

DETERMINING THE RELATIONSHIP BETWEEN SOIL TEST OF THE
PHYSIOLOGICAL UNITS AT AL-WAHDA PROJECT OF THE NPK AND
THE EXTENT OF THE RESPONSE OF BARLEY CROP TO FERTILIZATION.

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Abstract

This study has been conducted to evaluate the fertility status of common soil series within diagnosed physiographical units in the Al-Wahda agricultural project, depending on chemical and biological methods by estimating soil content of Macro nutrients NPK, then to find the relationship between soil NPK content and plant response of the barely crop(244 local forage) to NPK, The physiographical and topographical maps of the project have been analyzed, and according to their results five pedions locations were selected which represent the physiographical units in the project its irrigation levee Soils, Crevasse Soils, River basin Soils, Basin depression Soils and Depression Soils) symbolized by S1, S2, S3, S4 and S5 respectively, and fertilizing with NPK elements at level 150, 100 and 100 kg.ha-1 N , P 2 O 5 and K 2 O respectively. Some plant growth parameters were studied to find out the effect of the study factors. The results of study showed there was a significant effect of soil type on plant height and dry weight of the plant. The increase in dry weight average of the soil was according to the following sequence: S1> S2> S3> S4> S5. Fertilizer treatments recorded significant effects on both

growth indexes showed the following sequence: NPK> NP> NK> N> P> PK> K. This was reflected in the total uptake of these nutrients in the same sequence above for the effect of fertilization. The Critical concentration for total nitrogen showed the soil S5 which represents the depression physiographic unit had the highest response to nitrogen fertilizer, while the soils S2, S3 and S4 were moderate response soils, while the S1 soil showed a low response to nitrogen fertilizer. As phosphorous the critical level for the available formula in the soil was 11.0mg P.kg-1 and plant response for this nutrient fertilizer was the highest at S5, while the soils S3 and S4 showed moderate responses, while the two soils S1 and S2 were within the low response class for fertilization with this nutrient. As for potassium nutrient, its critical level in the project's soils was 200mg K.kg-1, and the soil S5 showed low response to the addition potassium fertilizer, while the soil S2, S3 and S4 were within moderate response classes, while soil S1 was within the high response class to the addition of potassium fertilizer.

Key words: Alluvial soils, physiological units, Al-Wahda agricultural project, critical level of NPK elements.

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