

# Garlic Rust: Fungicides, Management

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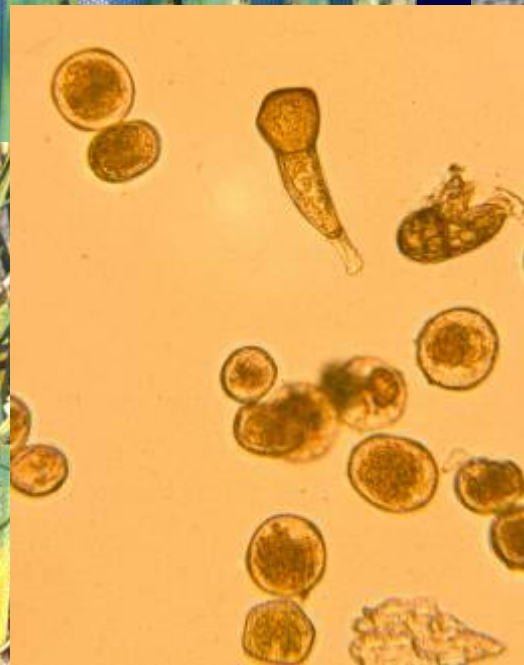
## Rust on garlic



# Garlic rust in California

- 1990s: severe in CA
- Fungicides registered; disease managed
- 2007 through present: rust still around
- Periodic outbreaks
- Questions about fungicide effectiveness
- Questions about rust mgmt. improvement
- Questions about source of rust, race/strain, host range







**Rust on leek**



# Different strains of allium rust?

	garlic rust from <u>late 1990s</u>	garlic rust from <u>2007-2012</u>
Infect garlic?	yes	yes
Infect leek?	no	yes







## Rust fungicide trial: 2011 (Koike and Smith)

	<u>Severity*</u>	
Quilt XCEL 21 fl oz	0.9	
<b>Quadris 12 fl oz</b>	<b>0.9</b>	
Toledo 6 fl oz	1.1	
<b>Quilt / Toledo alt.</b>	<b>1.2</b>	
Quadris / Toledo alt.	1.6	
<b>Q8Y78 18 fl oz</b>	<b>1.6</b>	
Fontelis 1 pt	1.8	
<b>Fontelis 1.5 pt</b>	<b>1.9</b>	
Picoxy 12 fl oz	2.1	
<b>Cabrio 12 fl oz</b>	<b>3.1</b>	
Untreated	4.2	LSD (P=0.05) = 0.9

\* 0=0% leaf surface, 1=1 to 10%, 2=11 to 25%, 3=26 to 50%,  
4=51 to 75%, 5=76 to 100%





**2011**

**untreated**



**2011**

**Toledo**





2011

untreated



2011

Quilt



# 2012 Fungicide trials

- Quadris 12 fl oz. alternate w/ Toledo 6 fl oz
  - Start spraying early in March, April, or May
  - Spray at intervals of 2 weeks or 3 weeks
  - All applied with organic silicate adjuvant
- Results:
  - Very light rust disease levels
  - Mostly no significant differences
  - Need higher rust pressure to separate treatments

# Rust fungicide trial 1: 2012 (Koike and Smith)

	<u>Severity*</u>
Quadris/Toledo, 2 wk, May	0.00
Quadris/Toledo, 3 wk, March	0.10
Quadris/Toledo, 2 wk, March	0.15
Quadris/Toledo, 3 wk, April	0.15
Quadris/Toledo, 2 wk, April	0.40
Quadris/Toledo, 3 wk, May	0.45
Untreated	1.80

LSD (P=0.05) = 0.74

\* Leaf 7: 0=0% leaf surface, 1=1 to 10%, 2=11 to 25%, 3=26 to 50%, 4=51 to 75%, 5=76 to 100%



## Rust fungicide trial 2: 2012 (Koike and Smith)

	<u>Severity*</u>
Quash 4 oz	0.00
<b>Merivon 8 fl oz</b>	<b>0.20</b>
Actigard 1 oz	0.30
<b>Regalia 32 fl oz</b>	<b>0.30</b>
Sonata 4 qts	0.30
<b>Indar 12 fl oz</b>	<b>0.35</b>
Untreated	0.60
<b>Endura 6.8 oz</b>	<b>0.65</b>

LSD (P=0.05): NS

\* Leaf 7: 0=0% leaf surface, 1=1 to 10%, 2=11 to 25%, 3=26 to 50%, 4=51 to 75%, 5=76 to 100%

# Garlic rust management

- Monitor the crop and disease occurrence
- Monitor weather (warm temp., leaf wetness)
- Fungicides:
  - When to start spraying? 1<sup>st</sup> spray: preventative
  - Spray intervals?
  - Rotate products, coverage max., adjuvant
- Cultural practices



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# **Thank You**

## **Are there any Questions?**

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