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A Yellow Halo: Low Micronutrients in Poinsettia

Yellow chlorosis on recently matured leaves in the middle of the plant is a common symptom of micronutrient deficiency in poinsettia.

Poinsettias have a long crop time and higher micronutrient needs than many other floriculture crops. According to the [e-GRO nutritional crop factsheet for poinsettia](#), the crop grows best when the substrate has a pH between 5.5 to 6.5 and a PourThru EC value of 2.0 and 4.3 mS/cm. To achieve this, a moderate to high fertility (200-300 ppm N) is typically provided at each irrigation. Because its micronutrient needs are relatively high, deficiencies are common when growing poinsettia.



Figure 1. Yellow interveinal and marginal leaf chlorosis characteristic of micronutrient deficiency in poinsettia. (Photo: Anonymous Grower)

Recently, a grower noticed marginal chlorosis and interveinal chlorosis on their poinsettia crop (Figure 1). The cultivars that were affected were Snowy White, Superba Marble, and Autumn Leaves. They were fertilizing with 16-3-16 Cal-Mag Special (Nutriculture from Plant Marvel) at 175-200 ppm in addition to a molybdenum (Mo) application at 0.1 ppm.

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PARAMETERS	CHEMICAL SYMBOL	RESULT	UNITS	NORMAL RANGE	
Nitrogen	N	4.42	%	4	6
Phosphorus	P	0.40	%	0.2	0.6
Soluble Phosphate	P205	0.91	%	0.46	1.37
Potassium	K	3.25	%	1.5	3.5
Soluble Potash	K20	3.92	%	1.81	4.22
Calcium	Ca	0.76	%	0.7	2
Magnesium	Mg	0.40	%	0.3	1
Sulfur	S	0.19	%	---	---
Soluble Sulfate	SO4	0.57	%	---	---
Iron	Fe	64.20	ppm	100	250
Manganese	Mn	36.51	ppm	60	275
Boron	B	20.48	ppm	30	100
Copper	Cu	4.81	ppm	5	15
Zinc	Zn	29.23	ppm	25	60
Molybdenum	Mo	0.41	ppm	1	5
Sodium (Na)	Na	50.80	ppm	0	5000
Aluminum	Al	8.13	ppm	---	---

Figure 2. Leaf tissue macro- and micronutrient analysis of a chlorotic poinsettia leaf. (Photo: JR Peters Report from Anonymous Grower)

The pH of the crop was towards the upper end of the target range, between 6.3 and 6.4. The grower sent in tissue samples to determine which nutrients were likely causing the deficiency symptoms. The results showed iron (64.20 ppm, normal: 100-250 ppm), manganese (36.51 ppm, normal: 60-275 ppm), and molybdenum (0.41 ppm, normal: 1-5 ppm) were all deficient (Figure 2). Boron and copper were also marginally low. In contrast, all of the macronutrients (such as nitrogen and phosphorus) were in the normal range.

To correct the deficiency, the grower applied 1 oz/100 gallons of molybdenum concentrate (sodium molybdate anhydrous 46%) through flood floor irrigation and a supplemental fertilizer application of Soluble Trace Element Mix (Peters Professional) at a rate of 0.2 ppm (medium continuous rate) to boost the levels of other micronutrients. The grower also switched to a poinsettia 14-3-14 Cal-Mag Special at 180-200 ppm, which has slightly higher concentrations of micronutrients (especially copper and zinc) and a lower percentage of ammoniacal nitrogen. Less ammoniacal nitrogen is typically recommended when growing during cloudy and cool conditions that are common in November in the Midwest.

To read descriptions of all of the common poinsettia nutritional disorders, check out the article from GPN Magazine "[Identifying Poinsettia Nutritional Disorders](#)." For more information on poinsettia fertilization and pH disorders, refer to the [2014 e-GRO alert](#). For recommended procedures to cure an Mo deficiency, refer to e-GRO alert, "[Poinsettia Fertilization: Molybdenum Deficiency](#)" from 2014.

e-GRO Alert

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