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Pericallis: Diagnosing Lower Leaf Interveinal Chlorosis and Necrosis

Lower leaf interveinal chlorosis and necrotic spotting on pericallis caused by low potassium (K) levels are diagnosed.

Pericallis is an early spring crop that has increased in popularity over the past few years. In previous e-GRO Alerts, we have highlighted lower leaf chlorosis and necrosis due to low substrate pH problems (Alert 5.18) and leaf mottling due to tomato spotted wilt infection (Alert 8.14). In addition, in e-GRO Nutritional Monitoring series 1.11, overall pH and electrical conductivity disorders were highlighted and guidelines were discussed.



Figure 1. Lower leaf interveinal chlorosis and necrotic spotting scattered across the leaves is a symptom of a potassium deficiency. (Photo: Brian Whipker)

Another production challenge that has been observed is lower leaf interveinal chlorosis and necrotic spotting scattered across the leaves (Figs. 1 and 2). In contrast, low substrate pH symptoms will produce an overall leaf chlorosis and marginal leaf necrosis (Fig. 3).

Leaf tissue analysis was conducted to confirm the diagnosis. Potassium (K) levels were found to be low at 3.26%. In comparison, a controlled research project conducted by Barnes et al. (2015) reported 8.68% K in adequately fertilized plants. This concentration appears elevated and may reflect luxury uptake by pericallis. When pericallis were

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grown without K, plants were sampled when deficiency symptoms were first observed and K concentrations were at 1.10%. The results from this grower crop suggests that a critical K level for flowering pericallis is higher at 3.26% K.

[Note: Another nutrient disorder that develops as interveinal chlorosis of the lower foliage is a magnesium (Mg) deficiency. In this grower sample, Mg was at 0.75%. In comparison, Barnes et al. (2015) reported 0.64% Mg in adequately fertilized plants and 0.15% Mg in deficient plants. This high leaf Mg concentration discounts a Mg deficiency as the problem.]

Management

In e-GRO Nutritional Monitoring series 1.11 a low fertilization rate of 100 to 150 ppm nitrogen (N) is recommended. Pericallis is typically grown with cooler temperatures and this may limit the overall requirements for N. These grower results suggest that K requirements may be higher than N needs. Plants with an extensive stem system typically have a higher requirement for K. This appears to be the case for pericallis. To confirm this observation would require a K rate study to be conducted on pericallis to have actual data. In the mean time, growers may want to provide some periodic supplemental applications of 200 to 300 ppm K to ensure adequate K is available to the plant.

Literature Cited

Barnes, J., B. Whipker, I. McCall, and J. Frantz. 2011. Characterization of nutrient disorders of *Pericallis xhybrida* 'Jester Pure Blue'. *ActaHort.* 891:67-76.



Figure 2. Potassium deficiency on pericallis appears as a lower interveinal chlorosis and necrotic spotting. (Photo: Brian Whipker)



Figure 3. In contrast, low substrate pH induced iron/manganese toxicity results in an overall lower leaf chlorosis and marginal leaf necrosis. (Photo: Brian Whipker)



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