

**NITROGEN CONTENT AND YIELD OF WHEAT
PLANT GROWN ON SANDY SOIL UNDER THE
EFFECT OF ORGANIC AND BIO
FERTILIZERS ADDITION**

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ABSTRACT: In Egypt, there is a great gap between consumption and production of wheat. Many efforts have been made to cross this gap within adequate and balanced nutrition in newly reclaimed soils.

Organic fertilizers: farmyard manure "FYM", chicken manure "ChM" and plant residues "PR" were applied. Organic fertilizers were applied at the levels of 30 and 60 kg N fed⁻¹. Bio-fertilizers: Azotien, Phosphatine and Effective Microorganisms (EM) were applied. Mineral fertilizers: the recommended dose of phosphorus and potassium was added hence, the phosphorus was added as ordinary super phosphate (6.5 % P) at the rate of 15 kg P fed⁻¹, while potassium was added as potassium sulphate (41 % K) at the rate of 30 kg K fed⁻¹ in tow equal doses. Nitrogen was added as ammonium sulphate ("AS" 20.6 % N) at the rate of 60, 90 and 120 kg N fed⁻¹ respectively, in three equal doses.

A field experiment was conducted at Abou-Hammad town, Sharkia governorate, Egypt using wheat (*Triticum aestivum* c.v., Sakha 94) during the winter season of 2006 – 2007. This investigation aims to study the effect of organic and bio fertilization on plant growth, N uptake, grain yield and its quality. All treatments of mineral, organic and bio fertilizers in the current study were arranged in a split – plots design with three replicates.

Plant samples were collected at three different growth stages, i.e., 60, 90 and 150 days from sowing, corresponding to shooting stage, flowering stage, and harvest stage respectively. Plant samples were dried at 70 °C till constant weight and wet digested using a mixture of HClO₄ and H₂SO₄ for determining N uptake. Plant growth, grains yield, N uptake and its quality were measured.

The obtained results can be summarized as following:

1. The addition of organic fertilizers significantly increased the dry matter content and grains yield; while the straw yield was decreased. The differences between the different sources of organic fertilizers were significant.
2. The addition of organic fertilizers significantly increased N uptake.
3. The addition of bio-fertilizers significantly increased the dry matter content and both of grains and straw yields. The differences between the different sources of bio fertilizers were significant.
4. The addition of bio fertilizers significantly increased N uptake at all stages; while the differences between the different sources of bio fertilizers were significant.
5. Interaction effect between organic and bio fertilization showed positive effect on dry matter content and yield of wheat.
6. Regarding to the interaction effect between the organic and biofertilizers on N uptake, the data showed that the interaction was significant.

Key words: Bio-fertilizers, mineral fertilizers, organic manures, nutrients uptake, interaction effect