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Dry matter and area partitioning, radiation interception and radiation-use efficiency in open-field bell pepper

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ABSTRACT

The objective of this study was to determine some key components of a model for bell pepper growth and yield under non-limiting water and nutrient conditions using data from field trials conducted in Southern Portugal. DM partitioning, at least before fruiting, and specific area indices for leaves, stems and fruits were conservative in relation to normalized thermal time. The interception model had a good performance. It was based on the exponential extinction of radiation on the area covered by the plants, the ellipsoidal leaf-angle distribution model (X -parameter 2.48 and 2.89), and absorptivities of the leaves for PAR and NIR, 0.8 and 0.2, respectively. Radiation-use efficiency (RUE) was determined and presented in four different forms. RUE did not change substantially throughout the growing season. RUE of irrigated pepper crops grown in our experiments was around 1.6 g MJ^{-1} of intercepted PAR. The models and parameter values presented in this study may be useful to simulate the development and growth of field-grown pepper crop.

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