PHYSIOLOGICAL STUDIES ON THE GROWTH AND PRODUCTIVITY OF COMMON BEAN

By

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Abstract

Two field experiments were carried out on common bean (*Phaseolus vulgaris L.*) at the Experimental Farm of Faculty of Agriculture, Moshtohor, Zagazig University (Benha Branch) during the summer seasons of 2001 and 2002.

The first experiment dealt with the effect of organic manure "biogas manure", bio-fertilizers "Rhizobacterin and Phosphorine" and mineral fertilizers 50 or 100 % of the recommended dose (40 kg N + 48 kg P_2O_5 + 48 kg K_2O/fed.) with Bronco cultivar as well as the criteria of nodules formation which was done in pot experiment. Results showed that the most favorable treatment was that fertilized with biogas manure (20 Kg N/fed.) +Rhiz. + Phos. +half of the recommended dose of mineral fertilizers (20 Kg N+24 Kg P_2O_5+ 24 Kg K_2O / fed.) which gave the highest vegetative growth and green pods yield with best quality in both seasons. Meanwhile, biogas manure (20Kg N/ fed.) + Rhiz. + Phos. gave the highest values for nodule number and nodules dry weight in the second season.

The second experiment studied the response of two common bean cultivars i.e., Bronco and Paulista to phosphorus fertilization with super- phosphate, Phosphorine and vesicular arbuscular mycorrhizal (VAM) fungi. Results showed that plants which received Phosphorine at 1 kg + 48 kg P_2O_5 / fed . gave the best vegetative growth and the highest green pods yield with best quality to both cultivars . Otherwise, the cv. Bronco surpassed on Paulista in this concern.

Key words:

Common bean, cv. Bronco, cv. Paulista, NPK mineral fertilizers, Biogas manure, Rhizobacterin, Phosphorine, Mycorrhiza, Common bean productivity and quality.

CONTENTS