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Vegetable Crops Newsletter

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UC CE

Disease Highlight: *Alfalfa Mosaic Virus*

Alfalfa mosaic virus (AMV) is transmitted by early season aphids and is usually localized to the part of the tomato field closest to alfalfa. Though AMV is a worldwide disease, it is generally not economically damaging in tomatoes. When tomato fields are planted near alfalfa fields, alfalfa mosaic can be a larger issue. The virus also infects vegetables such as pepper, potato, celery, and lettuce. Symptoms differ depending on the virus strain, host, growth stage, and environment. Symptoms may include yellowing or bronzing on the leaves and leaf veins, downward curling of leaves, and/or brown discoloration of vascular tissue on the main stem. There may be necrotic spots on the fruit. AMV can be very similar to tomato spotted wilt virus symptoms and plants should be tested to confirm virus diagnosis. One of the AMV strains is the necrotic strain which can lead to plant death (Photos 1-3) and another is a yellowing strain (Photo 4), where plants can potentially recover. The virus is spread non-persistently which means the virus is not retained in the aphid for extended periods of time, but that the virus can be quickly acquired and transmitted. This makes chemical control of aphids to prevent virus transmission difficult. The best way to manage alfalfa mosaic virus in tomatoes is to plant away from alfalfa fields (Compendium of Tomato Diseases 1991; UC-IPM Pest Management Guidelines for Tomato).

2018 Projects!

Multisite demonstration of conservation management practices for soil health and greenhouse gas emissions reduction

UCCE Agronomy Advisor Sarah Light and myself are excited to announce the launch of a 3-year statewide Healthy Soils Demonstration Project supported by CDFA. This project will include a cover crop demonstration and research site on a farm in Sutter County in addition to two other sites statewide (San Joaquin and Merced County), and will evaluate incorporating cover crops into annual production in the region. We will demonstrate cover cropping in the Sacramento Valley, which in other regions, has successfully improved soil health and function and reduced greenhouse gas emissions. Cover crops add carbon and nitrogen, and if not incorporated into the soil, they provide additional residues that keep the soil cool and reduce soil water evaporation. Soil carbon management is a critical management tool for improving overall soil function and health while maintaining crop yields. Our goal is to implement practices that increase soil carbon, minimize physical, chemical, and biological disturbance of the soil, and promote functionally

efficient biological diversity in the soil, thereby improving overall soil health. Stay tuned for a field day to kick-off this project in Fall 2018! Two additional field days will be held throughout the course of this project. We look forward to seeing you there! Contact Amber (acvinchesi@ucanr.edu) or Sarah (selight@ucanr.edu) with any questions.

Insecticide screening and cucumber beetle biology and movement in fresh-market melons

In the Sacramento Valley, both the western striped cucumber beetle, and the western spotted cucumber beetle have been serious pests of fresh-market melons since the 1980s. The severity of pest pressure changes every year, but both pest species occur annually. Because of direct damage to fruits, the western striped cucumber beetle is the most important species to growers and PCAs in the Sacramento Valley. Adult western striped cucumber beetles feed on the bottom surface of fruit causing scarring on the rind, which leads to cosmetic damage and unmarketable fruit. It is difficult to control the adults with insecticide sprays because they are protected underneath the fruit. However, applications of pesticides continue to be the most successful approach to management of insect pests in melon crops. As an example, in 2015, growers applied insecticides to 11,150 acres of melons in Sutter and Yuba counties. Low pesticide spray coverage should be considered a major concern to both the melon industry but also to pesticide manufacturers, as there is growing evidence of how low and inconsistent spray coverage creates a selection pressure leading to behavioral resistance/avoidance of the target pest. It is therefore important to develop screening methods and procedures to determine levels of resistance/avoidance in target pest populations.

Along with UC-Davis researcher and entomologist, Dr. Christian Nansen, we will be obtaining insecticide spray coverage data in two commercial melon fields, assessing the mortality of western striped cucumber beetles on sprayed melons/melon foliage, and obtaining trapping data in and around melon fields to better understand cucumber beetle biology and movement within two commercial fresh-market melon fields in Sutter County.

Monitoring southern blight prevalence in Colusa County

Southern blight is a destructive crown rot disease that rapidly kills tomato plants. There are over 500 hosts of southern blight and the fungus survives year to year in infected crop debris despite crop rotations. The disease is favored by temperatures over 86°F, high soil moisture, dense canopies, and frequent irrigation. The combination of late planting dates and record high temperatures in 2017 created unusually favorable conditions for the pathogen in the Sacramento Valley (C. Swett). In 2016, at least one field in the region tested positive for southern blight. In 2017, the number grew to five fields (four processing tomato fields and one bean field). The objective of this research is to quantify southern blight spread and impact in annual rotations in the region. Nine fields in Colusa County were sampled in May 2018 to determine baseline southern blight levels in the soil. These fields were previously in tomato and are currently planted to corn or sunflower. The fields will be sampled again in late summer 2018 to determine if inoculum levels have increased. Plants will also be checked for southern blight symptoms every two weeks once the outside temperature reaches 90°F for seven consecutive days. Scouting and mapping infested field locations in 2018 will help develop regionally relevant treatment thresholds. Cassandra Swett, the Field and Vegetable Crop Pathology Extension Specialist, and Agronomy Advisor, Sarah Light, are collaborators on this project.

Please feel free to contact me with any vegetable crop issues in the field, questions or comments, or to subscribe to this newsletter electronically.

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