STORAGE OF PEAT-VERMICULITE MIXES CONTAINING SLOW-RELEASE FERTILIZERS

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The possible use of slow-release fertilizer in the production of bedding plants raised the question: "How far in advance can these materials be incorporated into a mix?"

Experiments were conducted at the University of Connecticut Vegetable Research Farm in North Coventry, Connecticut to determine the effect of prolonged storage under varying conditions on performance of three slow-release fertilizers.

A 1:1 mix of peat and vermiculite to which 15 lbs. per cubic yard of ground limestone was added was prepared and air-dried in the greenhouse. On February 2 the mix was divided into three equal volumes and MagAmp 7-40-6 at 15 lbs./cu. yd., Osmocote 14-14-14 at 7.5 lbs./cu. yd. or Peters 14-7-7 at 7.5 lbs./cu. yd. was incorporated into each third.

Each batch of mix was then divided into quarters and placed in large plastic bags for storage. Two bags of each fertilizer treatment were then wetted to approximately 70% of their moisture-holding

capacity. One air-dry and one wet sample of each fertilizer treatment were placed in the greenhouse (62°F) and one was placed in an unheated equipment shed for storage.

On May 4, 1971 the mixes were removed from storage, samples taken for soil testing and tomatoes, marigolds and zinnias direct seeded into paks. The soil test results are shown in the table.

There was no obvious difference in growth of the three indicator crops. No toxicities were observed. This was surprising in view of the normally toxic salts, nitrates, ammonium, and potassium levels reported for the Osmocote treatments. Two possible explanations come to mind:

1. First, the figures appearing on the soil test do not necessarily reflect what is available to the plant but rather are a measure of the total nutrients extracted in the soil testing procedure from the Osmocote pellet. If this were true, then the most meaningful results in this section of the soil report are the decrease in ammonium and the increase in nitrate nitrogen during storage under warm-wet conditions.

2. Secondly, sufficient leaching may have occurred between seeding and germination to reduce apparently toxic levels to tolerable levels.

Storage of peat-vermiculite mixes containing slow-release fertilizers is practical. At this time, it would appear that dry storage, particularly of Osmocote 14-14-14 and possibly of Peters 14-7-7 would be preferable.

Storage of Slow-Release Fertilizers

	Sol. salts	pH (Acidity)	Calcium	Nitrate Nitrogen	Ammonium Nitrogen	Phos-phorus	Potas-sium
MagAmp 7-40-6							
15 lbs./cu. yd.							
Cold-wet storage	40	6.9	55	-2	3	15+	31
Cold-dry storage	40	6.6	50	2	6	15+	31
Warm-wet storage	25	7.1	58	5	3	15+	41
Warm-dry storage	35	6.7	60	3	4	15+	34
Osmocote 14-14-14							
7.5 lbs./cu. yd.							
Cold-wet storage	160	6.2	240+	60	30+	15+	65+
Cold-dry storage	150	6.1	144	60	30+	15+	65+
Warm-wet storage	150	6.3	210	60++	15	15+	65+
Warm-dry storage	160	6.0	100	60	30	15+	65+
Peters 14-7-7							
7.5 lbs./cu. yd.							
Cold-wet storage	40	7.0	124	10	2	15+	28
Cold-dry storage	30	6.5	96	10	2	15+	48
Warm-wet storage	40	7.1	100	2	2	15+	19
Warm-dry storage	30	6.6	46	15	2	15+	37