



MASTER THESIS PROJECT

**New approaches for environmental risk assessment of
pesticides for the EU PARC Project:
Focus on French Vineyards**

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Summary:

EU PARC (European Union – Partnership for the Assessment of Risks from Chemicals) is a European project that aims to improve the methodology to conduct environmental risk assessments of pesticides. Launched in May 2022, it aims to develop system-base approaches to implement landscape considerations and manage to obtain more informative risk characterisation to identify environmental impact.

Focusing on vineyards in a Mediterranean area, a case study was based on a zone located in the Beaujolais region in France using only in-silico collection of data and see how the agricultural behaviour impacted the exposition of wildlife to pesticides. By designing a calculation tool on Excel and by creating formulas based on literature for two compounds (Folpet and Pirimicarb) the modelling was a success and allowed the simulation of different scenarios based on human behaviour and feeding habits from the wildlife.

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The tool displayed population trends being negatively impacted by the compounds. Higher doses per treatment were linked to less individuals surviving until the end of the year. Folpet was linked to more deaths for mammals whereas it was Pirimicarb for birds, assuming the highest dose legally allowed. The timing of application was also shown to have an impact, as early applications of Pirimicarb was linked to more deaths when compared to a treatment in the second half of the year. The positive impact of non-conventional agriculture was demonstrated also, showing the existence of non-treated parcels lightens the chemical burden on wildlife. While the joined application of both compounds was shown to be the deadliest to both mammals and birds; the implementation of shifts of treatment between each parcel owner showed to give great results, as the wildlife showed significant increase in survival when the treatments were not happening at the same moment.

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