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**Epidemiological, evolutionary and economic outcomes associated to the coexistence of monogenic and pyramided resistant cultivars in agricultural landscapes: a case-study with the management of downy mildew in wine growing areas**

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of one-year-old canes harboured GTD pathogens of which Botryosphaeriaceae species were predominant (3.4%), followed by *Diaporthe* species (0.3%) and *Phaeomoniella chlamydospora* (0.2%). The productive lifespan of rootstock mother plants must be re-evaluated and not merely be based on age.

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## **EPIDEMIOLOGICAL, EVOLUTIONARY AND ECONOMIC OUTCOMES ASSOCIATED TO THE COEXISTENCE OF MONOGENIC AND PYRAMIDED RESISTANT CULTIVARS IN AGRICULTURAL LANDSCAPES: A CASE-STUDY WITH THE MANAGEMENT OF DOWNY MILDEW IN WINE GROWING AREAS.**

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### **Text**

Downy mildew represents a real threat for grapevines in all vine-growing areas of the world, leading to significant yield losses and massive recourse of fungicides. Over the past years, breeders have been engaged in breeding programs for resistance to grapevine downy mildew, resulting in the creation of several resistant varieties. At present, growers can plant monogenic (with mainly the resistance factors Rpv1, Rpv3 but also Rpv10 and Rpv12) or pyramided cultivars (mainly cumulating Rpv1 and Rpv3). Currently, the resistance factors Rpv1 and Rpv3 start to be deployed in France. These two resistance factors can be deployed in: (i) monogenic cultivars sown in the same field (mixture strategy), (ii) monogenic cultivars sown in different fields (mosaic strategy), (iii) pyramided cultivars (pyramid strategy) and (iv) in hybrid strategies that combine the three previous basic strategies. Here, we used the spatially explicit stochastic model *landsepi* to investigate the epidemiological, evolutionary and economic outcomes associated to these deployment strategies. Our results particularly highlight the risks for resistance durability associated to the coexistence of monogenic and pyramided cultivars in the same landscape. Finally, we discuss how the model *landsepi* has been used to design deployment scenarios and discuss their outcomes with the staff of a cooperative cellar growing nearly 2000 ha of grapevine in South-western France.

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## **COLLETOTRICHUM POPULATION STRUCTURE IN OLIVE ORCHARDS FROM THE REGION OF PREVEZA, GREECE AND EFFECT ON OLIVE OIL QUALITY**