Cooperative Extension University of California Riverside County

DESERT AG-NOTES

82-675 Highway 111, Rm. 118 Indio, CA 92201 January 2006

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2005 Coachella Valley Vegetable Disease Review

The Farm Advisor and Coachella Valley Pest Control Advisors collected the plant samples used in this report that covers 2005. Where the pathogen was identified it is listed. Not every problem led to a pathogen being identified. This is not a complete list of diseases in the Coachella Valley. Some common diseases and control measures are listed in the UCIPM web site. Please refer to this web site for insect and disease control information: http://www.ipm.ucdavis.edu/

BELL PEPPERS, CHILI PEPPERS:

02-17-05 **Symptoms**: Dieback of leaves and works its way down the main stem. Leaves appeared to be sand blasted.
Pathogen: *Alternaria* spp.

04-21-05 **Symptoms**: Shade house grown peppers have mottled leaves. Plants are stunted.
Pathogen: Potato Virus Y and Tobacco Etch Virus, both aphid transmitted viruses. Old pepper plants left in nearby field may be cause of infection. Plants also had pysllid eggs.

08-23-05 **Symptoms**: Plants with very light green foliage.
Pathogen: Beet Mild Curly Top Virus and Beet Severe Curly Top Virus, vectored by beet leafhopper.

08-25-05 **Symptoms**: Young transplants with damping off and dieback symptoms.
Results*: Pythium aphanidermatum*. Field is under heat stress, growers apply irrigation water to reduce the stress. Water enhances *Pythium* diseases.

09-01-05 **Symptoms:** Leaves are wilting on recent transplanted pepper plants.
Pathogen: Fusarium Wilt caused by *Fusarium oxysporum* var. *vasinfectum*. Two adjacent pepper plantings affected both green and red bell pepper varieties. Rapid wilting of leaves leads to rapid plant death. Leaves remain on the main stem. Fungus can live indefinitely in the soil; can be spread by irrigation water and wind storms.

09-06-05 **Symptoms:** Leaf wilting and plant dieback. Many plants affected in the field.
Pathogen: *Pythium spp*. Very common pepper problem in the Coachella Valley.

09-07-05 **Symptoms:** Collected samples from 4 grower's fields exhibiting virus like symptoms. Yellowing and stunting common to all samples.
Pathogen: Results negative for nine main pepper viruses, Alfalfa Mosiac Virus, Cucumber Mosaic Virus, Pepper Mild Mottle Virus, Tobacco Mosiac Virus, Tomato Mosiac Virus, Pepper Mottle Virus, Potato Virus Y, Tobacco Etch Virus and Tomato Spotted Wilt Virus. Growers were informed of results and told that we would keep checking out the problem.

09-21-05 **Symptoms:** Foliage is very light green.
Pathogen: Plants negative for Verticillium and Phytophthora.

10-11-05 **Symptoms:** Very stunted plants, been in the ground 3 months and have grown very little. Leaves are very yellow and deformed. Several fields sampled.
Pathogen: Beet Severe Curly Top and Beet Mild Curly Top confirmed. These two viruses were found in several pepper fields across the Coachella Valley. *Pythium* spp. and *Phytophthora* spp. were also isolated in this group of samples.

10-25-05 **Symptoms:** Mature plant dieback close to harvest. Growing points dying back. Field had been hit by flood.
Pathogen: No fungi isolated from affected plants. Attribute dieback to flooding. Plants recovered once the field dried down.

12-06-05 Symptoms: Young pepper transplants checked for damping off.
Pathogen: No damping off fungi detected.

BOK CHOY

01-25-05 **Symptoms:** Rust like symptoms on the whole plant. Can't be trimmed off at harvest. It follows the midrib into the plant. Large field is affected.
Pathogen: *Pseudomonas marginalis* was recovered. *Alternaria* spp. also recovered.

CELERY

01-05-05 **Symptoms**: Severe spotting on leaves.
Pathogen: Late Blight, caused by *Septoria Apii*. *Alternaria* spp. also secondary disease. A diagnostic symptom is pycnidia which can be seen with microscope in the dead areas.

10-04-05 **Symptoms**: Plants stunted, lots of leaf yellowing.
Pathogen: No virus was recovered. Pathologist thought it might be herbicide related damage.

KOREAN MELON

06-02-05 **Symptoms:** mature plants have mosaic like symptoms. Fruit is also affected.
Pathogen: Samples arrived in very poor condition to Pathologist. Could not assay.

LETTUCE

01-05-05 **Symptoms**: Stunting, yellowing and dieback of Romaine and Butter lettuce planted next to each other.
Pathogen: Tomato Bushy Stunt Virus. Disease will remain in field and infect next lettuce plantings.

01-11-05 **Symptoms:** Romaine lettuce plants with leaf necrosis, similar to Anthracnose. Sick plants next to healthy plants.
Pathogen: 10% of infection is *Anthracnose* spp., *Microdochium panattonianum*, 90% of infection is *Alternaria solani*.

01-25-05 Symptoms: leaf yellowing and spotting. Dieback in low areas of field.
Pathogen: Tomato Bushy Stunt Virus.

03-02-05 **Symptoms:** Lot of stunting and yellowing over a large area of field.
Pathogen: Tomato Bushy Stunt Virus.

11-14-05 **Symptoms:** Plants are collapsing, wilting, lower leaves yellowing. Roots seem to have internal discoloration.
Pathogen: *Pythium uncinulatum*.

12-16-05 **Symptoms**: Mature plants are collapsing. Tap root seems to have been damaged.
Pathogen: *Pythium uncinulatum*.

NAPA CABBAGE

10-31-05 **Symptoms:** Soft rot like symptoms widespread in field.
Pathogen: *Erwinia caratovora*.

ONION

04-15-05 **Symptoms:** Oval-shaped tan and deep purple lesions on leaf blades and seed stalks.
Pathogen: Stemphylium leaf blight caused by *Stemphylium vesicarium*. Symptoms are very similar to purple blotch. This disease was found in Imperial Valley and is reported here for growers and PCA's information.

SWEET CORN

05-23-05 **Symptoms:** Plants are drooping, wilting. Ear of corn also droops down.
Pathogen: Fusarium root rot. Roots were loaded with *fusarium* spp.

TOMATO

03-16-05 **Symptoms**: young plants develop lesions on stem; about two inches above soil line and begin to dieback. Many plants are affected.
Pathogen: Late Blight: *Phytophthora infestans*.

TUNG HAO

03-22-05 **Symptoms:** Widespread dieback of foliage. Mature plants have light yellow areas on the leaves. Many plants appear stunted. Plants affected are in and out of greenhouse.
Pathogen: Downy Mildew.

WATERMELON

04-21-05 **Symptoms:** plants are discolored, leaves appear to be mottled.
Pathogen: Spider mites.

08-23-05 **Symptoms**: Young plants with lots of leaf discoloration, leaf curling and yellowing.
Pathogen: Curbit Leaf Crumple Virus. Virus infections distort runners, plants soon recover and yields do not appear to be affected. Source of infection is spring planted abandoned watermelon field nearby.

Contributors to this report: Miguel Vilchez, Staff Research Associate, Dr. Don Ferrin, UCR Plant Pathology, Tom Turini, Plant Pathologist, UCCE Imperial County, Dr. Mike Davis, UCD Plant Pathology, Dr. Bob Gilbertson UCD Plant Pathology, Dr. Michael Coffey, UCR Plant Pathology and Dr. Bill Wintermantel, USDA-ARS. **These good folks go the extra mile to assist growers, resources are becoming limited and this service will be reduced in the future.**

Powdery Mildew is so common on watermelon and peppers that the PCA's no longer bring in these samples for identification.

Special thanks to the folks at: **Foster & Gardner**, **Western Farm Service**, **Soil Serve** and **Helena** for their assistance in plant disease collection and identification.

Desert Ag-Notes can be found at:
http://ceriverside.ucdavis.edu/Vegetable%5Fcrops/

Announcement:
38th California Nematology Workshop, Tuesday, March 28, 2003, 8 AM - 4:30 PM, at the University of California Extension Center, 1200 University Ave, Riverside, CA 92507-4596. www.nematology.ucr.edu

For info and registration: www.nematology.ucr.edu or contact antoon.ploeg@ucr.edu, 951-827-3192.

Coachella Valley Farmers Meeting Schedule 2006
Below is the **draft schedule** of the educational seminars planned for 2006.

March 15, 2006: Soil Symposium: Various speakers

May 3, 2006: Vegetable Crops Meeting

June 7, 2006: Citrus Meeting

Sam Aslan will be the contact person for these meetings: 760-347-7658 ext. 116.

Cowpea Crop: Milt McGiffen, Jose Aguiar, Jeff Ehlers

Summer is the traditional off-season for desert farming communities. Summer brings temperatures too high for most crops, so fields are fallowed and families go on vacation. But farmers have been looking at cover crops as an alternative to fallowing their fields in the summer. For desert vegetable growers, cover crops have been grown before and after carrots and peppers, and fit well between fall lettuce crop and spring melons.

Why Plant Cover Crops?
Because cover crops are not harvested for direct profit, the obvious question is “Why bother?” Cover crops are grown primarily to enrich the soil, but also help to reduce dust pollution. Desert soils are notoriously low in organic matter, the carbon-based substance that makes Midwestern soils dark and fertile. Organic matter does so many things to improve plant growth that many books have been written on the subject. But the most often mentioned benefits are the improved ability to hold nutrients and water and support root growth. Some cover crops are legumes that add nitrogen to the soil. This is particularly useful to organic growers who have few economical sources of nitrogen fertilizer, but substantial increases in synthetic fertilizer prices have helped fuel interest in planting legume cover crops by non-organic growers as well.

The University of California, Cooperative Extension, and the USDA have identified cowpea as an ideal summer cover crop for hot-summer areas. Cowpea cover crops are cost effective because they enrich the soil with organic matter, add over 100 lbs per acre of nitrogen, and have other harder to define benefits for crops grown in rotation with them.

At harvest, the cowpea vegetation is easily incorporated into the soil. Provided soil temperatures are not too low, breakdown of the crop residue is rapid so that nutrients are available for the subsequent crop.

Try These New Varieties

Summer cowpea cover crops have been shown to decrease weeds and other pests when they are managed for vigorous growth. Cover crops of cowpeas are sometimes attacked by whiteflies or cowpea aphid that could reduce yields. New cultivars are being developed at UC Riverside with better resistance to aphids and more broad-based resistance to root-knot nematodes. Dr. Milt McGiffen has limited seeds of these varieties available for grower's trials. To try these varieties, contact Milt at: (909) 560-0839 (951) 827-5989 (951) 827-598 Fax: (951) 827-4437.

Sabbatical Leave: February 2006 to January 2007

I will be on sabbatical beginning February 2006 to January 2007. Sabbatical leaves are available to faculty members and academic appointees and are an opportunity for staff to enhance their knowledge and expertise.

My plans are to research bell pepper production practices in Sinaloa, Mexico. I will also travel to Baja to research other specialty vegetables produced in that region.

May 21-23 2006 I will be attending the 18th International Pepper Conference in Palm Springs and assisting this group with farm tours to pepper fields in the Coachella Valley.

Coachella Valley Farmers Meetings will continue and be led by Sam Aslan. The draft meeting schedule is in this newsletter. For program information call Sam at 760-347-7658 ext 116.

Farm Advisors and Specialists have agreed to assist growers and PCA's in my absence. Please call Wendy Smith at 760-863-8293 for assistance. Thank you for your patience and support while I am on sabbatical.

JA/500