

## CONTROLLED RELEASE FERTILIZERS ON *PEPEROMIA GRISEO-ARGENTEA*

Three-inch plantlets from leaf cuttings were potted into 4-inch plastic pots in a medium of soil-peat-perlite (1:1:1). Three slow release fertilizers were incorporated to provide, 0.25, 0.50, and 1.00 grams of nitrogen per pot. The materials were normal release Osmocote 14-14-14 [abbr. (14)<sub>3</sub>], a slower release Osmocote 13.5-13.5-13.5 [abbr. (13.5)<sub>3</sub>], and Magamp 7-40-6. Five pots comprised an experimental unit with two replications.

Unfortunately, during the first six weeks all treatments, including the control, received liquid feed rather than water. During the second period of four weeks only water was provided.

Data were taken on plant diameter at six and 10 weeks and samples of recently matured leaves were collected after 10 weeks. The summary of the data appears in Table 1.

Osmocote (13.5)<sub>3</sub> gave increasing growth responses as the amount of N provided increased, but there was a decline with increased N for Osmocote (14)<sub>3</sub> during the period when liquid feed was also provided. This may have been due to salt accumulation as the (14)<sub>3</sub> formulation has a faster release than (13.5)<sub>3</sub>; however during the period when water only was given, the plants with (14)<sub>3</sub> yielded a greater growth increment than (13.5)<sub>3</sub>. Increasing amounts of Magamp decreased the amount of growth over both six and 10 weeks; growth was best with only 0.25 g of N provided.

Growth was best with (14)<sub>3</sub> at the two lower N levels in the first six weeks, but there was little difference between the two Osmocote formulations at these levels after 10 weeks. At both the 0.25 and 0.50 rates, the (13.5)<sub>3</sub> plants had a higher N content in the leaves than did (14)<sub>3</sub>, but in both cases N content declined from the 0.25 to the 0.50 rate and increased

Table 1. Growth of *Peperomia griseo-argentea* after 6 and 10 weeks, and leaf concentration of mineral elements after 10 weeks.

Fertilizer Material	Nitrogen grams/pot	Diameter (cm)		Elemental Concn % dry Wt.					ppm	
		6 weeks	10 weeks	N	P	K	Ca	Mg	Mn	Fe
Osmocote 14-14-14	0.25	22.4	24.7	2.15	0.70	0.90	2.63	1.82	147	251
Osmocote 14-14-14	0.50	22.0	24.5	2.01	0.67	1.34	2.33	1.48	199	200
Osmocote 14-14-14	1.00	20.6	26.6	2.97	0.63	1.38	2.22	1.39	377	238
Osmocote 13.5-13.5-13.5	0.25	21.0	24.7	2.65	0.64	0.97	2.55	1.70	140	249
Osmocote 13.5-13.5-13.5	0.50	21.2	24.6	2.45	0.72	1.06	2.43	1.53	184	190
Osmocote 13.5-13.5-13.5	1.00	23.0	28.5	2.85	0.63	1.54	2.63	1.38	384	262
Magamp 7-40-6	0.25	22.0	25.0	2.05	1.01	0.99	2.01	1.74	144	194
Magamp 7-40-6	0.50	21.0	24.3	1.94	1.11	1.54	1.73	1.64	181	197
Magamp 7-40-6	1.00	16.1	19.2	1.75	1.24	2.11	1.77	1.61	185	194
Control		20.5	22.0	1.99	0.68	1.44	2.21	1.51	123	210

again at the 1.00 g rate. At 1.00 g N the (14)<sub>3</sub> was slightly higher than (13.5)<sub>3</sub>. Both Osmocote formulations provided more available N than did Magamp at equivalent N levels. Growth depression with Magamp may well be due to the unbalanced nutrient supply. High phosphorus in all Magamp treatments may have depressed uptake of calcium, magnesium and iron. However, Magamp acidifies also the soil to a greater degree than the Osmocote formulations, and the "pH preference" of the peperomia is known to be somewhat higher than for many other foliage plants.

The plants had all reached a salable size by six weeks, but with the extra fertilizer provided by the liquid feed, the slow release materials may have been superfluous. Superior growth increments of the slow release fertilizer treatments during the last four weeks do suggest that without liquid feed supplement, fertilizers do make a difference.

## Conclusion

For short term growth the Osmocote 14-14-14 formulation was best. The most economic N level was 0.25 g N/pot in the short run and 1.0 g over the longer period. Magamp was not satisfactory for this plant. The slower-releasing formulation of Osmocote is probably more satisfactory for longer term crops.

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