

Evaluation of Petunia Fertilized with Sustâne 4-6-4, Sustâne 8-4-4 and a Mineral Water Soluble 20-10-20

Objective: Evaluate performance of petunia (*Petunia xhybrida* ‘Dream Neon Rose’) when fertilized with Sustâne all-natural fertilizers (4-6-4 and 8-4-4) compared to a water soluble fertilizer (WSF).

Results: Increasing fertilizer application rates of Sustâne 4-6-4 and Sustâne 8-4-4 from 0.75x to 2x resulted in larger plants (Dry Weight), greater plant quality (Quality), and more leaf chlorophyll (SPAD) (Table 1). Flower number increased with increasing fertilizer rate of Sustâne 4-6-4, but not with Sustâne 8-4-4 (Table 1). Plants grown with the 2x rate of Sustâne 4-6-4 and Sustâne 8-4-4 resulted in better performance on all measurements compared to the WSF 20-10-20 at 100 ppm (Table 1).

Table 1. Flower number (Flower #), chlorophyll content (SPAD), quality rating (Quality), and shoot dry weight (g) of petunia fertilized with Sustâne 4-6-4 and Sustâne 8-4-4 at 3 incorporation rates and a water soluble fertilizer.

Fertilizer Treatment		Flower #	SPAD	Quality	Dry Weight (g)
Sustâne 8-4-4	2.0x	17.5ab ^z	49.4a	3.5ab	6.8a
	1.0x	16.7ab	46.6ab	3.1bc	5.3b
	0.75x	13.5bc	42.6bc	2.9bc	4.5c
Sustâne 4-6-4	2.0x	20.5a	37.8c	4.1a	7.2a
	1.0x	11.2c	31.8d	2.6cd	3.6d
	0.75x	10.5c	31.5d	2.1d	2.7e
Water Soluble	100 ppm	11.2c	38.3c	3.2bc	3.7d

^z means within a column followed by different letters are significantly different, according to S-N-K ($\alpha=0.05$)



Figure 1. Petunia fertilized with Sustâne 4-6-4 and Sustâne 8-4-4 at 3 incorporation rates and a water soluble fertilizer (20-10-20). Left to Right: Sustâne 8-4-4 at 2x, 1x, 0.75x; Sustâne 4-6-4 at 2x, 1x, and 0.75x; and WSF at 100 ppm

Material and Methods: The study was performed in the Howlett Hall Greenhouse on the Columbus, Ohio campus of The Ohio State University. Petunia plugs were transplanted into 6.5” diameter plastic containers. The potting substrate was a commercially available soilless mix (70% peat moss : 30% perlite, by vol.) with no nutrient charge. Prior to transplanting, potting mix was amended with either 0.33 lb. N per cubic yard (0.75x), 0.44 lb. N per cubic yard (1x) or 0.88 lb. N per cubic yard (2x), each supplied by Sustâne 4-6-4 and Sustâne 8-4-4. Plants treated with WSF had no nutrients incorporated prior to transplanting and were fertigated with 100 ppm N from a mineral 20-10-20 WSF. Plants were hand watered to maintain adequate soil moisture throughout the experiment. At the conclusion of the experiment plants were assigned a quality rating, foliage was measured for SPAD reading (using Minolta SPAD meter), total number flowers were recorded, and plant shoot dry weight was obtained. A rating between 1 and 5 was assigned to each plant, where 1 indicated lowest quality and 5 indicated the greatest quality; minimum rating of 3 indicated plants of “salable” quality. SPAD readings reported are the mean value of three leaves per plant, arranged throughout the canopy (1 bottom leaf, 1 middle leaf, and 1 top leaf). Flower number was simply totaled per plant. Shoot dry weight was obtained by harvesting all plant material above the soil surface, placing shoots of each plant in a paper bag, and drying to constant weight in a 55 C drying oven. Data were analyzed using ANOVA procedure within Sigmaplot and means were separated using Student-Newman-Keuls test at $\alpha=0.05$ level of significance.