

# Greenhouse Pest Posse

Colorado  
State  
University  
Cooperative  
Extension

Putting Knowledge to Work

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“What’s current on the pest, disease and production scene”

## POINSETTIA PROBLEMS

**Leaf distortion**— Symptoms in plants called “leaf strapping” or “epinasty” can be caused by many factors. In poinsettias one of the causes of this condition is temperature and humidity levels. According to North Carolina State University ‘Manual of Poinsettia Disorders’ this condition occurs “most often during the early stages of the crop (within a few weeks of being pinched). Most poinsettias will outgrow this condition, but shoots with extreme distortion may not improve. It is unclear what causes this disorder. It is thought that rapid changes in humidity, which can occur early in the morning when the vent fans come on, may lead to an accumulation of salts along the leaf margins and veins - resulting in leaf injury. Leaf distortion becomes apparent as these injured leaves grow and expand.”



**Lewis mites**— Lewis mite, *Eotetranychus lewisi*, outbreaks occurred in early July in a few greenhouses in the Denver area. This mite is slightly smaller, more slender and has small spots on the sides of its body compared to the two spotted spider mite. Two spotted spider mites can affect poinsettia, however, Lewis mites seem to be more common on this crop.

To avoid an explosive outbreak, scout for the presence of mites. Once the population has developed into a heavy infestation (meaning symptoms of mottling and webbing are evident), it is difficult to regain control. Labeled miticides include: Hexygon, Ovation, Sanmite, TetraSan, Akari, Avid, Floramite, Kelthane, Pyrethroids, M-Pede, Ultra-fine oil, Triact 70, Hexygon and GC-Mite.

There are also non-chemical controls for Lewis mites (and other spider mites). These include a small predatory midge, *Feltiella acarigusa* and the predatory mite *Phytoseiulus persimilis*.

Newer miticides, such as Hexygon, Akari and Floramite are relatively non-toxic to several species of predacious mites.

## Geranium Rust

Fortunately, most growers don't experience geranium rust frequently. Some in the industry feel that rust is a very serious disease because it is virtually impossible to



detect the pathogen on symptomless, but infected plant material coming into the United States.

One grower in Colorado experienced this first hand. Geranium plant material received from outside the U.S.



was without symptoms until just before the geraniums were to be sold. Once temperatures reached 65 or 70 F the disease "exploded" in the greenhouse.

Plants with symptoms were bagged and thrown away. The greenhouse was emptied and sanitized. Remaining geraniums are sprayed with fungicides such as Systhane, Dithane, Daconil Heritage, Banner Maxx or Strike.

## LETTER TO FIRMS THAT GROW, PACK OR SHIP FRESH LETTUCE AND FRESH TOMATOES—GOOD AGRICULTURAL PRACTICES (GAPS) REQUESTED BY THE FDA

"This letter is intended to make you aware of the Food and Drug Administration's (FDA's) concern regarding continuing outbreaks of foodborne illness associated with the consumption of fresh lettuce and fresh tomatoes, and actions we recommend that your industries take to enhance the safety of these products.

Since 1996, the Food and Drug Administration has responded to 14 outbreaks of foodborne illness for which fresh lettuce or fresh tomatoes were the confirmed or suspected vehicle. These outbreaks account for approximately 859 reported cases of illness. The lettuce and fresh tomatoes associated with these outbreaks were of U.S. and non-U.S. origin; the causative agents included *Salmonella* (fresh tomatoes), and *E. coli* 0157:H7, *Cylcospora*, and Hepatitis A virus (lettuce).

Because fresh vegetables such as lettuce and tomatoes are commonly consumed in their raw state without processing to reduce or eliminated pathogens, the manner in which they are grown, harvested, sorted, packed and distributed is crucial to ensuring that the potential for microbial contamination is minimized, thereby reducing the risk of illness to consumers.

In 1998, the FDA issued a "Guide to Minimize Microbial Food Safety Hazards for Fruits and Vegetables," (available at <http://www.foodsafety.gov/~dms/prodguid.html>) which discusses recommended good agricultural practices (GAPs) and good manufacturing practices (GMPs) that growers, packers and shippers can undertake to address

common risk factors in their operations and thereby, minimize food safety hazards potentially associated with fresh produce. We have worked in partnership with your industries in the U.S. and abroad since that time to promote our recommendations and to advance the scientific



knowledge applicable to enhancing the safety of fresh fruits and vegetables.

In addition, in 2001, FDA made available a report prepared for the agency under contract with the Institute for Food Technologists, "Analysis and Evaluation of Preventive Control Measures for the Control and Reduction/Elimination of Microbial Hazards on Fresh and Fresh-Cut Produce," available at <http://www.csfan.fda.gov/~comm/ift3-toc.html>. This report summarizes the current scientific research relating to the various methods of eliminating or reducing pathogens, while maintaining fresh attributes, on whole and fresh-cut produce.

In view of continuing out-

## GAPS CONTINUED FROM PAGE 2

breaks associated with fresh lettuce and fresh tomatoes, we strongly encourage firms in your industries to review their current operations in light of the agency's guidance for minimizing microbial food safety hazards in fresh lettuce and fresh tomatoes, as well as other available information regarding pathogen reduction or elimination on fresh produce. We further encourage these firms to consider modifying their operations accordingly, to ensure that they are taking the appropriate measures to provide a safe product to the consumer. Since the available information concerning some of the recent outbreaks does not definitively identify the point of origin of the contamination, we recommend that firms from the farm level through the distribution level undertake these steps.

The agency intendeds to monitor the safety of fresh produce, including fresh lettuce and fresh tomatoes, whether produced domestically or abroad, and to continue to encourage the use of good agricultural practices and good manufacturing practices. As you are aware, food produced under unsanitary conditions whereby it may be rendered injurious to health is adulterated under 402(a)(4) of the Federal Food, Drug, and Cosmetic Act ((21 U.S.C. 342 (a) (4)).

*Colorado State University, U.S. Department of Agruiculture and Adams County cooperating. Cooperative Extension programs are available to all without discrimination. If trade names are mentioned, it is for educational purposes, endorsement over those products not mentioned is not intended. Read and follow manufacturers directions.*

FDA will consider enforcement actions against firms and farms that grow or pack fresh produce under such unsanitary conditions.

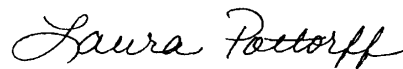
We recognize and appreciate the efforts that your industries have taken to date to provide fresh produce that is safe to U.S. consumers, and we are confident that you will continue to work proactively to pursue this goal.

Sincerely, Terry C. Troxell, PhD.,  
Director , Office of Plant and Dairy  
Foods, Center for Food Safety and  
Applied Nutrition"

## NEW TOMATO EMAIL LIST SERVE AVAILABLE

A new email list, for tomato producers is available.  
**to subscribe, send email to:**  
**majordomo@lists.msstate.edu**  
**with the following in the**  
**message box:**  
**subscribe greenhouse-**  
**tomatoes**

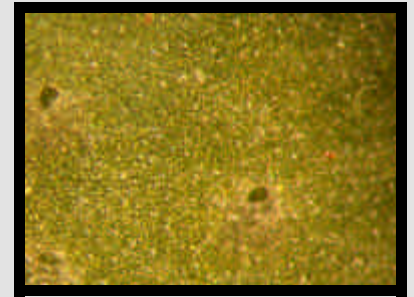
## QUESTIONS OR COMMENTS?



Contact :  
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## Leaf Miners on Gerbera

Watch for serpentine leaf miner damage on gerbera plugs brought into the greenhouse. This might include puncture wounds on leaf undersides :



Or mining symptoms on leaves:



Management of serpentine leaf miner involves the use of biological controls with parasitoids *Danusa siberica* and *Diglyphus isaea* and/or chemical control with a rotation of products such as Avid (Glycoside), Citation, (Cyromazine) Conserve (Spynosyn) or Azatin XL (Azadirachtin).



Serpentine leaf miner adult

Colorado State University  
Adams County Extension  
Regional Greenhouse Program  
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Brighton, CO 80601

## Greenhouse Pest Posse

*A newsletter designed to keep greenhouse growers informed of current pest, disease and production information. Produced by Laura Pottorff, Regional Greenhouse Specialist, Colorado State University*

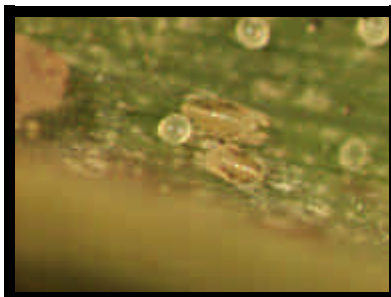
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### PICTURE GALLERY-



Banks grass mite on *Miscanthus sinensis*



Edema on tomato due to elevated EC