Abstract

IMPROVING THE EFFICIENCY OF POTASSIUM FERTILIZATION IN SOME EGYPTIAN SOILS.

Purpose:

This work aims to study some different methods that can be used to improve the efficiency of potassium fertilization in sandy and clay soils of Egypt. Three sources of potassium fertilizers (i.e. mineral-K, Feldspar-K and compost rich in-K) were added as single, dual or in a combine form as well as inoculation seeds of faba bean with or without potassium dissolving bacteria, represent the different suggested ways in this study.

Material and Methods :

This work included three main factors. Three experimental factors were inoculation with/ or without K-dissolved bacteria ***Bacillus circulans*** (KDB), treatments of potassium fertilizer types (seven treatments as well as control) and the rates of their application (three rates). All pots received the basic doses of N & P mineral fertilizers. Potassium fertilizer types were added as 50%,75% and 100% of the recommended dose (R D). Seeds of broad bean plants ***(Vicia Faba. L)***, cv.Giza 843 variety, used in this study as indicator plant.

Results:

The obtained results could be summarized as follows:-

** Inoculation with ***Bacillus circulans*** recorded, in the two soils, higher straw, seeds and biological yields as well as higher nutrients uptake than the non- inoculation treatments.

Increasing rate of any form of K- fertilizer increased the yields of faba bean and nutrients content of straw and seeds comparing with the control treatment.

Generally, the profitable treatments were those treated with Mineral-k, feldspar-K or mixture between them at high rate of fertilization under inoculation with ***Bacillus circulans.***

The economic ability of the experimental treatments, through calculation of the differences between costs of production (L.E/fed) and incomes profits (L.E/fed) to obtain the net gain or return (L.E/fed) treatments, to choose the best treatments which gave the highest financial return (L.E/fed).

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