Processing Vegetable Crop Disease Research Updates

Amanda Gevens, Stephen Jordan – UW-Madison Plant Pathology

Raw Products Committee Meeting

February 21, 2023

Zoom

1:15PM – Carrot foliar disease variety evaluation

1:30PM – Snap bean & kidney bean disease research

1:45PM – Sweet corn tar spot variety evaluation

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Midwest Food Products Association, Inc.

CARROT VARIETY RESPONSE TO FOLIAR DISEASE

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Amanda Gevens *& Stephen Jordan*

UW-Madison Plant Pathology

CARROT FOLIAR DISEASE

- Carrot leaf blights are caused by two fungal pathogens, ***Alternaria dauci*** and ***Cercospora carotae***
- And one bacterial pathogen, ***Xanthomonas campestris*** **pv.** ***carotae***
- Since any combination of the three pathogens may occur in a field, proper identification is important for employing the proper management strategies.

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Alternaria Leaf Blight of Carrot

Alternaria dauci

- Pathogen over seasons in debris and spreads regionally
- Leaflet margins and tips turn dark brown to black with a yellow halo
- Lesions first evident on the lower, older leaflets
- Many lesions growing together resulting in black, shriveled and [illegible] leaves
- Large lesions can also develop on the petioles and may girdle and kill leaves & roots not directly infected

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Cercospora Leaf Spot of Carrot

Cercospora carotae

- Pathogen resides in debris
- Leaves develop circular purplish brown spots with a gray center
- Leaf tissue around spots turns yellow, leaf margins may darken and curl upward
- Many leaf spots can grow together resulting in leaf wilt and death
- Lesions apparent throughout old and new leaves
- Roots are not directly infected, but may be small due to severe leaf damage

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Bacterial Leaf Spot of Carrot

Xanthomonas campestris pv. carotae

- Leaf spots start small, circular, light brown to tan
- Eventually spots become elongate; dark brown with yellow edges
- Infection progresses down the leaf
- Severely infected leaves, yellow, wilt and die
- Lower leaf surface is very shiny, and may be sticky in wet weather
- Young leaves can become distorted
- Roots are not directly infected, but may be small due to severe leaf damage
- **Foliar samples collected for diagnostic testing on September 20, 2022**
- **Xanthomonas presence confirmed in all cultivars**

CARROT VARIETY TRIAL
UW HANCOCK ARS - 2022

Variety	Supplier	Type
Naval	Seedway	Fresh Market/Slicer
Moonraker	Harris Moran	Processing/Dicer
Canberra	Bejo Seeds	Processing/Dicer
Belgrado	Bejo Seeds	Processing/Dicer
Istanbul	Bejo Seeds	Fresh Market/Slicer
SV4128DL	Seminis	Fresh Market/Slicer
Nantes	Park Seed	Fresh Market/Slicer
Navedo	Bejo Seeds	Fresh Market/Slicer
Cupar	Bejo Seeds	Processing/Dicer
SVDH3780	Seminis	Fresh Market/Slicer

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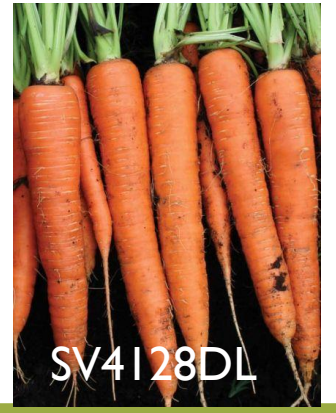
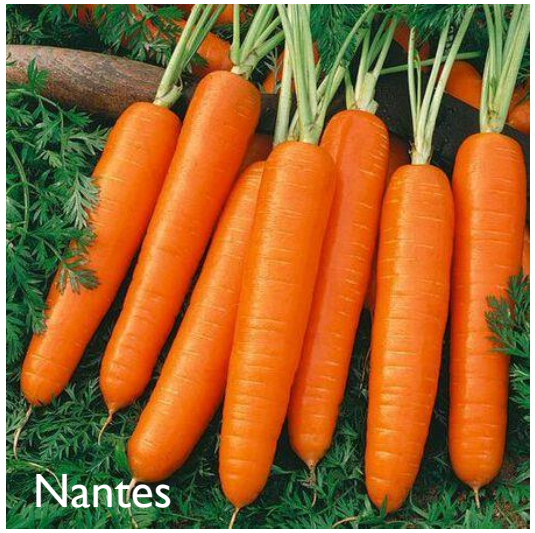
CARROT VARIETY TRIAL
UW HANCOCK ARS - 2022





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Navedo	Bejo Seeds	Fresh Market/Slicer
Cupar	Bejo Seeds	Processing/Dicer
SVDH3780	Seminis	Fresh Market/Slicer

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CARROT FOLIAR DISEASE CULTIVAR EVALUATION 2022

- UW Hancock ARS
- Seed sown at 250,000 seed/A on Jun 6
- 5 replicates arranged in a RCBD
- Each replicate plot was 4.5 ft wide (bed) with 3, 18-ft long seeding rows
- 19 in between rows on bed with 17 in from row edge to bed edge
- Naturally occurring inoculum
- No fungicides
- Disease evaluations on 11, 25 Aug; 4 Sep; 7 Oct

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CARROT FOLIAR DISEASE CULTIVAR EVALUATION - RESULTS - 2022

- Precipitation for growing season was 17.16 in
- Supplemental irrigation at 11.7 in
- Disease pressure was average, but initiated in Aug later than typical
- Hot drier, windier weather prevailed in Jun and Jul

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Variety	Supplier	Type
Naval	Seedway	Fresh Market/Slicer
Moonraker	Harris Moran	Processing/Dicer
Canberra	Bejo Seeds	Processing/Dicer
Belgrado	Bejo Seeds	Processing/Dicer
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SV4128DL	Seminis	Fresh Market/Slicer
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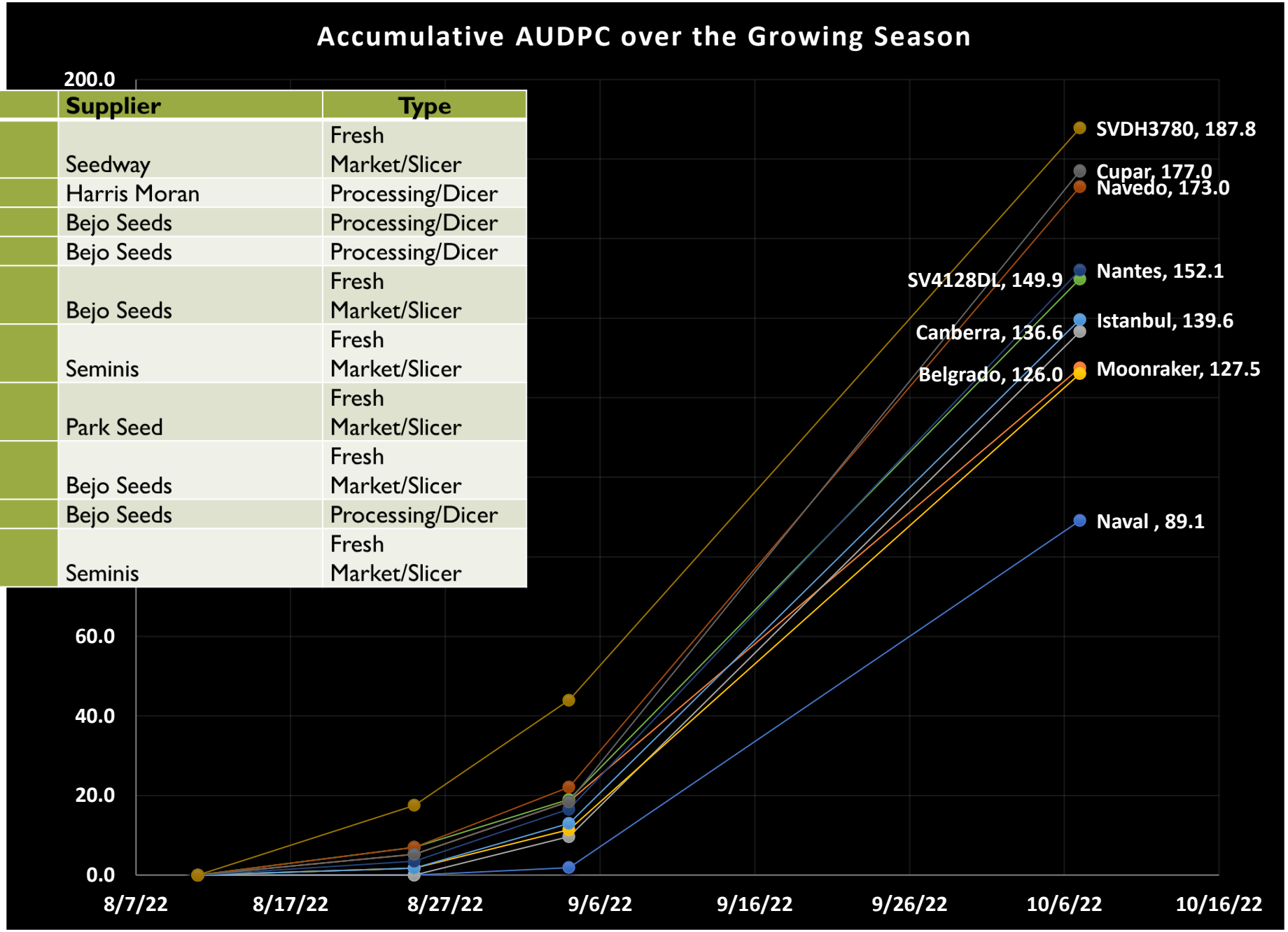

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CARROT FOLIAR DISEASE CULTIVAR EVALUATION - RESULTS - 2022

- Naval was the most resistant fresh market variety to foliar disease

CARROT FOLIAR DISEASE CULTIVAR EVALUATION - RESULTS - 2022

- Moonraker, Belgrado, and Canberra were the most resistant processing varieties to foliar disease (Photo Oct 7)

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CARROT VARIETY TRIAL
UW HANCOCK ARS RESULTS - 2022

Variety	Supplier	Type	RAUDPC[z]	
4 Naval	Seedway	Fresh Market/Slicer	0.135	a[y]
3 Moonraker	Harris Moran	Processing/Dicer	0.204	b
7 Canberra	Bejo Seeds	Processing/Dicer	0.207	b
6 Belgrado	Bejo Seeds	Processing/Dicer	0.208	b
9 Istanbul	Bejo Seeds	Fresh Market/Slicer	0.216	bc
2 SV4128DL	Seminis	Fresh Market/Slicer	0.219	bc
5 Nantes	Park Seed	Fresh Market/Slicer	0.248	bcd
8 Navedo	Bejo Seeds	Fresh Market/Slicer	0.265	cde
10 Cupar	Bejo Seeds	Processing/Dicer	0.288	de
1 SVDH3780	Seminis	Fresh Market/Slicer	0.299	e

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Carrot Foliar Disease Oct 7, 2022 – UW Hancock ARS

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Carrot Foliar Disease Oct 7, 2022 – UW Hancock ARS

Variety	RAUDPC[z]	
4 Naval	0.135	a[y]
3 Moonraker	0.204	b
7 Canberra	0.207	b
6 Belgrado	0.208	b
9 Istanbul	0.216	bc
2 SV4128DL	0.219	bc
5 Nantes	0.248	bcd
8 Navedo	0.265	cde
10 Cupar	0.288	de
1 SVDH3780	0.299	e

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Carrot Foliar Disease Oct 7, 2022 – UW Hancock ARS

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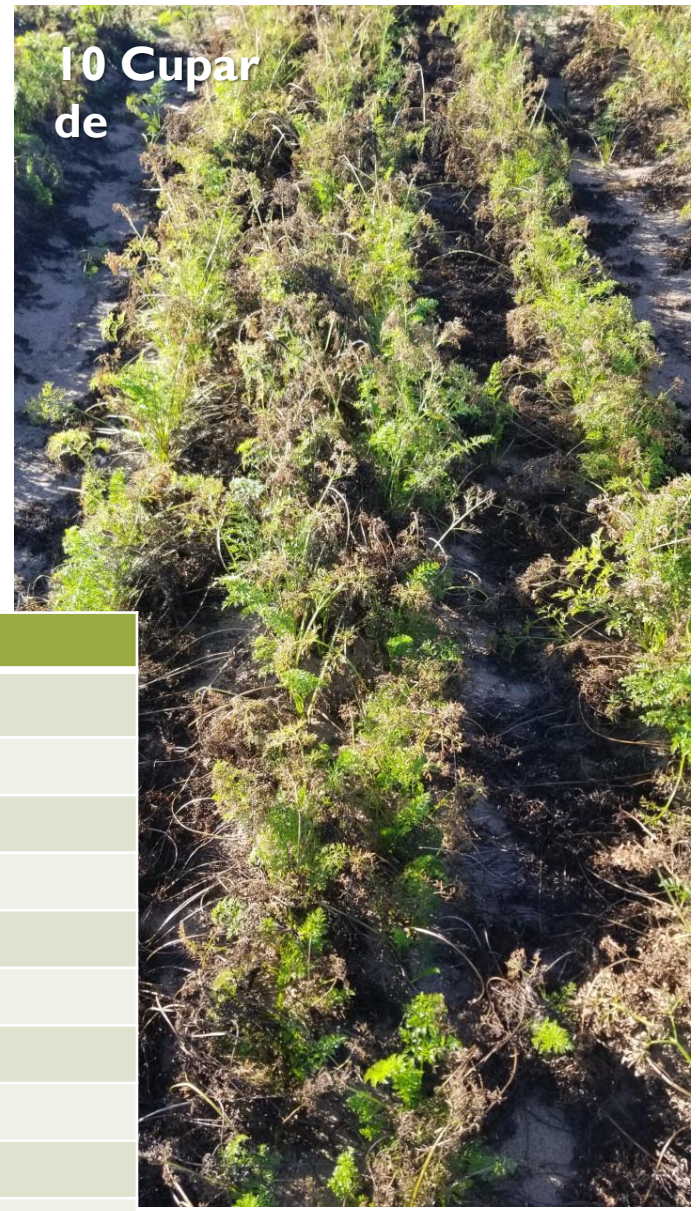

Variety	RAUDPC[z]	
4 Naval	0.135	a[y]
3 Moonraker	0.204	b
7 Canberra	0.207	b
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Thank you

We appreciate the Midwest Food Producers Association for funding

We appreciate our vegetable seed industry and grower collaborators.

MWFPA

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BEAN DISEASE RESEARCH UPDATES

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UW-Madison Plant Pathology

Impacts of fungicide selection and placement in bean root rot management



Amanda Gevens & Stephen Jordan

Chair, Professor & Extension Plant Pathologist; Outreach Specialist, Dept. of Plant Pathology, Univ. of Wisconsin-Madison

Root Rot & Damping Off Diseases

Early season, stand-reducing diseases result from infection by one or more soilborne pathogens during periods of cool and wet soil

Fungi: *Rhizoctonia solani, Fusarium* spp.
Oomycetes: *Aphanomyces euteiches, Pythium* spp.



Photo Credits L to R: Howard Schwartz, A.M. Varela, T.J. Hughes & C. Grau, CSU Extension

Root Rot & Damping Off Diseases
Management Approaches

Varietal resistance

Crop rotation out of susceptible legume crops for ~3 years

Avoid planting during times when soil will remain consistently <~50°F and wet

Seed-applied or at-plant applied fungicides for reducing disease

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Root Rot & Damping Off Diseases
Research Objectives

MWFPA-funded project: Investigating seed-applied and at-plant fungicides for disease control in snap beans and kidney beans

-initial years of work summarized (2018-2020)
-recent years of work elaborated (2021-2022)
-in furrow and seed trt evaluations
-naturally inoculated trials
-inoculated field trial

Hancock Research Station
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Hartung BROTHERS INCORPORATED

Del Monte Quality

Root Rot & Damping Off Diseases
In-furrow Treatment Study Summary 2018

- No significant differences in emergence or yield when compared to non-treated control
- **Highest yield and emergence for both Huntington and Hystyle cultivars with in-furrow treatment of Ridomil Gold (alone) and Ridomil Gold and Quadris in-furrow**
- No significant differences in plant vigor or disease when compared to non-treated control (data not shown)
- Low disease pressure & no phytotoxicity observed for any treatments

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Root Rot & Damping Off Diseases
In-furrow & Seed Treatment Study Summary 2019

- Higher emergence and yield with Huntington (non-nodulating) compared to HyStyle (nodulating)
- Significant differences in emergence
- No significant differences in yield when compared to non-treated control, but numerically in-furrow treatments were better
- **Numerically, best treatments were in-furrow Ridomil Gold (alone), Ridomil Gold + Quadris**
- **Seed treatments of Ridomil Gold (alone) and Vitoflow were similar to Quadris in-furrow**
- No significant differences in plant vigor or disease when compared to non-treated control
- Low disease pressure & no phytotoxicity for any treatments

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Root Rot & Damping Off Diseases
In-furrow & Seed Treatment Study Summary 2020

- Higher emergence and yield with Huntington compared to HyStyle
- No significant differences in emergence
- **No significant differences in yield when compared to non-treated control, but numerically in-furrow treatments were better with exception of Velum Prime on seed on 'Huntington'**
- **Numerically, best treatments were in-furrow Ridomil Gold (alone), Ridomil Gold + Quadris**
- **Double Nickel in-furrow on 'Huntington' was highest yielding**

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Low disease pressure & no phytotoxicity for any treatments

Root Rot & Damping Off Diseases
In-furrow & Seed Treatment Study 2021

- Location: Hancock ARS 2021
- 'Huntington'
- Planting Date: 1 June
- Fungicides applied: seed applied treatments and drench in-row over the top of covered seed
- Data collected: emergence, plant vigor, foliar and root symptoms, and yield
- Harvested: 17 August

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Root Rot & Damping Off Diseases
2021 Hancock ARS – 'Huntington'

Trt #	Treatment	Active ingredient FRAC	rate/1000 rf	Application Timing[z]
1	Non-treated Control	NA		NA
2	Ridomil Gold	mefenoxam 4	0.42 fl oz	In-furrow or IFAP
3	Ridomil Gold + Quadris	mefenoxam 4 + azoxystrobin 11	0.42 fl oz + 0.8 fl oz	IFAP
4	Quadris	azoxystrobin 11	0.8 fl oz	IFAP
5	Velum Prime	fluopyram 7	0.45 fl oz	IFAP
6	Serenade	*Bacillus subtilis* 713 QST	4.4 fl oz	IFAP
7	Double Nickel	*B. amyloliquefaciens* D747	2.2 fl oz	IFAP
8	Propulse	fluopyram 7 + prothioconazole 3	10.0 fl oz/A	IFAP
9	Proline	prothioconazole 3	0.192 fl oz	IFAP
10	Regalia	*Reynoutria sachalinensis* extract	4.4 fl oz	IFAP
11	Howler	*Pseudomonas chlorophis*	5.5 oz	IFAP
12	Vibrance Ridomil Gold	sedaxane 7 mefenoxam 4	0.16 fl oz/100 lb seed 0.42 fl oz	Seed Treatment IFAP
13	Vibrance	sedaxane 7	0.16 fl oz/100 lb seed	Seed Treatment
14	EverGol Energy	metalaxyl 4, penflufen 7, prothioconazole 3	1 fl oz/ 100 lb seed	Seed Treatment
15	Vitoflow	carbathiim 7?, thiram M3	2.6 ml/kg seed	Seed Treatment
16	Ridomil Gold	mefenoxam 4	2.5%v/v	Seed Treatment
17	Velum Prime	fluopyram 7	1.5 fl oz/100 lb	Seed Treatment
18	Saltro	pydiflumetofen 7	1.5 fl oz/100 lb	Seed Treatment

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Root Rot & Damping Off Diseases
2021 Hancock ARS – 'Huntington'

Trt #	Treatment	Active ingredient FRAC	rate/1000 rf	Application Timing[z]
1	Non-treated Control	NA		NA
2	Ridomil Gold	mefenoxam 4	0.42 fl oz	In-furrow or IFAP
3	Ridomil Gold + Quadris	mefenoxam 4 + azoxystrobin 11	0.42 fl oz + 0.8 fl oz	IFAP
4	Quadris	azoxystrobin 11	0.8 fl oz	IFAP
5	Velum Prime	fluopyram 7	0.45 fl oz	IFAP
6	Serenade	*Bacillus subtilis* 713 QST	4.4 fl oz	IFAP
7	Double Nickel	*B. amyloliquefaciens* D747	2.2 fl oz	IFAP
8	Propulse	fluopyram 7 + prothioconazole 3	10.0 fl oz/A	IFAP
9	Proline	prothioconazole 3	0.192 fl oz	IFAP
10	Regalia	*Reynoutria sachalinensis* extract	4.4 fl oz	IFAP
11	Howler	*Pseudomonas chlorophis*	5.5 oz	IFAP
12	Vibrance Ridomil Gold	sedaxane 7 mefenoxam 4	0.16 fl oz/100 lb seed 0.42 fl oz	Seed Treatment IFAP
13	Vibrance	sedaxane 7	0.16 fl oz/100 lb seed	Seed Treatment
14	EverGol Energy	metalaxyl 4, penflufen 7, prothioconazole 3	1 fl oz/ 100 lb seed	Seed Treatment
15	Vitoflow	carbathiim 7?, thiram M3	2.6 ml/kg seed	Seed Treatment
16	Ridomil Gold	mefenoxam 4	2.5%v/v	Seed Treatment
17	Velum Prime	fluopyram 7	1.5 fl oz/100 lb	Seed Treatment
18	Saltro	pydiflumetofen 7	1.5 fl oz/100 lb	Seed Treatment

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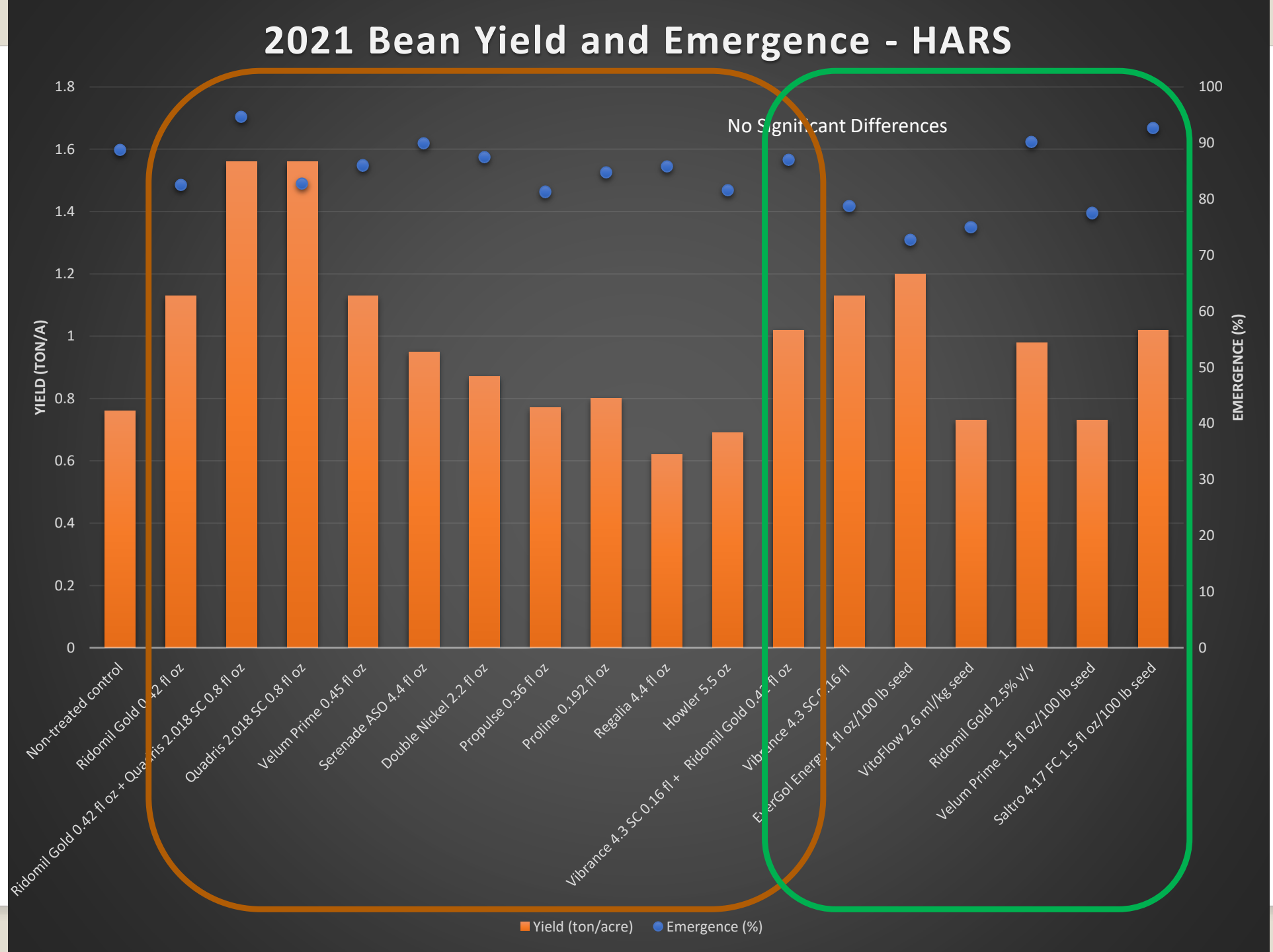
2021 Bean Yield and Emergence - HARS



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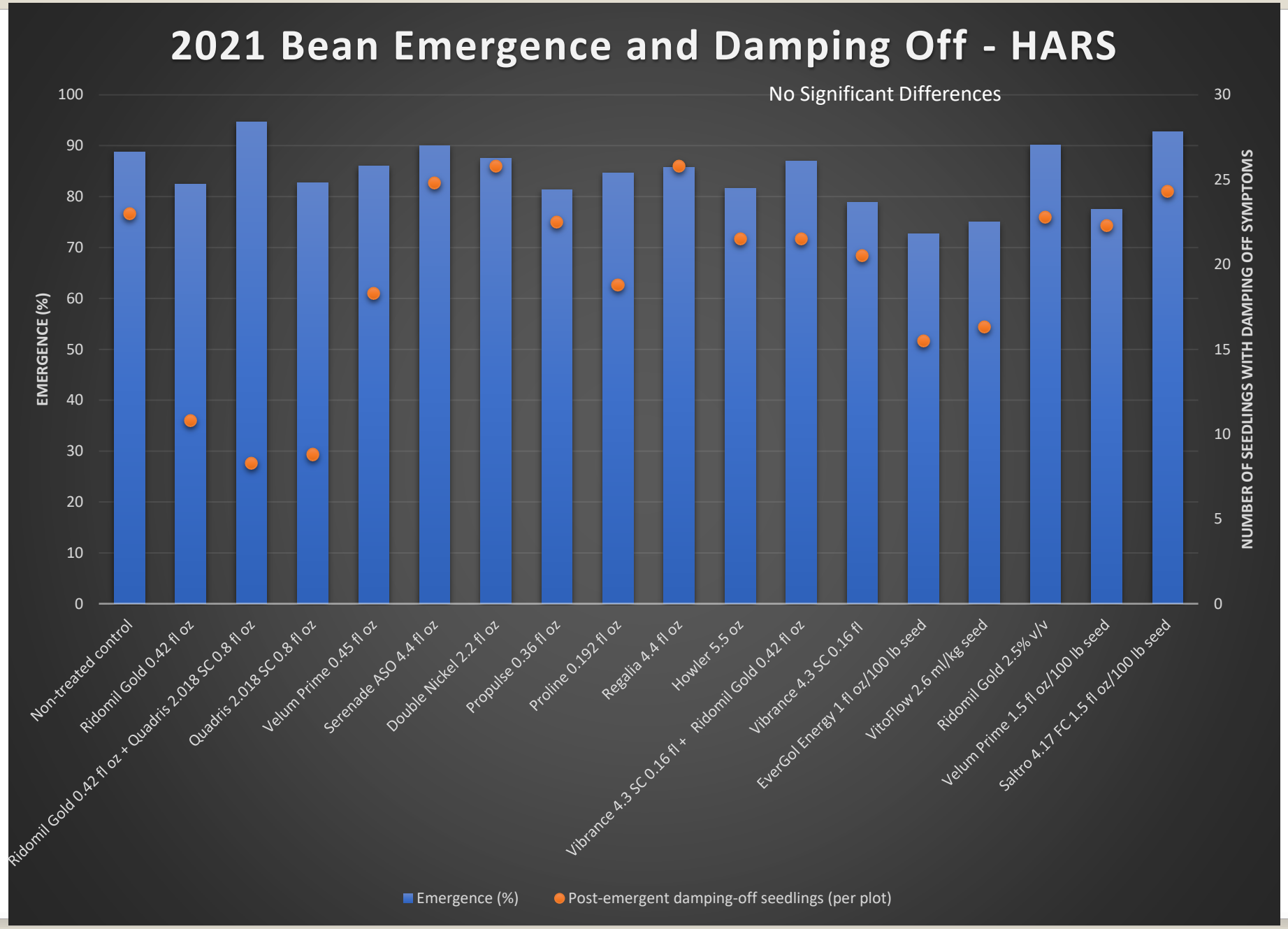
2021 Bean Emergence and Damping Off - HARS



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Root Rot & Damping Off Diseases
2021 Summary Hancock ARS

- While no significant differences in yield across treatments, we see trend of greater yield and emergence with specific in-furrow treatments: Ridomil Gold + Quadris, Quadris (alone), Velum Prime, and Ridomil Gold (alone)

- Velum Prime and Ridomil Gold performed better as in-furrow treatments than as seed-applied treatments

- Highest yielding treatments demonstrated lowest damping off ‘counts’

- Biological fungicides had highest damping off ‘counts’ and relatively lowest yields

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Root Rot & Damping Off Diseases
2022 Hancock ARS

- New location, Former root rot nursery was too “hot”
- Inoculated trial - *Fusarium solani* f.sp. *Pisi*
- Inoculum applied over top of seed row at time of planting (infested barley)
- Fusarium severity scale (0-5)
- ‘Hystyle’ bean cultivar

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Root Rot & Damping Off Diseases
2022 Hancock ARS C27 – 'Hystyle'

Trt #	Treatment	Active ingredient FRAC	rate/1000 rf	Application Timing[z]
1	Non-treated Control	NA	Non-Inoculated	
2	Non-treated Control	NA	Inoculated	NA
3	Ridomil Gold	mefenoxam 4	0.42 fl oz	In furrow
4	Ridomil Gold + Quadris	mefenoxam 4 + azoxystrobin 11	0.42 fl oz + 0.8 fl oz	In furrow
5	Quadris	azoxystrobin 11	0.8 fl oz	In furrow
6	Velum Prime	fluopyram 7	0.45 fl oz	In furrow
7	Serenade	*Bacillus subtilis* 713 QST	4.4 fl oz	In furrow
8	Double Nickel	*Bacillus amyloliquefaciens* D747	2.2 fl oz	In furrow
9	Propulse	fluopyram 7 + priothioconazole 3	10.0 fl oz/A	In furrow
10	Proline	prothioconazole 3	0.192 fl oz	In furrow
11	Regalia	*Reynoutria sachalinensis* extract	4.4 fl oz	In furrow
12	Howler	*Pseudomonas chlororaphis*	5.5 oz	In furrow
13	Zironar	*Bacillus licheniformis* + *B. subtilis*	6 fl oz/A	In furrow
14	XSK03	Experimental	4 fl oz/A	In furrow
15	Ethos XB	*B. amyloliquefaciens* D747	4 fl oz/A	In furrow
16	Vibrance Ridomil Gold	sedaxane 7 mefenoxam 4	0.16 fl oz/100 lb seed 0.42 fl oz	Seed Treatment In furrow
17	Vibrance	sedaxane 7	0.16 fl oz/100 lb seed	Seed Treatment
18	EverGol Energy	metalaxyl 4, penflufen 7, priothioconazole 3	1 fl oz/ 100 lb seed	Seed Treatment
19	Vitoflow	carbathiim 7?, thiram M3	2.6 ml/kg seed	Seed Treatment
20	Ridomil Gold	mefenoxam 4	2.5%v/v	Seed Treatment
21	Velum Prime	fluopyram 7	1.5 fl oz/100 lb	Seed Treatment
22	Saltro	pydiflumetofen 7	1.5 fl oz/100 lb	Seed Treatment

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Root Rot & Damping Off Diseases
2022 Hancock ARS C27 – 'Hystyle'

Trt #	Treatment	Active ingredient FRAC	rate/1000 rf	Application Timing[z]
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2	Non-treated Control	NA	Inoculated	NA
3	Ridomil Gold	mefenoxam 4	0.42 fl oz	In furrow
4	Ridomil Gold + Quadris	mefenoxam 4 + azoxystrobin 11	0.42 fl oz + 0.8 fl oz	In furrow
5	Quadris	azoxystrobin 11	0.8 fl oz	In furrow
6	Velum Prime	fluopyram 7	0.45 fl oz	In furrow
7	Serenade	*Bacillus subtilis* 713 QST	4.4 fl oz	In furrow
8	Double Nickel	*Bacillus amyloliquefaciens* D747	2.2 fl oz	In furrow
9	Propulse	fluopyram 7 + priothioconazole 3	10.0 fl oz/A	In furrow
10	Proline	prothioconazole 3	0.192 fl oz	In furrow
11	Regalia	*Reynoutria sachalinensis* extract	4.4 fl oz	In furrow
12	Howler	*Pseudomonas chlororaphis*	5.5 oz	In furrow
13	Zironar	*Bacillus licheniformis* + *B. subtilis*	6 fl oz/A	In furrow
14	XSK03	Experimental	4 fl oz/A	In furrow
15	Ethos XB	*B. amyloliquefaciens* D747	4 fl oz/A	In furrow
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20	Ridomil Gold	mefenoxam 4	2.5%v/v	Seed Treatment
21	Velum Prime	fluopyram 7	1.5 fl oz/100 lb	Seed Treatment
22	Saltro	pydiflumetofen 7	1.5 fl oz/100 lb	Seed Treatment

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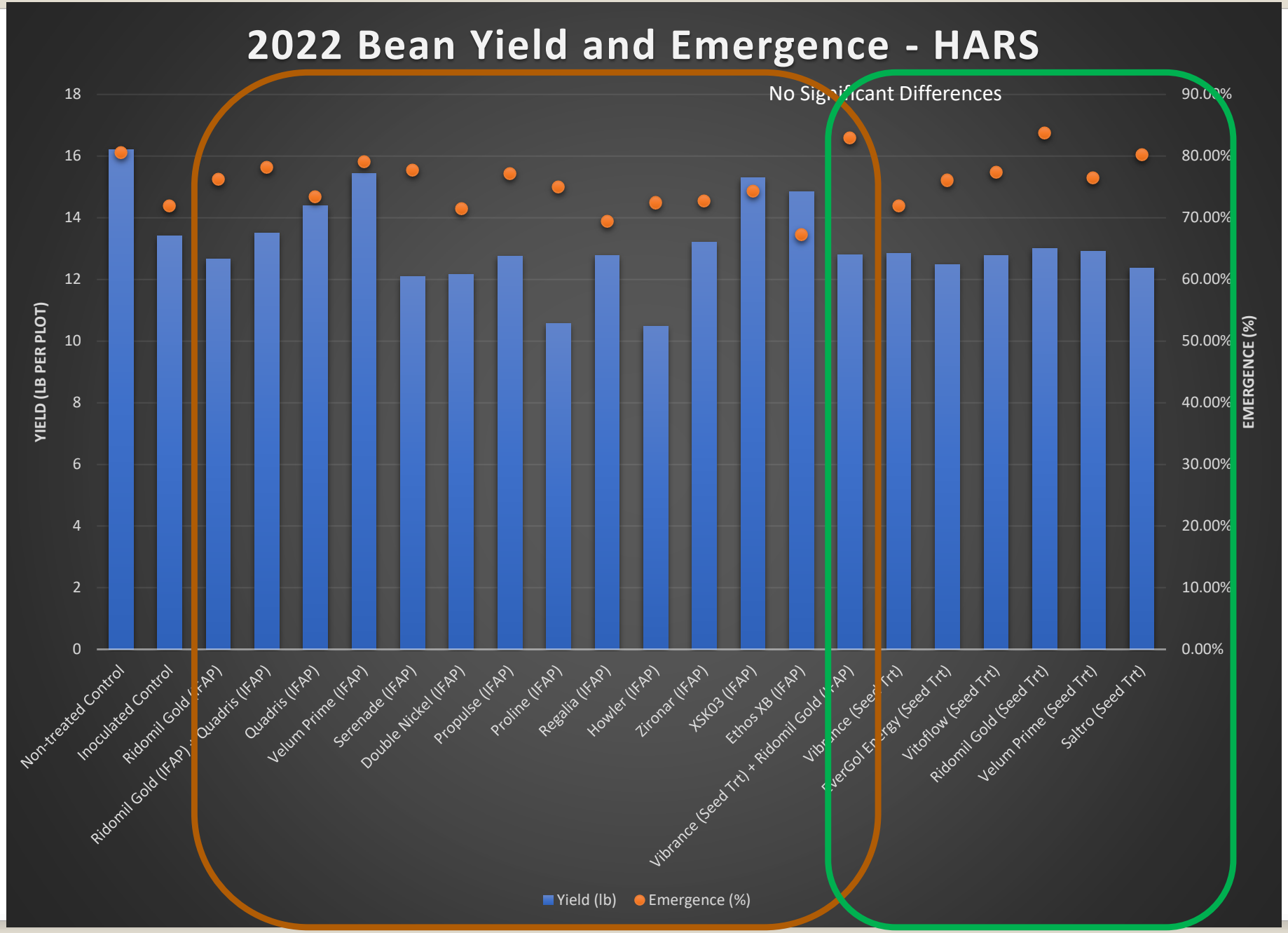
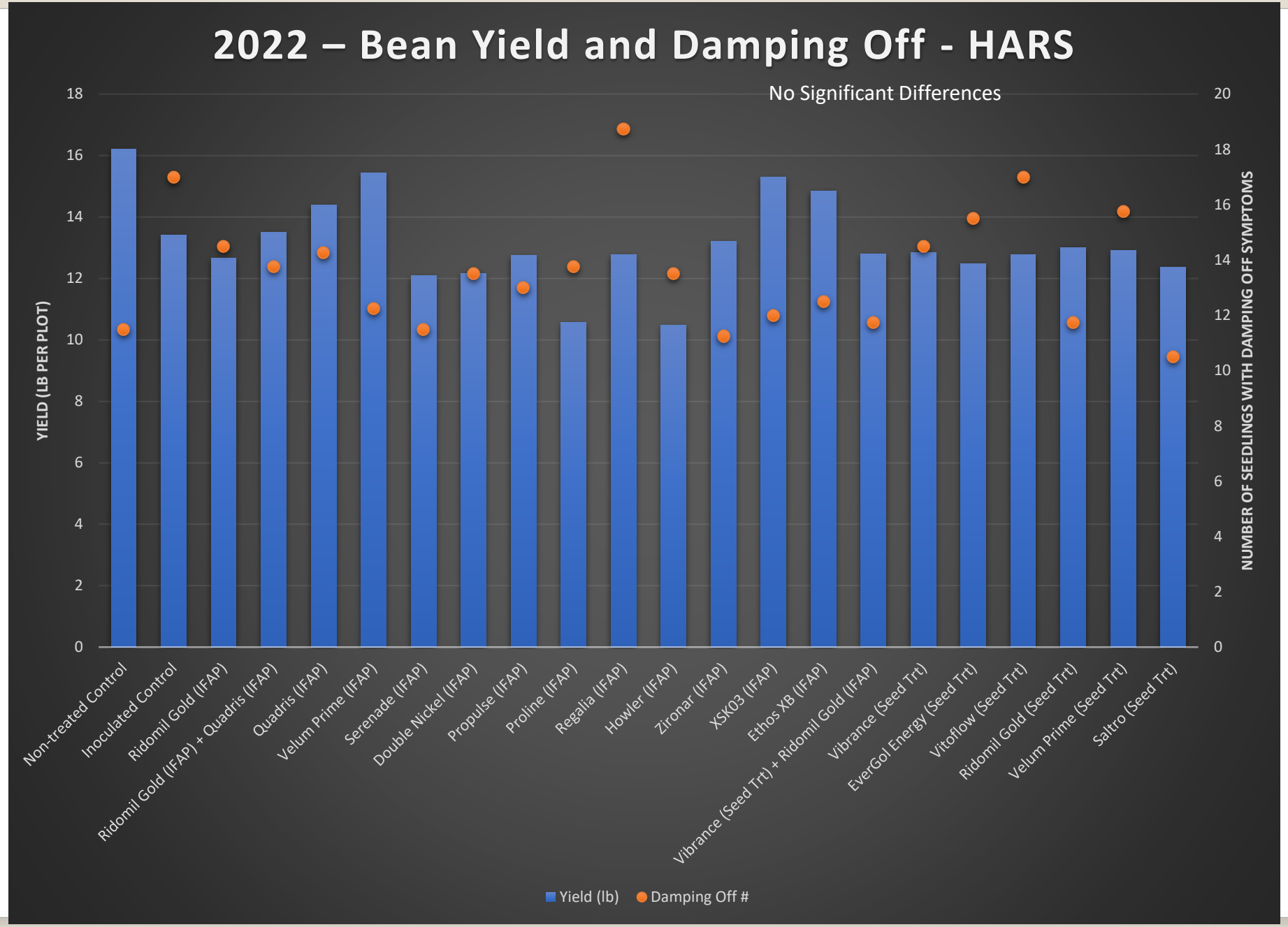

2022 Bean Yield and Emergence - HARS
No Significant Differences
YIELD (LB PER PLOT)
EMERGENCE (%)
0
2
4
6
8
10
12
14
16
18
0.00%
10.00%
20.00%
30.00%
40.00%
50.00%
60.00%
70.00%
80.00%
90.00%
Non-treated Control
Inoculated Control
Ridomil Gold (IFAP)
Ridomil Gold (IFAP) + Quadris (IFAP)
Quadris (IFAP)
Velum Prime (IFAP)
Serenade (IFAP)
Double Nickel (IFAP)
Propulse (IFAP)
Proline (IFAP)
Regalia (IFAP)
Howler (IFAP)
Zironar (IFAP)
XSKO3 (IFAP)
Ethos XB (IFAP)
Vibrance (Seed Trt) + Ridomil Gold (IFAP)
Vitoflow (Seed Trt)
Ridomil Gold (Seed Trt)
Velum Prime (Seed Trt)
Saltro (Seed Trt)
Yield (lb)
Emergence (%)

2022 – Bean Yield and Damping Off - HARS



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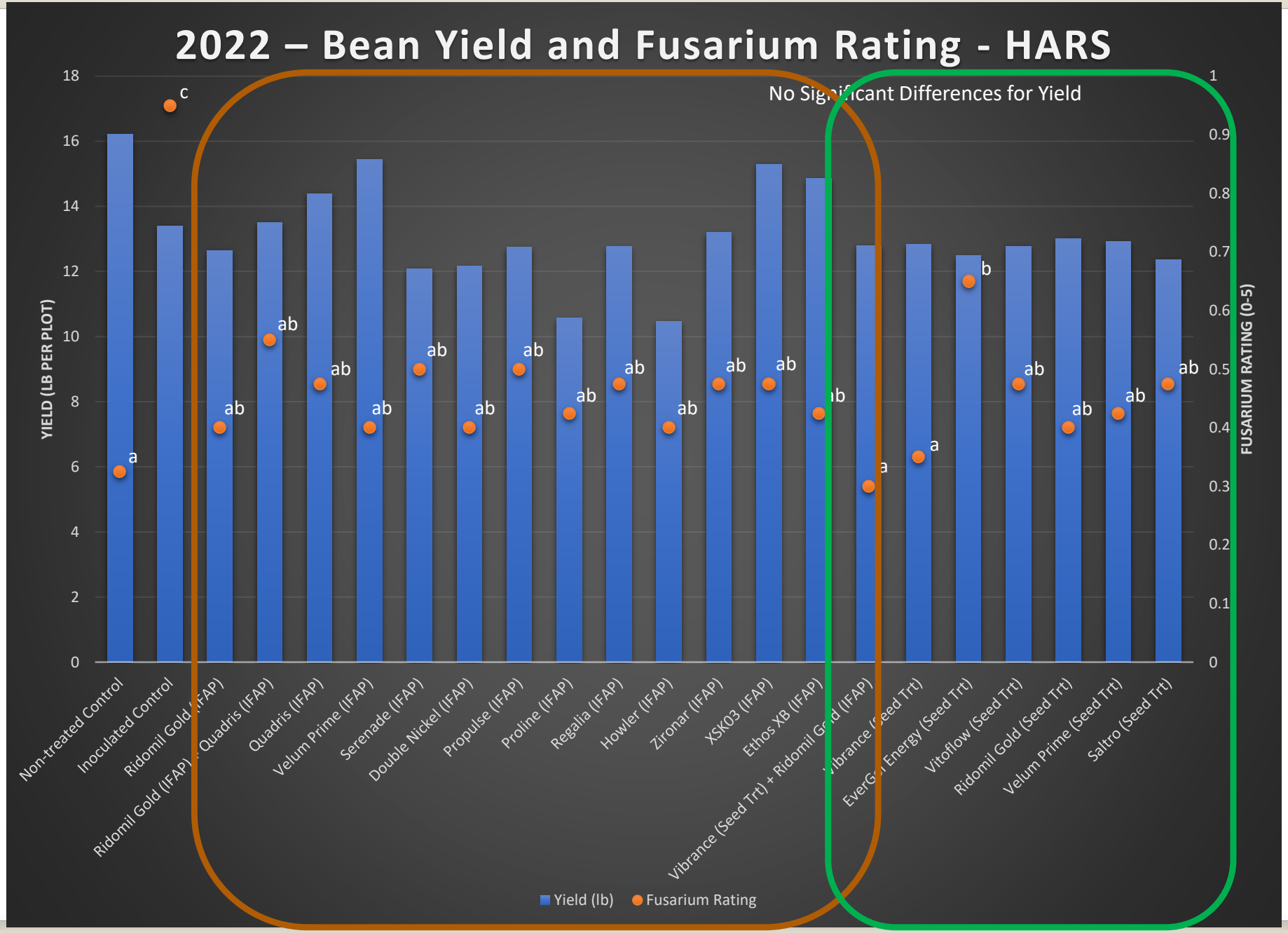
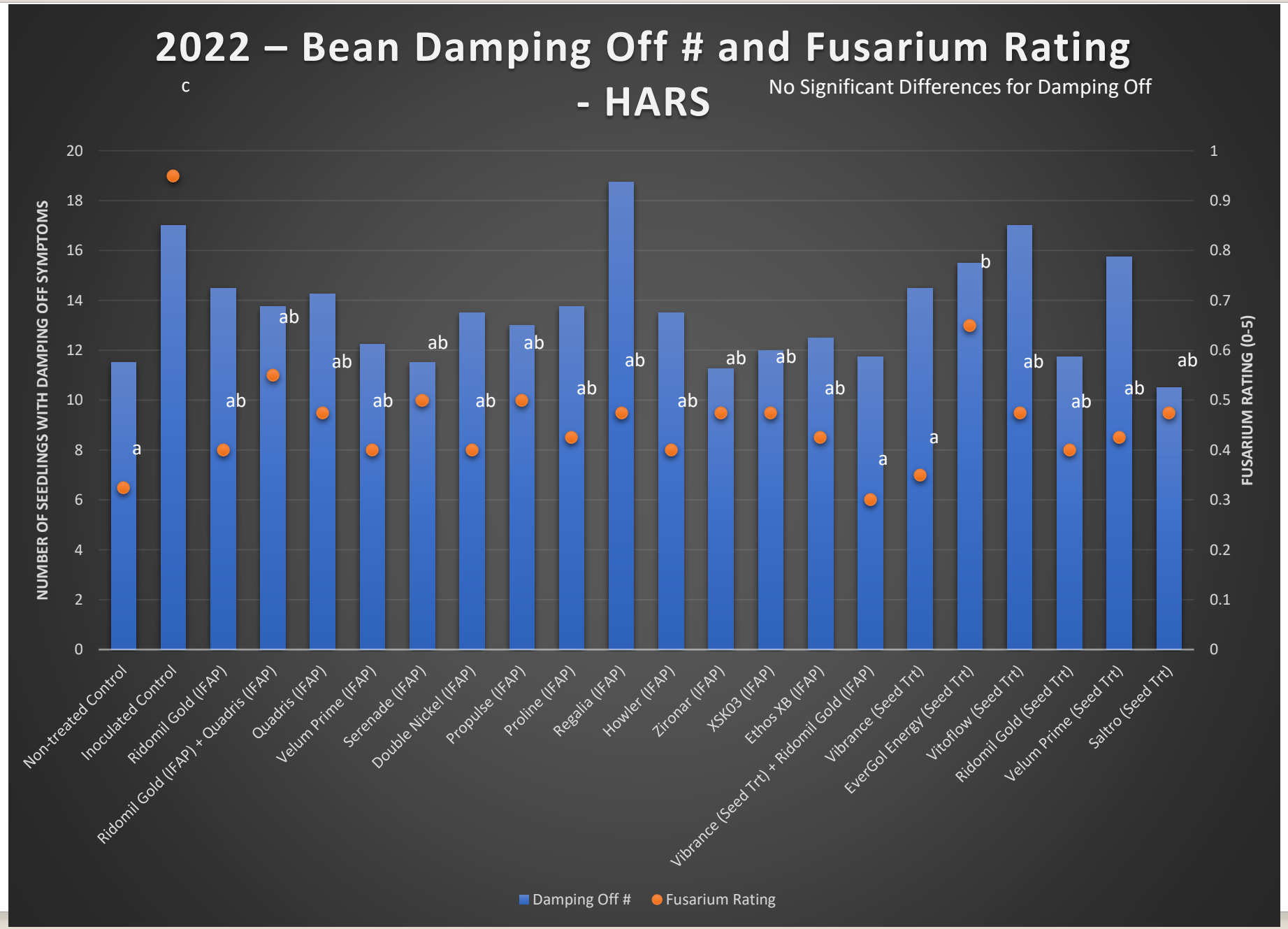

2022 – Bean Yield and Fusarium Rating - HARS
No Significant Differences for Yield
YIELD (LB PER PLOT)
FUSARIUM RATING (0-5)
Yield (lb)
Fusarium Rating
Non-treated Control
Inoculated Control
Ridomil Gold (IFAP)
Ridomil Gold (IFAP) + Quadris (IFAP)
Quadris (IFAP)
Velum Prime (IFAP)
Serenade (IFAP)
Double Nickel (IFAP)
Propulse (IFAP)
Proline (IFAP)
Regalia (IFAP)
Howler (IFAP)
Zironar (IFAP)
XSK03 (IFAP)
Ethos XB (IFAP)
Vibrance (Seed Trt) + Ridomil Gold (IFAP)
Vibrance (Seed Trt)
EverGol Energy (Seed Trt)
Vitoflow (Seed Trt)
Ridomil Gold (Seed Trt)
Velum Prime (Seed Trt)
Saltro (Seed Trt)

2022 – Bean Damping Off # and Fusarium Rating - HARS

No Significant Differences for Damping Off



Root Rot & Damping Off Diseases
2022 Summary Hancock ARS – Fusarium inoculation study on 'Hystyle'

- Seed-applied treatments more effective and consistent than in-furrow treatments with inoculated trial
- Vibrance seed treatment (alone) and Vibrance seed treatment with in-furrow of Ridomil Gold were best treatments at reducing Fusarium disease in 'Hystyle'
- Best yielding treatments included in-furrow Velum Prime, Quadris, Ethos, XSK03

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Red Kidney bean - Root Rot & Damping Off Diseases

- Hancock ARS - 2022
- Inoculated trial - *Fusarium solani* f.sp. *Pisi*
- Inoculum applied over top of seed row at time of planting (infested barley)
- Fusarium severity scale (0-5)
- 'Montcalm' red kidney bean cultivar

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Red Kidney bean - Root Rot & Damping Off Diseases

- Planted June 9, harvested August 22

Product	Rate		Timing
Non-treated Control	Non-Inoculated		
Non-treated Control	Inoculated		NA
Chippewa Valley Bean			Seed Trt
Ridomil Gold + Quadris	0.42 fl oz + 0.8 fl oz	**3.2 ml + 6 ml**	IFAP
Quadris	0.8 fl oz/1000 rf	**6 ml**	IFAP
Howler in-furrow	5 lb/A	**12.5 g**	IFAP
Howler in-furrow	2.5 lb/A	**6.25 g**	IFAP
Theia 3 lb/A in-furrow	3 lb/A	**7.5 g**	IFAP
Propulse	6.0 fl oz/A	**1 ml**	IFAP
Propulse	8.0 fl oz/A	**1.32 ml**	IFAP
Propulse	10.0 fl oz/A	**1.65 ml**	IFAP

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Red Kidney bean - Root Rot & Damping Off Diseases

- All treatments significantly reduced disease compared to inoculated non-treated control

Treatment and Rate		Harvested Yield (lbs)	Emergence % (28 DAP)	Root Lesion Rating (%)	Root Lesion Incidence (%)
Non-treated Control	Non-Inoculated	6.5	68.4b	0.34a	32.5a
Non-treated Control	Inoculated	5.7	39.7a	1.13b	80.0b
Chippewa Valley Bean	Seed Treatment	7.4	74.7b	0.38a	35.0a
Ridomil Gold + Quadris	0.42 fl oz + 0.8 fl oz	7.9	70.0b	0.45a	37.5a
Quadris	0.8 fl oz/1000 rf	7.2	75.2b	0.38a	30.0a
Howler in-furrow	5 lb/A	7.5	71.2b	0.38a	37.5a
Howler in-furrow	2.5 lb/A	6.5	71.6b	0.33a	32.5a
Theia 3 lb/A in-furrow	3 lb/A	8.1	68.0b	0.38a	32.5a
Propulse	6.0 fl oz/A	8.0	69.2b	0.40a	37.5a
Propulse	8.0 fl oz/A	8.8	70.5b	0.50a	45.0a
Propulse	10.0 fl oz/A	7.8	71.0b	0.33a	32.5a

Acknowledgements

- Midwest Food Processors Association
- Agrichemical industry partners
- USDA – IPM pipe
- Wisconsin Potato & Vegetable Growers Association

Dr. Yu (Monica) Chen
Julia Wild
Madalyn Frank
UW-Hancock Agricultural Research Station staff

University of Wisconsin Vegetable Disease Website (newsletter access)
https://vegpath.plantpath.wisc.edu/

Plant Pathology
at the University of Wisconsin - Madison

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SWEET CORN VARIETY RESISTANCE TO TAR SPOT

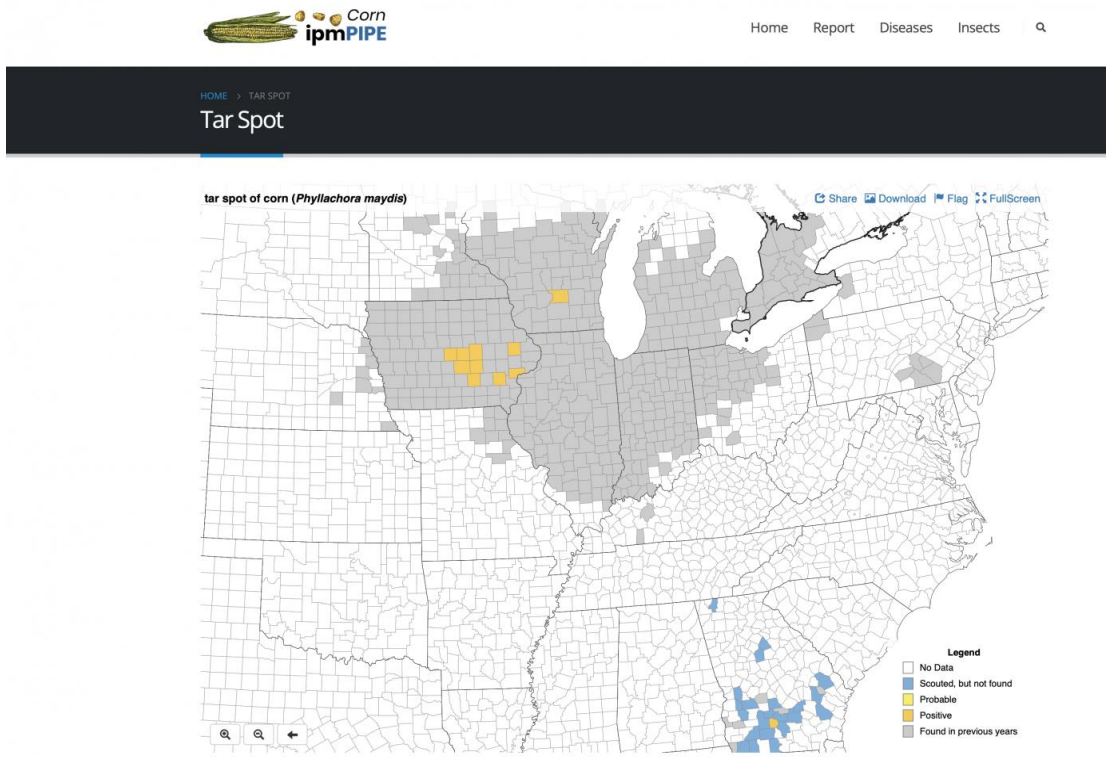
Department of Plant Pathology
UNIVERSITY OF WISCONSIN-MADISON

Amanda Gevens *& Stephen Jordan*

UW-Madison Plant Pathology

Sweet Corn Tar Spot Variety Trial Introduction

- All varieties resulted in high incidence of tar spot in late planting
- Photo below by K. Wise



Map of U.S. counties where tar spot was confirmed on July 7, 2022. Map source: https://corn.ipmpipe.org/tarspot/

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Sweet Corn Tar Spot Variety Trial Introduction

- recent U.S. occurrence (~ 5 years)
- potential for significant crop reductions and economic losses (up to 60 bushels/acre reduction)
- reduced photosynthesis during grain fill
- fungal pathogen *Phyllacora maydis*
- symptoms include small raised black and circular spots on leaves, stalks husks
- disease can vary based on weather, inoculum load, and cultivar

These black and circular spots are known as fungal fruiting structures called stromata, each of which can produce thousands of spores. (photo by Dan Quinn)

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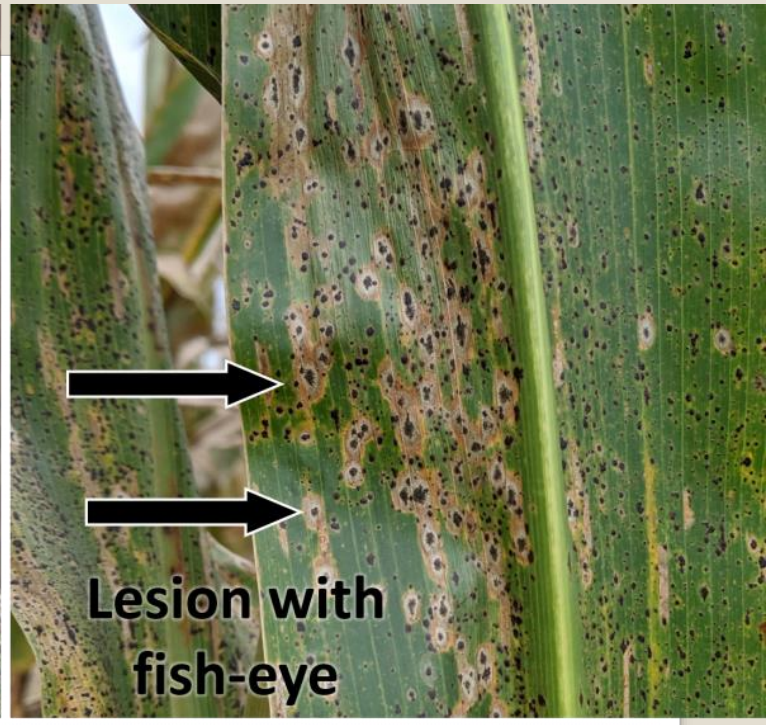
Sweet Corn Tar Spot

- Symptoms can vary and can look a bit like rust

Photos from Ohio State Univ. Extension



Sweet Corn Tar Spot
UW-Hancock ARS Variety Trial – 2022
Field – K16

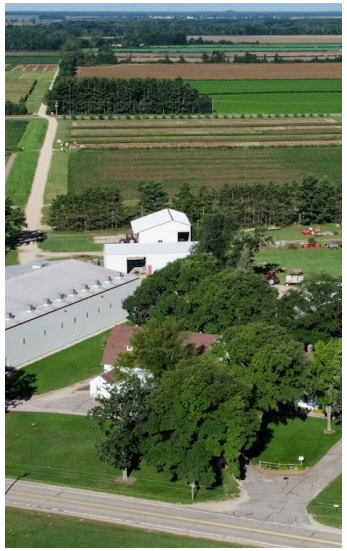
W↑

K16 Tar Spot Sweet Corn Trial 2022

112	203	304
111	209	301
110	202	308
109	211	305
108	204	307
107	201	302
106	210	309
105	208	306
104	205	312
103	207	311
102	212	310
101	206	303

Planting date July 12, 2022

1. HMX59 BS828
2. HM-Kate
3. HM-Flagler
4. Seminis- Messenger
5. Seminis - Devotion
6. Seminis - Dall
7. Seminis - Stagg
8. Seminis - Shiras
9. Crookham - Braveheart (90232)
10. Crookham - 17-1231 (91255)
11. Crookham - 18-1446 (90281)
12. Crookham - 16-1029 (90242)



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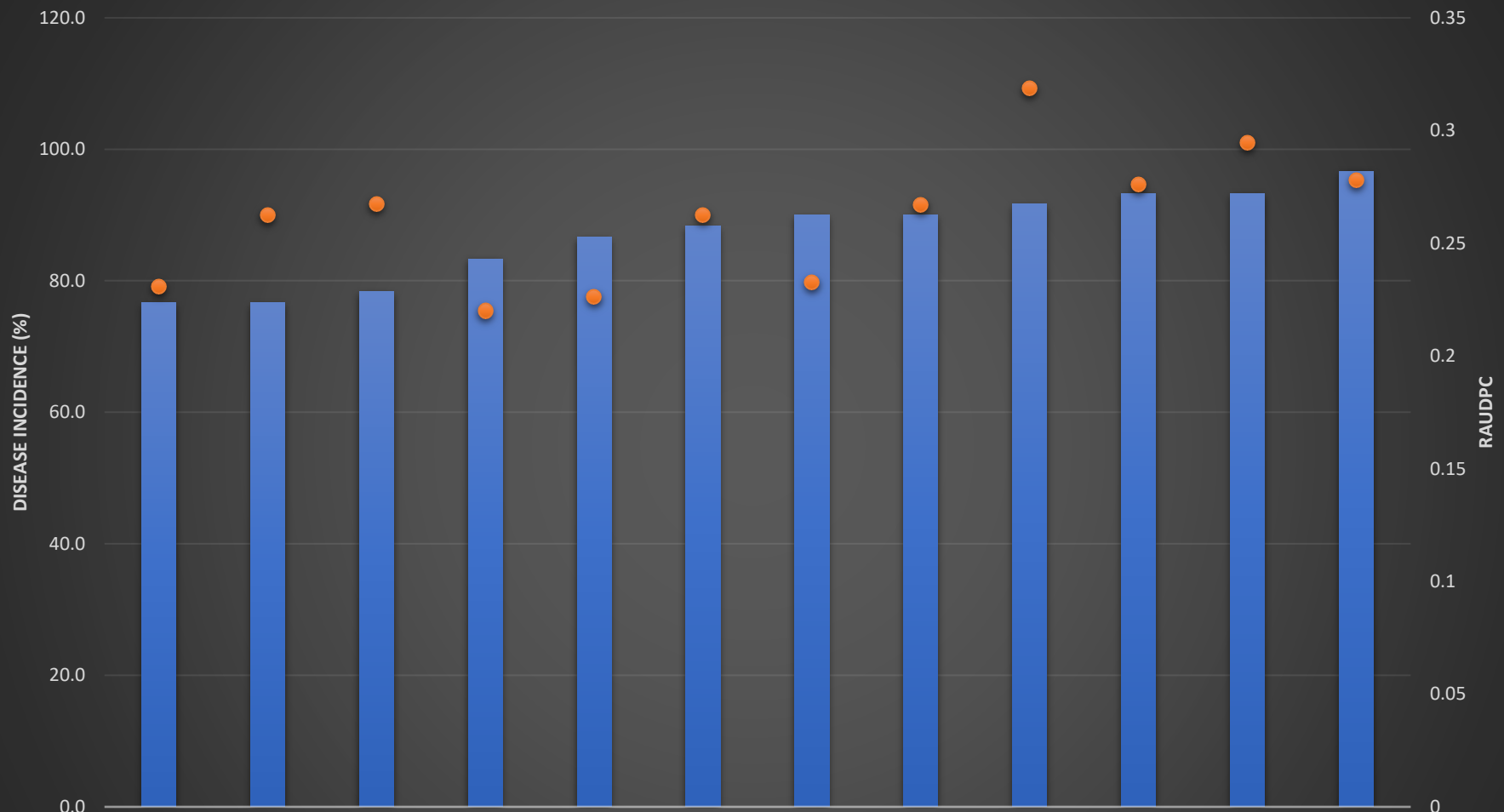
Sweet Corn Tar Spot – Hancock ARS 2022
Disease Incidence and RAUDPC



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Acknowledgements

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Vegetable Crop Update
A newsletter for commercial potato and vegetable growers prepared by the University of Wisconsin-Madison vegetable research and extension specialists
No. 8 – June 3, 2011

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