

## USE OF SLOW-RELEASE FERTILIZERS IN BEDDING PLANT PRODUCTION

*Richard A. Ashley*  
*Extension Horticulturist*

Trials were conducted at the University of Connecticut Vegetable Research Farm during 1969 and 1970 to determine effective rates for several slow-release fertilizers when used in bedding plant production. *Petunia* cv. 'Albatros' and marigold cv. 'Petite Yellow' were used to evaluate the various fertilizer treatments in both soilless and soil-based mixes.

In soil-based mixes, MagAmp 7-40-6 produced good growth and flowering at 3 1/2, 7 and 14 lbs. per cubic yard on both marigolds and petunias (Table 1). In both crops, 28 lbs. of MagAmp caused a decrease in growth and flowering. Little difference could be noticed between the 3 1/2, 7 and 14 lb. rates on marigolds but the 3 1/2 lb. rate appeared to be low when intended as the sole nutrient source for petunias. Revised rates of 5, 10 and 15 lbs. per cubic yard were tested on marigolds (Table 2). The 5 lb. rate gave a slightly reduced flowering rate but otherwise there was little difference.

Osmocote 14-14-14 at 3 1/2 lbs. per cubic yard of soil mix resulted in reduced flowering in marigolds. The 7 and 14 lb. rates produced satisfactory flowering but resulted in rather tall plants, particularly at the latter rate. Twenty-eight pounds produced some toxicity in marigolds but was safe on petunias. Revised rates of 5, 10 and 15 lbs. were tested on marigolds. The 5 lb. rate produced excessive vegetative growth and delayed flowering. At the 10 and 15 lb. rates, toxicity occurred resulting in plant stand reduction.

Osmocote 12-0-41 at 3 1/2 and 7 lbs. per cubic yard produced satisfactory growth and flowering of both marigolds and petunias. At higher rates, depression of growth and/or flowering was noted. Superphosphate at 5 lbs. per cubic yard was added to each mix containing Osmocote 12-0-41.

Peters 14-7-7 used in soil-based mixes at 2, 4 and 8 lbs. per cubic yard gave good growth and excellent flowering of marigolds. The 16 lb. rate produced excessive vegetative growth and reduced flowering but no reduction in plant stand. Retrial using 2, 4 and 6 lb. rates produced nearly identical results. Peters 14-7-7 was not tested on petunias in a soil-based mix.

In peat-vermiculite mixes, MagAmp 7-40-6 and Osmocote 14-14-14 were tested at 5, 10 and 15 lbs. per cubic yard and Peters 14-7-7 at 2, 4 and 6 lbs. per cubic yard. Response of marigolds to MagAmp 7-40-6 was very similar to that observed in soil-based mixes (Table 3) as little difference could be observed between rates. With petunias, the 5 and 10 lb. rates produced satisfactory growth while some toxicity was noted at the 15 lb. rate.

Use of Osmocote 14-14-14 resulted in decreasing plant size and flower number in marigolds with increasing rates. Petunias performed very well at all rates producing the maximum number of flowers (14) for the experiment at the 15 lb. per cubic yard rate.

Peters 14-7-7 produced the maximum number of blossoms on marigolds (23) at the 2 lb. rate. Flower production declined as rates increased but at worst equalled the control treatment. Petunias showed a similar but more severe response with both plant size and flower number decreasing with increasing rates.

MagAmp 7-40-6 at 5 or 7 lbs. per cubic yard or Peters 14-7-7 at 2 or 4 lbs. per cubic yard produced good quality marigolds and petunias when used as the sole source of nutrients in either soil-based or soilless mixes. Osmocote 14-14-14 at 7 or 10 lbs. per cubic yard produced good quality petunias but caused occasional injury on marigolds.

In most cases, performance of slow-release fertilizers can be improved by combinations with other fertilizer materials. There will be more on this in the next issue of the Connecticut Greenhouse Newsletter.

Table 1. Evaluation of Several Slow-Release Fertilizers for Production of Bedding Plants in Soil-Based Mixes.

Lbs. Per Cu. Yd. <sub>a</sub>	Marigolds <sup>b</sup>		Petunias <sup>b</sup>	
	Ave. Ht., Inches	No. Blooms	Ave. Ht., Inches	No. Blooms
MagAmp (7-40-6)				
3½	7.3	22	8.7	13
7	7.3	26	9.7	21
14	7.3	21	9.7	17
28	5.3	8	2	0
Osmocote (14-14-14)				
3½	8.0	2	9.3	11
7	8.0	10	9.3	16
14	9.0	17	8.7	6
28	4.0	9	8.7	12
Osmocote (12-0-41)				
3½	8.0	13	7.3	11
7	7.3	17	9.0	11
14	8.7	3	8.0	6
28	6.3	8	7.3	3
Peters (14-7-7)				
2	6.7	22	---	---
4	7.0	24	---	---
8	8.0	20	---	---
16	9.3	7	---	---
LSD 5%	NS	9.5	3.4	9

a. Fertilizer of rate and grade indicated sole source of nutrients except with Osmocote 12-0-41, 5 lbs./cu. yd. of superphosphate (0-20-0) added. Mix consisted of 3 parts composted soil, 1 part peat, 1 part sand, corrected to pH 6.5 by the addition of dolomitic limestone.

b. Crop transplanted 4/27/69, rated 6/14/69.

Table 2. Evaluation of Several Slow-Release Fertilizers for Production of Marigolds in Soil-Based Mixes.

Lbs. Per Cu. Yd. <sup>a</sup>	Marigolds <sup>b</sup>		
	Ave. Ht., Inches	No. of Days to First Bloom	Ave. No. Blooms/Pak
MagAmp (7-40-6)			
5	2.9	48	3.0
10	2.9	44	5.0
15	3.1	44	5.5
Osmocote (14-14-14)			
5	0.8	55+	0
10	1.3	55+	0.2
15	2.4	47	5.5
Peters (14-7-7)			
2	3.1	47	5.3
4	2.9	46	5.5
6	2.9	44	5.3
0-20-0 + 5-10-10 <sup>c</sup>			
4+2	3.2	42	5.9
LSD 5%	0.5	2	0.5

a. Fertilizer of rate and grade indicated sole source of nutrients. Mix consisted of 3 parts composted soil, 1 part peat, 1 part sand, corrected to pH 6.5 by the addition of dolomitic limestone.

b. Crop transplanted 2/18/70, rated 4/4/70.

c. Received supplemental liquid feed weekly.

Table 3. Evaluation of Several Slow-Release Fertilizers for Production of Bedding Plants in Peat-Vermiculite Mixes.

Lbs. Per Cu. Yd. <sup>a</sup>	Marigolds <sup>b</sup>		Petunias <sup>c</sup>	
	Ave. Ht., Inches	No. Blooms	Ave. Ht., Inches	Ave. No. Blooms/Pak
MagAmp (7-40-6)				
5	3.0	18	7	7
10	3.0	12	7	6
15	2.9	15	3	0
Osmocote (14-14-14)				
5	3.3	14	8	9
10	3.0	7	7	12
15	2.5	1	6	14
Peters (14-7-7)				
2	3.2	23	8	6
4	3.8	16	4	2
6	3.3	13	1	0
0-20-0 † 5-10-10 <sup>d</sup>				
5+5	3.3	13	6	0
LSD 5%	0.5	6	2	5

a. Fertilizer of rate and grade indicated sole source of nutrients. Mix consisted of 1 part peat, 1 part vermiculite plus 15 lbs. per cu. yd.

b. Transplanted 11/1/69, rated 1/19/70.

c. Transplanted 2/13/70, rated 5/9/70.

d. Received supplemental liquid feed weekly.