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PhytoCOTE project : State of organic and inorganic contamination on vineyard soils

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Viticulture is one of the agricultural crops that use the most pesticides in France, in particular fungicides. These regular inputs may lead to a long-term contamination of ecosystems and thereby affect fauna and flora. Different processes in soils play a role in pesticides retention and transfer. In order to improve the knowledge about the evolution in time and scale of different chemicals contaminants within different soil types, a state of contamination level in soils surfaces and a characterisation of traces elements availability were assessed. 53 plots with important pedological diversity were sampled over the 0-15 cm horizon. The soils were characterised (organic matter, Fe and Al oxyhydroxides, CEC, granulometry, pH) and content measurements of total copper, cadmium, lead, zinc and 205 organic molecules were made. The characterisation of trace elements availability were made using passive samplers (DGT).

A copper contamination due to the past and current use of Bordeaux mixture (copper sulphate) has been shown on the experimental site (until 197 mg/kg of dry soil).

About organic pesticides, a high molecules diversity at different level of concentration were found depending on crops. The results analysis will allow us to show if (1) the copper contamination level play a role on the molecules degradation and contamination level, (2) the soils physical and chemical parameters play a role on the molecules degradation and on the copper and molecules retention and (3) the past and current soils use impact the contamination levels.