CERTIS Biologicals

IR-4 Update

2023 Industry Technology Session
July 20, 2023

Holly Davis – Field Development Manager, SW USA

New Mycoinsecticides

Fungal biocontrol agents of arthropods

Product	Active ingredient	Major targets
BoteGHA® Optima	*Beauveria bassiana* strain GHA 2% ES	Whiteflies, aphids, thrips, psyllids, mealybugs, weevils, plant bugs, borers and more on listed food and nonfood crops grown outdoors, in indoor/outdoor nurseries, greenhouses, shadehouses, commercial landscapes, interiorscapes, and turf.
PFR-97® 10% ES	*Isaria fumosorosea* strain Apopka 97	Whiteflies, thrips, aphids, psyllids, mealybugs, spider mite and more on all indoor and outdoor crops listed

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Overview BoteGHA® Optima,

Beauveria bassiana strain GHA 2% ES



% AI & Formulation	2%, Emulsifiable Suspension
Spore Content	Minimum 1 x 10^9 per mL of product
Storage	40 – 85° F
Application rates	0.5-3.0 qt/100 gal in greenhouse; 0.25 – 1.5 qt/acre outdoor, depending on crop and target pest
Application interval	2 – 10 day intervals, depending on crop and target pest
Application methods	Ground (foliar), aerial, chemigation (sprinkler, drip)
Tank mix compatibility	Compatible with most chemical insecticides and some fungicides. NO ADJUVANT NEEDED

OMRI LISTED For Organic Use · OMRI.org Pending

CAN BE USED IN ORGANIC PRODUCTION

Residue Exempt

4 hr. REI

0 PHI

MADE IN USA

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Overview PFR-97® 10% ES,

Isaria fumosorosea strain Apopka 97

% AI & Formulation	10%, Emulsifiable Suspension
Spore Content	Minimum 5 x 10^9 per mL of product
Storage	40 – 68° F Do not freeze
Rates/acre	14-28 fl oz/100 gal in greenhouse; 1-2 pints/acre outdoor-grown crops
Application interval	3 – 10 day intervals, depending on crop and target pest
Application methods	Foliar spray, soil, chemigation (drip, sprinkler)
Tank mix compatibility	Compatible with most chemical insecticides and copper-based fungicides

CAN BE USED IN ORGANIC PRODUCTION

Residue Exempt

OMRI LISTED For Organic Use · OMRI.org

4 hr. REI

0 PHI

MADE IN USA

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Yellow Onion var. 'Hornet'

Weslaco, TX
CER-2022-7560

Means with * are significantly different than the untreated control at alpha 0.05

	Number of thrips/plant (5 onion plants randomly sampled per plot)								
	Trt A	7 DAT A	Trt B	7 DAT B	Trt C	4 DAT C	Trt D	3 DAT D	AVG.
Water-treated check		13.2 **a***		13.6 **a**		14.8 **a**		20.2 **a**	15.4
BoteGHA Optima @ 0.5 qt/a (A,B,C,D)		9.4 **abcd**		3.9 **b**		3.6 **cd**		4.0 **bc**	5.2
BoteGHA Optima @ 1.0 qt/a (A,B,C,D)		8.8 **bcd**		4.7 **b**		4.6 **cd**		7.3 **b**	6.3
PFR-97 10% ES @ 1.0 pt/a (A,B,C,D)		11.8 **abc**		5.4 **b**		9.3 **b**		9.0 **b**	8.8
PFR-97 10% ES @ 2.0 pt/a (A,B,C,D)		7.5 **cd**		5.3 **b**		3.5 **cd**		8.3 **b**	6.1

- * Duncan's New Multiple Range Test p=0.05
- Planted by seed 14 Oct, 2022
- 4 applications made, A-D: 3, 13, 20, 24 March 2023
- NIS surfactant (R-11) @ 0.25% added to all treatments
- Spray volume 58.7 gal/acre
- Randomized block design w/ 4 replications
- Cooperator: Dr. Juan Anciso, Texas A&M AgriLife

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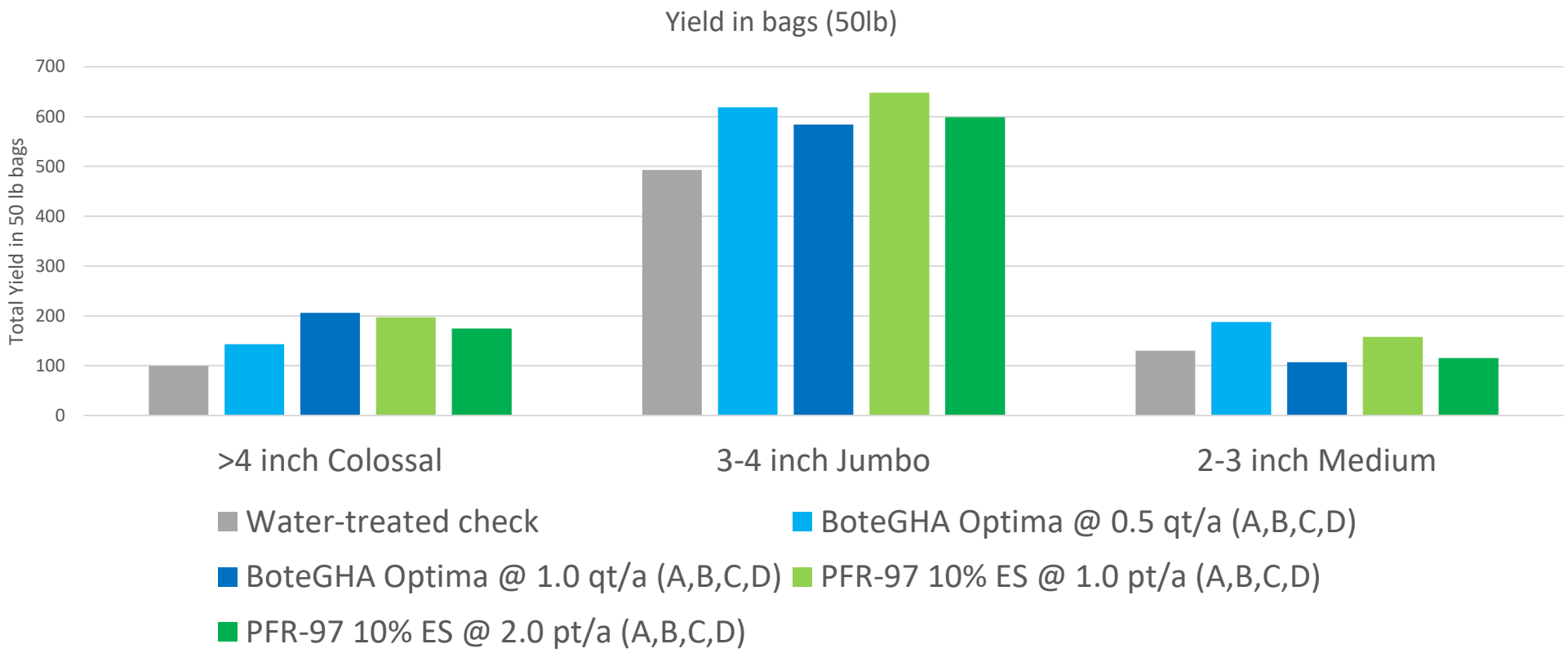
Yellow Onion var. 'Hornet'

Weslaco, TX
CER-2022-7560



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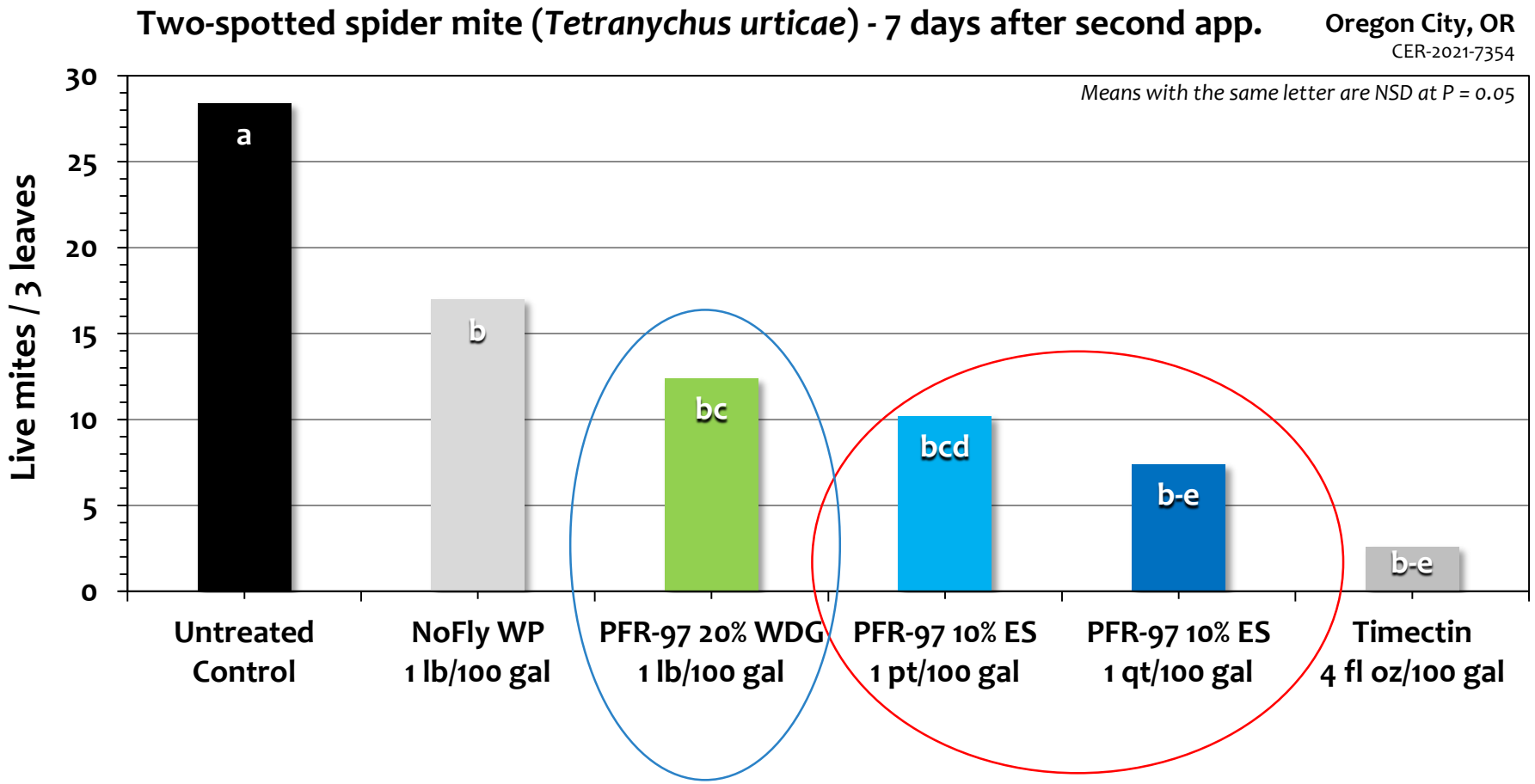
Hemp var. ‘CW1 Mandrake’



- 3 applications of each treatment from Aug 3rd – Aug 17th on 7 day intervals
- Greenhouse trial, randomized complete block design with 5 single-plant replicates
- Spray volume was 100 gal/A (full coverage) via single nozzle backpack sprayer at 40 psi
- Cooperator: C. Collins, Collins Ag. Research

FIGHT COTTON APHIDS IN PETUNIA USING PFR-97 10% ES AND PFR-97 20% WDG

Trial supports efficacy of PFR-97 against aphids, performing better than NoFly WP and similar to the conventional standard insecticide (Talstar S)

PFR-97 10% ES
MICROBIAL INSECTICIDE

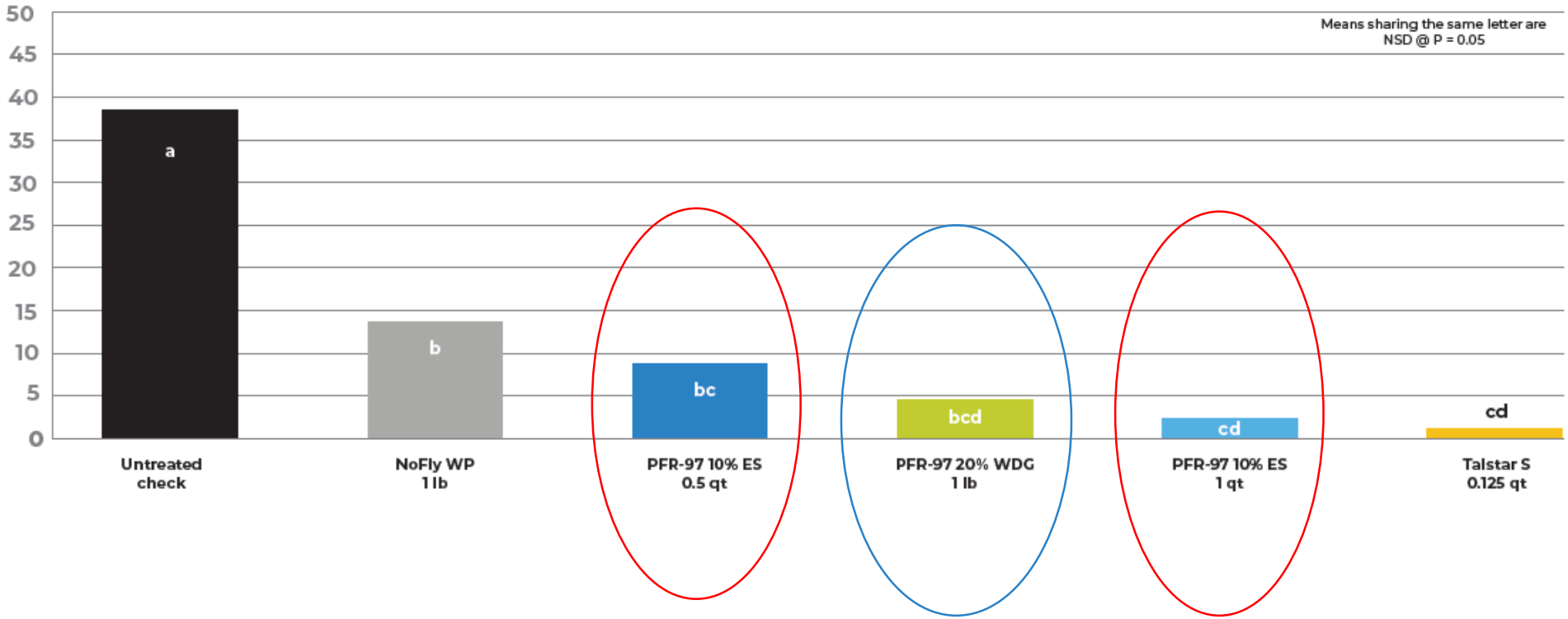
PFR-97 20% WDG
INSECTICIDA MICROBIAL

ACTIVE INGREDIENTS
Isaria fumosorosea Apopka Strain 97

CAN BE USED IN ORGANIC PRODUCTION | Residue Exempt | OMRI LISTED | 4 hr. REI | 0 PHI | MADE IN USA

Cotton aphid, (Aphis gossypii) 7 days after second application

CER-2021-7352
Rexburg, ID



- 3 applications of each treatment from Aug 24th – Sep 7th on 7 day intervals
- Greenhouse trial, randomized complete block design with 4 replicates
- Spray volume was 2.3 gal/1000 sq. ft. (complete coverage) at 40 psi
- Cooperator: B&B Ag. Consulting, a division of Two Bees Ag. Research

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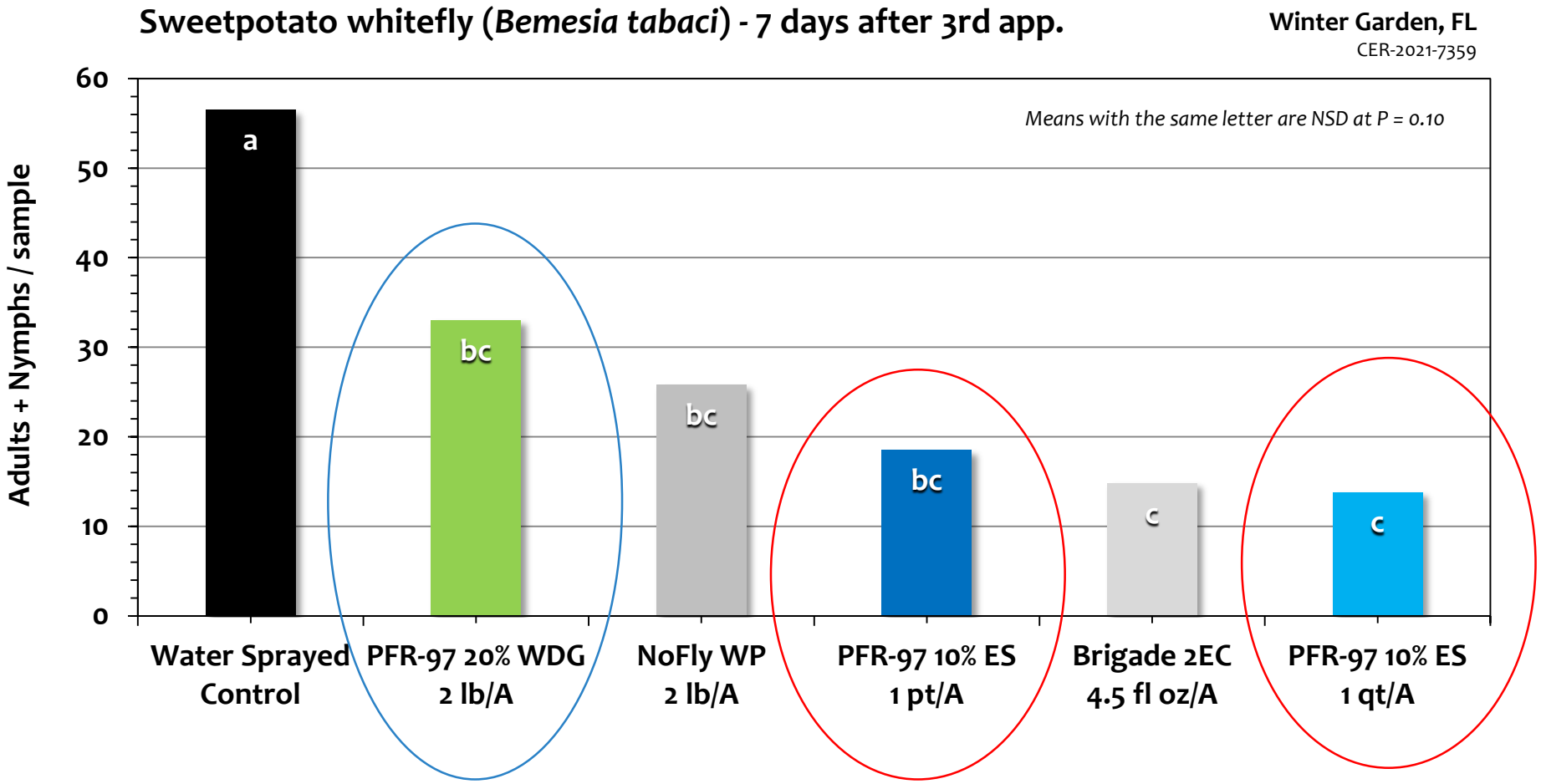
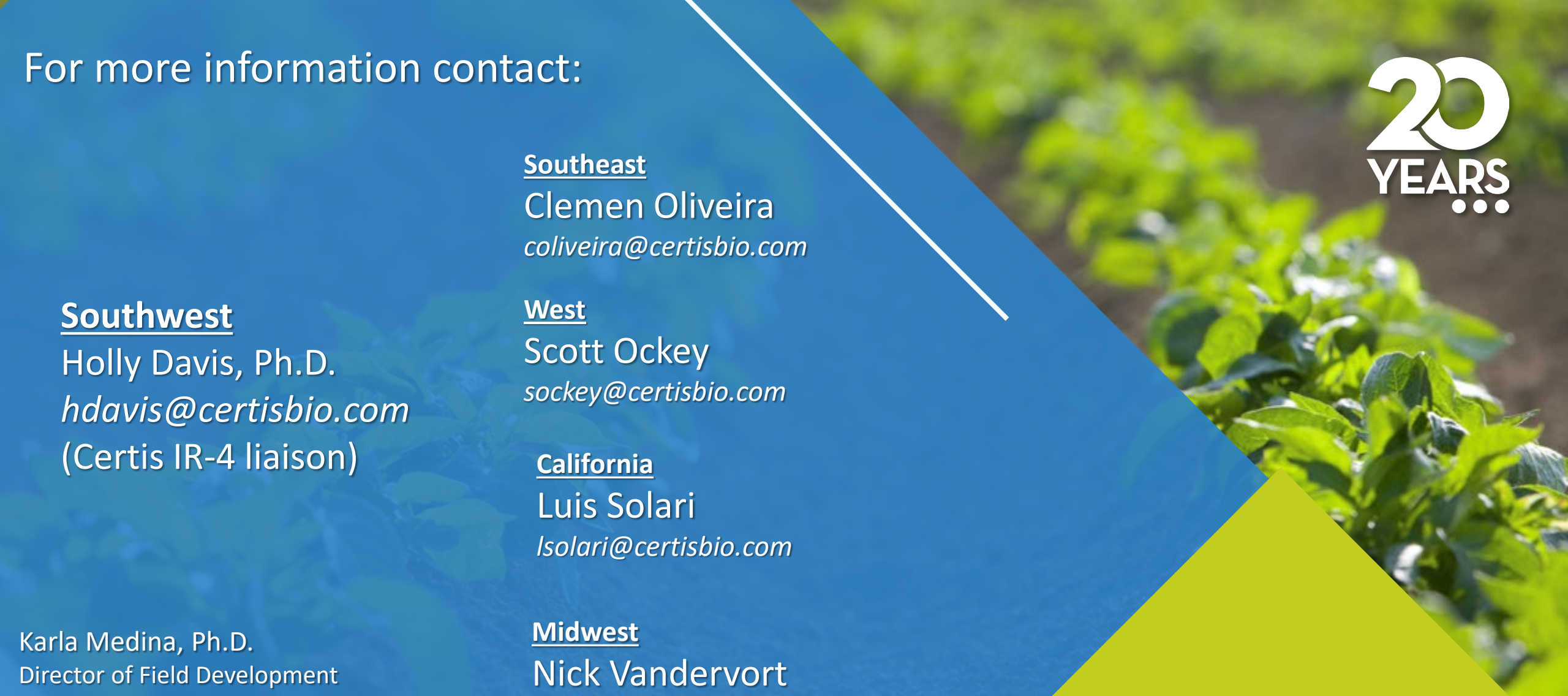
Cucumber var. 'Deli-Star'



- 3 applications of each treatment from Sep. 16th – Sep. 30th on 7 day intervals
- Randomized complete block design with 4 replicates, 25 ft plot length x 5 ft plot width
- Spray volume was 20 gal/A via CO_2 backpack sprayer with three TeeJet flat fan nozzles
- Cooperator: B. Lange, Lange Research & Consulting

For more information contact:



Southwest
Holly Davis, Ph.D.
hdavis@certisbio.com
(Certis IR-4 liaison)

Southeast
Clemen Oliveira
coliveira@certisbio.com

West
Scott Ockey
sockey@certisbio.com

California
Luis Solari
lsolari@certisbio.com

Midwest
Nick Vandervort
nvandervort@certisbio.com

Northeast
Karly Regan
grogers@certisbio.com

Karla Medina, Ph.D.
Director of Field Development
kmedina@certisbio.com

Certis USA, L.L.C.
9145 Guilford Road, Suite 175
Columbia, Maryland 21046
www.certisbio.com

20 YEARS

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