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EVALUATION OF LOOSE ROCKWOOL AS A GROWING MEDIUM FOR POINSETTIA: COMPARISON WITH PEATLITE AND SOIL MIXES

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Production of poinsettias grown in Hortiwool® (loose rockwool), peatlite medium, and soil mix was compared. Rooted cuttings established in 6 in. pots were grown as pinched plants from October to March with a constant nutrient feeding program. No difference in plant heights, canopy widths, stem diameter, and number of branches was found among the three media tested. However, the soil mix produced greater total leaf area and heavier fresh and dry weights, as compared to peatlite or rockwool. The quality of flowering plants obtained from the three different media was similar. Algae and gnat infestation in rockwool will have to be controlled.

Introduction

We have previously reported results of our experiments with rockwool uses as a growing medium for production of cut flowers (3,4) and pot plants (1,5). Rockwool as an inert medium can be used as a mixture (2) or as a sole source of growing medium when a complete fertilizer feeding system is used (1,5). The objective of this research was to investigate the possibility of using loose rockwool in the production of poinsettia.

Materials and Methods

Growth and flowering of poinsettia in loose rockwool (Hortiwool®, product of Rockwool Industries), peatlite mix (Sunshine No. 2, product of Fisons Western Co.), and Colorado State University soil medium (1 part soil: 2 parts peat: 1 part perlite) were compared. 'Gutbier V-14 Glory' cuttings rooted in Oasis root cubes were planted in 6 in. standard plastic pots on Oct. 10, 1985. After potting, plants were drenched with Banrot and irrigated with tap water as

needed for 8 days. Plants were fertilized with a nutrient solution (Paul Ecke's poinsettia fertilizer plus $MgSO_4 \cdot 7H_2O$ at 1 lb/1000 gal.) as a constant feed, when irrigated as needed, throughout the growing period.

The plants were grown in raised benches in a fiberglass (FRP) covered house, heated to 64°F night and day, and cooled at 75°F during daytime hours. The greenhouse was lighted (10 p.m.-2 a.m.) from the time of plant establishment to Nov. 15, 1985. On Oct. 25, plants were pinched, leaving 4 leaves on the stem. The lateral branches were about 2 in. long by the time natural short days were resumed on Nov. 15. A total of 72 plants (1 plant/pot, 4 pots/medium, 3 media, 6 replications), for the experiment, plus 8 plants (1 plant/pot, 4 pots/row, 2 rows) for buffer rows, were used with complete randomization for treatments and replications. Plants were grown initially on 12 in. centers and finished at a 16 in. spacing. One-half of the plants were harvested on Feb. 2, 1986, for the first growth measurements, and the other half at the end of the study, Mar. 26, 1986.

Results

The establishment of plants grown in rockwool was slow compared to that observed in peatlite and soil mixes. This might have been due to a lower root temperature in rockwool and to the fact that plants were deprived of nutrients more in rockwool than in other media until the fertilizer application started. The plant canopy width, main stem diameter, and number of lateral branches were the same in all

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growing media. The soil medium provided taller plant heights, larger leaf area, and greater fresh and dry weights as compared to the other two growing media, when measurements were taken Feb. 2, 115 days from planting (Table 1). When measurements were taken Mar. 26, 167 days after planting, there were no significant differences in the growth of plants established in the three growing media (Table 1). Generally, the quality of the plants grown in all three media was similar at maturity, and the rockwool medium produced plants aesthetically comparable to those observed in peatlite and soil mixes (Fig. 1).

Discussion

Although plants established in loose rockwool were smaller during the early part of the growing period, their final size and quality were comparable to those obtained in peatlite and soil mix. In this experiment, plants grown in rockwool were irrigated more often than necessary, keeping the root system constantly wet at the early stage of growth. This and the delayed fertilization program may have reduced the early growth of plants in rockwool medium, resulting in the

Table 1: Influence of three different growing media on growth of poinsettia cultivar 'Gutbier V-14 Glory'¹

Growth measurements	Growing media		
	Soil mix	Peatlite	Rockwool
Plant height (cm)			
(Feb. 2)	25.3a ²	24.1ab	22.4b
(Mar. 26)	29.1a	24.9b	27.3ab
Plant width (cm)			
(Feb. 2)	41.1a	39.7a	39.6a
Stem diameter (mm)			
(Feb. 2)	6.7a	6.5a	6.2a
Leaf area (cm ²)			
(Feb. 2)	1232.1a	1083.1ab	971.3b
(Mar. 26)	4556.3a	4345.2ab	4016.8b
No. branches			
(Feb. 2)	4.1a	4.0a	4.0a
Fresh weight (g)			
(Feb. 2)	61.3a	61.3a	45.9b
(Mar. 26)	158.8a	153.5ab	144.2b
Dry weight (g)			
(Feb. 2)	14.5a	12.8a	9.2b
(Mar. 26)	23.0a	21.2a	20.8a

¹Rooted cuttings were planted on Oct. 10, and pinched on Oct. 25, 1985.

²Mean values of 12 plants: Mean comparison in each row, separately, by Duncan's Multiple Range test at the 5% level. Values followed by the same letter are not significantly different from each other.



Fig. 1: 'Gutbier V-14 Glory' poinsettia grown in peatlite mix (1), rockwool (2), and soil medium (3).

lower weight. Since the rockwool growing medium has no nutrient-holding capacity, a fertilizer program must start at the time of first irrigation; however, adequate leaching must occur to prevent the accumulation of salts. Algae growth became evident on the surface of rockwool medium within two or three weeks, and fungus gnats also appeared. Neither condition appeared to affect the health of the plants, but, commercially, customer satisfaction would be reduced. Research is continuing on this aspect, related to rockwool media. In conclusion, the loose rockwool can produce a healthy and acceptable poinsettia crop when a complete fertilizer solution as constant feed is used and the irrigation frequency properly adjusted.

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