

THE INFLUENCE OF DIFFERENT TYPES OF SUN PROTECTION IN THE CULTIVATION OF PEPPERS IN GREENHOUSES

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The pepper is one of the most important crops in Almeria, Spain. Peppers are usually planted in greenhouses under plastic between June and August. These months are very hot and have high levels of solar radiation, and sun protection should be used. The conventional method is to whitewash with polyethylene during the hot periods and then wash off the whitewash. Another method is utilization of movable thermal screens to control solar radiation levels and temperature in the greenhouse.

Polysack, specializes in research and development of agro-textiles, such as netting and thermal screen protection. The company developed **ChromatiNet**, together with colored netting that controls vegetative growth through the manipulation of light spectrum and diffusion of light.

During 2002 and 2003, Professor of Agricultural Engineering, Dr. Eduardo Rodriguez of the University of Almeria, Spain experimented with **ChromatiNet** sun protection netting in pepper production in greenhouses in the Almeria area.

This is a preliminary experiment and is part of the R&D currently being carried out by the University of Almeria, the Volcani Center for Research and Polysack, with the support of the European Union.



The ROXY pepper variety which was used for this observation was transplanted into a greenhouse under polyethylene at the beginning of August 2002 and submitted to different sun protection methods. These methods were: whitewash, pearl ChromatiNet, **red ChromatiNet**, blue ChromatiNet, and black shade netting.

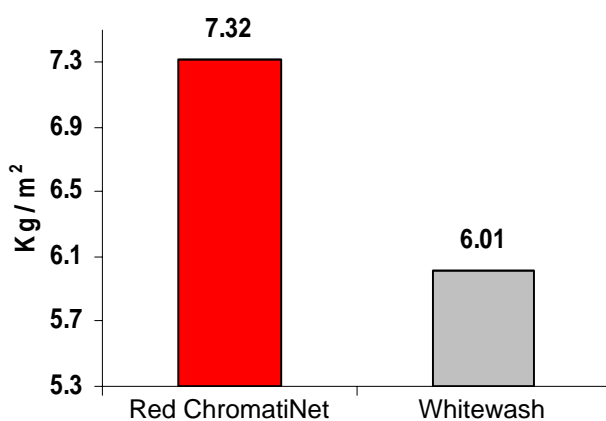
The nettings were spread over the greenhouse in double form –one layer of netting over the other – with each layer providing 30% sun protection. The netting

was spread on the roof over the part of the greenhouse that had not been whitewashed.

When the whitewash was washed off and removed, the netting was also removed. Different measurements and their variations were revised during the pepper development process. As follow-up, I offer the specific data of some of the variables in a table comparing the differences between whitewash treatment and treatment with red **ChromatiNet** sun protection netting.

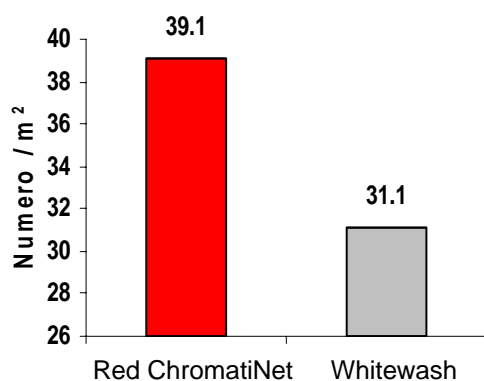
Results:

Fig. 1: The effect of use of **Red ChromatiNet** in a greenhouse on total production (a 200 d.d.t.) in pepper production.



The results that appear in Figure 1 indicate that the **Red ChromatiNet** netting influenced the crop gain: 1.31 kg weight gain per square meter of cultivation when compared to that of whitewash. This is the equivalent of a 27,79% increase in production.

Fig. 2: The effect of use of **Red ChromatiNet** in greenhouses on total number of fruits (a 200 d.d.t.) in pepper production.



The results that appear in Figure 2 indicate that **Red ChromatiNet** has also influenced the number of fruits obtained per square meter when compared to the quantity of fruits obtained using whitewash.

Summary:

From the research results it can be concluded that peppers grown under **Red ChromatiNet** sun protection netting produced a higher yield than the same cultivation using whitewash as sun protection. In other studies carried out with the same netting, in different parts of the world, the results observed with **Red ChromatiNet** are similar to those obtained in this observation.

Reference:

The effects of colored netting (ChromatiNet) on seedbeds in the cultivation of ROXY-type peppers, by Professor of Agricultural Engineering, Dr. Eduardo Rodriguez of the University of Almeria, Spain.