POT MUM CONTAINER STUDY

Roy A. Larson and Martin L. McIntyre

Clay pots have been the major containers used for pot plants for many years, and one is seldom anxious to replace a product that has been used successfully for a long period of time. Growers state they have a distinct know-how on the culture of a plant in a clay pot; they can tell when to water; the clay pot is not unduly expensive; it can be sterilized and used again.

There are some distinct advantages in growing plants in clay pots, and some of these were listed above. With these advantages it is conceivable that the clay pot could remain the most popular container for pot plant production. However, a clay pot does have some disadvantages, which every clay pot manufacturer would perhaps admit. A clay pot is heavy, unsightly, and breakable. Algae on a clay pot is a frequent problem. The fact that a clay pot can be used again is no advantage to the grower, once the plant and pot have been sold.

Some new containers have been introduced, which have been designed to overcome the disadvantages of the clay pot. The styrene and hard plastic pots are light in weight, attractive in appearance, and algae does not become a problem. Neither pot is as breakable as a clay pot, but they cannot be termed as "unbreakable". The cost of these pots (6 or 6½" size) is approximately 10 cents apiece, in lots of 1,000, compared to 8 cents for a 6" clay pot. Another new type of container, made of compressed sawdust, sells for approximately 9 cents, when purchased in quantities of 1,000-4,999. The advantages claimed by the manufacturer are: light in weight, high porosity, decreased growth of algae, and durability.

Growers have expressed interest in new containers, but they have also expressed concern about the difficulty of watering plants grown in the new containers. The usual remark is that the soil has been kept too wet, as the grower couldn't tell when to water, and usually erred on the side of over-watering. Fertilizer problems are generally involved with watering problems, so chlorotic plants were occasionally grown. Root rot pathogens presented another hazard in the wet soil.

A study was initiated at State College in March, 1963, to compare the plants grown in clay pots versus those grown in styrene and hard plastic pots. The styrene pots were donated by the Fred C. Gloeckner Company, while Bird and Sons donated the hard plastic 6½" pots. Sawdust pots were obtained too late for this particular study.

Rooted cuttings, of the varieties Yellow Delaware, Warhawk, Queen's Lace, and Bridesmaid, were received from Yoder Brothers, at Barberton, Ohio. The cuttings were received and potted on March 2, 1963. A potting mixture of 1 part soil, 1 part acid peat moss, and 1 part sand was used. Dolomitic limestone and superphosphate were incorporated at the time of potting.

Five cuttings were used per pot, and there were 12 pots of each type, for each variety. The cuttings were pinched March 16, and short days were started on March 23.

The plants were watered throughout the study with a Chapin Watermatics system, and the new Moist Scale was adjusted to allow for 4 ounces of drying between waterings, and a plant in a clay pot was placed on the scale.

The study was concluded on May 27, at which time the final data was recorded. The measurements taken were final height, number of flowers, and weight of containers, plant, and soil.

Results

The final results are presented in Table 1.

Table 1. Effects of containers on 4 pot mum varieties.

Variety	Container	Average plant height in inches [1]	Average number of flowers	Average weight in pounds
Warhawk	Clay	12.9	18.0	8.5
	Plastic	12.4	21.2	6.0
	Styrene	12.9	18.5	5.4
Yellow Delaware	Clay	17.4	17.2	7.2
	Plastic	16.4	21.2	5.7
	Styrene	15.7	17.7	5.0
Bridesmaid	Clay	15.9	28.7	8.0
	Plastic	17.0	27.5	5.9
	Styrene	15.1	24.0	5.0
Queen's Lace	Clay	22.2	25.2	7.7
	Plastic	21.6	25.5	5.5
	Styrene	21.9	23.2	5.0

[1] Plant height measured from pot rim.

Discussion

There were no striking differences in plant height, when containers were compared for each variety. The number of flowers per plant varied, depending on variety and container. All plants would have been considered salable.

Table 1 shows a definite difference in the final weights of the containers, with plant and soil. The clay pot treatments were generally $2\frac{1}{2}$ to 3 pounds heavier than the styrene pot treatments, and $1\frac{1}{2}$ to $2\frac{1}{2}$ pounds heavier than the hard plastic pots. The differences in weight were due to the differences in weight of the container and not plant size, as all plants of a given variety were similar in size, regardless of type of container.

No root rot problems were encountered in any container. All pots received an equal amount of water, with the Chapin system. The soil generally seemed wetter in the styrene and plastic pots than in the clay pots, but the plants never seemed to be adversely affected.

The advantages of the light-weight pots are obvious. A flat containing 6 styrene or hard plastic pots would be 12 to 18 pounds lighter than the same number of clay pots. Long distance hauling could be more feasible with the lighter containers.

This article is not intended to belittle the clay pot. Pot plants have been grown successfully in clay pots for years. Also, the results in this report are from only one study, though previous attempts with the newer pots, with pot mums and poinsettias, had also been very successful, at State College. The grower who is interested in the new pots which are available should try them on a small scale, but give them a fair test when they are used.

It is not recommended that different types of pots be used with the same settings on the Chapin watering system. A grower using the new containers for the first time perhaps should use the conventional hose, and spot water, rather than give all the plants the same amount of water.