



## **The influence of mulched drip irrigation on cotton evapotranspiration by Eddy Covariance and dual crop coefficient model**

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The estimation and partition of the crop evapotranspiration are of great importance for agriculture especially for arid and semiarid area. This study aims at estimating the actual evapotranspiration and the basal crop coefficients for cotton, and explaining the suitability of plastic mulch for water conservation. A field experiment is implemented in the cotton field under mulched drip irrigation in Korla which locates at the alluvial plain of Kaidu-Kongqi River Basin. Evapotranspiration is measured by Eddy Covariance technique and simulated by the SIMDualKc model. The Nash and Sutcliffe modelling efficiency of evapotranspiration is about 0.82 for both 2012 and 2013, and the correlation coefficients are 0.87 and 0.89 respectively for 2012 and 2013. These indicators show simulation results agree well with the measurement. The initial, mid-season and end basal crop coefficients for cotton are 0.4, 1.3, 0.4 respectively, the basal crop coefficient at the mid-season is higher than the FAO56 guidelines and end basal crop coefficient is lower. The evaporation component of evapotranspiration (5/1~9/25) is about 4% for 2012, about 6% for 2013 with plastic mulch, and they are about 22% and 23% without plastic mulch.