Fungal Disease Update

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Fusarium wilt (*F. oxysporum* f. sp. *lycopersici* race 3)

Fusarium crown & root rot (*F. oxysporum* f. sp. *radicis-lycopersici*)

Fusarium foot rot (*F. solani* f. sp. *eumartii*)

Fusarium solani crown rot?


Fusarium wilt Race 3

Swett lab, UCD research on Fusarium wilt of tomato

- Developing a quick test to differentiate the four Fusarium diseases and races
- How much do other crops, weeds and resistant tomato varieties contribute to Fusarium surviving in field soil?
- Effects of abiotic stress (salinity, deficit irrigation) on disease severity of F3

Swett lab, UCD research on Fusarium wilt of tomato

- Commercial seed lots do not seem to be a source of Fol R3 (Hung Doan)
- Fol R3 can likely survive for several years in the soil (they are working on a soil test)
- Salinity and deficit irrigation do accelerate Fusarium wilt under controlled conditions in the greenhouse (work ongoing)

Southern blight (*Sclerotium rolfsii*)

R. Melanson, Miss. St. Univ., Bugwood.org

Alex Putman, UCR

Tomato powdery mildew

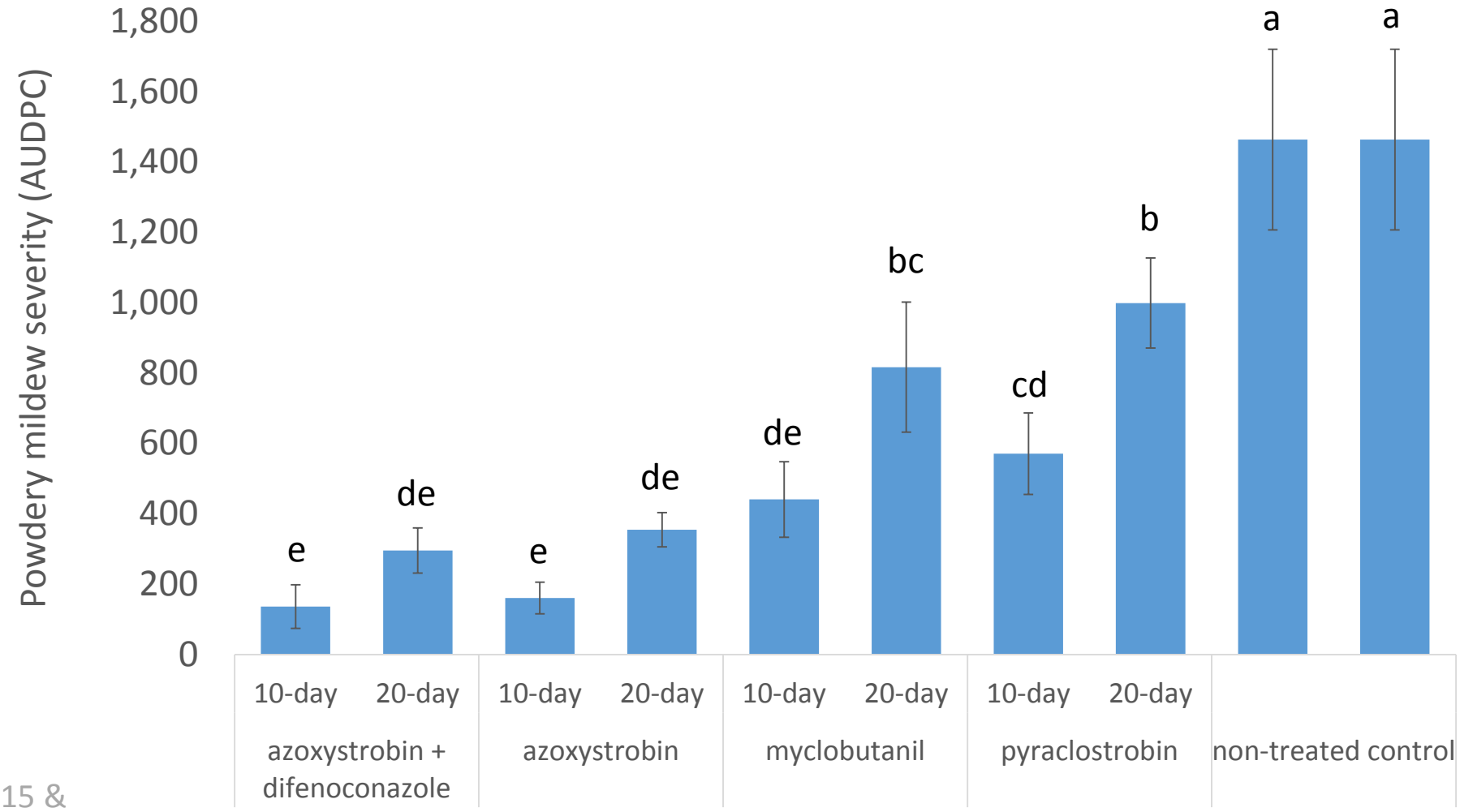
- *Leveillula taurica* (*Oidiopsis sicula*)

- *Oidium neolycopersici*

- *Oidium lycopersici*

FRAC Group Code(s) & risk	Mildew fungicide products (chemical common names)
11 - high	Quadris (azoxystrobin), Cabrio (pyraclostrobin), Flint (trifloxystrobin)
3 - medium	Rhyme (flutriafol), Rally (myclobutanil), Inspire (difenoconazole), Mettle (tetraconazole) – not registered in CA
11 + 3 - medium	Quadris Top (azoxystrobin + difenoconazole)
7 – med-high	Fontelis (penthiopyrad)
7 + 11 - medium	Priaxor (fluxapyroxad + pyraclostrobin) Luna Sensation (fluopyram + trifloxystrobin)
7 + 3 - medium	Aprovia Top (solatenol + difenoconazole) – Federally approved, awaiting CA label perhaps in time for late summer applications?
U06 – high?	Torino (cyflufenamid) – label expansion to tomato - Summer 2018?
50 - medium	Vivando (metrafenone)
M – low risk	Sulfur (dusting sulfur, wettable/sprayable/micronized sulfurs)
Not categorized – low risk	Kaligreen and others (potassium bicarbonate) Regalia (plant extract) Taegro, Sonata, Actinovate (biological fungicides)

Efficacy of “older” fungicides in field trials, 2015 & 2016



2015 & 2016 trials

Efficacy of selected "newer" fungicides in field trials, 2013 to 2016

	Product rank in each of four trial years			
Product/rate	**2013**	**2014**	**2015**	**2016**
Rhyme 7 oz	1	1	1	1
Priaxor 8 oz	3	2	3	1
Quadris Top 8 oz	2	3	2	4
Luna Sensation 7 oz	Not tested	2	4	Not tested
Torino 3.4 oz **	Not tested	4	4	1
Fontelis 15 oz	4	Not tested	6	5

** still awaiting California registration

Some newer fungicides can be applied through the drip: e.g. Velum, Rhyme, Priaxor. Field trial results have been mixed; sometimes great control, other times less than great control


Powdery mildew control via drip-applied fungicides
7 fl oz Rhyme via drip twice, ~6 & 10 weeks after transplanting
Non-treated control no fungicides
6.5 fl oz Velum via drip twice, ~6 & 10 weeks after transplanting