

Pesticides and health (Q&A)

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The main topic of the Q&A is pesticides and their residues in food with a focus on health effects in humans. For more information on organic farming and environmental issues, please see our EUFIC Review on Organic food and farming: scientific facts and consumer perceptions.

What are pesticides?

Pesticides are substances used to repel or destroy harmful organisms known as pests (e.g. insects, weeds, fungi or rodents) to prevent diseases, or protects plants or plant products during production, storage and transport. A pesticide usually contains one or more active components (e.g. a chemical or biological substance that kills, controls, or repels pests) which give it its properties.

Why are pesticides used? What are the benefits of pesticides?

Despite the fact that many people think the risks of using pesticides outweigh the benefits, the truth is that pesticides play a key role in modern agriculture, contributing to the increase in yields that has been achieved in recent decades for most major cereal, fruit and vegetable crops. Farmers benefit from more efficient production, food processors from a more even quality of raw materials and consumers from high quality, low-cost products. The use of pesticides has also allowed growers to produce crops in otherwise unsuitable locations and to extend growing seasons while maintaining product quality.

How is the safety of pesticides assessed and approved?

Researching, developing and bringing a new product to market can take up to nine years and typically costs more than €200 million. Before a product containing a pesticide can be approved for use by European authorities, it must undergo a strict safety assessment which is reviewed by the Member States and the [European Food Safety Authority \(EFSA\)](#). Many specific tests must be carried out on pesticides to prove that the product, at the intended level of use, is effective and poses no unacceptable risks to people or the environment. This includes groups which are potentially more vulnerable such as pregnant women or children, or groups that have a higher exposure, such as vegetarians. In addition, the safety of all approved pesticides is reviewed regularly to ensure that the data supporting their approval meets the most modern and up-to-date safety standards.

A list of pesticides that are approved for use in products is available within the EU pesticides database. The national authorities are responsible for defining under which conditions a pesticide may be used (e.g. how, when, and in what amount on which crops). This is because environmental conditions and the occurrence of pests (and therefore, conditions for use of pesticides) may differ on a local level. For example, in the southern Member States where it is warmer, there are more insects and thus a more frequent use of insecticides may be needed. In other parts of the EU, higher humidity conditions may promote fungal

infestation, and thus a more frequent use of pesticides that specifically target fungi (also known as fungicides) may be needed.

What are pesticides residues?

Pesticides residues are the very small amounts of pesticides that can remain in or on a crop after harvesting or storage and that can make their way into the food products made from these crops. Pesticide residues also include any breakdown products or metabolites from the pesticide.

Are pesticides residues allowed in food in the EU?

Yes, but only up to a low and safe level that cannot cause harm to consumers. Many consumers do not know that legal maximum residue levels are fixed by the European Commission for each individual pesticide approved for use on a given crop in the EU. European Authorities perform safety assessments on pesticide residues that may occur in food taking into account the toxicity of each approved pesticide as well as the composition of European consumers' diets. Such assessments include a wide safety margin that is well below the level that could have adverse effects on the health of consumers or the environment.

How do European authorities ensure that the maximum residue limits are respected?

Farmers, traders and importers are responsible for ensuring their food is safe, which includes compliance with maximum residue limits for pesticides. National authorities are responsible for the control and enforcement in their countries. To ensure that this is done in an adequate and uniform way, the Commission has three instruments:

- An EU co-ordinated control programme sets out for each Member State the main pesticide-crop combinations to monitor and the minimum numbers of samples to take. Member States have to report the results, which are published in an annual report.
- Community Reference Laboratories co-ordinate, train staff, develop methods of analysis and organise tests to evaluate the skills of the different national control laboratories.
- The Food and Veterinary Office of the Commission carries out regular inspections in the Member States to assess and audit their control activities.

If pesticide residues are found in food products at a level of potential concern for consumers, they are not allowed on the market.

How are limits set for crops grown outside the EU?

When importing a specific product from a non-EU country to a European Member State, maximum residue levels for the relevant pesticides are established in order to ensure the safety of the imported food products.

Is food produced using pesticides toxic or poor quality?

The difference between organic and conventional food is the way how the food has been produced and processed. For instance, the use of man-made fertilizers and pesticides is restricted in organic production. Consumer attitude studies show that people believe organic foods are 'safer' than conventionally produced foods. Their opinion is based on the belief that organic foods contain lower levels of pesticides and synthetic fertilisers. However, taking into account all the safety aspects described above, there is no evidence that conventionally-produced foods (where pesticides may be used) is less safe than organic food.

What is glyphosate?

Glyphosate is one of the world's most widely used broad-spectrum active substances used in herbicides (the class of pesticides used to protect crops from weeds, also known as weed-killers). It accounts for around 25% of the global herbicide market and it is widely used in both agricultural and non-agricultural situations in order to protect crops (including cereals, vineyards, olives and citrus) and manage weeds.

In 2015, [The International Agency for Research on Cancer \(IARC\)](#) of the World Health Organization (WHO) undertook a hazard assessment of glyphosate and subsequently classified glyphosate as "probably carcinogenic to humans". This classification indicates hazard (whether glyphosate is capable of causing cancer), but does not measure the risk (the likelihood that cancer will occur from exposure to glyphosate under real-life conditions).

[The European Food Safety Authority \(EFSA\)](#) published their conclusions based on a full risk assessment of glyphosate in 2015. Unlike the IARC assessment, EFSA took into account the exposure of European population to glyphosate through the diet, for example by looking at the levels of glyphosate that are likely to be left on food crops. EFSA concluded that at current exposure levels in food in the EU, glyphosate is unlikely to cause cancer in humans. Recently, an extraordinary meeting of the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) held in Geneva on the 9-13 May 2016, has also reassessed glyphosate. Like EFSA, the Meeting concluded that glyphosate is unlikely to pose a carcinogenic risk to humans from exposure through the diet.

References

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