

# **Transpiration and Canopy Conductance of a Pepper Crop under Screens with different Porosity and Shading Intensity**

Katsoulas N., Rigakis N.  
University of Thessaly, Dept of  
Agriculture Crop Production and Rural  
Environment, Fytokou Str, 38446,  
Volos, Greece, nkatsoul@uth.gr

Kitta E., Baille A.  
Universidad Politécnica de Cartagena,  
Dept. of Food & Agricultural Engineering,  
Paseo Alfonso XIII, E-30203, Cartagena,  
Spain, alain.baille@upct.es

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## **Abstract**

In the present study, the influence of three different shading nets with different shading intensity and porosity on the greenhouse microclimate and pepper crop transpiration rate was experimentally investigated. The experiments were carried out from May to October of 2011 in the experimental farm of the University of Thessaly in Velestino, Central Greece. Seedlings of sweet pepper plants were transplanted during May in three greenhouses and outside. The three greenhouses were covered by the following nets: (a) an anti-thrip insect proof white net with shading intensity of about 20% (AV-antivirus), (b) an anti-thrip insect proof white net with shading intensity of about 40% (BN-bionet) and (c) a green shading net with shading intensity of about 40% (G-green). Shading nets (a) and (b) had same porosity but different shading intensity obtained by the different light transmission of their threads, while shading nets (b) and (c) had similar shading intensity but different porosity. The following parameters were recorded regularly inside the three greenhouses: solar radiation, air temperature and relative humidity, crop temperature and crop transpiration rate. In addition, solar radiation, air temperature and relative humidity and wind speed and direction were also measured outside the greenhouses. It was found that the presence of the screen material decreases not only the radiative but also the advective part of crop transpiration, something that is attributed to the reduction of air velocity inside the greenhouse. The crop transpiration rate observed under the AV greenhouse was about 25% lower than that observed under open field conditions while the respective values under the BN and G greenhouses were about 45% lower than the open field values. The crop stomatal conductance under greenhouse conditions was similar or higher than the values observed for the open field crop. Finally, the crop temperature under greenhouse conditions was about 1-2°C lower than that of the open field crop.