Second Article:

Article title	**Faba bean crop-water relationships, yield and aphid population under different sowing dates and irrigation scheduling regimes.**
Participants	Abdou, S. M. M*.; H. M. Abd El-Wareth ** and **S. M. Emam***** *Soils, Water and Environment Research Institute, A.R.C., Giza, Egypt. ** Plant Protection Research Institute, A.R.C., Giza, Egypt. *** Agron., Dept., Fac., of Agric., Fayoum Univ., Egypt.
Article status	Published - 2013
The Journal	J. Soil Sci. and Agric. Eng., Mansoura Univ., Vol. 4 (3): 109 - 124.

The present research work was conducted at El- Kasmia village, Etsa District, Fayoum Governorate, Egypt, during 2010/2011 and 2011/2012 winter seasons. The trials aiming at investigating the effects of sowing dates as October 15th, November 1st and November 15th and irrigation scheduling regimes, based on 1.1, 0.9 and 0.7 coefficients of Cumulative Pan Evaporation (CPE) records on seed yield, yield components, infestation with Lupine Aphid and some crop - water relations of faba bean (Giza 843 hybrid). The adopted treatments were assessed in split- plot design, with four replicates, where sowing dates occupied the main plots and irrigation scheduling regimes were allocated to the sub-ones. The main results could be as follows:-

-Early sowing date (Oct. 15th) resulted in the highest values of faba bean seed yield and its components, whereas delaying sowing date to Nov.1st or Nov 15th significantly reducedsuch values. Irrigating faba bean crop at 1.1 (CPE) gave the highest values of seed yield and yield components, comparable with 0.7 and 09 CPE ones. Planting faba bean on Oct. 15th as interacted with irrigating at 1.1 CPE exhibited the highest figures of seed yield and yield components.

- Early sowing date exhibited the highest values of faba bean ETc, whereas moderate or late sowing dates tended to decrease ET_C by 6.80 and 15.39% and by 7.49 and 13.96 % in 1st and 2nd seasons, respectively, compared with early sowing date. Irrigating faba bean at 1.1 CPE resulted in the highest values of ET_C comprised 36.24 and 35.45 cm in the two seasons of study, respectively. Early sowing date, as interacted with irrigating at 1.1 CPE, gave the highest values of ET_C ranged from 39.20 to 37.75 cm. The crop coefficient values (two seasons mean for the highest yielding interaction) were 0.48, 0.64, 0.74, 0.85, 0.98 and 0.66 for October, November, December, January, February and March, respectively. The highest water use efficiency values(0.947 and 0.913 kg m^{-3} water consumed) in the two successive seasons, respectively, were obtained from early sowing date e.g. Oct, 1st, and similar trend was found due to irrigating at 1.1 CPE .

- Delaying the sowing date resulted in higher aphid infestation on faba bean crop and higher irrigation level e.g. irrigating at 1.1 CPE exhibited similar trend. Simple correlation of data concerning aphid population and both sowing dates and irrigation scheduling regimes were highly significant (r= 0.797 and 0.712) and (0.712 and 0.544) in 1st and 2nd seasons, respectively. In addition, linear regression of aphid population(Y) and sowing dates(X) and irrigation scheduling regimes (X_1) could be represented as Y= - 6.665+ 12.514 X and Y= - 8.758 + 29.860 X_1 in 1st season and as Y= - 8.791+ 12.446 X and Y= 8.791 + 12446 X_1 in 2nd season, respectively. The correlation(r) of seed yield and aphid population data were 0.419 and 0.333 in 1st and 2nd seasons, respectively. Furthermore, linear regression equations for faba bean seed yield (Y) and aphid population(X) were Y = 3244.571 – 14.792 X in 1st season and Y = 2953.487 -11.180 X –11.180X in 2nd one.

In order to obtain acceptable figure for water use efficiency and to save irrigation water as well, it is advisable to irrigate the early planted faba bean crop according to 0.9 CPE coefficient.