



Features from your Farm Advisors

September 2015

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ROOT-KNOT NEMATODES ON MINI BELL PEPPERS

Jose Luis Aguiar, Farm Advisor, UCCE Riverside County
Antoon Ploeg, Associate Nematology Specialist, UC Riverside

Many plants in mini bell pepper field near Mecca, Coachella Valley, Riverside County, began to show chlorosis (yellowing) on the newer plant growth in early April of 2015. Plants that showed yellowing symptoms are shown in Figure 1. At this time, the crops were mature and close to harvesting. Such yellowing symptom of crops was commonly associated with nitrogen deficiency. In addition to yellowing, Aguiar's records indicated that this field had a history of root-knot nematode infestation on previous bell pepper crops.

Yellowing symptoms became more and more obvious and spread into larger fields over a period of time. Although the symptoms became widespread throughout the field, there was one spot within the mini bell pepper fields that appeared to be a major hotspot. Such field area is shown in Figure 2.

Soil and crop root samples from the healthy looking and chlorotic fields were collected and sent to the Nematology Dept. of the University of California, Riverside (UCR.) for detailed analysis of the problem.



Prior to the sample collection and conducting laboratory soil and plant root analysis, the Farm Advisor of the area and the a nematology specialist at the UCR visited the field and detected heavy galling on the roots of

crops within the hotspot area (see Figure 3) that looked very similar to a characteristic root-knot nematode (RKN) infestation.

Results of laboratory analysis of the soil and root samples are shown in Table 1.

Table 1. Nematode analysis results (Root-knot nematodes)

Root Samples	Root Weights in grams	Number of RKN J2s
1: from healthy area, no galling on roots	13.43	11
2: from healthy area, no galling on roots	14.31	0
3: from affected area galling on roots	18.18	121,000

Laboratory analysis results showed that infestation (RKN J2 population) was insignificant on the healthy looking plants, while there were a huge population density (121,000) J2's on 18.18 grams of infested crop roots (Table

1). It is the second-stage RKN juveniles (J2) with worm-shapes that could enter susceptible crop roots and cause damage to the crops. These Juveniles develop into females and cause galling on the infested root system. .

A female RKN can lay up to 400 eggs. The eggs can hatch and serve as a source of inoculum, by remain in the soil to infect the next crop. The species of RKN, known as *Meloidogyne incognita*, can complete its life cycle in 4 weeks under optimum soil temperature of 32C, (90°F) and becomes inactive when soil temperatures drop below 17C (62F).

Suggestions: the following can be suggested as better management of RKN infestation

- Avoid mono-cropping peppers or rotating with other host crops, such as tomato, eggplant, snab beans, cucurbits, etc.
- Soil should be sampled early, at the middle and during late season to track the root-knot nematode populations. It is expected to be low during the early season and begins to escalate during the late season.
- Clean up the field as soon as the last harvest is completed. Disk plant residues into the soil where it can be broken down quickly and decompose.
- If you suspect of having nematode problem, call the Farm Advisor's office. The farm advisor can coordinate with Extension Nematologist to test soil and plant roots for nematode infestation.

New materials appropriate for nematode control are being registered for vegetable crops. The Extension Nematologist and the Farm Advisor have established a nematode research plot at Coachella Valley Agricultural Research Station for testing new materials under local conditions and crop varieties. Check with the Farm Advisor to see when seminars are scheduled that presents these research results.

CIMIS REPORT AND UC DROUGHT RESOURCES

***Khaled M. Bali, Irrigation & Water Mgmt Advisor, Director UCCE Imperial County
Sharon Sparks*, Imperial Irrigation District***

California Irrigation Management Information System (CIMIS) is a statewide network operated by California Department of Water Resources. Estimates of the daily reference evapotranspiration (ET_o) for the period of September 1 to November 30 for three locations in the Imperial County are presented in Table 1. ET of a particular crop can be estimated by multiplying ET_o by crop coefficients. For more information about ET and crop coefficients, contact the UC Imperial County Cooperative Extension Office (352-9474) or the IID, Ag Water Science Unit (339-9082). Please feel free to call us if you need additional weather information, or check the latest weather data on the worldwide web (Google CIMIS for the current link to CIMIS site).

Table 1. Estimates of daily Evapotranspiration (ET_o) in inches per day

Station	September		October		November	
	1-15	16-30	1-15	15-31	1-15	16-30
Calipatria	0.30	0.27	0.23	0.19	0.14	0.10
El Centro (Seeley)	0.29	0.26	0.23	0.17	0.13	0.09
Holtville (Meloland)	0.30	0.27	0.22	0.18	0.13	0.10

* Ag. Water Science Unit, Imperial Irrigation District.

Water and Drought Online Seminar Series

The latest research-based advice on weathering a drought is now available free online. The UC Division of Agriculture and Natural Resources is working to help farmers cope with the unwelcome outcome of historically low rainfall. UC scientists, with support from the California Department of Water Resources, have recorded video presentations on high-priority drought webpages.

Each presentation is about one half hour in length and is available at the link below:

<http://ciwr.ucanr.edu/>

Then click on the drought resources link.



UNIVERSITY OF CALIFORNIA
COOPERATIVE EXTENSION
IMPERIAL COUNTY
1050 E. HOLTON ROAD
HOLTVILLE, CALIFORNIA 92250-9615

Telephone: (760) 352-9474 FAX Number: (760) 352-0846
<http://ceimperial.ucanr.edu>



Forage and Grain Sorghum Field Day and Workshop

When: Wednesday September 30, 2015 (8:00 AM to 11:45 AM)
Where: University of California Desert Research & Extension Center
1004 E. Holton Rd., Holtville, CA 92250

8:00 AM: Registration
8:30 AM: Begin Field Day and Workshop

Agenda:

8:30 - 9:30 AM: Field Demonstration (Area 80) – Forage and Grain Sorghum

- Forage Sorghum – Jeff Dahlberg (UCCE, Kearney) & Oli Bachie (UCCE Imperial)
- Grain Sorghum – Jeff Dahlberg (UCCE, Kearney) & Oli Bachie (UCCE Imperial)

9:45 - 11:15 AM: Workshop (Classroom) - Forage and Grain Sorghum

- Evaluating Sorghum for the Low Desert: A review of grain, forage and sorghum – Jeff Dahlberg (UCCE, Kearney)

11:15 - 11:45 AM: Workshop (Classroom) - Grain Sorghum

- Grain Sorghum Bird Problem, Issues and Recommendations – Jeff Dahlberg (UCCE, Kearney)

Lunch will be served at 11:45am (Sponsored by Sorghum Partners). For additional information on the field day, please contact Oli Bachie, obachie@ucanr.edu

Please register in advance by sending an email to aiestrada@ucanr.edu with full name of attendee(s).

PENDING: Certified Crop Adviser hours

Please feel free to contact us if you need special accommodations.

Sponsors:

University of California Cooperative Extension (UCCE) – Imperial County



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CO-OPERATIVE EXTENSION WORK IN AGRICULTURE & HOME ECONOMICS, U S DEPARTMENT OF AGRICULTURE & UNIVERSITY OF CALIFORNIA CO-OPERATING

Save the Date...



October 29, 2015



*26th Annual Fall Desert Crops
Workshop*

Location:

Farm Credit Services
Southwest
485 Business Park Way
Imperial, CA 92251

Time:

6:30am – 12:30pm*
(Subject to change)

Lunch:

Courtesy of Western
Farm Press &
Commercial Suppliers

No cost to attend!

To register or for
more information
contact...

University of
California Cooperative
Extension Imperial
County

1050 E. Holton Rd.
Holtville, CA 92250
(760) 352-9474
aiestrada@ucanr.edu

*** Pesticide Updates**

*** Education &**

Management of:

- Insects
- Plant Diseases
- Weed Management

*** Water Issues**

Pending CEU's

AZ Dept. of Ag,
CA DPR, &
CCA

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24th Annual Cal-IPC Symposium
San Diego Convention Center
October 28-31, 2015

plus a special conference on:
Habitat Conservation Planning
October 29, 2015



Join us in the heart of San Diego, between San Diego Bay and the historic Gaslamp Quarter!

Registration is now open!

Early-bird registration through 9/28!

The **2015 Symposium** will be held October 28-31 at the [San Diego Convention Center](#), located on San Diego Bay near the historic Gaslamp Quarter. Join fellow land managers, researchers, and conservationists to catch up on the latest findings in invasive plant biology and management. In addition to the customary focus on effective program planning and tools of the trade, our 24th annual Symposium will feature a parallel one-day conference on "Invasive Plant Management and Habitat Conservation Planning". Stay tuned for more details in June.

The Symposium will feature a broad range of presentations, discussion groups, trainings and field trips, with activities like our photo contest and awards mixed in. Trainings and a session on Pesticide Laws and Regulations will be held on Wednesday; sessions will be on Thursday and Friday, with the one-day parallel HCP conference on Thursday; and field trips on Saturday (Halloween!). We anticipate continuing education credits from DPR (12 hours "Other" and 2 hours "Laws & Regs". (Trainings and field trips will have additional continuing education credits.)

Website: [California Invasive Plant Council](#)

Pitahaya/Dragon Fruit Seminar & Mini Festival

Wednesday, September 30th 10:30 a.m. – 1:30 p.m.

C.V. Mosquito & Vector Control District

43420 Trader Place, Indio

- 10:30 am Registration**
- 11:00 am Pitahaya Production in Riverside County – A Research Update**, Jose Aguiar, Farm Advisor, UCCE Riverside County
- 11:20 am Pitahaya Irrigation and Irrigation System Design Considerations**, Jose Fernandez de Soto, UC Hansen Research and Extension Center
- 11:40 am Pitahaya Establishment Costs and Market Considerations**, Ramiro Lobo, Farm Advisor, UCCE San Diego County
- 12:00 pm Lunch & Pitahaya Fruit/Ice Cream Tasting** (included with registration)
- 1:30 pm Adjourn!!**

To Register: call Wendy @ 760-342-6437 or wensmith@ucanr.edu. Register by 11:00 am on September 28, we need an accurate count to order food!12

Program sponsored by: University of California Cooperative Extension offices in Riverside, San Diego and Ventura Counties * Coachella Valley Mosquito & Vector Control District * Coachella Valley Water District * Riverside County Agricultural Commissioner's Office * with financial support from the UC Hansen Agricultural Fund.

Lunch Courtesy of: Federated Insurance Company

Accessibility: The C.V. Mosquito & Vector Control office in Indio is a handicapped accessible facility. Please contact Jose Aguiar @ 760-423-9508 or jlaguiar@ucanr.edu for any special accommodation you may need.

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University of California, County of Riverside and U.S. Department of Agriculture Cooperating

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