1- INTRODUCTION

Citrus occupies an important share in the total fruit production in the world, which ranked 2\textsuperscript{nd} after grape in this regard. However, in Egypt it is ranking first, where the total area of fruit orchards amounted to 1207688 Feddans in 2006* from which the cultivated area of citrus orchards reached 382027 Feddans that represented about 31.63 %. The total fruiting citrus orchards (341718 Feddans) are representative of approximately 90 % (exactly 89.45 %) of the total cultivated citrus area that yielded about 3211709 tons.

Among all Citrus species grown in Egypt, sweet orange (\textit{Citrus sinensis}, \textit{L.}) occupied the greatest share of cultivated citrus area (61.88\%) which produced yearly 2120045 tons. Meanwhile, navel orange orchards amounted to 133515 Feddans that represented 56.48 % of the total sweet orange cultivated area (236398 Feddans) and produced 1234634 tons.

Moreover, common (round orange) group which includes some local or introduced cultivars (Balady & Suchary etc.) and (Hamlin; Tanarif and Pineapple ...etc.) came second after navel group where the cultivated area of all sweet orange cvs reached 102883 Feddans.

Recently, in A.R.E. an increased interest for the sweet orange exportation to many of either European or Arabic countries have been enhanced due to its higher economic values. Such goal could be achieved by increasing the total production through either horizontal extension by establishing new cultivated citrus area or vertically by employing the recommended applicable treatments and managements means that certainly could be reflected positively on improving productivity and quality of produced fruits.

The net income from citrus production is in closed relationship with fruit qualities, which play the great important role in determining the price. Moreover, the recently distribution of creasing disorder is one of the severest problems facing the citrus producer, which certainly reflected negatively on grading and marketing value of produced fruits.

Creasing consists of grooves or furrows in an irregular pattern in the rind. Crease is strongly correlated to fruit maturity. The longer the fruit held, generally, the greater crease. Environmental factors, though, can greatly influence its development although these factors are not well understood. Early season temperature variations have been shown to increase creasing. The basis for crease is thought to be differential growth rates between the inner layer of pericarp (endocarp) in citrus fruit as a hespodium type from one hand and the white layer (albedo) under the orange peel. If the endocarp grows too fast it tears its connection with the albedo, which later in the season results in the outer separating from the inner fruit layers.

Crease also known as albedo breakdown, it is a rind disorder of some sweet orange cultivars and commonly develops post colour break. In this disorder, fractures develop within the albedo tissues continue to separate during fruit expansion. The rind develops localized undulations on the fruit surface. The major effect of crease is on the critical visual-appeal of the fruit in the fresh fruit market rather than the possibility of increased splitting of the fruit during handling and transport due to a reduction in the mechanical strength of the rind (Gilfillan and Stevenson, 1977).

Creasing of citrus fruits is considered to be a physiological disorder, the cause of which remains unknown (Nadir, 1971). In the main time many research workers reported that creasing phenomenon may occur as a result of several nutritional factors. Salama, (1979) reported that nitrogen concentration was somewhat higher in creased Balady orange fruit rind as compared with sound ones. However, phosphorus has a negative effect on reducing the incidence of creasing or "crinkle rind" in orange fruits (Webber and Batchelor, 1948). Meanwhile, factors associated with the incidence of crease were reviewed by Holtzhausen, (1982) and Monselise et al., (1976). The various listed factors included rind thickness; crop size; tree heredity; fruit position; climate; irrigation; nutrition and rootstock. However, others reported that the incidence of crease was not positively correlated, with crop load (Treeby et al., 1995). They mentioned that rootstock strongly influenced the incidence of