

Xanthomonas Bacterial Blight of Geranium and Look-A-Likes

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Throughout this spring we've seen a few cases of suspected *Xanthomonas hortorum* pv. *pelargonii* (*Xanthomonas campestris* pv. *pelargonii*) bacterial blight of geraniums. Fortunately the causes of the symptoms were a result of other concerns and we've heard of no reports of *Xanthomonas* bacterial blight of geranium yet this season. This is a good opportunity to review the symptoms of *Xanthomonas* bacterial blight and some of the possible look-a-likes.

Xanthomonas bacterial blight of geraniums causes small and discrete leaf spots, 1/16 to 1/8 inch diameter, that first appear water soaked, then sunken and tan or brown in color. Larger lesions and wedge-shaped yellow or necrotic lesions also develop on leaves. Under the right environmental conditions, leaf wilt and petiole cankers can occur, the growing points can die back, and plants can die. If you see these symptoms, avoid handling the plants and get a confirmation of the diagnosis by a diagnostic lab or commercial test kit.

If *Xanthomonas* blight is confirmed, immediately remove infected plants as well as nearby geranium plants. Step up your sanitation practices: clean up any plant and media debris, do not re-use soil from infected plants, sanitize tools, benches, pots and flats, do not handle healthy plants after handling diseased plants, and do not carryover geraniums at the end of the season. Applications of copper-containing products or *Bacillus subtilis* products can help protect



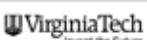
Leaf spots caused by *Xanthomonas* bacterial blight.
Photo courtesy of Margery Daughtrey



Leaf spots and wedge-shaped lesions caused by *Xanthomonas* blight. Photo courtesy of Margery Daughtrey



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e-GRO Alert

Volume 2, Number 21
May 2013

www.e-gro.org

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healthy plants, but will not cure infected plants. As always, make sure to read and follow all label directions, recommendations, and restrictions. Prevent this disease in the future by continuing strict sanitation and purchasing only disease-free material.

Symptoms of foliar yellowing as well as brown and necrotic spots on geranium caused by **two-spotted spider mites** on



Symptoms of Xanthomonas bacterial blight. Photo courtesy of Margery Daughtrey



Marginal leaf spots, a result of two-spotted spider mite infestation. Photo courtesy of Margery Daughtrey



Interveinal yellowing caused by two-spotted spider mite infestation.



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ivy geranium and geranium can be mistaken for symptoms of *Xanthomonas hortorum* pv. *pelargonii* infection. Keep in mind that two-spotted spider mites can also often result in edema-like symptoms on geraniums as reviewed in an e-Gro Alert last season (http://e-gro.org/pdf/E-GRO_Bulletin_1-17.pdf). If you see any of these symptoms make sure to look closely for spider mites, castkins, or webbing.

Botrytis gray mold can also cause round or wedge-shaped leaf spots that appear similar to those caused by bacterial blight. Botrytis lesions are often found where infected flower petals or other plant material has fallen onto the foliage or near wounds or other injured tissue. Botrytis lesions at typically first appear water soaked, then turn brown in color as lesions grow in size; often lesions develop concentric rings giving the appearance of a target. Under humid conditions you should be able to see the telltale gray fuzz of *Botrytis* sporulation.

Some **nutritional imbalances** can also cause symptoms of interveinal chlorosis, leaf edge burn, or leaf spots that can sometimes be mistaken for symptoms of bacterial blight. **Water stress** or other **diseases** such as root, crown or stem rots, Verticillium wilt, and southern wilt (*Ralstonia solanacearum*) can also cause wilt symptoms. Remember that abiotic factors will be more uniform and less random throughout a crop than issues caused by pests or pathogens.



Wedge-shaped lesion showing sporulation of *Botrytis*. Photo courtesy of Margery Daughtrey



Leaf spot caused by *Botrytis*. Photo courtesy of Margery Daughtrey