

Separation of ET in Nile delta into transpiration and evaporation (E) by canopy model and E reduction by windbreak trees

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Agriculture can be considered as human intervention to the regional ecosystems. Thus its influence to hydrologic cycle is one of the important contemporary issues. In the present study, evapotranspiration (ET) of cropland in Nile delta was determined by applying eddy correlation method. In addition, 2-layer canopy model was applied to separate ET into soil evaporation (E) and transpiration (T). It was found that in the furrow period in 2011, ET (=E) was 221 mm for 2 months, while in growing season of maize ET was some 554 mm with T=256 mm and E=298 mm. With introduction of

windbreak trees to the edge of cropland in the direction of prevailing wind direction, both E and T were reduced some 20-25% during growing season, and E was reduced by 30% during furrow period. Transpiration of wind break trees were found to be a minor component.

Keywords: Nile-delta, croplands, evapotranspiration, soil evaporation and transpiration, Windbreak trees