1. INTRODUCTION

Strawberry is one of the most important vegetable crops in Egypt for its fresh consumption, processing and exportation. Its total area was increased and reached about 5880 feddan (fed.) for frigo production with an average yield of 15t/ fed., and about 4196 fed for fresh production with an average yield of 22t/fed. according to the statistics of Ministry of Agriculture in 2007/2008 season. Its production and quality depends on the presence of adequate levels of NPK in the soil. Such plant is sensitive to nutritional balance **(Albregts and Howard, 1985)** due to its shallow roots, high productivity and its long season. The response of strawberry to NPK nutrition is still a matter of question due to variations in climate, soil and cultural practices **(John *et al.*, 1976)**. The positive relationship between fertilizers and fruit yield and its quality was stated **(Lieten, 1996, Mohamed and Gabr, 2002).**

Nitrogen fertilizers play a great role in strawberry production. **Pinamonti *et al.* (1997)** pointed out the important role of compost as soil amendment, improving plant nutrition and enhancing plant growth. **Wang and Lin (2002)** reported the better effect of using combinations from mineral and organic fertilizers together than if each was used alone. The rate of nitrogen application/fed. for strawberry production differed between the different studies according to the source of nitrogen fertilizer, organic or mineral **(Mohamed and El-Miniawy, 2001,**

Arancon *et al.* 2003, El-Araby *et al.* 2003, Gaur and Gangwar, 2003 and El-Sayed, 2004).

The natural anti-disease substances began to flourish as it is safe for vegetable consumers. Moreover, it reduces plant diseases and pollution beside its positive effect on vegetative growth, yield and fruit quality. The positive response of such materials was indicated **(Shafshak *et al.* 2004, Zavala *et al.* 2004, Fathy and Khedr, 2005, Lu and Chen, 2005, Jayakumar *et al.* 2006 and Babalar, *et al.* 2007** all working on salicylic acid; **El-Emary, 1993, Abou-Hadid *et al.* 1998, Shafashak *et al.* 2004** all working on garlic extract; **Farid *et al.* 2000b, El-Shafie, 2003,** working on plant guard).

The present study aimed to investigate the effect of applying organic and mineral-N fertilization alone or in combination along with salicylic acid, plant guard or garlic extract sprays on strawberry plant growth, fruit yield and quality as well as its storability under cold storage conditions.