OPTIMA

Redefining Pest Management - a Holistic Approach

Practice Abstract Nº 28

Integrated Pest Management on vineyards: multi-criteria assessment addressing human health and environmental risks, impacts and costs

Integrated Pest Management (IPM) practices for vineyards tested in the OPTIMA project were compared based on field trials (May-August 2021) in Piedmont, Italy. The OPTIMA IPM practices included different technological innovations: smart sprayers, biological plant protection products (bio-PPPs), EDS (Early Detection System) and DSS (Decision Support System). They were compared against a baseline representing current practice.

The choice of environmental, human health and costs indicators, as well as the definition of their importance, derives from literature, and consultation of stakeholders. The set of indicators encompassed climate change and photochemical ozone formation (Environmental Life Cycle Assessment), risk to pollinators, risk to other beneficial insects, and risk to soil organisms (Environmental Risk Assessment), risks to human health in the local community, namely for farmers (Human Risk Assessment), and operational costs for farmers.

The multi-criteria assessment clearly endorses the use of bio-PPPs, which originated a risk reduction to human (99% lower) and ecological (30-80% lower) receptors. IPM using the experimental EDS was hindered by the impacts of scouting, namely increased labor costs and environmental impacts of using diesel, calling for more sustainable scouting strategies.

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