

# Impact of anastomosis groups on Rhizoctonia canker management

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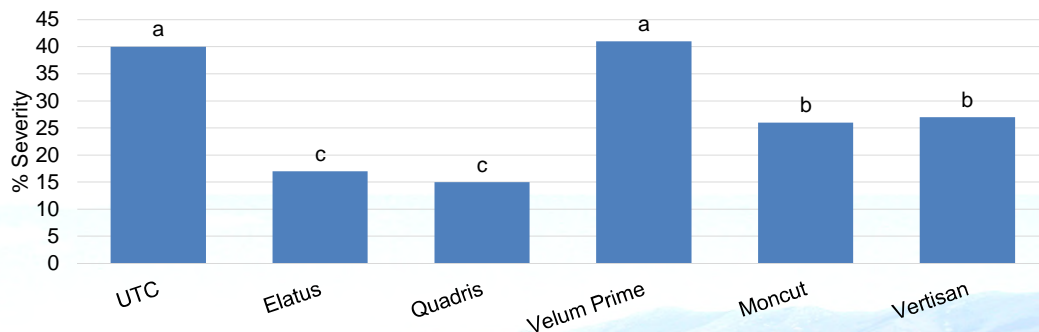
## Rhizoctonia Canker and Black Scurf



## Selected Fungicide Options - Rhizoctonia

Product	Form	M3	Group 12	Group 3	Group 7	Group 11
Maxim MZ	Dust ST	Mancozeb	Fludioxonil			
Maxim, Spirato, STartUP FLUDI	Liquid ST		Fludioxonil			
CruiserMaxx Potato	Liquid ST		Fludioxonil			
Moncoat MZ	Dust ST	Mancozeb			Flutolanil	
CruiserMaxx Potato Extreme	Liquid ST		Fludioxonil	Difenoconazole		
CruiserMaxx Potato Vibrance	Liquid ST		Fludioxonil	Difenoconazole	Sedaxane	
Ernesto Silver	Liquid ST			Prothioconazole	Penflufen	
Salient	Liquid ST			Difenoconazole		
Quadris, AZteroid, others	IF					Azoxystrobin
Moncut	IF				Flutolanil	
Elatus	IF				Benzovindiflupyr	Azoxystrobin
Priaxor	IF				Fluxapyroxad	Pyraclostrobin
Vertisan	IF				Penthiopyrad	

## In-Furrow Fungicides for Rhizoctonia Control



## Not all Rhizoctonia is the same

	Anastomosis Group							Total
	3-PT	2-2IIIB	4HG-I	4HG-III	5	A	R	
Black scurf	40	1	0	0	1	3	2	47
Stem canker	1	5	2	2	0	0	0	10
Stolon canker	0	0	1	0	0	0	0	1
Elephant hide	25	1	0	0	0	9	1	36
Growth crack and elephant hide	10	0	0	0	0	1	0	11
Potato rhizosphere soil	2	1	0	0	0	0	0	3
Corky spots	0	0	0	1	0	3	0	4
Total	97	8	3	3	1	16	3	131

Muzhinji et al., 2015, Plant Dis. 99:1790-1802

## Goal, Hypothesis, and Objective

- Our goal is to determine the most effect IF fungicides to manage Rhizoctonia in potato.
- Test if different AG require different fungicides
- Hypothesis: AGs of *R. solani* differ in the type and severity of disease symptoms and control

## Experimental Design

- Split-plot design, 4 reps, cv. Russet Burbank
- Main plot = Rhizoctonia AG
  - AG2-1 ■
  - AG3-PT ■
  - AG4 HGII ■
- Sub-plot = In-furrow fungicide
  1. Non-treated check
  2. Elatus, 7.7 oz/acre
  3. Quadris, 9 fl oz/acre
  4. Moncut, 25 fl oz/acre

1	3	Non	4
2	4	2	3
3	1	1	2
4	2	4	1
1	Non	3	4
2	3	2	3
3	4	1	2
4	1	4	1
Non	2	3	4
1	3	2	3
2	4	1	2
3	1	4	1
4	2	3	Non



## Inoculation and Treatment



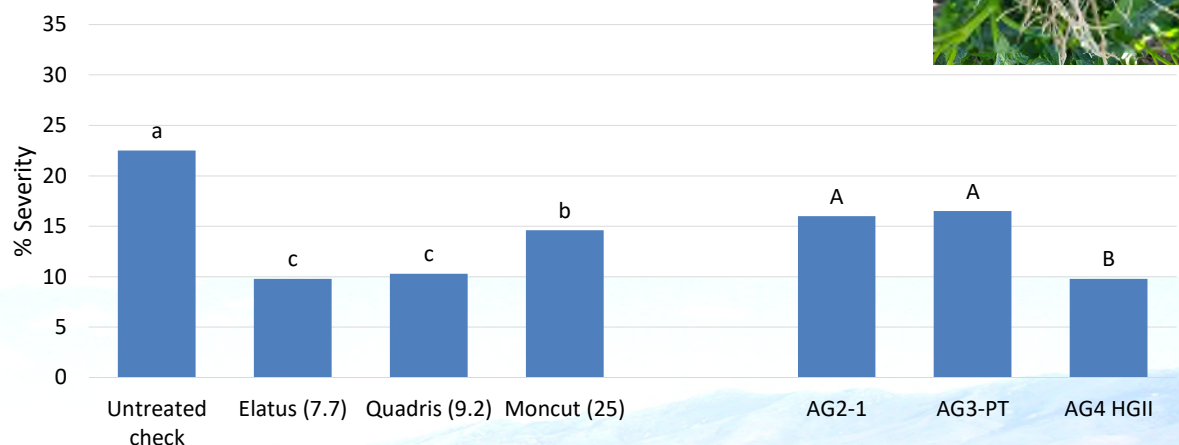
## Evaluations

- Stem and stolon canker
  - Late June
  - Mid-July
  - 10 plants/plot
- Tuber black scurf
  - 25 tubers/plot
- Confirmation of AG at Parma



## Rhizoctonia Stem and Stolon Canker

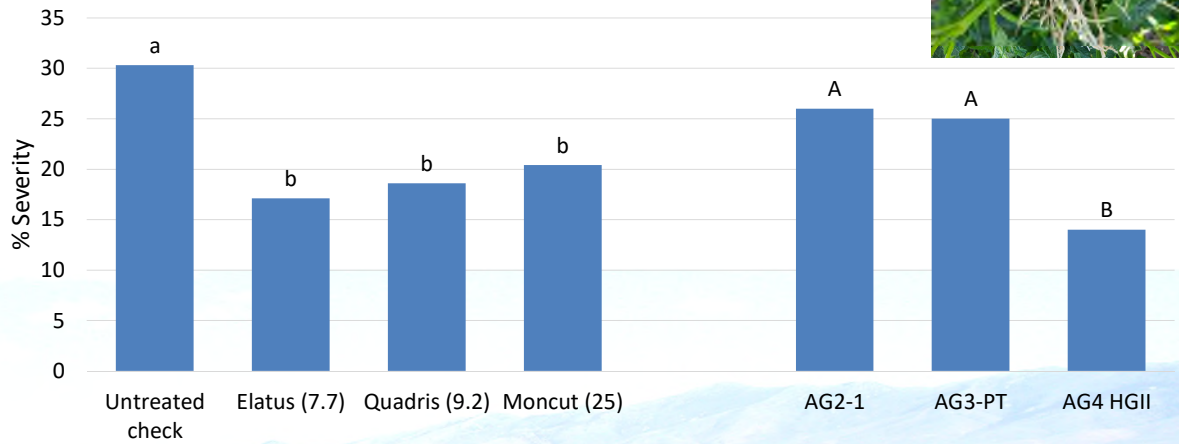
June 17, 2021



The interaction between AG and fungicide was not significant.

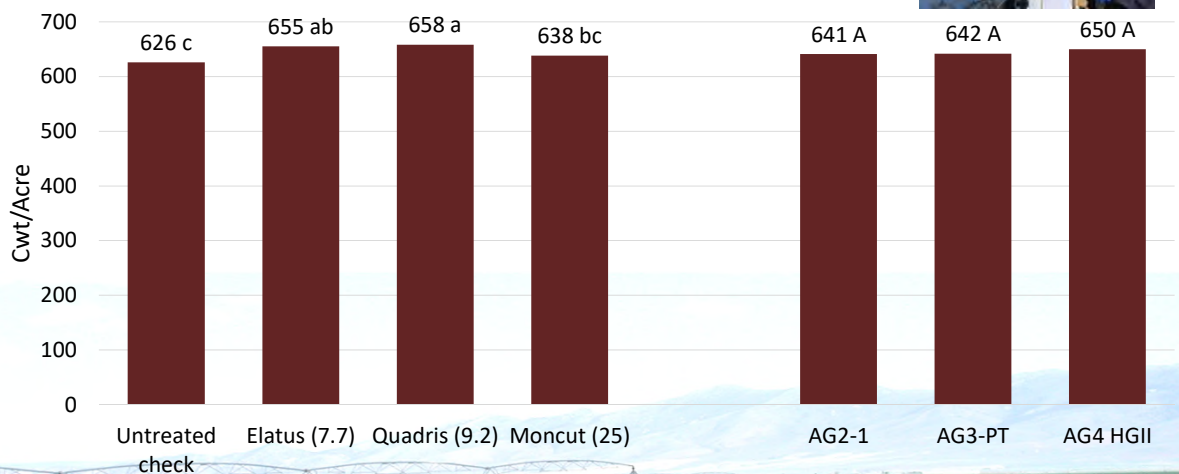
### Rhizoctonia Stem and Stolon Canker

July 14, 2021

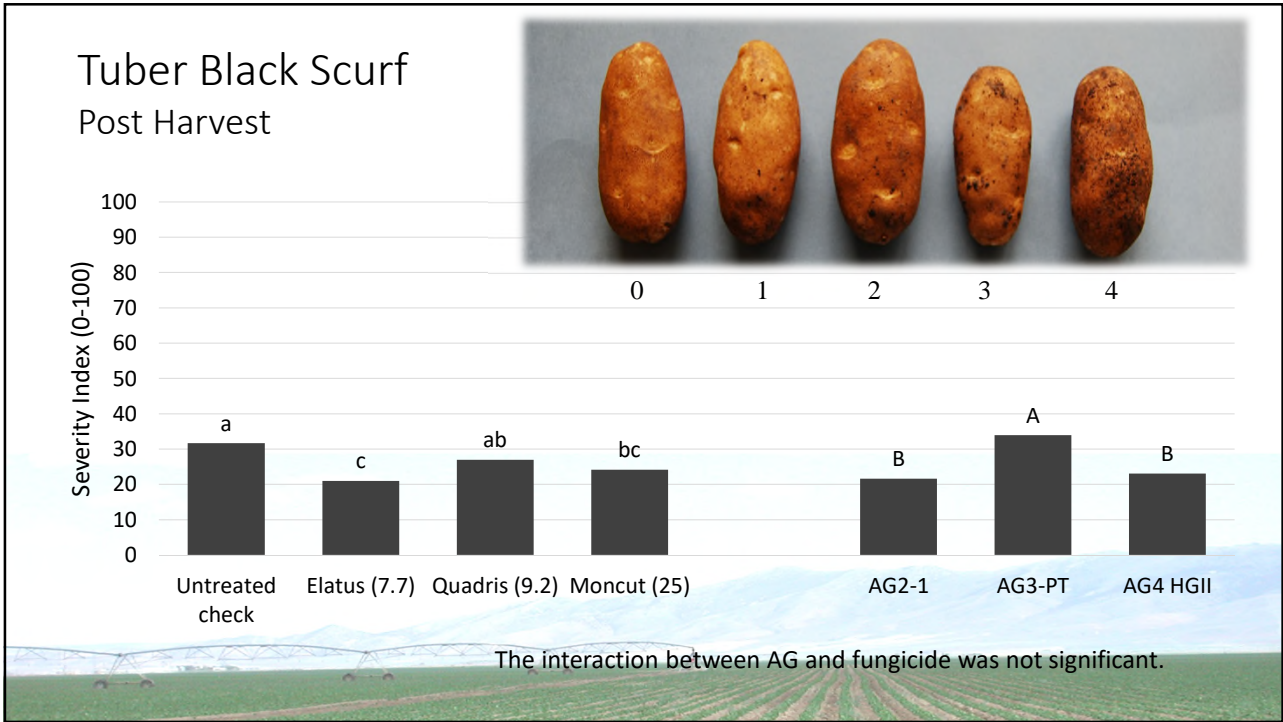


The interaction between AG and fungicide was not significant.

### Total Tuber Yield, Cwt/Acre



The interaction between AG and fungicide was not significant.



### Not all Rhizoctonia is the same

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<b>Total</b>	<b>97</b>	<b>8</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>16</b>	<b>3</b>	<b>131</b>

Muzhinji et al., 2015, Plant Dis. 99:1790-1802

## Summary-Year 1

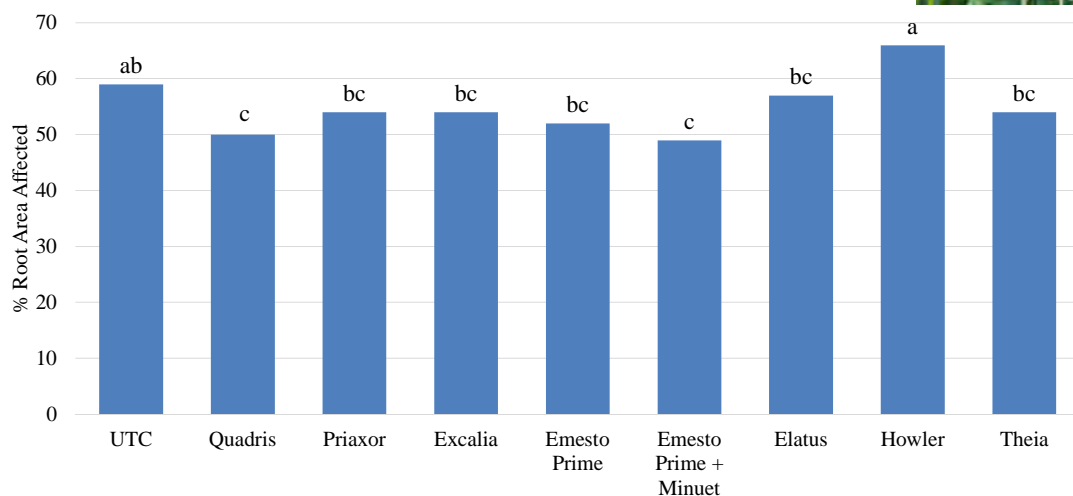
- All fungicides reduced stem and stolon canker.
- Rhizoctonia control resulted in higher yields (Quadris, Elatus).
- AG-group did not affect fungicide performance.
- AG4 HGII had lower stem canker severity than AG2-1 and AG3-PT.
- All AGs had similar yield.
- AG3-PT had higher incidence of tuber black scurf.
- Elatus showed the least amount of scurf.

AGs did not respond differently to fungicides tested.



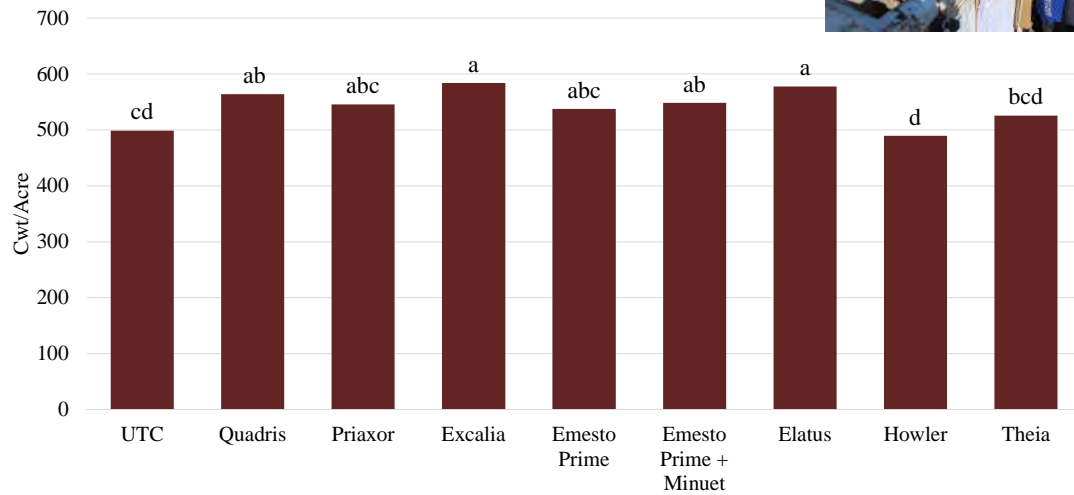
## 2021 Fungicide Performance Trial

Rhizoctonia Stem Canker Severity July 27, 2021

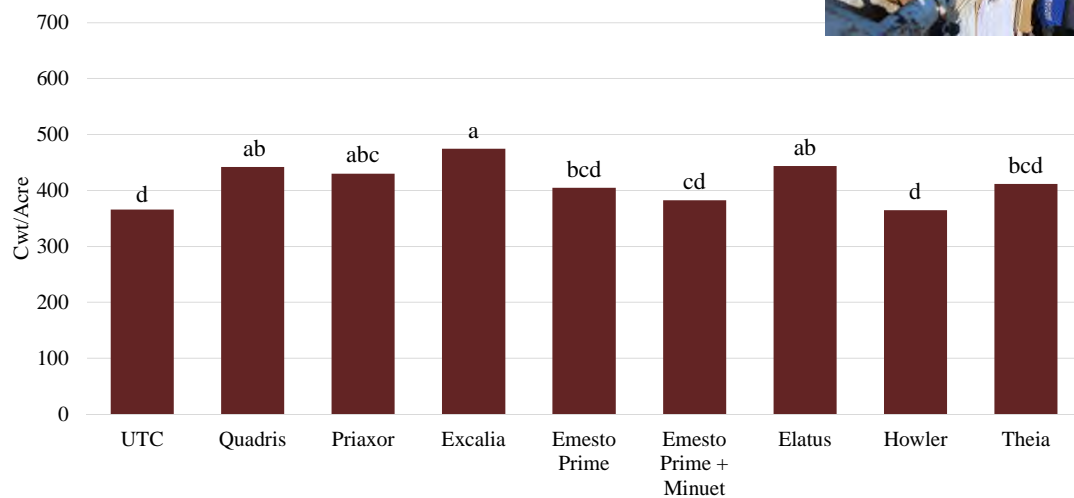




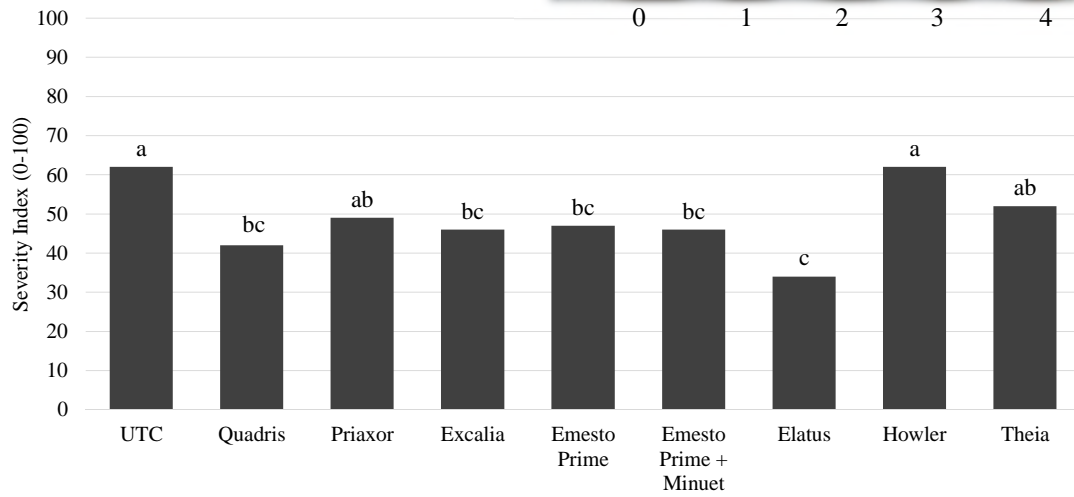
## 2021 Fungicide Performance Trial Total Tuber Yield



## 2021 Fungicide Performance Trial Marketable Yield



2021 Fungicide Performance Trial  
Tuber Black Scurf  
Post Harvest



Thank you!

