

PLANT PROTECTION, PESTICIDE RESIDUES AND CONSUMER SAFETY

- ▶ **Pesticides, also known as plant protection products**, are one of several methods of protecting crops. With fruit and vegetables, they may be applied during the production cycle or during storage. These products can be natural or synthetic, and are used against both crop predators (insects, rodents, fungi, mould) and competitors (weeds). **They are all subject to European and national legislation** (European Regulation (EC) No 1107/2009 of 21/10/09 concerning the placing of plant protection products on the market, and French Decree No. 2012-755 of 9 May 2012 on the compliance of national provisions with European Union law concerning the placing on the market and use of plant protection products)^{1,2}.
- ▶ Following certain crop treatments, minute traces of active substances, classified as **pesticide residues** (should not be assimilated to pesticides), may remain in foodstuffs. Pesticide residues can include the active substance, its metabolites and physico-chemical transformation products.
- ▶ In order to guarantee safe products, the presence and concentrations of these substances in food are strictly regulated. A value not to be exceeded – **the Maximum Residue Limit (MRL)** – is set for each residue and for each food (Box 1).
- ▶ Every year, the competent national and European authorities carry out thousands of controls, from the field through to the point of sale, to ensure that these values are adhered to and that the products offered to consumers comply with these regulations (Box 2).

NB: The toxicity of a substance, i.e. the hazard it presents to humans, is not dependent on whether it is of synthetic or natural origin; natural chemicals are not always harmless, as is the case with certain «natural fungicides» (e.g. the copper sulphate in Bordeaux mixture, in the event of contact or ingestion by an individual).

Plant protection product or pesticide:

A plant protection product is **a product used for the prevention, control or elimination of organisms considered harmful to crops**, whether plants, animals, fungi, mould or bacteria. It consists of one or more active substances and formulation adjuvants.

Like all living organisms, plants themselves produce substances with a «pesticidal» effect. These natural forms of protection, which are unable to prevent attacks by certain parasites, are supplemented in agriculture by **the use of natural or synthetic chemicals or biological organisms**.

There are essentially three main families of plant protection products:

- insecticides, to control insects and arachnids,
- herbicides, to control weeds,
- fungicides, to control fungi.



BOX 1: THRESHOLDS DEFINED BY THE COMPETENT OFFICIAL AUTHORITIES

In Europe, each country is free to set their own marketing authorisations (MAs). In France, MAs for plant protection products are issued by ANSES on the basis of the findings of a scientific risk assessment. They are granted for a 10-year period, meaning that the threshold values need to be revised as soon as this is justified by new data³.

Concerning control of concentrations in food, a Maximum Residue Limit (MRL) has been defined by Regulation (EC) No° 396/2005⁴. This is the maximum authorised concentration of a plant protection product residue in or on food. MRLs are set to ensure that the quantities of residues that an individual is likely to find in his or her diet on a daily basis are in no way hazardous over the short or long term. One MRL is defined for each «foodstuff (fruit, vegetable) – active pesticide substance» combination and is set for fruit and vegetables that have been neither washed nor peeled. These limits are established on the basis of good agricultural practices and respect for the environment.

The Acceptable Daily Intake (ADI) is a toxicological parameter that relates to dietary exposure. It is calculated from a no observed adverse effect level (NOAEL) following repeated daily administration to a laboratory animal, and to which a safety factor of at least 100 has been applied (i.e. a factor of 10 for the transposition from animals to humans, multiplied by a factor of 10 to account for differences between individuals). ADIs are set by the European Commission on the basis of expert opinions from the European Food Safety Authority (Efsa).

The safety margins adopted by the public authorities when setting these thresholds are such that a person would need to consume fruit and vegetables containing plant protection products at levels 100 times higher than the authorised MRL in huge quantities every day of their lives to run any risk.

BOX 2: OFFICIAL CONTROLS BY THE EUROPEAN AUTHORITIES:

In Europe:

- The EFSA report is based on two types of analyses: those from **control plans** and those from **monitoring plans**.
- Control plans involve more targeted analyses (suspected infringements) than monitoring plans, where analyses are conducted according to predefined monitoring priorities.
- For example, and in line with the European Commission's recommendations, France participates in monitoring and control programmes to ensure compliance with maximum levels of plant protection product residues on and in plant products.
- This EU monitoring of residues in food has been in place for many years. The results are published annually by the European Commission and are available on the Internet.

For more information : www.efsa.europa.eu/en/news/pesticide-residues-food-track-trends-our-browsable-charts

- With regard to products of plant origin marketed in France and Europe, the results show that **more than 96% of the samples analysed comply with the regulations and that more than 50% of them contain no detectable residues** [2018 data]^{5,6}.
- The European Efsa report (2018 data) on plant protection product residues in food concluded that the residues found in the samples analysed **do not pose a long-term risk to consumer health**⁴.

In France:

- Monitoring and control plans on the presence of residues in plants are regularly carried out by the public authorities:
 - Ministry of Agriculture's Directorate General for Food – DGAL and
 - Directorate General for Competition, Consumer Affairs and Fraud Control – DGCCRF

For more information: <https://agriculture.gouv.fr/plans-de-surveillance-et-de-controle>

