EMERGING PLANT DISEASES

The fate of European olives

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Epidemics of crop diseases can destabilize global food systems and threaten food security. Olive quick decline syndrome (OQDS) is a disease that causes dramatic damage to olive trees, with symptoms of leaf scorching and scattered desiccation of twigs and branches. Kevin Schneider from Wageningen University and colleagues have developed a spatially explicit bio-economic model to project the future economic impact of OQDS on European olives. They predict that this disease can cause substantial economic loss in the major European olive production countries.

The causal agent of the disease is *Xylella fastidiosa* subsp. *pauca*. The strain was first reported in Italian olives in 2013. There is no practical cure for *X. fastidiosa* under field conditions. The authors predicted that most of the olive production areas in Italy, Greece and Spain would fall into climatically suitable territory for the disease. Factoring in the climate suitability and the simulation of future disease spread, the economic model predicted that the loss of profits could be billions of euros, even under slow disease spread and the ability to replant with resistant cultivars. The simulated price increase could affect the consumer price for olive oil. However, the degree to which this change could be transferred to consumers depends on price transmissions in the supply chain.

The modelling framework looks at the intersection of biology and economy and the analyses integrate current knowledge of disease spread and control strategies to estimate the economic consequences. Although the prediction is based on many assumptions, and some of them might be overly optimistic, results from this study could be useful for developing effective disease management strategies for re-emerging plant diseases.

Yufang Guo

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