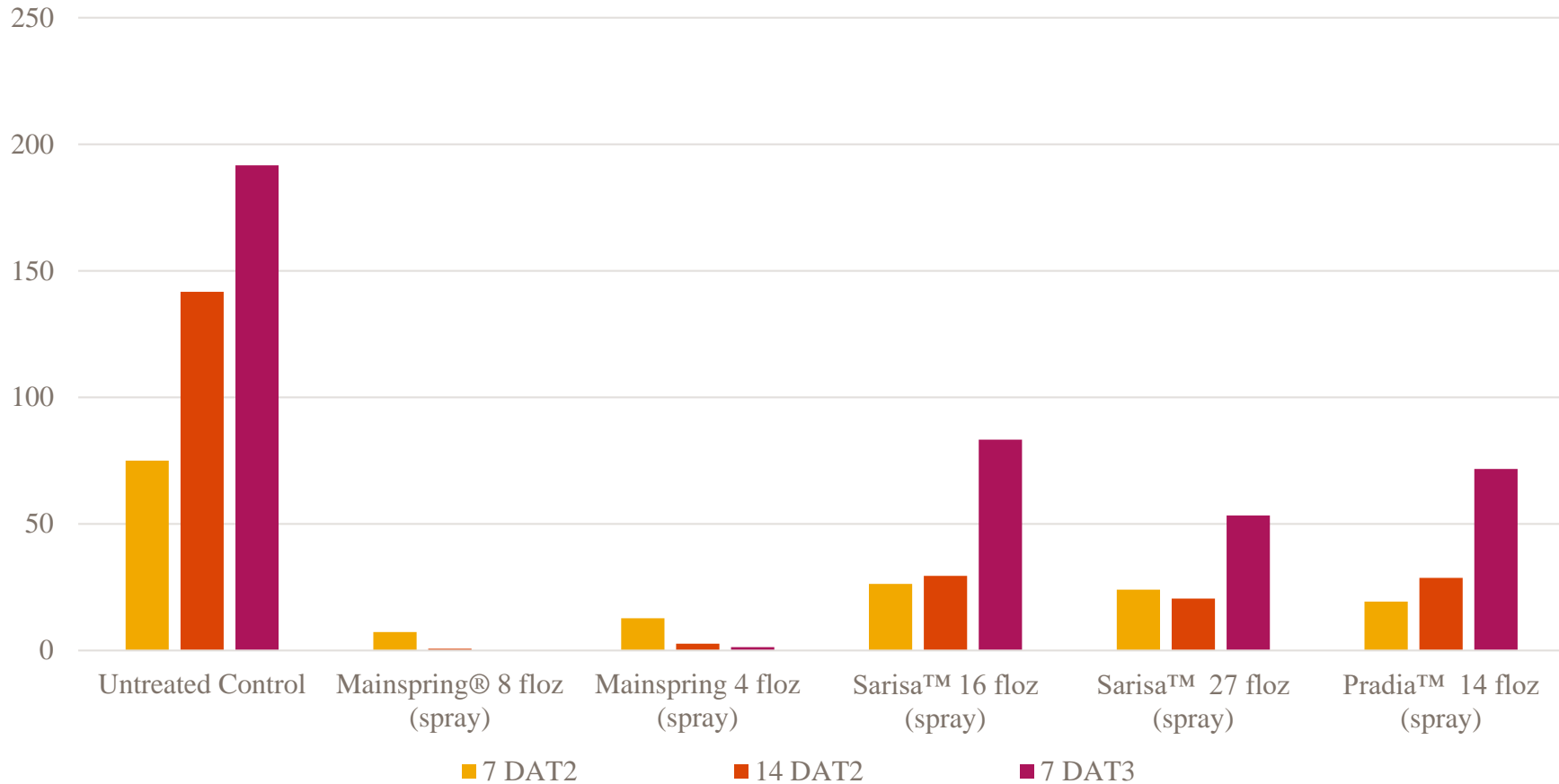
Poinsettia Orion Red
 Transplanted 8/24/17 in 8 inch containers
 Promix BX

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CONTROL OF SWEETPOTATO WHITEFLIES ON LANTANA 'BANDANA YELLOW ZEST'

Avg. of Nymphs/2 inch²



2019 – ATO Consulting

Rates per 100 gal

Foliar sprays were applied three times on a 14 day interval

DIRECTIONS FOR DRENCHING MAINSPRING

- Apply Mainspring 2-3 weeks after pinch as a drench.
- Apply Mainspring using drench volumes below
- Wet $\frac{3}{4}$ of the rootball

Drench Volumes per pot size

Container Size	Mainspring GNL Drench Volume
4	2 – 3
5	3 - 4
6	4
7	5 - 7
8	6 - 10
10	16 – 20
For Larger Containers	Use 6 – 8 fl. oz. per gallon of potting media

ROOT DEVELOPMENT 3-WEEKS AFTER PINCH



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GROWING IN WOOD FIBER MEDIA



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CHECK DRENCH VOLUMES FOR EACH CONTAINER SIZE

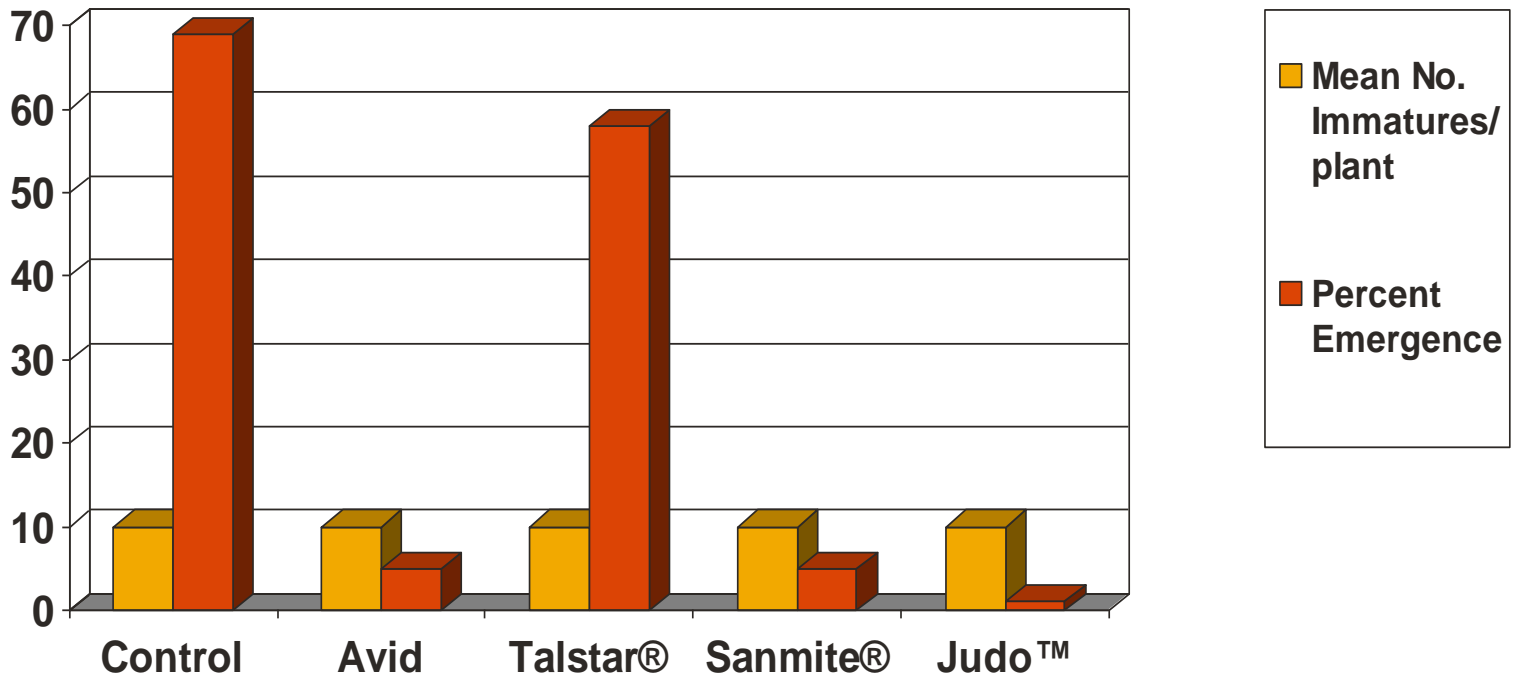


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CONTROL OF BIOTYPE- Q WHITEFLY

MEAN PERCENT EMERGENCE OF BIOTYPE-Q WHITEFLY

Mean No. Immatures per Replicate/
Percent Emergence



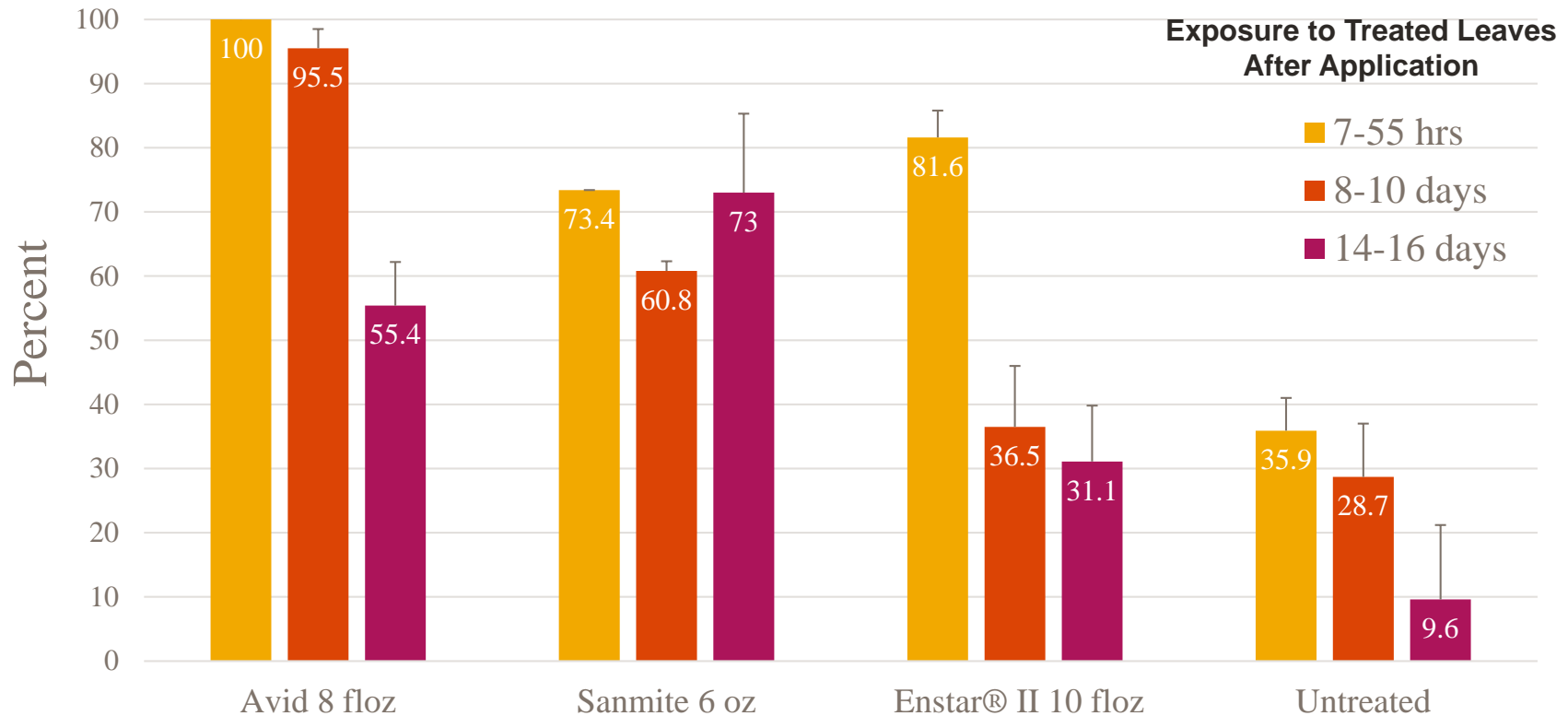
2005 – Bethke UCR

5 Single plant replicates per treatment

Performance assessments are based upon results or analysis of public information, field observations and/or internal Syngenta evaluations.

Effect of Foliar Treatments on Whitefly Development in Poinsettia

PERCENT OF EGGS THAT FAILED TO PRODUCE ADULTS



Clip cages containing 10 adult whiteflies were clipped onto leaves for at the interval listed. Eggs were counted and monitored for development and emergence of adults.

TAMU - Ludwig 2007

Performance assessments are based upon results or analysis of public information, field observations and/or internal Syngenta evaluations.

INTEGRATED BIOCONTROL PROGRAMS



INTEGRATED CROP MANAGEMENT STRATEGY FOR POINSETTIA PRODUCTION

Using Biological Control Agents (BCAs) to control pests in poinsettias has been successful for years. There are few pests that affect poinsettias; however, the discovery of the 'Q' type silver leaf whitefly has increased the use of BCAs because it is more resistant to traditional control products. Incorporating BCAs into an integrated crop management (ICM) approach improves resistance management and can help increase plant quality.



Eretmocerus eremicus



Amblyseius swirkii

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Rotation Example for Poinsettia Production from Liners

Week	Timing	Product Rotation <i>(Rates/100 gal)</i>	Target Problem
1	Transplant	Citation 2.66 oz.	Fungus gnats <i>(if needed)</i>
2		Avid 8 fl. oz. + Mural 4-5 oz. (Spray)	Mites, Thrips, Whiteflies, Alternaria, Botrytis, Scab, Powdery mildew
2/3		Segway 3oz. + Medallion 1-2 oz. (Drench)	Pythium, Phytophthora, Rhizoctonia
3/4		Endeavor 5 oz. <i>or</i> Rycar 3 fl. oz. (Spray)	Whiteflies (Apply as needed to reduce adult pressure)
4/5	Pinch	Daconil Ultrex 1.4 lb. + *Dithane 75DF 1.5 lb. (or *Mancozeb product) (Spray)	Alternaria, Botrytis, Powdery mildew, Rhizoctonia, *Scab
6	Protect new growth	Avid 8 fl. oz. + Mural 5-7 oz. (Spray)	Mites, Thrips, Whiteflies Alternaria, Botrytis, Powdery mildew, Scab
7	2-3 weeks after pinch	Mainspring GNL 8 fl. oz. (Drench) (wait until good rooting is evident)	Whiteflies (<i>Bemisia sp.</i>)
	<i>(Optional)</i>	Subdue Maxx 1 floz. OR Heritage 1 oz. (Drench)	Pythium, Phytophthora, Rhizoctonia
8			
9		Palladium 6 oz. + Capsil 4 fl. oz. (Spray)	Alternaria, Botrytis, Powdery mildew
10			
11		Mural 5-7 oz. + Capsil 4 fl. oz. (Spray)	Alternaria, Botrytis, Powdery mildew, Scab
12	Shipping		
13		Palladium 6 oz. + Capsil 4 fl. oz. (Spray)	Alternaria, Botrytis, Powdery mildew
14-16		Mural 5-7 oz. + Capsil 4 fl. oz. (Spray)	Botrytis

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SYNGENTA TECHNICAL TEAM



Reference Websites:

www.Greencastonline.com/ornamentals

www.Greencastonline.com/Solutions (agronomic programs)

www.SyngentaFlowers-US.com

www.SyngentaFlowers-us.com/TechLibrary (Poinsettia Culture Guides)

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