

SUMMARY

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The study was carried out in two consecutive seasons of 1991/1992 < 1992/1993 on one Rose variety namely Mercedes at the Experimental Station of the Faculty of Agricultural at Moshtohor, Zagazig University.

This investigation included two parts, the first part studied the effects of GA₃, kinetin, Paclobutrazol and ethephal. The second part aimed to study the effect of plant density under open land. The most important out look of the present investigation were:

The first part.

- 1- The number of leaves per flower stem was increased significantly by spraying Mercedes rose with kinetin 200 ppm followed by GA₃ 300 ppm or kinetin 100 ppm and at last by paclobutrazol 100 ppm and ethephal 100 ppm.
- 2- Different GA₃, kinetin, paclobutrazol and ethephal treatments resulted in an significant increase of fresh weight of flower stem with leaves. The heaviest weight was obtained when treating plants with 200 or 100 ppm kinetin followed by 300 ppm GA₃ and at last by GA₃, paclobutrazol at 200 ppm and ethephal 100 ppm.
- 3- There was a positive linear correlation between the GA₃, kinetin and paclobutrazol concentration and the dry weight of flower stem with leaves while a negative correlation was occurred with ethephal with winter and spring flush.
- 4- Highest number of flower per plant was increased significantly by application Mercedes rose with paclobutrazol at 200, 100 ppm followed by 200 ppm of kinetin and GA₃ at 300 ppm with winter flush. While kinetin at 200 ppm, Paclobutrazol 200ppm, GA₃ 200ppm and ethephal 100 ppm, respectively with spring flush.
- 5- The addition of GA₃ and kinetin at different concentrations generally resulted in an increase in flower stem especially; with the highest concentration. But the addition of ethephal gave least length as the control plants especially with the high concentration. While the treatments with

paclobutrazol especially at low concentration produced the taller than any other treatments and the control plants in the two flushes.

- 6- Flower stem thickness exceeded as paclobutrazal concentration increased also this increase was pronounced with the highest level of kinetin application, on the other hand the lowest level of ethrel treatment had obvious effect.
- 7- Spraying Mercedes rose with GA₃, kinetin, paclobutrazol and ethrel resulted in an increase in the diameter of the flowers in most cases and in both flushes.
- 8- Heaviest fresh weights of flowers in the winter flush were obtained from treating Mercedes rose with 200 ppm paclobutrazal, 200 ppm kinetin and 300 ppm GA₃, respectively. While the application of 200 ppm ethrel gave the least results in this respect. As for spring flush kinetin 200ppm produced the maximum fresh weight followed by paclobutrazol 200 ppm, kinetin 100 ppm, GA₃ 300 p.p.m and last by ethrel 100 p.p.m.
On the other side the highest concentration of ethrel (200 ppm) reduced the fresh weight of flower in the winter and spring flush.
- 9- The mean dry weight of flowers was increased by GA₃, kinetin, paclobutrazal and ethrel treatments. Heaviest dry weight were produced from spraying plants with 200 ppm/paclobutrazol, 200 ppm kinetin followed by paclobutrazal at 100 ppm, GA₃ 300 ppm kinetin 100 ppm and ethrel 100 ppm, respectively at winter flush. While the treatments by kinetin 200 ppm, paclobutrazal 200 ppm and GA₃ at 300 ppm, respectively, gave the best results with spring flush.
- 10- The nitrogen content was increased in the two seasons especially: with the high concentration of both kinetin and paclobutrazal. While the low concentration of ethrel lead to an increase in the total nitrogen content in opposite of the high concentration.
- 11- Spraying Mercedes rose with GA₃, kinetin, paclobutrazol and ethrel increased the carbohydrate content. Higher value was produced with

200 ppm paclobutrazol followed by ethrel 100 ppm, kinetin 100 and 200 ppm in the first and second seasons.

12- The addition of kinetin at 100 or 200 ppm gave the the maximum value of chlorophyll "A" followed by paclobutrazol 200 ppm and at the last by paclobutrazol at 100 ppm.

13- Most of the applied kinetin and paclobatrazol treatments increased chlorophyll B but ethrel addition decreased it in this respect.

The results of the present research show that in order to get good quality of both flowering and vegetative characters with Mercedes mose, it is advisable to practice the following.

- A- Using Foliar application with GA₃ at 300 ppm was more effective on flowering and growth characters than 200 ppm.
- B- Treating with foliar application of kinetin at 200 ppm that resulted in good quality concerning flowering and vegetative growth.
- C- Using paclobutrazal with the high concentration of 200 ppm gave the best results in improving the flowering qualities such as number and diameter of flowers, fresh and dry weights of flower stem.
- D- Using foliar application with ethrel at low concentration (100 ppm) was more effective on growth and flowering than high concentration (200 ppm).

The second part:

- 1- There was a negative linear correlation between increased plant density per m² and the number of leaves per flower stem. Plant density at 10 or 16 plants/m² produced the maximum number of leaves per flower stem compared than to 20 or 24 plants/m².
- 2- The population of 10 or 16 plants/m² caused in a significant increase in the fresh and dry weight of flower stem with leaves in both flushs.
- 3- Plant density at 20 or 16 plants/m² produced the maximum number of flowers per plant compared with 10 or 24 plants/m².