S U M M A R Y

Two field experiments were carried out during 1981 and 1982 seasons, at the Research and Experimental Station of the Faculty of Agriculture at Moshtohor, Kalubia Governorate to study the effect of planting dates, N levels and suckers on the growth and yield of maize.

Each experiment included 32 treatments, which were the combination of four planting dates, four levels of nitrogen fertilizer and the two treatments pertaining to suckers, i.e, suckers removal and suckers left-in.

Planting dates were: June 1st, June 15th, June 30th and July 15th. Nitrogen levels were: 0, 45, 90 and 135 kg/fad.

A split split-plot design with four replications was used. Planting dates were assigned to the main plots, N levels to the sub-plots and sucker treatments were distributed in the sub-sub plots. The results could be summarized as follows:

A. Effect of planting dates:

1. Planting dates showed significant effects on time of 50% silking in both seasons. Maize plants reached mid silking earlier as planting date was delayed.

2. Planting dates had a significant effect on growth characters of maize plants. Plant height, ear position, stem diameter, number of green leaves/plant and leaf area of the topmost ear were decreased remarkably by delaying the time of planting after the 15th of June.
3. Planting dates showed a significant effect on the percentage of wilted plants in 1981, while in 1982 the effect was not significant. Generally, the percentage of wilted plants tended to increase by delaying planting dates.
4. Percentage of barren plants, number of ears/plant and the percentage of double-eared plants were significantly by planting dates.

   The first planting date (June 1st) gave the highest number of ears/plant and the highest percentage of double-eared plants. While, plants of the latest planting of July, 15 produced a higher percentage of barreness.
5. Planting dates had a significant effect on ear characters in both seasons. Ear length, Ear diameter, ear weight, and weight of kernels/ear tended to decrease remarkably and consistently by delaying the time of planting.

6. Planting dates showed significant effects on weight of 100-kernels and grain yield/plant. Early plantings provided the highest weight of 100 kernels as well as the highest grain yield/plant as compared with the late plantings in both seasons.
7. Planting dates had a significant effect on grain yield and protein yield/fad. in both seasons. Early planting surpassed other planting dates in the amount of grain yield/fad. Grain yields/fad. of 2435, 2256, 1805 and 1658 kg in 1981, and 2601, 2581, 2327 and 2222 kg in 1982 were obtained for June 1st, June 15th, June 30th and July 15th, respectively.

B. Effect of N-levels:

1. Nitrogen showed a significant effect on the time of mid silking in both seasons. The number of days from planting to 50% silking decreased significantly due to the application of nitrogen.
2. Plant height, ear position, stem diameter, number of green leaves/plant and the leaf area of the topmost ear were significantly affected by levels of N. They increased significantly by the application of nitrogen in both seasons.
3. Nitrogen did not show a significant effect on the percentage of wilted maize plants in both seasons.

4. Nitrogen had a significant effect on the percentage of barren plant, number of ears/plant and the percentage of double-eared plants in both seasons. N increased the number of ears/plant as well as the percentage of double-eared plants significantly. Nevertheless, the percentage of barren plants was reduced by the addition of N significantly.

5. Ear characters were significantly affected by nitrogen in both season. Ear length, ear diameter, ear weight and weight of grain/ear increased significantly as N level increased.

6. Nitrogen showed a significant effect on the weight of 100 kernels and grain yield/plant in both seasons. Weight of 100 kernels and grain yield/fad. increased as N level increased.

7. Nitrogen had a significant effect on both grain yield and protein yield/fad. in both seasons. The grain and protein yields of maize increased significantly as N level increased. In 1981 season, the application of 45, 90 and 135 kg N/fad. increased the grain yield of maize over unfertilized treatments by 9, 12 and 17% and by 8, 12 and 15% in the second season, respectively.

C. Effect of suckers:

1. Suckers removal showed a significant effect on the silking date of maize in the first season, while in the second season no significant effect was observed. Suckers increased the number of days from planting to 50% silking.
2. Suckers had a significant effect on growth characters of maize plants. Removing suckers from maize plants induced an increase in plant height, ear position, stem diameter and leaf area of the topmost ear.
3. Suckers had no significant effect on the number of leaves/plant, percentage of wilted plants, percentage of barren plants, number of ears/plant percentage of double-eared plants, ear length, ear diameter, ear weight, weight of grain/ear, weight of 100 kernels, grain yield/plant and yields of grain and protein/fad.

D. Effect of interaction:

1. The interaction of planting dates * N, had a significant effect on silking date in both seasons.
2. The interaction of planting dates * N * suckers, had a significant effect on plant height of maize in 1981, whereas all types of interaction were not significant in 1982.

3. The interaction of N * suckers had a significant effect on ear position in 1981 season only.
4. The interactions of planting dates * suckers, and planting dates * N * suckers had significant effects on stem diameter of maize plants only in one season.
5. The interactions of N * suckers, and, planting dates * N * suckers, affected the number of green leaves/ plant significantly in 1981, while in 1982 these interactions were not significant.
6. The interaction of planting dates * N affected the percentage of barren plants significantly in 1981, while in 1982 this effect was not significant.
7. All types of interaction did not have significant effect on weight of ear and weight of kernels/ear however, planting date * suckers interaction affected both characters significantly.
8. The interaction of planting dates * suckers affected grain yield/plant as well as grain yield/fad. significantly in 1981 season. It is clear that the highest grain yield/fad. was obtained when planting was done in June 1st from plants with removed suckers. Nevertheless, the lowest value was obtained by planting in July 15 and with suckers left-in.

9. Data also showed that tillering of Pioneer 514 was higher at early sowing dates than late one. Moreover, taller and thicker sucker were obtained in early planting dates. Nitrogen increased numbers, height and diameter of suckers.