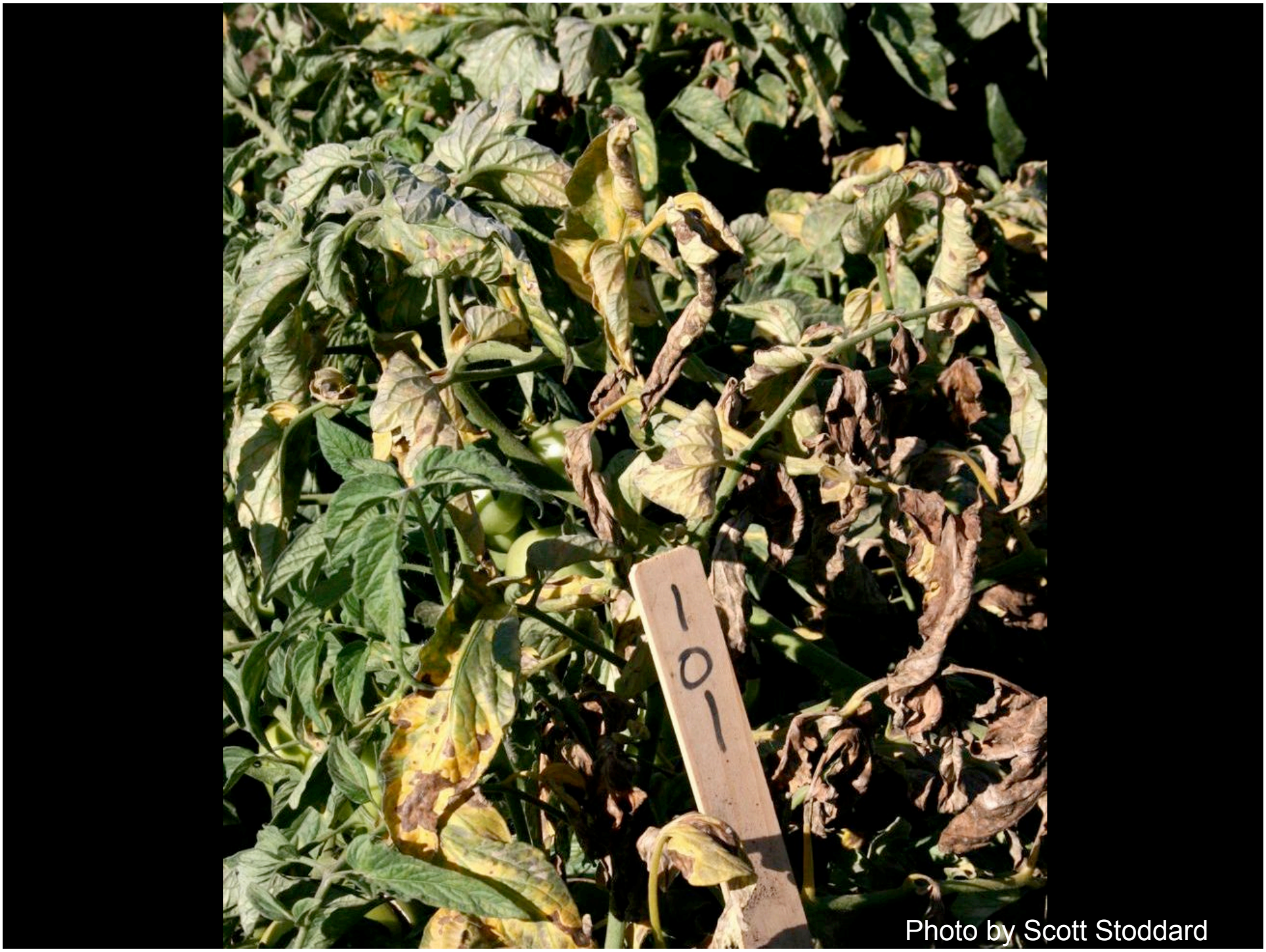
Powdery Mildew Control

Brenna Aegerter
UCCE San Joaquin County

Tomato Powdery Mildew
(*Leveillula taurica, Oidiopsis sicula*)


101
Photo by Scott Stoddard

Oidium neolycopersici

Occurs in greenhouses and can be a minor problem in coastal-grown tomatoes

Based on morphology visible under the microscope and on genetic analysis, this is the same species of mildew we have always battled (*Leveillula taurica*)

Yield impact?

- Drying, loss of foliage
- Sunburn of fruit – very important to mature green industry, less so to processing tomato industry
- No yield loss documented in processing tomatoes- but perhaps effect on quality?

Tomato Powdery Mildew in 2007

- Growers of mature greens severely impacted
- Differences in susceptibility between processing varieties?
- Poor chemical control at some locations

Fungicide efficacy trials

- Field trials conducted by Gene Miyao (Yolo Co. 2007) and by Jan Mickler (Stanislaus Co. 2006)

- Conducted at UC Davis campus (Yolo) and in commercial field (Stanislaus) using a backpack sprayer and the equivalent of 50 GPA spray volume

Summary of efficacy trials

- Quadris or Cabrio applied 6 weeks prior to harvest reduced PM by over one-third cv. the unsprayed control

- A Quadris/Rally rotation was best, second was Microthiol Disperss, reducing PM by 50 to 70% over the control

Powdery mildew chemical control

- Early treatment
- Good coverage
- Support plant health
- Resistance management

Resistance Management

Group Code	Chemical group name	Common names	Product examples	Risk
3	Demethylation inhibitors (DMI)	myclobutanil	Rally	medium
11	Quinone outside inhibitors (QoI)	azoxystrobin, trifloxystrobin, pyraclostrobin	Quadris, Flint, Cabrio	high
M	M2 – inorganic	sulfur	Microthiol Disperss, Thiolux, etc.	low

Resistance Management

Group Code	Chemical group name	Common names	Product examples	Risk
3	Demethylation inhibitors (DMI)	myclobutanil	Rally	medium
11	Quinone outside inhibitors (QoI)	azoxystrobin, trifloxystrobin, pyraclostrobin	Quadris, Flint, Cabrio	high
M	M2 – inorganic	sulfur	Microthiol Disperss, Thiolux, etc.	low

Resistance Management

Group Code	Chemical group name	Common names	Product examples	Risk
3	Demethylation inhibitors (DMI)	myclobutanil	Rally	medium
11	Quinone outside inhibitors (QoI)	azoxystrobin, trifloxystrobin, pyraclostrobin	Quadris, Flint, Cabrio	high
M	M2 - inorganic	sulfur	Microthiol Disperss, Thiolux, etc.	low

Other materials

Biofungicides

- *Bacillus pumilus* strain (Sonata)
- *Bacillus subtilis* strain (Serenade)

Others

- Potassium bicarbonate (Kaligreen, Armicarb, Milstop and others)
- JMS stylet oil
- neem oil (Trilogy)
- Sporan
- Prev-Am
- Oxidate

UC IPM Home
Search

How to Manage Pests
Home & garden
Agriculture
Weather data & products
Degree-days
Interactive tools & models

Educational Resources
Publications & more
Workshops and events
PCA exam helper
Pesticide use and safety

Research and IPM
Grants programs
Funded-project results

- What's new
- In the news
- Announcements
- Site index
- Help
- Acknowledgments
- UC ANR: more topics

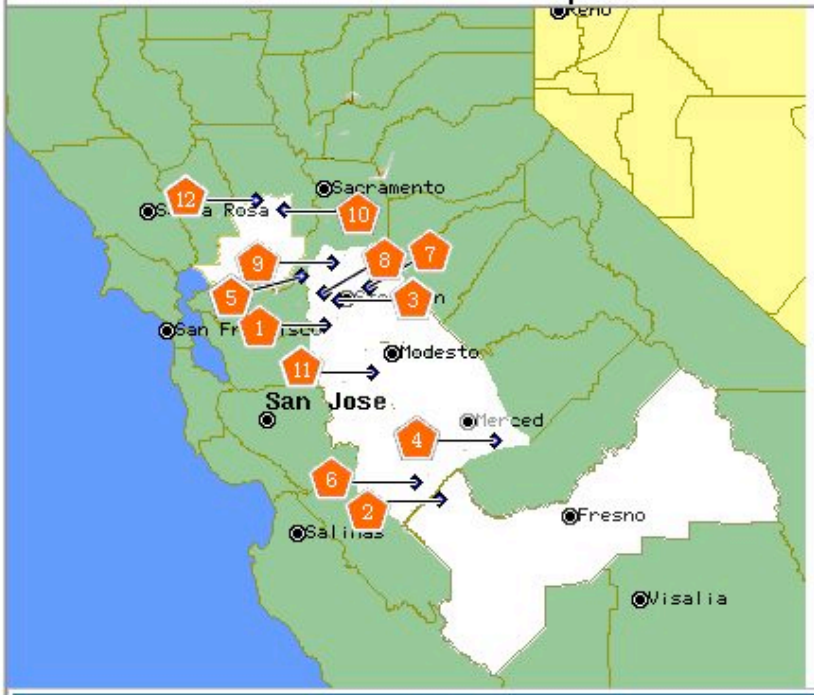
How to Manage Pests

California Weather Data

| Weather menu | Station news | About the database |

2006 California Tomato Network Weather Stations

Click on a station name or pinhead for more information.



PestCast

1. Fabian Tract-01 (CTR3)
2. Firebaugh Ranch-01 (FRS1)
3. Holt-05 (CTR1)
4. Le Grand-01 (MER2)
5. Jackson Slough-01 (CTR4)
6. Mercey Springs-01 (MER1)
7. Morada-01 (SJQ1)
8. Rindge Tract-06 (CTR4)
9. Thornton-05 (CTR2)
10. UCD Ag Fields-02 (YOL2)
11. Westley-03 (STS1)
12. Winters-08 (BTV1)

Legend

Networks and Stations	Map
Inactive	County
Automatic (daily, current data)	Water
TouchTone (daily, current data)	Expressway
PestCast (daily & hourly, current data)	Highway
Climate (daily, at least 2.5 months old)	Connector

Mildew model evaluation

- Comparison of mildew control between plots sprayed at model recommended timings versus calendar (14 day interval) timings
- Fungicide program was a rotation of Rally and Cabrio
- Fungicides applied with a CO^2 backpack sprayer

Model performance at 10 locations in 2006 & 2007

Disease pressure	Disease control comparisons (Model vs. calendar)	Sprays saved
None (2 locations 2006)	---	1 - 2
Low (3 locations 2006)	Model and calendar similarly good control	0 - 3
Moderate to high (2 in 2006, 3 in 2007)	Similarly good control at 2 locations	1 - 2
	Calendar better at 2 locations	2
	Similarly poor control at 1 location	1

What was different about 2007?

- Milder temperatures – mildew supressed by high temperatures
- Weather-based model categorized many more days as conducive to powdery mildew development – esp. July 13 to August 27

Acknowledgements

Gene Miyao, UCCE Yolo, Sacramento & Solano Co.

Michelle Le Strange, UCCE Tulare & Kings Co.

Jan Mickler, UCCE Stanislaus Co.

Scott Stoddard, UCCE Merced & Madera Co.

Mike Davis, UC Davis

Joyce Strand and Marty Martino, UC IPM

Chuck Rivara & California Tomato Research Institute

More Acknowledgements!

- Mark Bacchetti
- John Bacchetti
- Steve Cultrerra
- Paul Osterli
- Kevin Robertson
- Roger Scriven

- California Tomato Commission

- Mitch Arambel
- Leroy Deldon
- Jeff Dolan
- Steve Fortner
- Bob Giampaoli
- Pete Katzakian
- Jeff Rurup
- John M. Teixeira
- Steve Thorpe
- Bobby Regina