



# TOMATO INFO

## FIELD NOTES TOMATO POWDERY MILDEW FIELD MEETING: VARIETIES

### FIELD NOTES

Overall tomato crop looks good to date. Our moderate temperatures during late spring and early summer enhanced flower set. Acres irrigated with buried drip system continue to expand locally, although furrow system remains dominant. Cost recovery with the drip systems has further concentrated cropping to tomatoes in the rotation. This change may well create pest management challenges especially with soil-borne diseases like Verticillium wilt and corky root. Recent incidence of root knot nematode damage in a few fields should remind us that crop rotation remains an important crop-health management tool. While all these particular fields are high yielding, many of the root damaging problems caused leaf desiccation and vine collapse, especially noticeable during 100°F-plus temperatures.

Fusarium wilt continues to slowly spread within and among fields. In a visit to the river district of Clarksburg/Courtland/Walnut Grove, I saw the first substantial level of Fusarium wilt from that area. As the variety is a race 1 & 2 resistant line, I presume the Fusarium form is race 3.

Custom harvesting of substantial acres in a wide geographic area increases the chance of potential spread of soil-borne pests like Fusarium wilt. Within farm spread by grower equipment such as incorporators, ditchers and tractors is also a likely mechanism of transporting infested soil. The movement of soil isn't restricted to the year tomatoes are cropped to an infested field. While vigilance in cleaning equipment may be easy to discuss, the implementation of an effective sanitation program requires substantial commitment.

### FIELD MEETING ANNOUNCEMENT

Mid Maturity Variety Evaluation Trial  
10:30am to noon, **Friday**, 21 Aug 2009  
Woodland-Davis area  
County Road 99, 1 mile south of CR 29  
Light lunch will be available for the first 25 attendees.

Sixteen replicated and 15 observational, mid-maturity processing tomato varieties were transplanted April 24 in a commercial field planted to HyPeel 849. Cooperators are Steve Meek and John Pon of J.H. Meek and Sons. Stand establishment was good. Growth was vigorous and fruit size is large. Verticillium wilt is very prevalent in our buried drip irrigated field site. Harvest is expected in last week of August. We are also comparing 2 plants per plug vs. singles with varieties AB 2 and Sun 6366.

**Directions:** From Highway 113, take the CR 29 exit heading west 1 mile to CR 99. Turn south toward Davis on CR 99 for 1 mile. Signs will be posted along route.



### **TOMATO VIRUSES**

Questions arise over our increased level of tomato virus occurrence. Over the years, curly top, alfalfa mosaic and spotted wilt virus have all been present in our local area. While in some fields the number of plants affected has been perhaps alarming, the impact at the field level has been minor. In the past couple of years, the exception has been Tomato spotted wilt virus (TSW) where incidence has been more widespread in some fields. From my limited perspective, the number of problematic, local fields involved has been mainly associated with reoccurring locations. Monitoring of some of the fields began this season in a project lead by UCD Plant Pathologist Bob Gilbertson as an expansion of earlier studies continuing in Fresno's Westside. Sticky cards were used to monitor thrips population and to spot check for plant infection level. In some cases, an insecticide spray for thrips management was suggested. Overall, I think the spotted wilt virus management is particularly a concern for southern Colusa County. We are also monitoring a field in the Winters area. Spotted wilt extends into other local areas as well. For 2009, our assessment is: many fields with low incidence of spotted wilt and a few fields with higher levels, but much less than 5%.

### **TOMATO POWDERY MILDEW CONTROL**

Tomato powdery mildew was particularly severe and widespread in 2008, while in 2007 mildew was a problem in fewer fields in our local area. Prior to these most recent years, mildew was a minor pest for the last decade or more for our area. Currently, it appears the pathogen is much more prolific in producing abundant spores on both upper and lower leaves. In many instances, the leaf surface appears coated with a powdery dust. Under magnification, that dust is mainly spore structures.

What has changed? Conditions that favored higher disease development are unclear, but the pest management strategy needs to respond with preventive sprays with fungicides. How soon to begin the program? When to begin spraying in a cost effective approach is a difficult decision. None of the fungicides are eradicants. If disease pressure is high and sudden, then protective sprays are needed ahead of the disease. I think for the most part, until we see a pattern to predict mildew onset, beginning sprays when mildew is first detected in the area may be a compromise between very early preventive sprays and delaying until finding a full-blown episode in a specific field. Young plants appear less susceptible than more mature plants. My field observations are that plants approaching full flowering, as early as 70 days before harvest, is a susceptible beginning stage. Young plants can be infected, but appear less susceptible. Most protective sprays are probably not sufficiently effective if applied 14 days ahead of the onset. Repeat applications are needed. While infection favors milder temperature conditions, high temperatures cause the rapid desiccation of leaves.

**UPDATE:** Powdery mildew pressure is high in some fields in local area (by end of July and early August). Be alert. While yellow spotting may occur as a leaf

symptom of mildew infection, we are now also seeing heavy sporulation on healthy, entirely green leaves without the yellowing as a flag.

I visited a 2009 field test conducted by Farm Advisors Tom Turini and UC Michelle Le Strange from Fresno and Tulare counties, respectively. Under high disease pressure from powdery mildew likely occurring toward end of July, their fungicide program was highly effective in reducing disease to this point. The research questions were: can common fungicides control this aggressive mildew; can effective interval between sprays be stretched; is sulfur dust effective at all; and are post disease applications effective?

Major points (as a progress report for this specific site) are: 1) weekly applications of Quadris® alternated with Rally® begun preventively were highly effective, 2) stretching application timing of Quadris/Rally to every-other-week provides control, but to a much lesser degree, 3) delayed initial applications of Quadris/Rally weekly is risky, but can suppress mildew at least on newer growth, 4) preventive applications of dusting sulfur provides good control when applied weekly. The season's end researchers' report will be valuable as it assesses impact on yield as well as evaluates disease progression and control. Harvest is likely in early September.

The testing effort is a California Tomato Research Institute funded project under the leadership of UC San Joaquin County Farm Advisor Brenna Aegerter. A local test was also initiated under this project.

UpShot: Quadris, Rally and sulfur were effective. Other materials are also available. Timing as a preventive appears important. Under high disease pressure, applications might not be effectively stretched to 14-day intervals. Used in combination for russet mite control, dusting sulfur is a wise, initial early choice. As we enter late August and September, the added value of materials like Quadris and Cabrio for blackmold fruit rot control is attractive. Rotating chemistry for mildew resistance considerations remains wise.

**NOTE:**

Our UC Cooperative Extension office is closed now on Mondays. The adjustment was needed as our county budget was reduced, affecting county staffing. Beginning in early fall, UC advisors will also face a time reduction program.

To contact me during those Mondays, my direct telephone number is (530) 666-8732. Email is also effective. [emmiyao@ucdavis.edu](mailto:emmiyao@ucdavis.edu).

Submitted by,

Gene Miyao  
Farm Advisor, Yolo, Solano & Sacramento counties

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COOPERATIVE EXTENSION

70 COTTONWOOD STREET  
WOODLAND, CALIFORNIA 95695

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