INTRODUCTION

Barley (*Hordeum vulgare L.*) is grown extensively in t he Northwestern Coast region (NWC) and the Northeastern Coast region (NEC) of Egypt. The rainfall in either (NWC) or (NEC) fluctuates in amount and distribution from one season to another. Also, the amount of rainfall differes from one location to another in each district.

According to the lastest estimation, the area cropped to barley in 1991 season was in the vicinity of 350-400 thousands feddans in rainfed areas (North Coast) compared with 150 thousands feddans in the old and new reclaimed lands.** This in part could be responsible of the low productivity of the crop (2.16 Ardeb/fed.)** when compared with the productivity of the same barley varieties grown in the Nile valley (12.48 Ardab/fed.)**

Therefore, the need for setting fertilization recommendations for barley grown in rainfed areas is indespensible. Also, the search for the appropriate variety to be grown under such conditions is an important prerequisite.

** Reports of Barley Research Department, Field Crops Res. Institute, ARC.

Therefore, the importance of this work stems out from the major following reasons :

1- North Coast region (NC) is more suitable for barley than other cereal crops because the water requirements for production of a unit weight of grains is less than other cereals (Carleton 1916) and these huge areas badly needed to improvement.

2- Research on barley fertilization and varietal differential response are very scant under the rain-fed conditions of (NC) of Egypt.

3- Though research work on barley elsewhere under semiarid conditions is available yet, the complexity of the environment, soil classification and diversity, and variability of climatic conditions make it difficult to readily apply all recommendations in (NC) of Egypt.

Therefore, the objectives of this work could be summarized in the main following points :

I. To set fertilization recommendation for barley grown under rainfall in the (NC) areas of Egypt.

II. To evaluate the recommended barley cultivars for rainfed under fertilization treatments studied.