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MICROCLIMATE OF A PEPPER CROP UNDER SCREENHOUSE CONDITIONS

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Abstract:

In the present study, the influence of three different shading nets with different colour, shading intensity and porosity on the screenhouse and crop microclimate 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 pepper plants were transplanted during May in three screenhouses and in open field. The three screenhouses were covered with the following nets: (a) an anti-thrip insect proof white net with shading intensity of about 13%, (b) an anti-thrip insect proof white net with shading intensity of about 34% and (c) a green shading net with shading intensity of about 36%. Shading nets (a) and (b) had same porosity but different shading intensity while shading nets (b) and (c) had similar shading intensity but different porosity. The following parameters were recorded regularly inside and outside the screenhouses: global solar radiation, air temperature and humidity and crop temperature and transpiration rate. In addition, wind speed and direction were also measured outside the screenhouses. The results showed that the reduction of solar radiation above the crop was proportional to the shading intensity of the net. It was found that the air temperature values measured under the screenhouses were similar to those measured in the open field. However, the canopy to air temperature difference was higher in the open field than under screenhouse conditions, with the lowest values observed under the screenhouse covered by the anti-thrip insect proof white net with shading intensity of 35%. In addition, the canopy-to-air vapour pressure deficit was significantly lower in the crop grown under shading than in the open field.

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