

Gerbera Leaf Tissue Nutrient Sufficiency Ranges by Chronological Age

Gerberas for container production are considered moderate feeders. The recommended fertilization concentration for gerbera production is 300 mg·L⁻¹ nitrogen (N) and potassium (K) using a constant liquid fertilizer, geared towards cut gerbera production and growing large sized potted plants. Current recommended leaf tissue concentrations may reflect luxury uptake in excess of what is required for optimal plant growth and do not account for plant age. This research was undertaken to refine optimal tissue levels for potted gerbera over the production cycle.

Using 'Gerbera Festival Light Eye Yellow', upper and lower nutritional limits were established for each element over time by analyzing the plant growth (plant height, diameter, dry weight, and growth index (GI)).

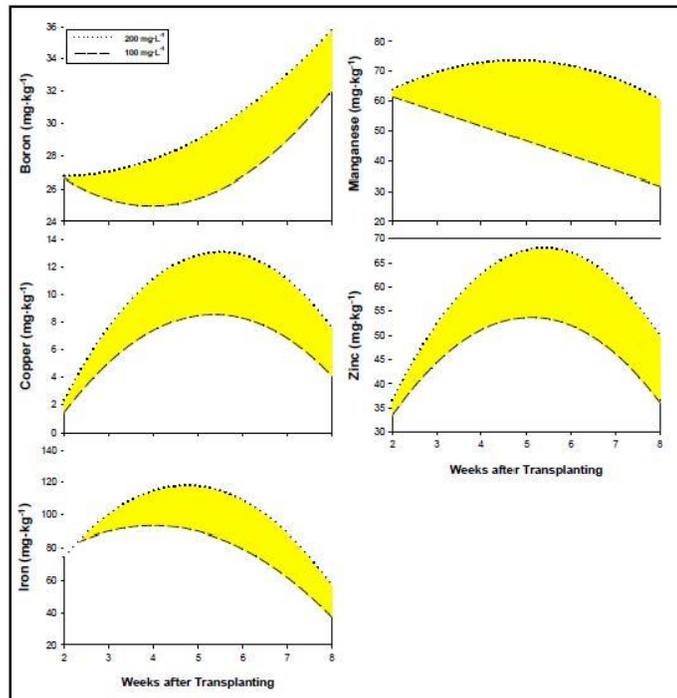


Figure 1. Macro nutrients tissue concentration over time of 'Gerbera Festival Light Eye Yellow' plants grown with 100 and 200 mg·L⁻¹ N.

Table 1. Recommended leaf tissue concentrations for potted and cut gerberas.

Nutrient	Pot gerbera		Cut gerbera		
	Dole and Wilkins	Mills and Jones	Klossowski and Strojny	Valenzuela de Ocampo ¹	
			Deficient	Low to Medium	Excessive
Nitrogen (% N)	2.7-4.1	2.52-4.90	2.7-3.1	1.2-1.5	3.5-6.0
Phosphorus (% P)	0.3-0.7	0.25-0.62	0.19-0.35	0.15-0.2	0.5-0.6
Potassium (% K)	3.1-3.9	3.91-5.00	3.06-3.64	2.0-2.5	4.5-6.0
Calcium (% Ca)	0.4-1.2	1.00-2.10	1.66-2.18	0.7-1.0	3.5-5.0
Magnesium (% Mg)	0.3-2.8	0.24-0.63	0.30-0.48	0.15-0.2	0.7-1.2
Sulfur (% S)	-	-	-	0.16-0.25	0.5-0.7
Boron (mg·kg ⁻¹ B)	19-50	30-40	-	15-20	60-100
Copper (mg·kg ⁻¹ Cu)	2-10	4-13	-	4-6	20-50
Iron (mg·kg ⁻¹ Fe)	60-130	56-112	-	40-50	200-500
Manganese (mg·kg ⁻¹ Mn)	30-760	38-148	-	30-40	250-700
Molybdenum (mg·kg ⁻¹ Mo)	0.2-0.6	-	-	-	-
Zinc (mg·kg ⁻¹ Zn)	19-80	33-52	-	20-25	100-200

The GI was significantly less for plants fertilized at 50, 75, 300, and 400 mg·L⁻¹ N than in plants fertilized with 100 and 200 mg·L⁻¹ N. The sufficient tissue concentration of N, P, K, B, and Cu increased over 8 weeks, while the range for other nutrients decreased over the 8 week experiment (Figure 1 and 2).

The optimal concentration ranges observed were narrower than previously published concentrations for gerberas for container plant production (Table 1). Results will be suitable for interpreting values for other light-leaved colored varieties.

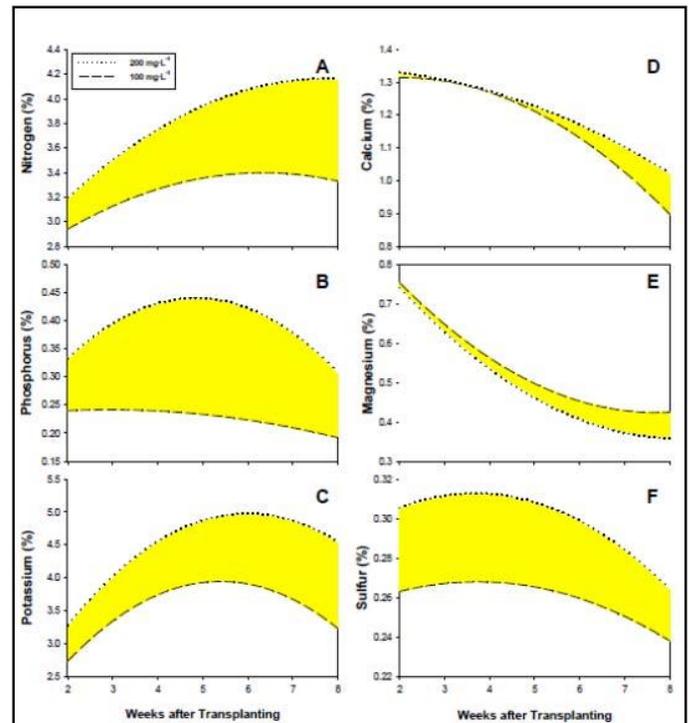


Figure 2. Micro nutrients tissue concentration over time of 'Gerbera Festival Light Eye Yellow' plants grown with 100 and 200 mg·L⁻¹ N.



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