

ASSESSMENT OF ENERGY CONSUMPTION IN GREENHOUSE PRODUCTION IN THE WEST REGION OF PORTUGAL

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Abstract

Greenhouse production is a very important activity in the West region of Portugal, with an area of approximately 800 ha where the regular production consists in two crops per year, one in winter-spring and the other in summer-autumn. Many growers are now prepared to better exploit market opportunities, since they know that the big export window opportunity is from June to September, when the production is difficult in other regions of south due to high temperatures.

Grower's use new and more productive varieties, either in soil or hydroponic systems, mostly in unheated greenhouses, naturally ventilated, and equipped with modern fertigation systems. Greenhouse production causes some environmental impacts due to the high use of inputs. Several improvements in technologies and crop practices may contribute to increase the use efficiency of resources, decreasing the negative environmental impacts.

Greenhouse vegetable production in Northern EU countries is based on the supply of heating and differs significantly from the production system in the Southern EU countries. In the Northern countries, direct energy inputs, mostly for heating, are predominant while in the South the indirect energy input is also important, mainly associated with fertilizers, plastic cover materials and other auxiliary materials.

The main objective of this work was to characterise the greenhouse production systems in the West region of Portugal, in order to evaluate the energetic consumptions (direct and indirect), the GHG emissions, the production costs and the farmer's income. With this work the mostly important inputs were identified, allowing proposing alternative measures to improve efficiency and sustainability.

All the data was obtained by surveys performed directly with growers, previously selected to be representative of the crop practices and greenhouse type of the region. However, more research should be performed in order to develop and to test technologies capable to improve resources use efficiency in greenhouse production.