SUMMARY .

Two field experiments were carried out to study the response of Egyptian clover (Trifolium alexandrinum L.) cultivar Meskawi to some macro-and micronutrients and their application time. These experiments were conducted at the faculty of Agricultural science farm at Moshtohor, Kalubia Governorate, Egypt, during 1977/78 and 1978/79 season.

Experiment I. Three phosphorus fertilizer rates occupied the main plots, Zero, I6 and 32 P_2O_5Kg/Fad. Which were applied at sowing time and 7 micronutrient treatments occupied the sub-plots. The micronutrient treatments were: Zero, 0.002 Boron, 0.004 Boron, 0.002 Zinc, 0.004 Zinc, 0.002 Ferrus and 0.004 Ferrus. The seeds were Soaked in the micronutrient solution about four hours before sowing time.

Experiment 2. Three phosphorus fertilizer rates occumied the main plots, zero, I6 and 32 P_2O_5Kg/Fad. The sub-plots were devoted to the time of application as follows:

I. Application of the whole phosphorus amount before sowing.
2. Application of the whole phosphorus amount before the first irrigation .
3. Application of the whole phosphorus amount before the seoond irrigation.

4. Application of half phosphorus amount before sowing and the rest before the second cutting.
5. Application of half phosphorus amount before sowing and the rest before the third cutting.
6. Application of half phosphorus amount before the second cutting and the rest before the thirs cutting.

The Meskawi (Giza I) variety was used. Seeds were broadcasted in the rate of 25 Kg seeds/Fad. A split-plot design with five replications was used. The resutls were as follows:

I. PLANT HEIGHT

I. The plant height increased by phosphorus fertilizer up to I6 P_2O_5Kg/Fad. , the rate 32 P_2O_5Kg/Fad. gave a slight increase in plant height as compared with the control

2. The Treatment of seeds by B, Zn and Fe resulted in increase the plant height. The treatment 0,002 Zn. gave a maximum plant hight.

3. The Treatment b_1 (addition the whole phosphorus amount before sowing) gave a maximum plant height in the first cutting and the second cutting, as well as the treatment b_5/Application of half phosphorus amount before sowing and the rest before the third cutting)gave a maximum plant height.

4. The treatment 0.002 Zn. with rate I6 P_2O_5Kg/Fad. gave a maximum plant height as compatison with the other treatments .

5. The rate 32 P_2O_5Kg/ Fad. (application of half phosphorus amount before sowing and the rest before the third cutting) gave a maximum plant height.

2. LEAVS/PLANT RATIO

I. The phosphorus fertilizer rate up to I6 P_2O_5Kg/Fad. resulted in increasing the leaves/plant ratio.

2. The treatments of micronutrients under study at concentration of 0.002 resulted in increasing the leaves/plant ration in the 1 st, 2 ndand 3 rd cuttings. The treatments of 0.002 Zn in the first cutting, 0.002 Fe in the second cutting, and 0.002 Fe in third cutting, gave a maximum leaves/plant ratio.

3. The application of 32 P_2O_5Kg/Fad. onee before the second irrigation, gave the highest leaves/plant ratio in the first and second cutting.

4. The interaction between 0.002 Fe and the rate of 32P_2O_5 Kg/Fad. as well as the treatment of 0.002 Zn with the rate of I6 P_2O_5Kg/Fad. gave the highest leaves/plant ratio.

5. Application of I6 P_2O_5Kg/Fad. Once before the second irrigation, gave a maximum leaves/plant ratio.

3. NUMBER OF TILLERS PER PLANT

I. The Number of tillers per plant increased due to the phosphorus rate equal to I6 P_2O_5Kg/ Fad. in the first and seaond cuttings, whereas in the third cutting the 32 P_2O_5Kg/Fad. treatment gave the maximum average.

2. The number of tillers/plant increased due to the micronutrient treatments and the treatment 0.002 Zn gave the maximum number of tillers/plant.

3. The treatment b_1 in the first second cuttings and the treatment b_6 in the third cutting, gave a highest number of tillers/Plant.

4. The addition of 0.004 Zn. With I6 P_2O_5Kg/Fad. gave a maximum number of tillers/Plant.

5. The application of I6 P_2O_5Kg/Fad. (half phosphorus amount before the second cutting and the rest before the third cutting) gave the highest number of tiller/Plant.

4. PLANT WEIGHT

I. The plant weight increased increased when received I6 P_2O_5 Kg/Fad.

2. The treatment of micronutrients resutled in increasing the plant weight the 0.002 Zn treatment gave a highest plant weight in the first and third cuttings, whereas 0.004 Zn treatment gave a highest plant weight in the second cutting.

3. Application the whole amount of phosphorus before sowing gave the highesy plant weight in the first a maximum plant weight in the thirs cutting.

4. The highest plant weight was obtained by applying 0.004 Zn or 0.004 Fe with I6 P_2O_5Kg/Fad.

5. The addition of I6 P_2O_5Kg/Fad. (half phosphorus amount before the secnon cutting and the rest before the cutting) gave the maximum plant weight.

5. FRESH YIELD

I. The fresh yield increased when received the phosphorus fertilizer rate equal to I6 P_2O_5kg/Fad. in the first, second and third cutting.

2. The fresh yield of every cutting and the total fresh yield of the three cuttings increased due to the application of the micronutrients under study. The fresh yield reached it is maximum when received 0.004 Zn in the first cutting or 0.002 Zn in the second and third cuttings.

3. The treatment b_1 (application the whole phosphorus amount before sowing) gave the highest yield in the first and second cuttings, whereas the treatment b_6 (application half phosphorus amount before the second cutting and the rest before the third cutting) gave the highest yield in the third cutting. The treatment B_5 (application of half phosphorus amount before sowing and the rest before the third cutting) gave the maximum total fresh yield.

4. The treatment of 0.004 Zn with I6 P_2O_5Kg/Fad. gave the highest yield as comparison with the other interactions.

5. The maximum fresh yield was obtained when received I6 P_2O_5Kg/Fad. (application of half phosphorus amount before sowing and the rest before the third cutting.).

6. DRY YIELD

I. The dry yield increased by applying I6 P_2O_5Kg/Fad. in the three cuttings.

2. The dry yield increased in the three cuttings, whereas the total dry yield not affected due to the micronutrient treatments.

3. No significant differences was obtained for the dry yield due to the phosphorus appkication time.

4. The highest dry yield resulted from 0.004 Fe and 0.004 Zn with the addition of I6 P_2O_5Kg/Fad, whereas the 0.002 Fe treatment gave the same trend with 32 P_2O_5Kg/Fad,

5. The rate of 32 P_2O_5Kg/Fad. gave the maximum dry yield when applied once before sowing time.

7. CHEMICAL ANALYSIS

PROTEIN CONTENT:

1. The protein content increased when received I6 P_2O_5Kg/Fad. Treatments.

2. The micronutrient lead to increase the protien content over the control treatment, the highest protien content was obtained when received 0.004 Zn.

3. The treatment of 0.004 Zn with I6 P_2O_5kg/Fad. gave the maximum protien content.

PHOSPHORUS CONTENT:

1. The phosphorus content increased with I6 P_3O_5Kg/Fad. treatment.

2. The phosphorus content, reached it is maximum when received 0.004 Fe. treatment in cutting I, and 0.004 B in cutting 2 whereas 0.002 B gave the same trend in cutting 3.

3. The treatment 0.002 B with I6 P_2O_5Kg/Fad. gave the maximum phosphorus content.

ASH CONTENT :

I. The ash content increased in the first and second cuttings by phosphorus fertilizer rate up to 32 P_2O_5Kg/Fad.

2. The treatments of micronutrients lead to increase the ash content by as comparison with the control treatment. The highest ash content resulted from the treatment 0.004 Zn. in cutting I and 0.004 Fe. in cutting 2, whereas 0.002 Fe. treatment in cutting 3.

3. The treatment 0.002 Fe. with I6 P_2O_5Kg/Fad. gave a maximum ash content.

FIBER CONTENT:

I. The fiber content increased by phosphorus fertilizer rate up to 32 P_2O_5Kg/Fad. in the first, second and third cuttings.

2. The differences between the averages of fiber content was not significant.

3. No significant difference between the averages of fiber content was obtained due to the interaction between phosphorus fertilizer rates and micronutrients.