

Press release

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## **PestiRiv: results of the national study on pesticide exposure of people living in wine-growing areas**

People living near vineyards are more exposed to plant protection products<sup>1</sup> than those living far away from any crops. This is the main finding of the PestiRiv study, conducted jointly by *Santé publique France* and ANSES. This major study was carried out in 2021-2022 in 265 wine-growing and non-wine-growing areas. It measured 56 substances in outdoor air, in the air and dust inside homes, and in the urine and hair of participants. Detailed information about the participants' homes and lifestyles was also collected. The PestiRiv results provide the first detailed description on such a large scale of the biological concentrations in people living in wine-growing areas and the contamination of their environment. To limit the exposure of these farmland residents, the two agencies call for action to be taken at the very source of contamination. They therefore recommend reducing treatments to only what is strictly necessary and minimising dispersal, mainly through ambitious implementation of the Ecophyto 2030 strategy.

### **A ground-breaking study to make up for the lack of robust data on "real-life" exposure on a national scale**

There are few data available, particularly in France, on the exposure of people living near crops to the substances in plant protection products. PestiRiv was designed to objectively measure the exposure of farmland residents, using viticulture as a case study. This crop was chosen because vines are permanent crops, often found in the immediate vicinity of homes, and they are generally heavily treated with plant protection products, in view of the quantities sold and the treatment frequencies.

The study, carried out between 2021 and 2022 at 265 sites in six French wine-growing regions, involved 1946 adults and 742 children, some of whom lived less than 500 metres from vines and others more than 1000 metres from any crops.

To assess their exposure, 56 substances were screened for in at least one of the following matrices:

- participants' urine and hair (biological concentrations);
- dust and air inside homes;
- ambient air.

Measurements were also taken on fruit and vegetables from the gardens of certain households in wine-growing areas, to estimate exposure through consumption of home-grown produce.

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<sup>1</sup> Plant protection products (PPPs) are pesticides used to treat plants. Examples include herbicides, fungicides and insecticides.

At the same time, participants completed questionnaires on their diets and lifestyles (outdoor activities, occupations, domestic use of pesticides), to identify all the factors that might explain their exposure to pesticides.

*Santé publique France* was in charge of the study's logistics and determining the biological concentrations in participants, while ANSES was responsible for the part on environmental contamination. The agencies then drew up a joint opinion, with the support of their expert groups.

### **Environmental contamination and biological concentrations are higher near vineyards**

The results of the study showed that people living in wine-growing areas were more exposed to the plant protection products applied to these crops than people who live far away from any crops. Exposure was also higher during the treatment period. The increase in biological concentrations in residents of wine-growing areas was observed among both adults and children. These results are robust for the various samples analysed (urine, hair, dust, ambient air, indoor air) and are consistent with those of other studies carried out in the United States and the Netherlands.

This higher exposure is due to the transfer to the environment of the substances applied to the vines, which was observed for most of the substances measured. It was true for both those highly specific to grapevines (e.g. folpel or metiram) and those that are less so (e.g. glyphosate, fosetyl-aluminium, spiroxamine).

This is because substances can be dispersed by drift beyond the treated areas: in the form of droplets while the products are being applied or from the redispersion of a fraction that was volatilised after application. The products then gradually settle on the ground.

It should be noted that the low rainfall and high temperatures in the spring and summer of 2022, when the study took place, may have limited the need for treatment. This means that exposure levels in wine-growing areas may in fact be higher in wet weather.

For some substances, no difference was observed between the two population groups or between the two periods. This can be explained by the fact that exposure can come from sources other than agricultural treatments (this was the case with pyrethroids, which are insecticides used for a variety of purposes, as well as copper) or that the substance in question was little used on vines during the study period (this was the case with tebuconazole).

### **A call for the use of plant protection products to be reduced to only what is strictly necessary**

The PestiRiv study provides a robust set of data on the presence of plant protection products in several types of environmental samples (air, dust, food), as well as in humans. These data enable the factors influencing levels of environmental contamination and biological concentrations to be documented, in order to identify courses of action to reduce exposure.

PestiRiv shows that the quantities of products used and the proximity of homes to vines are the two main factors determining exposure. This finding confirms the need to act on the source of emissions in order to limit the exposure of people living closest to crops.

*Santé publique France* and ANSES therefore recommend reducing the use of plant protection products to only what is strictly necessary. To do this, the public authorities can draw on the [Ecophyto 2030 national strategy](#), whose ambitious implementation is called for by both agencies.

In addition, the two agencies stress the need to inform local residents prior to treatment, as exposure is also influenced by individual behaviour. However, preventing the exposure of these populations should not rely solely on individual measures.

PestiRiv's recommendations can be extrapolated to other crops.

Linking the exposure levels and biological concentrations revealed by this study to any possible health risks requires further work, whose feasibility will be studied as part of the planned follow-up to the study.

### **Apart from these initial conclusions, in what other ways will the PestiRiv data be used?**

Further work is planned by *Santé publique France* and ANSES to continue to analyse the results of PestiRiv, in order to:

- initially, investigate the links between exposure and health effects by cross-referencing PestiRiv data with the results of studies provided in support of marketing authorisation applications;
- subsequently, examine the feasibility of assessing any health risks associated with the exposures measured by PestiRiv;
- gain a better understanding of the links between environmental contamination and biological concentrations in humans;
- improve knowledge of exposure mechanisms and determine the levels of biological concentrations that may be associated with health risks, by comparing the PestiRiv results with those of other studies;
- describe co-exposures to plant protection substances and their overlapping with other risk factors, with a view to any future risk assessments incorporating the concept of the exposome.

The results of PestiRiv's measurements, which will be referenced on the Green Data for Health (GD4H) platform, will also be made available to the scientific community.

Moreover, *Santé publique France* and ANSES are calling for the actual data on use of plant protection products to be made accessible. Data of this kind can help to identify the links between actual applications and transfers to the environment, with a view to better controlling the exposure of local residents.

#### **PRESS LIAISON**

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