V. SUMMERY AND CONCLUSION

The present investigation was conducted during two successive seasons 1988 and 1989 to study the nutritional status, phenologicar phases, yield and fruit quality of Thompson seedless grape vines grown at two different locations in Egypt i.e Samannud at Gharbia Governorate and Aga at Dakhla Governorate.

The vines of two locations were seven years old, trained according to the cane system planted at 2X2 meter between the rows and the vines. The vines in the two vineyards received approximately the same cultural care. In each experimental vineyard 30 healthy vines, uniform as possible in vigor were selected carefully. After the winter pruning had done, 70 buds per vine were left i.e. (5 canes each with 12 buds and 5 renewal spures with 2 buds), were remained per vine. The soil of each vineyard was mechanically and chemically analysed at the three depths i-e. "0-30, 30-60 and 60-90 cm. from the soil surface". The soil of the vineyards classified as lorry soil. The obtained result could be summarized as follows.
a. **leaf blade and petiole, flower, berry and cluster stem mineral composition:**

The nitrogen level in the two locations was within normal range. However vines grown at Aga region showed lower level of leaf blade and petiole N% than those grown at Samannud region. Nitrogen concentrations in leaf blade and petiole was decreased gradually at the growing season advanced. Furthermore petiole N content was obviously lower than leafblade N content in all sampling dates.

The nitrogen level in flowers was significantly higher than those of berries. Also the cluster stems N content was generally higher than those of flowers and berries. Moreover, berries and cluster stems N content was decreased significantly as the growing season advanced:

3- The leaf petiole phosphorus content taken at full-bloom of the two studied locations tended to be at the desired range as reported in California standard. Generally leaf petiole P content was less than leaf blade P content. As in the case of nitrogen the leaf blade and petiole phosphorus content decreased as the growing season advanced.

4- The flowers had more phosphorus content than berries while the flowers and berries P content was highs than cluster stem content. The concentration of phosphorus in flower, berry and
cluster stern was gradually decreased throughout the growing season.

5- The potassium level in the two studied locations was less than optimum range especially in Aga region. The leaf petiole K level, was higher than leaf blade level. Leaf blade and petiole potassium content was gradually decreased as the growing season advanced.

6- The cluster stems potassium content was much higher for several times than flower and berry content. Furthermore the highest level of K percent in the cluster stems collected at ripening stage this may be due to the role of potassium in transporting sugar to berry. Potassium level in flower and berry decreased significantly as the growing season advanced, while the cluster stems content increased throughout the growing season.

7- The calcium level in the two study locations was within normal range. However vines grown at Aga region showed that level blade and petiole Ca% was significantly lower than those grown at Sarnannud region. The leaf petiole Ca content was less than leaf blade content. Furthermore the leaf blade and petiole calcium content was significantly increased as the growing season advanced.

8- The flower calcium percent was significantly higher than those of berry. Moreover the calcium level was Significantly higher in
the immature berries when compared with those of the mature ones. The cluster stems had the lowest Ca-content at full bloom stage while the sample collected at one month from fruit set had the highest level.

9. The leaf petiole magnesium content in the two locations was at the desired level. The leaf petiole Mg content was higher than leaf blade especially in samples collected at pre-bloom and at full bloom. In general the leaf blade and petiole was increased as the growing season advanced.

10. The percentage of magnesium in flower, berry and cluster stems was gradually decreased as the growing season advanced.

11. The leaf blade and petiole sodium content showed that the sodium percentage did not reach to the toxic level. The sodium content of the fruit was generally higher than that of flower in both Samannud and Aga rigons. The cluster stems sodium content was gradually increased throughout the growing season. The differences were not significant.

12. The leaf blade iron content was higher than leaf petiole content. The leaf petiole iron content seemed to be higher than those reported by many investigators. Furthermore the leaf blade and petiole of vines grown at Samannud region tended to be some what higher than those at Aga region. Generally, the leaf blade and petiole iron level decreased as the
The manganese and zinc level in the two location was within the normal range.

The leaf petiole Cu content was less than leaf blade content: Copper concentrations in leaf blade and petiole increased throughout the growing season. The leaf petiole and blade Cu level was within the normal range.

B. Phenological phases and shoot growth:

The obtained results showed that sap movement started on 9 and 13 February for Samannud and Aga regions, respectively. The period from starting sap movement to bud burst was 26 days. Bud burst of the two studied locations started in the first ten days of March. The average period required from bud burst to the bloom was 45 days. The beginning of flowering started in Samannud region on 19th April, while in Aga region on 21st April and extended for two weeks. The period from end of flowering to beginning of ripening extended to 47 and 52 days for vines grown at Samannud and Aga regions respectively. In Samannud vineyard the harvesting began early with 3 days than Aga vineyard. The average period from bud burst to the beginning of harvest were 129, 128 days at Samannud and Aga locations, respectively.
2) The shoot growth rate of the vines grown at Samannud region was higher as compared with those of Aga region. Furthermore the ultimate shoot length was longer at Samannud region than those of Aga region.

Bud fertility, yield and fruit quality

1] The fertility coefficient of buds increased from the basal bud up to 8th bud, then declined to the distal bud of the fruiting cane (12th bud). Furthermore, the highest fertile position at the fruiting cane was the middle part.

The results of two seasons showed that vines under Samannud location induced significantly higher yield over those grown under Aga location. This may be due to the best nutritional status of the vines at Samannud region than at Aga region.

3] The mean cluster weight for vine grown at Samannud region was higher as compared with those at Aga region

4] Likewise the fresh weight of 100 berries was higher for vines grown at Samannud region.

5] The vines at Samannud region in the second season produced berries with highly significant increase in their T.S.S. levels over those of Aga region, while the difference was not significant in the first season.
The sugar percentage of berries for vines grown at Samannud vineyard was significant by higher than those at Aga vineyard.

Finely we can conclude that.

The application of potassium in the fertilization program may prove to be beneficial in Gharbia and Dakhlia Governorate vineyards.