

## **EFFECT OF PRECISION LAND LEVELING, PLANTING METHOD AND BIOFERTILIZER APPLICATION ON RICE GRAIN YIELD IN SANDY SOILS**

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### **ABSTRACT**

This study was carried out at Kaibsho Region, El-Dakhlia Governorate, during 2006 summer season to find out the effect of precision land leveling and planting method on rice grain yield under biofertilizer application in the sandy soils. The experiment was established and designed statistically as a split split plots with three replicates. The main plots were located for the precision land leveling treatment levels of 0, 0.01, 0.02 and 0.03% slope, comparing with the traditional leveling, the sub plots were devoted for the rice planting methods of manual broadcasting, manual transplanting and mechanical drilling and the sub sub plots were involved the biofertilizer treatment using the Blue green Algae, comparing with the bereaved of biofertilizer.

**The obtained results could be summarized as follows:**

1. The laser control equipment achieved the higher field capacity of 30.45 m<sup>3</sup>/h at 2.65 km/h forward speed and 0.03% leveling slope, while, the traditional scraper achieved the higher field capacity of 17.68 m<sup>3</sup>/h at 2.56 km/h forward speed.
2. Applying the precision land leveling under the biofertilization conditions achieve lower values of soil bulk density and soil penetration resistance than the traditional leveling by about 7 and 2 %, respectively.
3. Applying the precision land leveling under the biofertilization conditions achieved higher concentration of the available soil N, P and K than the traditional leveling by about 6, 20 and 8%, respectively.
4. Applying the precision land leveling of 0.02% slope and adobting the mechanical drilling under the biofertilization conditions achieved the higher rice grain yield of 4.18 ton/fed.

Finally, it is recommended to apply the precision land leveling and adobt the mechanical drilling under the biofertilization conditions to achieve higher rice grain yield in the sandy soils.

### **INTRODUCTION**

Rice is considered as the staple food for the largest number of the Egyptian people. Increasing the rice production is an important target for facing the tremendous need for more food due to the Egyptian population pressure. On the other hand, the agricultural policy has adopted a strategy for future planning based upon some factors. One of them is rationalization of water use. This could be done through reducing the cultivated area with higher irrigation water demand crops such as rice. So, the agricultural policy has looked for increasing the rice production in both the horizontal and the vertical expansionism. Meanwhile, a long-term plan is being implemented at present to increase the cultivated area. About 2.38 million feddans of sandy desert soil close to Nile Delta and Nile Valley could be added to the cultivated area (Khader *et al.*, 2004). Rice unlike other cereals, has a remarkable adaptation to a wide range of hydrological conditions. It is the most common crop in the newly reclaimed soils where the high salinity prevents the