Oct. 2019

Vegetable Crops Newsletter

University of California Agriculture and Natural Resources Cooperative Extension

UC CE

SAVE THE DATE!

Healthy Soils Field Day and Equipment Showcase
November 6, 2019
9am-11am
Registration begins at 8:30am
Meridian, CA

From Hwy 20, turn on Drexler Rd. Follow to stop sign. Turn right at stop sign then take first left onto S. Meridian Rd. Follow UCCE field day signs to meeting location.

If you have any questions, please contact myself or Sarah Light by email or phone.
Amber Vinchesi-Vahl: acvinchesi@ucanr.edu or 530-458-0575
Sarah Light: selight@ucanr.edu or 530-822-7515

Farm call summary 2019

	Processing tomato	Watermelon for seed	Fresh-market cucurbits	Vegetable for seed
Cucumber mosaic virus				1, radish
Leaf blight, *Pseudomonas viriflava*				1, carrot
Crown and root rot, *Phytophthora dreschsleri*				1, sage
Alfalfa mosaic virus, yellowing strain	1			
Damping-off, *Pythium* and *Rhizoctonia*		1		
Fusarium wilt	3	1		
Southern blight	3	1		
Root-knot nematode	1			
Abiotic (stress, weather, nutrient)	2			
Bacterial canker	1			
Fusarium falciforme	2		1, pumpkin	
Squash mosaic virus			1, cantaloupe	
Fusarium crown and root rot	1	1		
Verticillium wilt	1			

Dual infections: Fusarium wilt and Fusarium crown and root rot of watermelon for seed; southern blight and *F. falciforme* of processing tomato; Bacterial canker and *F. falciforme* of processing tomato

Weed highlight: Branched broomrape

Information summarized from California Tomato Research Institute Update. 2019. Volume 39. Photo credit: J. M. DiTomaso/UC IPM.

Branched broomrape, *Orobanche ramosa*, has recently been found in processing tomato fields in northern California in isolated instances. It is a parasitic weed that attaches to plant roots and is only visible above ground when it flowers. The seeds are 0.3 mm in length and are easily spread by boots, equipment and water. It is an abundant seed producer, with plants able to produce more than 100,000 seeds each. These seeds can last in the soil for at least 35 years. It also has a wide host range that increases its impact in our area of California. Hosts grown in the Sacramento Valley include safflower, sunflower, bell pepper, beans, melon, and common weeds. Broomrape is certified as a Class "A" pest by CDFA which means eradication, containment, rejection, or other holding action at the state-county level. This classification leads to a hold on infested fields for at least two years and crop destruct if found in tomatoes. Only rotational crops designated by the agricultural commissioner can be planted during the "hold" years. If you find it, contact your agricultural commissioner. Control is complicated, costly, and the chemistries used in other parts of the world are not registered on tomatoes in California. Between 1973-1982, research, surveying, and fumigation efforts were funded by the California Tomato Research Institute to eradicate broomrape and this weed has not needed to be addressed again until recently. Controlling this weed to prevent statewide spread is paramount and current research is looking at short-term and long-term management solutions.

Differentiating wilt and crown rot diseases in field

This information was summarized from a presentation by Cassandra Swett, UCCE Field and Vegetable Crop Pathology Specialist.

Wilts and crown rots continue to be the leading disease issues in vegetables for Colusa and Sutter counties. Diagnosing these in the field is challenging because even though there are several diseases that could be causing the issue, the symptoms are similar. The specific disease causing plant collapse may not be obvious. Below is a chart with the main wilt and crown rot symptoms affecting tomatoes and melons in Colusa, Sutter and Yuba counties.

	Verticillium wilt	Fusarium wilt	Fusarium crown and root rot	Fusarium falciforme	Southern blight
Bilateral leaf chlorosis		X			
Crown rot below soil line				X	
Decaying roots			X		
Earlier season (45 days or before)	X				
Heat-triggered		X			X
Later season (45 days or after)		X			
Localized crown lesion			X	X	X
Rapid decline					X
Rot at base of plant					X
Rotted stem			X		

Slow decline			X		
Smaller, yellow leaves				X	
Vascular discoloration	X	X			
V-shaped lesions on leaves	X				
White hyphal fan					X

With both Verticillium and Fusarium wilt, the vascular discoloration is usually apparent when you cut into the stem. However, Verticillium wilt can appear earlier than 45 days after planting and V-shaped lesions occur on the foliage. Fusarium wilt is generally not observed until 45 days after planting, favored by heat, and leaves yellow in a bilateral pattern (yellow flagging).

Fusarium crown and root rot causes a slow plant decline, unlike southern blight, which leads to very rapid plant collapse. The crown rot is a localized lesion and the stem may still look healthy 6-12 inches up the plant. Southern blight is triggered by heat and causes a clear rot at the base of the plant, also with a localized lesion. Soil is clumped together with fungal hyphae and in moist conditions, the white fan of hyphae can be seen on the crown of the plant. We have been seeing more southern blight in the area on both tomato and watermelon when conditions are ideal for disease development (5 fields in 2017 and 4 fields in 2019). There is another Fusarium crown rot that has been diagnosed in Sutter County as of the 2019 season, *Fusarium falciforme*. The leaves appear smaller and turn yellow and the rot begins below the soil line. We are still learning about this particular Fusarium species.

If you observe any wilts, crown rot, or unexplained plant collapse in your vegetable crop fields in 2020, please do not hesitate to contact me. I can make field visits to collect samples and get them diagnosed in the Swett Lab on campus.

SAVE THE DATE!

South Sacramento Valley Processing Tomato Production Meeting
January 8, 2020
8am-12pm
Woodland Community and Senior Center
2001 East St., Woodland, CA

Amber Vinchesi-Vahl can be contacted at the Colusa UCCE office at 530-458-0575, by cell phone at 508-254-4490, or at acvinchesi@ucanr.edu with any vegetable crop issues in the field, questions or comments, or to subscribe to this newsletter electronically.