SUMMARY

5- SUMMARY

Three pot experiments were conducted using samples from Moshtohor (clay-textured soil) and Meet-Kinana (sandy loam) to evaluate the influence of some factors that affect the P availability to growing plants.

The first experiment, was concerned with the effect of nitrogen form, ammonium ($(NH_4)_2SO_4$), nitrate (KNO_3) and amide-N (urea) in presence or absence of nitrification inhibitor (N-serve) on the availability of both native and applied P.

The obtained results from this experiment could be summarized as follows:

1) The different N sources ($(NH_4)_2SO_4$, KNO_3 and urea) applied at a rate of 50 Kg N/fed. significantly enhanced P uptake by soybean plants in both soils,Moshtohor and Meet-Kinana soil, either in presence or absence of nitrification inhibitors (N-serve).

2) P-uptake by soybean plants in Moshtohor soil, was promoted by N-application in the order; ammonium or urea > nitrate, however, in Meet-Kinana soil this arrangement was urea > ammonium > nitrate.

3) Considerable differences in P uptake by soybean plants between Moshtohor (the heavy-textured soil) and Meet-Kinana (sandy loam) soils were observed.

4) Application of N serve in combination with $(NH_4)_2SO_4$ to Moshtohor soil or with urea to that of Meet-Kinana yielded the highest significant increase in P uptake

5) The highest enhansing effect on P uptake was yielded from Moshtohor soil with the application of $(NH_4)_2SO_4$, in presence of N-serve. However, the lowest P uptake was recorded from Meet-Kinana soil with unfertilized treatment (t_o) in absence of N-serve.

The second experiment was conducted to evaluate the combined effects of soil moisture content, 55, 70, 85 and 100% MAM, and rate of N fertilization 0, 25, 50 and 75 Kg N/fed. as $(NH_4)_2SO_4$ on P availability and uptake by barley plants.

The data obtained from this experiment could be summarized in the following:

1) Increasing the soil moisture content, significantly increased the P uptake by barley plants in the two soils investigated.

2) Significant increases in P uptake by barley plants were observed by increasing the rate of added nitrogen in

both Moshtohor and Meet-Kinana soils.

3) The highest effect of soil moisture content was fulfilled with the third level of soil moisture (85% of MAM) in Moshtohor soil, but higher moisture supplementals up to 100% of MAM was essential in case of the light textured soil of Meet-Kinana to achieve such effect.

4) The highest P uptake of barley plants was recorded in Moshtohor soil, resulted from the combined treatment M_3N_3, but the highest P uptake was observed in Meet-Kinana soil from the combined treatment M_4N_3.

5) The P uptake by barley plants was higher in the soil of Moshtohor (clay) as compared to that of soil Meet-Kinana (sandy loam), the differences between the two soils under investigation were highly significant.

The third experiment, was conducted to study the effect of some different organic residues namely; clover, corn stalks, wheat straw, rice straw, and poultry manure, on P availability and uptake by soybean plants at different growth periods.

Data obtained generally indicate that, addition of organic residues to both soils positively affected the

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