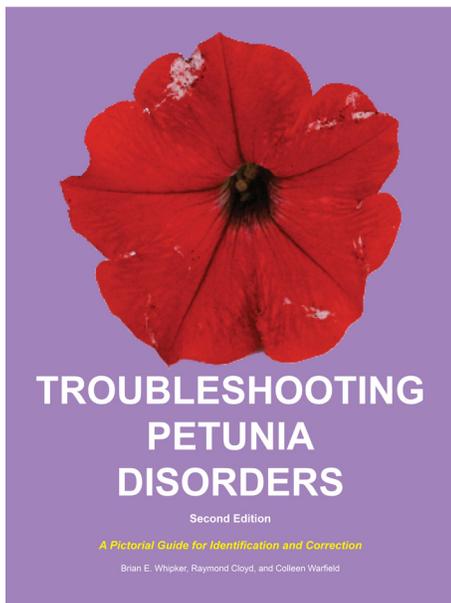


New Petunia Problem Solving Guide Available

Brian Whipker, North Carolina State University
(brian_whipker@ncsu.edu)

A new publication is available to growers to help you problem solve insect, disease, nutritional, and physiological disorders of petunias. *Troubleshooting Petunia Disorders* is a 68-page guide containing a diagnostic key based on where problems occur, over 115 color photographs, and management strategies. The guide was written by floriculture professionals Raymond Cloyd of Kansas State University, Colleen Warfield of Ball Horticulture, and Brian Whipker (brian_whipker@ncsu.edu) of North Carolina State University, who combined have over 50 years of experience diagnosing plant disorders.

The guide is available from a print-on-demand service called Lulu. The price is \$25+ postage. It can be ordered from the following website: <http://www.lulu.com/browse/search.php?fListingClass=0&fSearch=Troubleshooting+Petunia+Disorders+>



Direct Ordering Link with QR Code



Cornell University
Cooperative Extension
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Floriculture

Example Page of the Diagnostic Key

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CONTRIBUTORS

Dr. Nora Catlin
Floriculture Specialist
Cornell Cooperative Extension -
Suffolk County
nora.catlin@cornell.edu

Dr. Brian Krug
Floriculture Ext. Specialist
Univ. New Hampshire
brian.krug@unh.edu

Dr. Roberto Lopez
Floriculture Extension Specialist
& Research
Purdue University
rglopez@purdue.edu

Dr. Brian Whipker
Floriculture Extension & Research
NC State University
brian_whipker@ncsu.edu

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Troubleshooting Petunia Disorders

LEAVES - UPPER PLANT OR NEW SHOOTS

Primary Symptoms	Possible Additional Symptoms	Possible Cause(s)	Treatment	Comments / Confirmation Procedures
Interveinal chlorosis.	With advanced symptoms, the entire leaf can be entirely yellow.	High pH *** [Iron (Fe) deficiency] [page 47]	See Nutritional Management section	Confirm the substrate pH. Problems generally occur with the pH is > 6.4. Target pH is between 5.5 to 6.0.
Yellowing of entire leaves	With advanced symptoms, the entire leaf can be entirely yellow. Some leaves may still exhibit interveinal chlorosis.	High pH *** [Iron (Fe) deficiency] [page 47]	See Nutritional Management section	Confirm the substrate pH. Problems generally occur with the pH is > 6.4. Target pH is between 5.5 to 6.0.
	New leaves and flowers are yellow. Symptoms developed quickly (within a week).	Herbicide Drift * (glyphosate-type herbicide) [page 52]	If symptoms are minor, some plants may grow out of it. Rarely is it economical feasible to wait for severely affected plants to recover.	Look for a pattern in the greenhouse (ie: symptoms appear on benches near the air intake or above areas sprayed for weed control).
Yellow leaf spotting	Occurs during cold growing and overhead watering.	Cold water irrigation induced spotting *	Irrigate later in the morning when temperatures increase, but allow sufficient time of the leaves to dry before nightfall (to avoid Botrytis).	With cold growing [$<50^{\circ}\text{F}$], leaf spotting (burn) may occur during sunny days.
	Visible within a few days of a Chlormequat Chloride application.	Chlormequat Chloride [Chlormequat E-Pro, Citadel, Cycocel] *** [page 54]	Leaf spotting possible with >1000 ppm spray rates.	Phytotoxicity occurs more frequently when plants are under stress (ie: water stress or when temperatures are excessive). Chlormequat applications may be split to help avoid leaf yellowing.
	Visible within a few days of a pesticide application.	Chemical phytotoxicity * [page 54]	Review spray records for possible causes.	Adjust spray rate or avoid the use of this particular chemical on petunias.
Distorted growth	Leaves curled downward. Upon inspection, small, green, pink or red colored insects, 1/8-inches (3 mm) long. White cast skins may also be present. Plant growth may be stunted, and honeydew and black sooty mold may be present.	Aphids *** [page 30]	See Insect/Mite Management section	Can be identified with a 10X hand lens.
	Tap plants over a white board or sheet of paper to check for thrips. Adults are slender, yellow to light brown in color, and about 1/16 (1.5 mm) to 1/8 inches (3 mm) long.	Thrips *** [page 37]	See Insect/Mite Management section	Can be identified with a 10X hand lens.
	Young, tender leaf growth becomes curled, distorted, cupped, or puckered. The leaves appear glossy or silvery, and are harder than normal. Plants may be stunted.	Broad Mites * [page 31]	See Insect/Mite Management section	Inspect the leaves with a 40X to 100X microscope.
	Top leaves thick and brittle and the terminal growth is stalled. Flower petals can be distorted or absent.	Boron (B) Deficiency * [page 45]	See Nutritional Management section	Confirm by testing the nutrient level of the leaves.

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In cooperation with our local and state greenhouse organizations



Example Photograph Page

Troubleshooting Petunia Disorders

TOBACCO MOSAIC VIRUS (TMV)

LEAF SPOTS, MOTTLING. YELLOW/GREEN MOSAIC OR MOTTLING MAY BE ACCOMPANIED BY LEAF DISTORTION. COLOR BREAKING MAY APPEAR ON THE FLOWER PETALS. PLANTS MAY BE STUNTED.

FLOWERS



ENTIRE PLANT

