TDE Territorial Qualification and Monitoring

Operational guidance document | Initial reference territorial unit: 100 hectares | Edition 1.0 | 11 November 2026

Scope: contiguous agricultural areas with an established history of organic management, no known contamination sources, and geological, hydrological and land-use characteristics assessed in advance.

1. Basic decision

The initial reference unit for TDE pilot implementation is provisionally set at 100 hectares (1 km²). The 100 ha are not an area automatically represented by a single sample; they define the perimeter within which an integrated assessment of the territory's environmental quality is made.

Qualification is based on the convergence of evidence from soils, waters, mosses, black locust leaves, earthworms and pollen, where available. These matrices have different scales of representativeness and must not be forced into the same sampling grid.

The 100-ha area is an operational starting point, not a guaranteed extent or regulatory limit. It may be enlarged, reduced or subdivided according to territorial characteristics and analytical evidence.

2. Preconditions for application

• Territorial continuity and documented organic management over several years; no reported or documented recent pesticide treatments in the candidate area.

• Geological and geochemical characterization: pay attention to real discontinuities (e.g. transitions between alluvial fans and different deposits), without multiplying samples merely because of textural changes that have no geochemical significance.

• Hydrological characterization: identify springs, aquifers, surface waters and irrigation waters actually used, distinguishing local catchments from external inputs.

• Assess current and historical anthropogenic pressures: past agricultural uses, external inputs, emissions, fires and possible point-source contamination.

• Identify accessible bioindicator stations suitable for repeated monitoring without jeopardizing their conservation.

3. Proposed routine network for 100 hectares

Matrix	Number of routine checks	Representativeness / criterion
Soils	2 separate composite samples: 25 subsamples for each homogeneous area of up to 5 ha.	Two well-separated sampling areas selected to represent relevant parts of the territory, under TDE-C01.
Waters	1 point for each truly representative water system.	Number depends on aquifers, springs, catchments and external inputs, not hectares.

Matrix	Number of routine checks	Representativeness / criterion
Mosses	1 station.	Atmospheric-deposition indicator; permanent representative station.
Black locust	1 station with several trees.	Leaves from multiple trees; two parallel portions for organics and PFAS.
Earthworms	1 station.	PFAS only; representative soil station.
Pollen	1 existing stationary apiary, where available; 2 seasonal collections.	Optional, non-exclusionary indicator; represents the foraging area, not only TDE boundaries.

4. Soils: confirmed and unchanged criterion

Protocol TDE-C01 applies. Each composite consists of 25 subsamples distributed across a homogeneous area of up to approximately 5 ha, taken to the base of the actually cultivated soil layer, mixed and quartered as already approved.

For the 100-ha unit, two independent samples are collected, totalling 50 subsamples and 2 analytical determinations. Results remain separate: no single composite covering all 100 ha is prepared.

Distribute the two areas thoughtfully and sufficiently far apart, taking account of geology, agricultural history and potential anthropogenic pressures. Within TDE, the principal role of soils is to contribute to identifying anthropogenic and organic contaminants as well as checking the other parameters already prescribed.

The two samples do not statistically demonstrate an absence of localized contamination in the remaining 90 ha. Their territorial interpretation is possible only within the integrated assessment and preliminary characterization.

5. Interpretation of other matrices

Waters

Water monitoring contributes to environmental qualification even when crops are rainfed. Sampling-point selection depends on the hydrological system, not just the agricultural area; hydrologically independent springs or external inflows must not arbitrarily be represented by one sample.

Mosses and black locust

One station of each may constitute the initial routine network in a homogeneous area. Mosses primarily integrate atmospheric deposition; black locust describes plant exposure at a specific station. Their results contribute to the overall assessment but do not individually “certify” each hectare.

Earthworms and pollen

Earthworms remain dedicated exclusively to PFAS. Pollen, when available from an existing stationary apiary, integrates a broad foraging area that may extend beyond TDE boundaries; its result is informative and is not, by itself, grounds for exclusion.

6. Monitoring frequency

Routine frequency	TDE rule
One campaign per year	Soils and other available indicators, following the routine network and procedures C01–C06.
Two campaigns per year	Pollen: one spring and one summer collection, depending on flowering and colony condition.
Additional checks when needed	Analytical anomalies, new water inputs, management changes, incidents, new anthropogenic pressures or identified territorial discontinuities.

Annual monitoring is the initial TDE management choice. Future adjustments may be assessed from time series and stability data without automatically changing sampling protocols.

7. When to increase sampling or change the perimeter

• Transition to a different geological/geochemical unit or hydrogeological setting.

• Different sources of irrigation water or external inputs, sludge, soil amendments or other localized pressures.

• Anomalous analytical results, disagreement between stations or results close to relevant TDE thresholds.

• Evidence of point-source contamination or localized deposition, including industrial activities, fires and emission sources.

• TDE expansion into areas no longer sharing the original homogeneity criteria.

8. Final qualification rule

TDE qualification does not claim that every point of the 100 ha has been directly analysed. It follows an integrated, traceable environmental assessment repeated over time, with each matrix contributing at its own scale of representativeness.

The initial network size (2 soil samples, 1 moss/black locust/earthworm station each, relevant water points and optional pollen) is a project management proposal, not a statutory minimum or universal statistical validation. It must be checked during the first pilot campaign and adjusted only for concrete technical reasons.

All analytical limits, decision thresholds and matrix-specific requirements remain those in already approved TDE documents. This guidance governs territorial scale and monitoring

organization only.