

# Nicotine on food: clearing the smoke

September 2023

## Introduction

Nicotine is the main alkaloid in **tobacco and other tobacco species**; it is also found in low concentrations in other crops belonging to the family of **Solanaceae**. Due to its **insecticidal capacity**, the compound was used as an active substance in plant protection products in the past.

Earlier this year, **Regulation (EU) 2023/377** and **Regulation (EU) 2023/1536** were published in which the MRLs of the active substance nicotine are updated. Since this is a pretty substantial and possibly impactful update, this paper wants to provide some background information.

## Legislation history

The use of nicotine as an insecticide was evaluated in the framework of Directive 91/414/EEC, in which the European Commission concluded that the existing evidence is not sufficient to demonstrate a safe use of nicotine as a plant protection product. Thus, all plant protection products containing nicotine as active substance had to be withdrawn by 8 June 2009. At that time, **no specific maximum residue levels (MRLs)** for nicotine were set, nor was it included in Annex IV to Regulation (EC) No 396/20053, and therefore the **default MRL of 0.01 mg/kg applied to all products**.

In 2009 and 2011, the European Commission asked the European Food Safety Authority (EFSA) to provide advice on the setting of **temporary MRLs** for nicotine for several commodities, in which residue levels higher than the default MRL of 0.01 mg/kg were repeatedly identified.

Based on the assessment of EFSA, specific temporary MRLs were set in **wild fungi, rose hips, herbs and edible flowers, teas, herbal infusions and spices**. Possible sources of these residues in the commodities are; (i) contaminations during harvest, drying, storage or transport, (ii) cultivation of the crops in fields previously used for tobacco cultivation or (iii) the natural occurrence of nicotine in certain plant products. However, as

scientific evidence was not conclusive to demonstrate whether nicotine occurs naturally in the concerned crop, risk managers decided to **review the temporary MRLs after 10 years**, taking into account additional information that became available in this period.

## Updated MRLs

Recently, the European Commission requested EFSA to provide a targeted risk assessment for certain MRLs for nicotine. Monitoring data showed that, while residues of nicotine still occur in the above-mentioned products at levels higher than the reporting limit, the residue levels have decreased. However, EFSA identified **unacceptable risks for consumers from the existing MRLs**. Therefore, considering EFSA's opinion, and based on monitoring data, the **existing MRLs will all be lowered**. Additionally, for all commodities for which currently no MRL is set, the default limit (0.01 mg/kg) will apply and will be in use from the 14th of September of 2023. Since even more recent monitoring data showed that some of these lowered MRLs are not achievable, another Commission Regulation was published on July 25th of 2023 and **goes into force on September 15th of 2023**. More detailed information per commodity can be found in [Commission Regulation \(EU\) 2023/377](#), [Commission Regulation \(EU\) 2023/1536](#) or in the [EU Pesticide Database](#).

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