INTRODUCTION

Soybean (Glycine max(L.) Merr) is one of the most important leguminous crop all over the world . Soybean seeds have a high nutritional value especially oil and protein contents and are used for the manufacture of many human food. Soybean meal is used extensively for feeding livestook.

The cultivated area of soybean in Egypt increased from 640.0 faddan in 1964 to about 120,000 faddan in the late five years(1984 to 1988), The average of seed yield reached about 1300 - 1500 kg.seeds/faddan(one faddan 4200 m^2).

Soybean is basically a short-day plant, but the response to day-length varies with variety and temperature. The effect of day-length, night and day temperature under different sowing dates on growth and reproductive stages of soybean plant clearly reveal that no single cultivation factor is more important to soybean production than sowing date , especially at different regions and for varieties.

Since, soybean plants are greatly affected by water deficit during its growth life cycle, thus water is often the primary limiting factor in soybean production.

After the Leguminous crop section,Agic. Res.,Center, Giza , Egypt.

From the stand point of water policy, saving water for cultivating the new reclaimated areas is a necessarily management. Therefore, determining when the crop must be irrigated to meet its water needs for producing high yield is an important concern.

Many researches proved that most of the climatic factors affecting evapotranspiration by the crop plants are the same factors affecting the evaporation from the free water surfaces(Stahill,1961 ; Chang,1971 and Doore bos et al., 1979).

Also, the studies on the relationship between the evapotranspiration and the Class A pan evaporation proved that this relationship was closely significant. On the other hand the Class A pan is inexpensive,easily to handle and operate in the field,needs short time and less efforts for calculating its records, can be located close to the experimental field and give more accurate values for the potential evapotranspiration if it well lacated(Stanhill, 1961 ; Chang,1971 and Ibrahim,1981).

Fore all the reasons mentioned above, the Class A pan can be used for scheduling the crop irrigation when different rates of evaporation are used(Chang , 1971 and Doorenbos et al., 1986).

The aim of the present study was to schedule soybean irrigation from the Class A pan evaporation under three sowing dates. Also, to study the effect of sowing

date and irrigation regime treatments on soybean growth, yield components , yield , some chemical properties of seeds and the crop water use, as well as evaluating the potential evapotranspiration for Giza region , estimated by the Class A pan with other four methods(the modified Penman , Jensen and Haise , Turc and Blaney and Criddle).