

S U M M A R Y

These experiments were carried out at the ornamental area of the Faculty of Agriculture Science at Moshtohor, Helwan University, A.R.E. during 1973 and 1974 seasons.

The aim of this work was to study the response of potted chrysanthemums to different media and water regimes. Also, the studies of the effects of fertilizer requirements, methods of training and number of retained shoots on field growing chrysanthemum were undertaken.

The most important results were :

Pot Experiments :

A. Media experiments :

- 1- The results showed that using medium 3 (1 soil : 1 sand : 1 leaf mold : 1 peat moss) increased the vegetative growth. The plant height, leaf number, leaf area, fresh and dry weights of leaves and stems and the fresh weight of roots per plant increased significantly over the other treatments. In the meantime the produced flowers from this treatment were of good qualities with heavier stems and heads, beside, a longer period of flowering than the other treatments.

- 2- The chemical analysis of medium 3 plants showed higher contents of N, P, K and carbohydrates in both leaves and stems.
- 3- The same medium (3) lowered the pH value to 6.55 which was suitable for the nutrient uptake, growth and flowering of chrysanthemums.
- 4- Medium 2 (1 soil : 1 sand : 1 leaf mold) followed medium 3 in its influence on the growth and flowering and gave satisfactory results. Adding the leaf mold in the mixture improved this medium for chrysanthemum growing.
- 5- Both media 1 (1 soil : 1 sand) and 4 (4 soil : 2 sand : 3 leaf mold) resulted in weak plants with inferior growth and flowering qualities. The plants of medium 4 were too tall and succulent while, increasing sand in the medium (1) slightly hastened flowering.

B. Water regime experiments :

- 1- Watering the chrysanthemum plants every 3 days with 900 ml. significantly increased the vegetative growth expressed as plant height, leaf number, leaf area, fresh and dry weights of leaves and stems and the

fresh weight of root per plant over the other treatments. Besides, its flower weight, diameter and height also showed the similar trends.

- 2- The chemical analysis showed higher contents of N, P, K and carbohydrates in the leaves and stems of the same treatment plants.
- 3- Watering with 600 ml. every 2 days was better for chrysanthemum growing than 300 ml. water every day.
- 4- Water deficiency, i.e. as in the 150 ml. every day resulted in inferior growth and flowering.

C. Media and water regime experiments :

- 1- The best results were obtained from medium 3 when watered every 3 days with 900 ml. In this case the growth and flower quality were the best.
- 2- When the water intervals increased from 1 to 3 days the properties of medium 4 was improved which reflected on suitable vegetative growth and flowering.
- 3- The chemical analysis showed that the highest contents of N, P, K and carbohydrates in the leaves and stems were associated with the vigorous and best flower quality.

- 4- The results stated that there was a definite connection between watering and the constituents of media on the growth and flowering of chrysanthemum plants.

Field Experiments :

A. Fertilizer experiments :

- 1- The vegetative growth and flower measurements increased linearly with the increasing of fertilizer quantities until the medium level.
 - 2- The medium level of fertilization gave the vigorous growth and best flower qualities. The plant height, leaf number, leaf area, fresh and dry weights of leaves and stems and the flower weight increased significantly over the other treatments.
 - 3- The optimum growth and flower yield were associated with the highest percentages of N, P and K in the mature leaves as 3.5 %, 0.196 % and 4.8 % respectively.
 - 4- The high level of fertilization delayed flowering date and decreased the flower quality when compared to the medium level.
 - 5- The unfertilized and low fertilized plants were inferior in growth and flowering when compared to the medium or the high fertilized plants.
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B. Training experiments :

- 1- Comparing the three methods applied for training chrysanthemum plants in the field, the training on wire gave vigorous plants with good flower qualities. This method was suitable for proper distribution of branches permitting adequate light and atmospheric aeration around the plants. It was also easier in the technique and more economical because, wire and supporters could be used satisfactorily for several years. This method also, facilitated the other cultural treatments.
- 2- The results of pinching showed that the plants of 3 shoots produced the earliest and the best flowers. As the number of retained shoots increased to 5 or 7, the leaf number, leaf area fresh and dry weights of leaves and stems increased per plant. In the meantime, the flower measurements decreased and the flowering period was prolonged.

Generally from the results of the present work the recommendation for the vigorous growth and the highest flower quality will be as following :

- 1- Pot chrysanthemums may be satisfactory grown in a mixture of (1 soil : 1 sand : 1 leaf mold : 1 peat moss) with

900 ml. watering every 3 days or in a mixture of (1 soil : 1 sand : 1 leaf mold) with 600 ml. watering every 2 days.

- 2- Field grown chrysanthemum need a medium level of fertilization as (300 kg urea 46 %, 600 kg calcium superphosphate 16 % and 150 kg potassium sulphate 48 %) per feddan under the similar conditions of the experiment.
- 3- The wire method of training is a proper method for the production of cut flower chrysanthemums and 7 shoots on each plant can be retained.