SUMMARY

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The most important genus of the Family Liliaceae for the garden is probably Lilium.

These true Lilies have long been known as "Garden Aristocarts" or Noble plants. They add dignified glory to so many gardens and when they grown in pots or used as cut flowers, the same dignified beauty prevails.

The present work was undertaken at the farm of the Faculty of Agriculture Sciences at Moshtohour, Zagazig University in three successive season 1977/1978, 1978/1979, and 1979/1980.

The present work was conducted to investigate the effect of media, nutrition and growth regulators on propgation and growth of Lilium longiflorum thunb.

The first experiment was a preliminary study to investigate the effects of two different media and nutrition on the growth of the new formed bulblets of Lilium longiflorum Thunb. The first medium (A) consisted of: 1 Sand:: 1 peat moss v/v, whereas the second one was 1 Sand : 1 peat moss: : 1 loam v/v. The bulblets also were subjected

to three different levels of nutrition as S_1 and S_3. On account of the previously obtained results the first medium was excluded and the levels of nutrition were modified to be S_1, S_2, S_3, S_4 and S_5. The new formed bulblets of 1978 were graded and subjected to modified nutrient solution MS_1, MS_2, MS_3. The same practices were repeated in 1979/1980.

The second expreiment was propagation from cuttings by using IAA at 0.00, 100, 150, 20 P.P.m. and IBA at 00.0, 100, 200, 250 P.P.m. Rootone 00.0 and 2000 P.P.m. for both cutting and scales propagation which were pre-treated at different temperatures then treated with the same concentrations of IAA, IBA and Rootone besides wounding treatments.

The third experiment concerned the effects of nutrition on the growth and flowering of the mature bulbs of Lilium longiflourm. Thunb.

The important results can be summerized as follows:

1. The highest nubmer of survived and healthy plants was noticed in medium (B) which consists of 1 Sand : 1 loam : 1 peat moss when supplied with the high level of nutrition. The interactionof M x N was significant.

2. Bulblets grown in medium (B) significantly gave more

number and heavier leaves as compared with medium (A). Also using medium (B) significantly increased the weights of bulblets.

3. The highest percentages of dry matter were those in leaves, flower stalk and flowers of the plants which received the highest level nutrition (S_5). The medium level of nutrition (S_3) gave the highest percentage of dry matter in bulbs.

4. In all different organs nutrition did not affect the percentage of total carbohydrates except with the flowers of S_5 which contained considerably higher percentage as compared with other treatments.

5. The high level of nutrition increased the total carbohydrates and the soluble sugars especially in the flower stalk and bulbs.

6. The percentage of survival cuttings horizontally planted were nearly twice those of the vertical ones.

7. The number of new formed bulblets on a horizontal cutting was many times as much as those carried on a vertical one. The concentration of IAA in this respect was 100 P.P.m.

8. The heaviest weight of new formed bulblets was obtained from horizontal cuttings treated with IAA as 200 P.P.m.

9. IBA had more influence on the development of new bulblets on the vertically planted cuttings. The suitable concentration was 100 and 200 P.P.m.

10. Pre-treatment of cuttings with rootone dust at a concentration of 2000 P.P.m. remarkably increased the percentages of the survival cuttings of both vertical and horizontal planting.

11. Rootone application increased the number of bulblets per cutting, their weights and diameters especially with vertical cutting.

12. Wounding significantly increased the percentage of survival scales, number, weights and diameter of bulblets formed on the scale.

13. Storing the bulbs at 10°C, before wound treatment was effective for better quality of bulbs but, if quantity of bulbs is the aim , storing at room temperature is ideal.

14. For higher production of bulblets, IAA may be applied

as 100 P.P.m. for scales from freshly dug bubls , 150 P.P.m. for scales of bulbs previosuly stored at 10°C. and 200 P.P.m. for those from the 25°C stored bulbs.

15. The treatment of IBA is dependant on the previous storing temperature. For the highest percentage of survival scales, the freshly dug bulbs treated with 200 P.P.m. IBA was the best. The best treatment which increased the number and weight of bulblets were 200 P.P.m. (IBA) applied on scales from freshly dug bubls .

16. Rootone application had slight effect on increasing the percentage of survival scales and had insignificant effect on the nubmer of bulblets fromed on a scale. Also, it decreased the weight and diameter of formed bulblets.

17. Some rootone concentrations showed influence on producing bublets on the scales from bulbs previously stored in cool or high temperatures.

18. Nutrition of flowering size bulbs is extermely impretant if better quality of cut flowers is aimed. The high level of nutrition in most cases significantly increased the total weight of flower stalks, number of leaves and its weight of

flower stalk and its circumfrance and diameter, number of flowers, diameter and weight of mother bulb and number of offsets produced.

19. Chemical analysis showed that nitrogen and phosphorus percentages were increasd in the different organs with increasing level of nutrition especially in flowers.

20. Medium level of nutrition gave the highest percentages of dry matter in bulbs as well as N, P and K percentages in the dry matter.

21. Total soluble suger percentages were high in the leaves of the plants from the medium level of nutrition, whereas, in flower stalk and bulbs the highest percentages of reduced, non-reduced and total soluble sugers were obtained with the plants from the high level of nutrition.

22. It could be recommended to use medium which consisted of 1 sand : 1 peat moss : 1 loam for the growth of bulblets and bulbs of Lilium longiflorum. Thunb.

23. For higher production of bulblets on flower stalk cuttings, IAA applied as 100 and 200 P.P.m. for horizontal planting cuttings and IBA applied as 100 and 200 P.P.m. for

vertical planting cuttings. For both vertical and horizontal planting Rootone at 2000 P.P.m. can be used.

24. For the higher production of bulblets from pre-cooled bulb scalas, wounding can be practiced or IAA must be applied as 150 P.P.m.

25. For the higher production of bulblets from scales of bulbs stored at room temperature, wounding can be practiced or IAA as 200 P.P.m.

26. For scales from freshly dug bulbs, IAA must be applied as 100 P.P.m. or IBA as 200 P.P.m.

27. Nutrition of flowering size bulbs is extermely important if better quality of cut flowers is aimed.