SUMMARY

This investigation was carried out during the two seasons 1978 and 1979, at the Experimental Station of the Faculty of Agricultural Science at Moshtohor, A.R.E. Three sets of experiments were included in each season. The first experiment concerned studying the effects of mixing sulfur or lime with the soil of the field plots before gladiolus corm or cormels planting. The second one was conducted in clay filled with the previously field treated soil or with natural untreated soil. The soil in pots was either inoculated with *F. oxysporum* f. gladioli or not. Whereas the third was concerned with some chemical changes during the dormancy of post-harvest corms and cormels as affected by storage.

The following results were obtained:

1- Addition of sulfur powder at the rate of 600 gms per plot (1/4000 /feddan) resulted in more survival plants especially when applied 2 months or 10 days before planting. Also, sprouting was better and faster with this treatment.
2- When lime was added at the rate of 400 gm./plot it decreased the number of plants than the control and other treatments. A retarding effect on emergence was also noticed specially when added 10 days before planting.

3- Generally, it could be concluded that the addition of either sulfur powder as 600 gm/plot 2 months before planting or lime as 400 gm/plot 10 days before planting increased the vegetative growth of gladiolus. However, the first treatment is recommended for applying as it gave the best results as regards the healthy survival plants.

4- The shortest period for the first flower opening was noticed with lime treatment when added, either 4 months or ten days before planting and sulphur treatment 400 gm/plot, when added 4 months before planting.

5- As regards obtaining marketable showy flowers it may be advised that lime (400 gm/plot) or sulphur (600 gm/plot) could be added two months before planting. Same trend of results could be noticed as regards corn production.
6- Lime significantly resulted in heavier corms, followed by sulfur at the rate of 600 or 200 gm/plot four months and ten days before planting. Also corms were more flattened with lime as well as the 200/gm sulfur added 2 months before planting.

7- Sulfur added two months before planting at the rate of 600 gm/plot produced the highest number of cormels. On the other hand the least number was noticed with lime especially when added 4 months before planting.

8- Sulfur application was more effective with certain varieties as Jackson Vill Gold and Tec Tedaha.

9- The cultivars under investigation differed in their response to the uptake of the nutrients. N, P, K and Ca were increased in the different plant organs as affected by sulfur application.

10- It could be recommended to use healthy cured corm parts taken from rotted corms especially from those cultivars of highly marketing characteristics and planting them in soil treated with either 400 gm or 600 gm sulfur added 5 months before planting.
11- Vitavax was the best fungicide for obtaining the best healthy survivals of all tested varieties and also corm parts.

12- At 5°C, the pretreatment with lime increased dormancy stage by a week when compared with both the control and sulfur treatments. Whereas with 15 days storage at 25°C both sulfur and lime decreased the period of dormancy by about 2 and 1 week respectively. However, the most noticeable effect was regarded with the corms produced under 600 gms sulfur when stored at 25°C for 30 days.

13- Higher content of reduced sugars was coincided with the critical dates of sprouting.

14- On economic basis the addition of sulfur at the rate of 600 gm, two months before planting could be considered the best treatment for giving more healthy survival plants, corm and cormels production and five days earliness in giving flowers as well as shorting the dormancy period.