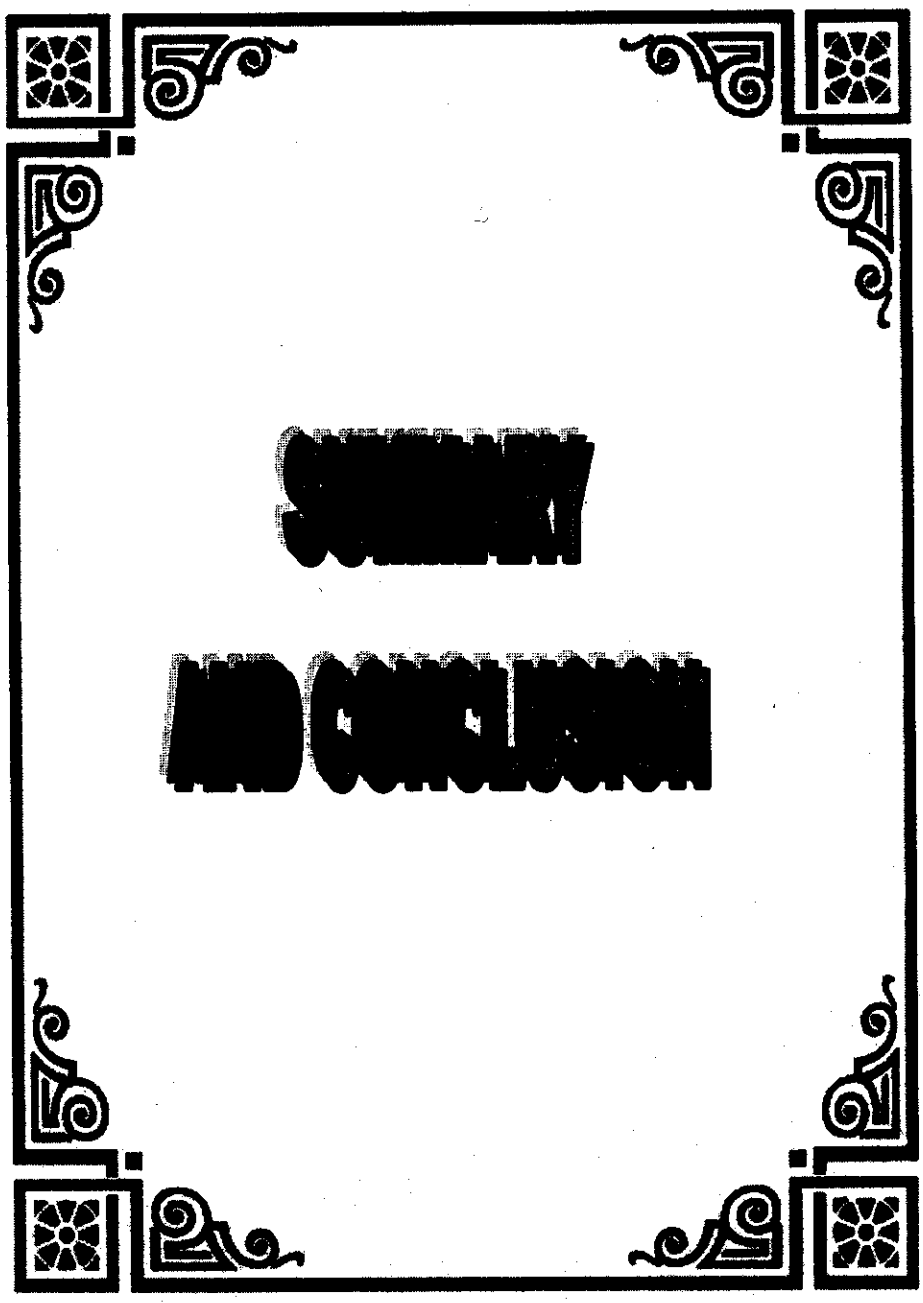

SUMMARY AND CONCLUSION

This study was carried out at the experimental station of Sakha Agricultural Research, Agricultural Research center Egypt during the two growing successive seasons of 2006 and 2007 to study the effect of to foliar application with Potassium, Iron, boron and citric acid on some morphological and physiological characteristics as well as root yield and quality of sugar beet (Beta Vulgaris L.) plants and their relationship to cercospora leaf spot disease in cultivar "Ras poly".Seeds of sugar beet were sown at 22th of September for 2006 and 2007 seasons.

The obtained results could be summarized as follow:

I. Growth:

I.1. Root characteristics:

a) All foliar application with different concentration from potassium, Iron, boron and citric acid caused a significant gradually increase in root characteristics i.e., root diameter, length and fresh weight of sugar beet at 80, 100 and 120 days after sowing during 2006 and 2007 seasons.

b) Moreover, foliar application with potassium at 1000 ppm and boron at 40 ppm gave the highest values at 120 days after sowing during two seasons.

I.2. Root quality:

a) The used of different foliar sprayed treatment improvement the root quality i.e., sucrose %, Juice % and total soluble solid % (T.S.S) of sugar beet. Also,, foliar application with

boron at 40 ppm gave the maximum value during 2006 and 2007 season, in this respect.

I.3. Leaf characteristics:

a) The used of foliar application treatments were significantly increased the all leaf characteristics i.e., leaves number, leaf a real plant, fresh and dry weight (g)/plant of leaves leaf area index and during 2006 and 2007 seasons.

b) Also, potassium at 1000 ppm and boron at 40 ppm were the most effective level regarding the different estimated leaf characteristics.

II. Photosynthetic pigments:

a)Different foliar application treatments increased photosynthetic pigments i.e., chlorophyll a band carotenoids as well during 2007 season.

b) Also, potassium at 1000 ppm and boron at 40 ppm gave the highest values in this respect.

III. Chemical composition:

a) All applied treatments increased minerals (i.e., N, P and K) concentration in root of sugar beet plants at different stages of growth during 2007 season. Compared with the control plants.

b) Also, foliar sprayed with potassium at 1000 ppm gave the highest concentration of minerals compared with other treatments or control plants.

c) Foliar application with different treatment increased N, P, K, Ca, Mg, Fe and B concentration in leaves of sugar beet plant at 80, 100 and 120 days after sowing during 2007 season.

d)Reducing, non-reducing and total sugars also total carbohydrates (mg / g d.w) were increased in leaves of sugar beet with different foliar application treatment during 2007 season.

e) High concentration of total carbohydrates in sugar beet leaves were obtained with boron at 40 ppm at potassium 1000 pm during 2007 season.

IV. Disease severity %:

a) All different applied treatments were decreased disease severity of cercospora leaf spot.

b) The lowest values of disease severity were recorded with potassium at 1000 ppm followed by boron at 40 ppm and citric acid at 500 ppm in both seasons.

V. Root yield and quality:

a) High significant increase in root fresh weight, sucrose %, total soluble solid % and juice purity % of sugar beet plants were existed with different applied treatments during 2006 and 2007 seasons compared with control plants.

b) The highest values of total root yield and quality were obtained with boron at 40 ppm followed by potassium at 1000 during 2006 and 2007 seasons.

CONCLUSION

Finally, it could be noticed that the foliar application with potassium at 1000 ppm and or boron at 40 ppm at 80, 100 and 120 days after sowing of sugar beet plants might considered as the greatest treatments not only root yield and quality but also decreased disease severity of cercospora leaf spot as well.