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SENTINEL VEGETATION • DOCUMENT 2/2 — Phosphonic Acid in Wild Vegetation

Supporting scientific and technical document • 9 November 2026 • Criteria undergoing validation

1. Objective and project decisions

Evaluate phosphonic acid in naturally growing leaves as an additional signal of exposure to fosetyl, phosphonate/phosphite salts and potential agricultural inputs. The leaves are collected from existing vegetation; no special garden is established. The provisional operational reference value of 0.25 mg/kg stated in the general matrix is non-exclusionary and must be checked by species, weight basis and method. Assessment remains integrated and the criterion is open to validation.

2. Chemical identity and possible sources

• Phosphonic acid (H_3PO_3) and phosphonates are not phosphoric acid (H_3PO_4) and phosphates; interpretation must preserve this distinction.

• Residues may arise from fosetyl-Al, potassium or sodium phosphonates, drift from neighbouring crops, agricultural products containing impurities or past applications.

• A detection must not automatically be attributed to recent or unlawful treatment, or to an application within the area investigated.

• Perennial woody plants can retain residues in woody organs and retranslocate them over time.

3. Scientific and quantitative evidence

Study	Verified evidence	TDE implication
BIOFOSF, Italy, 2020	Trials on potato, rocket and pear; no endogenous synthesis found in the investigated crops; persistence and retranslocation in fruit trees; potential decontamination periods >5 years	Perennial leaves may retain a historical signal
Apple trials, 2005	Fruit residues after foliar fertilisation: 0.02–14 mg/kg; residues in plant organs even two years after discontinuing fosetyl-Al	Treated fruit findings cannot be used as thresholds for wild leaves
EFSA assessment, 2021	Enforcement methods with LOQ 0.1 mg/kg available for major plant matrices; EURL reports 0.1–0.2 mg/kg according to matrix	LOQ must be checked and reported for each leaf matrix
EGTOP report, 2025	Possible sources: drift, contaminated agricultural inputs, historical use and unauthorised inputs; the residue alone cannot identify its source	Knowledge of context and comparison with other matrices are essential

4. Meaning under EU legislation

MRLs under Regulation (EC) No 396/2005 apply to specific food commodities and use residue definitions that may be updated. They are not environmental thresholds for oak, hazel or chestnut leaves. The 2025 EGTOP report notes a revised analytical residue definition applicable from 29 April 2025: always check the current regulatory entry for the commodity under comparison.

5. TDE interpretation

• A result below LOQ is favourable within the achieved sensitivity, but does not demonstrate absolute absence.

• A positive result, especially in a perennial tree, may reflect vegetation history, agronomic inputs or drift; do not immediately identify a source.

• High confirmed values require joint assessment of other indicators and documentation of surrounding agricultural practices.

• Do not set an automatic exclusion threshold: the provisional 0.25 mg/kg value only signals the need for attention. Time of sampling, species, weight basis and collection procedures remain to be defined.

6. Knowledge gap

Quantitative evidence specific to phosphonic acid in wild oak, hazel and chestnut leaves from remote European areas is much less robust than evidence from treated crops. Results for experimental crops must not be presented as background values for wild vegetation.

References and verified sources

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3. EFSA (2025). Findings of not authorised substances in food and feed certified as organic. EFSA Supporting Publications 22(7), EN-9524. https://doi.org/10.2903/sp.efsa.2025.EN-9524

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