

Title *In vitro* tests and field trials to assess the efficacy of a natural fungicide to control airborne strawberry diseases in Huelva (Southwestern Spain).

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Abstract

Strawberry (*Fragaria x ananassa* Duch.) is a worldwide crop. The Huelva province (south-western Spain) is one of the most important production area in Europe, with an acreage of more than 7,000 ha and a total production over 237,773 t in 2005. Powdery mildew (causal agent *Sphaerotheca macularis*) and grey mould (causal agent *Botrytis cinerea*) are two of the most important airborne strawberry diseases. Powdery mildew has been described in all areas where strawberries are grown and was confirmed in southwestern Spain in 2002, reaching yield losses of 40%. Symptoms affect aerial parts of the plant. Disease control relies on application of chemical fungicides and sulphur. Grey mould is also widely present in strawberry crops, causing great yield losses and affecting fruit in post-harvest storage. Disease control strategies rely on application of chemical fungicides. DEFEND® is a natural product with fungicide activity. *In vitro* tests showed 100% growth inhibition for *B. cinerea*. During the 2006-2007 strawberry growing seasons, DEFEND® was used to control powdery mildew and grey mould at an experimental farm in Huelva. Its efficacy was compared to strawberry Integrated Production management (IP) fungicide schedules. Marketable fruit yield and incidence of both diseases were not statistically different on plants treated with DEFEND® than on plants under the IP management. This is valuable preliminary work to assess the product as an alternative to chemical treatments in order to reduce chemical inputs on IP strawberry crops.