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Effects of Alternate Furrow Irrigation with Supplemental Every-Furrow Irrigation at Different Growth Stages on the Yield of Maize (*Zea mays* L.)

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Abstract: The effect of water stress caused by alternate furrow irrigation (AFI) on the yield of maize may be alleviated by applying every-furrow irrigation (EFI) at stress sensitive growth stages. This research was conducted in two different areas with deep and shallow water tables to examine the amount of water used, yield, yield components and water use-efficiency of maize under AFI at 7-day intervals supplemented with EFI at different stages. AFI resulted in significant reduction in grain yield and in both Bajgah and the Kooshkak areas with deep and shallow water tables, respectively. This occurred due to probable water stress and reduction in 1000-grain weight. However, under AFI supplemented with EFI once or twice at the tasseling or silking stage grain yields were statistically equal to those obtained in EFI although the amount of water used was about 30% smaller in both Bajgah (deep water table) and Kooshkak areas (shallow water table). In both areas the water-use efficiency for grain yield under these irrigation treatments was 1.04 and 0.97 kg grain per m^3 of water, respectively.

Keywords: Alternate furrow irrigation, Corn (*Zea mays* L.), Supplemental every-furrow irrigation, Water-use efficiency

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