

# Production Times



## Greenhouse Edition

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◆ Production Times is brought to you by:

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See the newsletter online at:  
<http://cfextension.ifas.ufl.edu>



Learn how to identify nutrient deficiencies on page 2

## PESTS TO WATCH!

By Lelan D. Parker

As the weather is warming up there are a few new and old pests to be on the lookout for. For more information on pests you can go to: <http://www.doacs.state.fl.us/pi/enpp/pi-pest-alert.html> and <http://mrec.ifas.ufl.edu/Iso/>

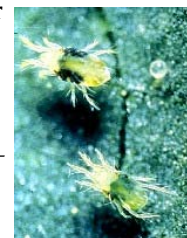
*Mikania micrantha* Kunth is a climbing hempvine that was detected near Homestead, FL. It is also known as the Chinese Creeper, Bittervine or Mile-A-Minute. *Mikania micrantha* is native to Mexico, Central and South America and the West Indies. It is an aggressive vine that can grow over and smother vegetation and nursery crops. It is included on the Noxious Weed List for Florida.



*Nipaeococcus viridis* (Newstead) is a new exotic mealybug that has been detected in Palm Beach County. The host plant it was found upon was dodder (*Cuscuta exaltata* Engelm). This is an agricultural pest in Asia that attacks food, ornamental crops and fiber crops and forage. The body color is black, purple to blue green with a thick white or pale yellow wax. In older infestations wax may turn yellow and mealybugs turn black in 70% of alcohol. It has been intercepted at US ports on *Punica* sp., *Nephelium* sp., *Eugenia* sp., and *Citrus* sp.



*Tetranychus urticae* Koch, the twospotted spider mite, is a major pest of ornamental plants and vegetable crops grown in greenhouses. Mites can be dispersed on greenhouse personnel clothing, infested plant material and silken threads. Patchy greenhouse infestations are characteristic of these mites. *Phytoseiulus persimilis* and *Neoseiulus californicus* are two natural enemies used to control twospotted spider mites.





# Identifying Nutrient Deficiencies

*Summarized by Lelan D. Parker*

There are 17 nutrients that are required for healthy plant reproduction and growth. The plant will begin to exhibit deficiency symptoms when essential nutrients in plant tissue are at levels below specific needs of the plant. Nutrient deficiencies may reduce plant growth, flowering or aesthetic appeal if left untreated. Fertilizers are often applied to provide essential nutrients and correct plant deficiency symptoms. Essential plant nutrients are divided into two main groups (1) macronutrients and (2) micronutrients. Nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg), and sulfur (S) are plant macronutrients. Iron (Fe), zinc (Zn), manganese (Mn), copper (Cu), molybdenum (Mo), boron (B), nickel (Ni) and chlorine (Cl) are plant micronutrients.

The first step to visual identification of a nutrient deficiency is to determine where on the plant the symptoms are appearing. A nutrient is considered mobile if the plant is able to move it from one part of the plant to another as it is needed. In contrast, immobile plant nutrients cannot move to different plant parts. Therefore deficiency symptoms of mobile nutrients appear first in older plant parts, whereas immobile nutrients will be seen first in new growth. Symptoms of N, P, K and Mg deficiencies will manifest in the older growth because they are mobile, while symptoms of Ca, Cu, B, Fe, Mn and Zn deficiencies will appear in the new growth because they are immobile.

Next determine the characteristics of the symptoms. Leaves may appear chlorotic or yellow in color or there may be dead tissue. Also, symptoms may be present on the leaf tip or be interveinal. Once a nutrient deficiency has been identified actions can be taken such as fertilizer applications. However, before fertilizers are applied, a soil test should be completed to determine the nutrient status and pH of the growing media. This is important because in a highly acidic K, Ca and Mg may exist in a chemical form that plant roots cannot absorb even if these elements are present in sufficient amounts.



Yellowing on old growth



Deficiency on new growth



Interveinal chlorosis

For more information go to: <http://edis.ifas.ufl.edu/pdffiles/SS/SS53000.pdf>



# Pesticide Fires

By Lelan D. Parker

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In pesticide storage facilities fires pose a special hazard. Flammable pesticides typically include the precaution statement: "Do not use or store near heat or open flame". Fire warnings will be found in the *Physical and Chemical Hazards Statements* on the product's label. Potential problems that are associated with pesticide fires include: (1) The pesticides may be highly flammable or explosive, (2) The pesticides may give off highly toxic vapors or smoke that may harm firefighters, nearby residents, animals or plants, (3) Pesticide residues may be present in the debris and soil following a fire at a pesticide storage facility, and (4) Runoff from the fire site may contain highly toxic chemicals.

Proactive Pesticide Fire Measures include:

- Locating the storage facility as far as possible from places where people and animals live
- Notify the local fire department of the location and the contents of the pesticide-storage facility.
- Carefully map a floor plan of the facility and the immediate surrounding area.
- Train local workers in execution of the emergency plan.
- Keep the storage facility locked at all times.
- Post signs that indicate pesticides are stored in the facility.
- Store combustible pesticides away from steam lines and other heating systems.
- Do not store glass or pressurized containers in sunlight, where they can concentrate heat and possibly explode or ignite.
- Keep a written inventory of the pesticides held in storage and file the list away from the storage facility.

For more information go to: <http://edis.ifas.ufl.edu/pdf/PI/PI22300.pdf>

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## Trouble Shooting for Unrooted Cuttings

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1. Leaves yellow in propagation after first week.
  - A. Temperature too warm or too cold.
  - B. Misting too much.
  - C. Nutrients leached out of cuttings.
2. Cuttings stop developing but are not mushy or yellow.
  - A. Temperatures are too cold
  - B. Misting too much.
  - C. Woody cuttings are still dormant.



Unrooted Cuttings



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# Pesticide Resistance

*By Lelan D. Parker*

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Pest populations can be resistant or susceptible to a pesticide. When one pesticide is used repeatedly in the same place against the same pest, the surviving pests may be more resistant to the pesticide than the original population was. Resistance may develop rapidly with pests that have many generations per year and when multiple generations are exposed to a pesticide. Ornamental production in greenhouse often incorporates a combination of these factors that contribute to resistance. The main objectives of a resistance management program in greenhouse production should be to minimize the number of exposures of pests to pesticides with a similar mode of action and use non-chemical approaches such as biologicals, for pest management.

Crops should be scouted on a regular basis and pesticide applications should be made only when pest densities reach economic injury levels. When a pesticide is needed, products should be rotated among the different modes of action indicated on the pesticide label. Care can be taken to rotate crops, use pest resistant species and varieties, set pest-free transplants, conserve and release natural enemies, etc. Pest-specific tactics are available for particular situations such as elimination of excessive moisture in order to kill fungus gnat larvae in greenhouses.

For more information go to: <http://edis.ifas.ufl.edu/pdffiles/IN/IN71500.pdf>



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## Upcoming Programs

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### April

**16-** Nursery Crop Insurance Lunch n' Learn. Apopka, FL Mid-Florida Research & Education Center. To RSVP contact: Jennifer Parrish [jparrish@farmcreditfl.com](mailto:jparrish@farmcreditfl.com) 407-880-7883

### May

**1-** Aquatic Pesticide License Review and Exam. Orlando, FL at Orange County Extension. To register: Yamira Donato 407-254-9200.

**18-** Right of Way Review and Exam. Orlando, FL at Orange County Extension. To register: Yamira Donato 407-254-9200

**20-21-** Paint Your Own Financial Future. Orlando, FL at Rosen Plaza. For info: Linda Reindl 407-295-7994 or go to: [www.fngla.org](http://www.fngla.org)

### July

**31-** Small Farms Conference. Kissimmee, FL at Osceola Heritage Park. For info: <http://smallfarms.ifas.ufl.edu>