Article title	Yield and water use efficiency of soybean/maize intercropping under deficit irrigation.
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Abstract

A field study was carried out during the growing seasons 2013 and 2014 to evaluate the yield and water use efficiency (WUE) of intercropping soybean and maize under deficit irrigation at the experimental farm of the Faculty of Agriculture, Fayoum Egypt. The experimental layout was distributed in split plot design with three replicates. The irrigation treatments included three mainly (I_1 =100, I_2 =85 and I_3 =70% of ET_o) with three cropping systems (sole soybean, sole maize and soybean/ maize intercropping). Surface irrigation using spiles was used and crops were planted in plots (10.5 m^2 for each). Data obtained showed that plant leaf relative water content, chlorophyll fluorescence and Performance index were significantly decreased with deficit irrigation and grater values were observed with intercropping in comparison with sole system. Under intercropped system and both sole maize and soybean, the maximum values of grain yield (GY) was obtained when plants were irrigated with I_1. The results demonstrated that intercropping soybean with maize significantly reduced soybean and maize crop yields in both seasons, however the total intercropped yield was greater than that of sole crops. Land equivalent ratios (LER) of all intercrops were greater than unity; denoting that higher productivity per unit area was obtained by growing maize and soybean crops together than by growing them sole. The maximum values of LER were recorded with crops irrigated using (I_1) treatment (1.47 and 1.45), whereas the lowest LER values were obtained when crops were irrigated with treatment (I_3) (1.29 and 1.28). The greatest WUE was found under soybean/maize intercropping and irrigated with treatment I_1. However, WUE was relatively low under irrigation with I_3. Based on the results present work, it could be concluded that soybean/maize intercropping provide to be better.