Fungicide drenches and variety resistance for Management of Fusarium wilt Race 3

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Fusarium Race 3

- Increasing problem in Merced County in the last 10 years
- Most varieties are resistant to race 1 & 2
- Small but increasing number now have race 3 resistance
- Difficult to manage: resistance and rotation

Fusarium oxysporum f.sp. lycopersici

“Fol”

F3
Management of Fusarium

- Containment/sanitation
- Clean seed
- Soil fumigation (?)
- Fungicide dips (?)
- Crop rotation
- Compost/manure (?)
- Variety resistance
Fungicides?

- Best yields and lowest stem rot incidence in sweetpotato trial when plants dipped with Maxim (fludioxonil) before planting.

- THE EFFECTS OF FUNGICIDES ON FUSARIUM OXYSPORUM F. SP. LYCOPERSICI ASSOCIATED WITH FUSARIUM WILT OF TOMATO

- Jahanshir Amini*, Dzhalilov Fevzi Sidovich. J. of Plant Protection Research
Objectives:
Evaluate the effect of transplant fungicide dips on control and/or suppression of Fol race 3 in resistant and susceptible processing tomatoes cultivars.
2016 & 2017 trials

- Fludioxonil. 5 g and 10 g a.i./L (≈ 1 & 2 gal product/100 gallons), 12 & 24 fl oz/A equivalent

- Fluopyram. 7 fl oz/A equivalent

- Biologicals: Serenade Soil, Regalia, Accomplish. 4 qts/100 gallons (2.5 gals/A equivalent)

Syngenta: Maxim, Cannonball, Scholar

Bayer: Velum One

RCBD w/5 reps, 2 varieties, 2 locations (Merced and Dos Palos)
F3 Drench Trial 2016
Fludioxymil (Maxim)
2017 drench applications
F3 incidence and severity
Hand sort, yield, PTAB
2016 Results
All treatments were safe on plants except Quadris Top (azoxystrobin + difenconazole)
Processing Tomato Fungicide Drench 2016

main effect of fungicide

variety x fungicide interaction

1. H8504 2. hm3887 3. hm58801, 4. BQ141
2017: symptomatic plants were confirmed Fol by Dr. Cassandra Swett ~ 70 DAT
Fol Race 3 infection on plants at 70 DAP

Variety
- H5608 (S)
- BP16 (R)

Inoculated with water, Serenade, Regalia, Maxim 0.37 lbs, Maxim 0.75 lbs, Serenade + Maxim 0.37, Regalia + Maxim 0.37, Vellum One

70 days after transplanting
Fol Race 3 infection on processing tomatoes

Merced at 70 DAP

- Variety: H5608 (S) vs. BP16 (R)

Merced end of season (Aug 30)

- Variety: H5608 (S) vs. BP16 (R)

No sig differences

infected plants, %

fungicide treatment

infected plants, %
Fol Race 3 Fungicide Trial Yield
Merced location

- **H5608 (S)**
  - Regalia
  - Serenade Soil
  - Water
  - Regalia + Maxim
  - Serenade + Maxim
  - Vellum One
  - Maxim 0.75
  - Maxim 0.37

- **BP19 (R)**
  - Regalia
  - Serenade Soil
  - Water
  - Regalia + Maxim
  - Serenade + Maxim
  - Vellum One
  - Maxim 0.75
  - Maxim 0.37

No significant difference between treatments.
Severity was not different between fungicide treatments.
Fol Race 3 infection on processing tomatoes

Dos Palos at 90 DAT

Dos Palos end of season (Sept 26)

Fungicide treatment

- Water
- Serenade Soil
- Maxim 0.37 lbs
- Maxim 0.75 lbs
- Velum One

H5608 (S)  N6428 (R)

No sig differences
Conclusions

- 2016 significant suppression of disease onset in heavily infected field up to 70 DAT in H8504 & HM3887
- No disease in F3 resistant HM5801 or BQ141
- Increased yield in F3 lines

- 2017 significant suppression of disease onset in heavily infected field up to 70 DAT in H5608
- No disease in F3 resistant BP16 or N6428
- Increased yield in susceptible line
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