

## V. SUMMARY AND CONCLUSION

Two separate experiments were carried out at the Experimental Farm of the Faculty of Agriculture, Moshtohor, Zagazig University. The first experiment extended throughout the summer seasons of 1982 and 1983 to elucidate the effect of foliar application of some micronutrients and commercial folifertilizers on the vegetative growth, chemical composition, flowering, yield and fruit quality of tomato cv. Strain B. The second experiment was carried out in the winter seasons of 1981/1982 and 1982/1983 to study the effect of seed sowing and seedling protection methods on germination, growth and quality of tomato transplants.

### First Experiment:

Three commercial folifertilizers each of 3 concentrations; Bayfolan or Irral at 0.1%, 0.2% and 0.4% or Fetrilon-combi at 0.15%, 0.3% and 0.6% and five micronutrients within 2 levels of each as follows; 400 & 800 ppm Fe, 25 & 50 ppm Mn and Zn, Cu or B each at 100 & 200 ppm. These commercial folifertilizers or micronutrients were added as foliar spray on tomato foliage at three times 3, 5 and 7 weeks after transplanting.

### Obtained results were as follows:

1. Spraying tomato plants with either commercial folifertilizers or micronutrients promoted tomato vegetative

growth expressed as plant height, number of shoots and leaves per plant as well as fresh and dry weight per plant compared with control treatment in both growing seasons. The most favourable treatments in this respect were; Bayfolan 0.4%, Irral 0.4%, Fetrilon-combi 0.6%, 400 ppm Fe, 200 ppm Zn, 25 ppm Mn, 200 ppm Cu and 100 ppm B.

2. Most of commercial folifertilizers and micro-nutrients used treatments significantly increased both of chlorophyll-a and b and consequently total chlorophyll as well as carotene content of leaves than in the control ones. Treatments which showed highest values in this respect were Bayfolan 0.2%, Irral 0.2%, Fetrilon-combi 0.6%, 400 ppm Fe, 100 ppm Zn, 25 ppm Mn, 200 ppm Cu or 200 ppm B.

3. Spraying tomato plants with any of used commercial folifertilizers or micronutrients significantly increased N, P and K uptake compared with the unsprayed plants. In this respect the application of Bayfolan 0.4%, Irral 0.2%, Fetrilon-combi 0.6%, 400 ppm Fe, 200 ppm Zn, 25 ppm Mn, 200 ppm Cu or 200 ppm B resulted the highest NPK content of plant foliage.

4. According to flowering time expressed as number of days from sowing to the anthesis of the first flower, spraying plants with commercial folifertilizers or micro-nutrients significantly delayed flowering time in the first

season, while differences were not significant in the second season. Meanwhile, it is obvious that treated plants flowered later than control.

5. Number of flowers per plant was significantly in plants sprayed with Bayfolan at 0.4%, Irral at 0.1%, Fe at 400 ppm, Zn at 200 ppm, Mn at 25 ppm or B at 100 ppm than in those of control ones.

6. All used treatments of commercial folifertilizers and micronutrients enhanced fruit setting percentage. In this respect the best treatments were those of Bayfolan 0.1%, Irral 0.2%, Fetrilon-combi 0.6%, 400 ppm Fe, 200 ppm Zn, 25 ppm Mn and 100 ppm Cu.

7. Average fruit weight was increased as a result of Bayfolan or Irral at 0.4% and 0.1% respectively in the first season and most of used treatments in the second season.

8. Number of fruits per plant, early, marketable and total yield per feddan were significantly in treatments received Bayfolan 0.1%, Irral 0.2%, Fetrilon-combi 0.6%, 400 ppm Fe, 200 ppm Zn, 25 ppm Mn, 100 ppm Cu or 100 ppm B than the control treatment.

9. Treatments showed highest values in fruit length and diameter were 0.1 - 0.2% Bayfolan, 0.2 - 0.4% Irral,

0.6% Fetrilon-combi, 400 ppm Fe, 20 ppm Zn, 25 ppm Mn, 100 ppm Cu and 100 ppm B. Moreover, the maximum values of fruit shape index were found in plants sprayed with 0.4% Bayfolan, 0.4% Irral, 0.6% Fetrilon-combi, 800 ppm Fe, 100 ppm Zn, 25 ppm Mn, 200 ppm Cu or 100 ppm B.

10. Chemical constituents of tomato fruit such as Vitamin C, titratable acidity, total soluble solids, reducing & non-reducing and total sugars were significantly improved in fruits of treated plants than in those of the control ones. In this respect the highest significant increments were observed in case of spraying plants with 0.1% Bayfolan, 0.2% Irral, 0.6% Fetrilon-combi, 400 ppm Fe, 200 ppm Zn, 25 ppm Mn, 100 ppm Cu or 100 ppm B.

#### CONCLUSION:

Finally, spraying tomato plants three times at 3, 5 and 7 weeks after transplanting with Bayfolan at 0.1%, Irral at 0.2%, Fetrilon-combi at 0.6%, Fe at 400 ppm, Zn at 200 ppm, Mn at 25 ppm, Cu at 100 ppm or B at 100 ppm may be recommended for the highest productivity of early, marketable and total yield of tomato fruits with a high nutritional value and good physical characteristics, when plants are grown in the early summer season under such experimental conditions of this work.

### Second Experiment:

In this experiment 12 treatments as the combination of three methods of seedling protection from cold weather conditions (the polyethylene tunnel, the local method by using wind brakes of date palm leaves at north and west directions of nursery beds as commonly followed by the Egyptian farmers or the control without any protection) within four different methods of seed sowing (in polyethylene bags, on ridges, on rows or broadcasting) were applied.

Obtained results could be summarized as follows:

1. Germination percentage was increased and number of days required for germination of the maximum number of seeds was significantly decreased when tomato seeds were broadcasted in beds under polyethylene tunnel compared with other used methods of seed sowing and seedling protection at both growing seasons.
2. The highest significant increments in plant height, stem diameter and number of leaves per plant were obtained by broadcasting seeds in beds under polyethylene tunnel.
3. Sowing tomato seeds as broadcasting in beds under polyethylene tunnel showed the highest values of fresh and dry weight per 100 seedlings compared with the other methods of seed sowing i.e in polyethylene bags, on ridges,

on rows and local method of protection or the out door planting.

Generally, it may be concluded that, it is advisable to grow tomato transplants under polyethylene tunnel and to use the broadcasting methods for seed sowing in order to get well developed tomato transplants with a good quality ready for transplanting in the early summer season.