Evaluation and productivity analysis in papaya under greenhouse in the southeast of Spain

Eva del Mar López-Ayllón, Carolina C. Martínez-Gaitán, María del Carmen Galera-Quiles and **Miguel Gónzalez-Cutillas**
Tecnova Foundation, Spain

Benefits obtained by Spanish tomato producers under greenhouse are reducing during the last years due to inputs price increase and crop sale prices decrease. Modern greenhouses dedicated to tomato production can be improved to grow papaya (*Carica papaya L.)* using active climatic control systems and intensive plant densities. The agronomic behaviour of the papaya crop under this scenario and the amortization plan of the investment on climatic control system are the key points to promote this reconversion towards tropical fruit production systems.

The objective of this study was to analyse the agronomic response of a papaya crop grown using a located active climate control system under greenhouse in Spain and the amortization plan of the investment on active climatic control systems using two different commercial cultivars and two plant densities.

This study was carried out in a multi-span greenhouse provided with a located active climate control system with heating, cooling and fogging systems and shadow screen. Four different scenarios were evaluated: two commercial cultivars of papaya "Intenzza" and "Caballero" grown using two plant densities, 2,000 and 2,222 plants ha-1. Yield obtained, production costs and evolution of selling price at the local market were characterised during 945 days. Several amortizations plan of the investment on climatic control systems were evaluated.

The higher plant density did not produce higher yields than the conventional, in both cultivars. "Intenzza" cultivar produced higher yields than "Caballero". The productivity of the production system of "Intenzza" cultivar grown at 2,000 plants ha-1 was 13.5% and the investment made on active climatic control systems can be amortized in six years.

This production system is profitable. Three improvements can be incorporated to increase its economic productivity: the efficiency increase of both heating system use and labours, and the increase of selling price of papaya fruits.

Biography

Eva del Mar López-Ayllón, graduated in Agricultural Technical Engineering (2010), Agricultural Engineering (2014) and Master in Mediterranean Horticulture under Greenhouse (2017), all from the University of Almeria. I participated in the Research Group: Plant production in Mediterranean cropping systems at the University of Almeria, collaborating in research projects related to the use of aqueous extracts of compost for the control of phytopathogenic fungi (2012-2013). I have been working for more than five years as a researcher in the Plant Production Area of the Technological Centre of Tecnova Foundation, a period in which I have participated in the execution of more than ten research projects, both nationally and internationally, related to the field of nutrition of agricultural crops under greenhouse. This career path has enriched my experience and skills as a researcher in this field. Research work presented at conference: 'Evaluation and productivity analysis in papaya under greenhouse in the southeast of Spain'.