

Soil Monitoring and Resilience Law

Fertilizers Europe Position Paper

On July 5th the European Commission published its proposal for a Directive on Soil Monitoring and Resilience (Soil Monitoring Law). Fertilizers Europe welcomes the Commission's ambition of achieving healthy soils by 2050 by granting European soils with a legal status, while respecting subsidiarity and proportionality principles. The proposal provides a starting point for the development of an EU Monitoring Framework for European Soils.

Soil represents the basis for food production, therefore life on earth depends on it. The fertilizer industry is inextricably tied to soil health as its role is to provide essential nutrients that are key for healthy and resilient plant growth, preventing nutrient depletion and maintaining fertility over time while aiming at securing sustainable food production. Soil health is vital for ensuring the resilience of European ecosystems in the face of our changing climate, and for providing the EU with sufficient, safe and nutritious food.

The European fertilizer industry is continuously working hand in hand with European farmers to supply them with the best tools, products and knowledge to make the most of every nutrient applied to their fields, in order to maintain and improve the productivity, fertility, and the health of agricultural soils across the EU.

We welcome the possibility of providing feedback on such a proposal and look forward to providing our contribution to a constructive and meaningful discussion ahead.

1. Nutrient Content in Agricultural Soil

Consider nutrient excess and deficiency as parameters for agricultural soil health

Nutrients represent a primary need for plants to grow, therefore maintaining adequate nutrient levels in the soil is crucial to support robust crop yields. Balanced plant nutrition ensures plants' access to an adequate supply of each nutrient at every growth state, regardless of whether their origin is mineral or biological. For this reason, when it comes to agricultural soils, degradation is also represented by the loss of ability for the soil to supply nutrients to crops, and to support food production. Therefore, maintaining soil fertility is critical for maintaining crop production, and it is also crucial for the capacity of the soil to maintain the growth of plants and, hence, for the soil health itself.

Soil fertility relates to soil structure, water retention, soil microbial life and nutrient cycling, and it is a component of a healthy soil, and of resilient and fertile and sustainable agro ecosystems.

The Commission's proposal considers only "excess" nutrient content as an aspect of soil degradation. The availability of nutrients in the soil does not degrade the soil health, on the contrary, it allows healthy and optimum plant growth, higher rates of photosynthesis, C fixation, and increased return of plant biomass to the soil. That is why nutrient deficiency is an equally important aspect. It is **essential to recognize in the Annex I (part B and C) of the proposal that it is not "Excess nutrient content in soil" but rather "Excess and deficient nutrient content in soil" a fundamental parameter for assessing and maintaining soils' health**, as this is directly linked to the overall fertility and productivity of agricultural lands. This is the case for both nitrogen (N) and phosphorus (P).

Changing approach to phosphorus management in agricultural soils

The Commission's proposal requires Member States to establish a maximum level of allowable extractable phosphorus in soils, comprised within a range of 30 to 50 mg per kg, and it relies exclusively on the Olsen methodology.

While the European fertilizer industry acknowledges the importance of promoting sustainable agricultural practices, the suggested approach raises concerns. The proposal considers a maximum level of extractable phosphorus in soils as an indicator of phosphorus accumulation. Any regulations regarding soil phosphorus levels must be based on comprehensive research and consider the diverse agroecosystems across Member States to ensure a balanced approach that fosters sustainable agriculture without compromising food security. Defining one single limit for all soils does not represent the right approach when it comes to phosphorus.

The phosphorus monitoring should be designed in a way that it addresses the real environmental concerns (P losses into the environment) and preserve farmers' ability to address the specific phosphorus requirements of their crops on a field, while maintaining soil fertility and soil health. Soil health is farmer's major asset for sustained and sustainable food production. The proposed mechanism to target a maximum soil P level lacks understanding of the soil functioning itself, and it may potentially lead to reduced yields and decreased of overall food production.

For this reason, ***we strongly recommend the reclassification of phosphorus, shifting it from its existing classification as a soil descriptor within Annex I part B to its integration into Annex I part C (designated for soil descriptors without specific criteria).***

Secondly, the Commission's proposal recommends employing the P Olsen methodology as the sole approach for soil phosphorus analysis. However, methodologies in the EU Member States are diverse, as well as the agronomy research of P fertilizer crop response, developed in each Member State up

to date. Under certain conditions (soil types), P Olsen may not consistently provide accurate assessment of phosphorus levels.

Scientific evidence demonstrates that the critical values of P Olsen vary significantly depending on the soil types¹. For this reason and as mentioned above, defining one single limit for all soils does not represent the right approach when it comes to phosphorus. Furthermore, the proposed levels are too low in certain conditions², and they dismiss the regional to local experience, and the understanding of P management and soil fertility.

Therefore, ***we strongly encourage the Commission to establish an accreditation system for the various methodologies allowed to measure phosphorus in soils within the EU. This would ensure a more comprehensive and effective assessment by permitting a wider range of methodologies to measure and evaluate phosphorus levels in EU soils.***

The monitoring period of the soil monitoring and resilience directive offers an opportunity to gather the necessary data, allowing the scientific community to define the suitability of thresholds for P levels in soils according to the different agroecosystems across the EU.

2. Level Playing Field

Avoid disadvantages linked to fragmented regulation at Member State level

The European territory is characterized by significant differences in terms of climate and soil conditions, farm structure and farming systems. For this reason, the exposure to the soil degradation processes is diverse, as already determined by the EU Soil Observatory². Further regulations and tools must consider region-specific and crop-specific soil management, and local conditions notably soil type and climate.

The development of legislation largely at the Member State level, in combination with the development of soil districts with similar soil profiles, is a step in the right direction. This will allow for a more tailored approach to the diverse nature of soil within the European territory.

However, the administrative and financial burden linked to the implementation of the monitoring framework may lead to different approaches among Member States in their development of soil districts and the severity of the imposed legislation. This may lead to an uneven playing field and promote discrepancies in the burden placed on actors in each Member State.

¹ Tandy et al. 2021

To prevent disparities linked to limited Member State funding or administrative challenges, the European Commission should take proactive measures to **provide support, technical assistance, and resources to ensure a cohesive implementation of the Soil Monitoring Law across all Member States**. In this context, we suggest the creation of **a Working Group involving Member States and relevant stakeholders, to facilitate a uniform implementation of these measures in similar soil districts in different Countries**.

3. Holistic approach to Sustainable Soil Management

Encourage the development of science-based thresholds at Member States level

Soil is a complex matter composed of a mixture of minerals, organic matter, gases, liquids, and countless organisms. For this reason, soils are highly diverse in their characteristics, nutrient content and ecosystem services provided, which can vary significantly across regions and depending on agricultural practices.

The reliance of farmers on soil for cultivating food and fiber highlights the importance of soil quality and nutrient accessibility for agricultural productivity. It is of utmost importance that **soil descriptors and relevant criteria are set by Member States considering the best available science**.

Furthermore, when it comes to agricultural soils, nutrient thresholds should not create soil conditions that are prohibitive for crop types with high nutrient requirements.

For example, to comply with the limit of 30–50 mg/kg of extractable phosphorus listed in Part B of Annex I, farmers might be encouraged to avoid planting crops with high P requirements to avoid incurring potential damages caused by exceeding Member State imposed limits. This could create distortions– for example by leading farmers to opt for crops with lower P requirements – and have repercussions on agricultural productivity and ultimately on food security itself.

Striking a balance between setting specific thresholds and acknowledging the diverse characteristics of soils is crucial to optimize soil health and productivity. For this reason, **we recommend granting flexibility in the implementation of soil management strategies in agricultural soils**. This would enable farmers to adapt practices tailored to their specific soil types and regional conditions.

Introduce Nutrient Use Efficiency among the Sustainable Soil Management principles

Annex III of the proposed Directive introduces a list of Sustainable Soil Management principles.

When it comes to agricultural soils, more emphasis should be placed on balanced fertilization and nutrient use efficiency. The concept of Nutrient Use Efficiency (NUE) describes the difference between

the amount of nutrients applied to the crops and the percentage of nutrients retained within the harvested crops. Ultimately, the concept represents the ability to provide for the nutrient needs of plants, while avoiding losses to the environment. The result is an agricultural system that is capable of achieving European food security through high yields with high quality crops, while also ensuring soil health, biodiversity, and long-term agricultural fertility.

The objective of balanced plant nutrition is to ensure that plants have access to an adequate supply of each nutrient at every growth state, regardless of whether their origin is mineral or organic. A combination of the two sources is the most effective strategy to ensure the right nutrient balance to grow healthy crops at their full potential while maintaining soil fertility and maximizing soil carbon sequestration³.

By employing precision farming techniques, targeted nutrient applications, soil testing and new product formulations (such as inhibitors and enhanced efficiency fertilizers, as well as plant biostimulants), farmers can ensure that plants receive the right amount of fertilizer and improve plants' nutrient uptake (both from organic and mineral sources) while reducing nutrient losses to the environment.

Focusing on nutrient use efficiency represents the most effective action to ensure sustainable management of agricultural soils. For this reason, **we recommend the inclusion of actions to boost nutrient use efficiency among the sustainable soil management principles.**

Replace the One-Out-All-Out criterion with a Soil health index

Article 9 of the proposed Directive states that all soils which do not respect at least one of the criteria set out by the proposal itself must be considered unhealthy, thus introducing a *one out-all out* criterion to assess soil health.

Such an approach raises significant concerns. Relying solely on a single criterion to assess soil's health overlooks the complexity of soil itself and fails to provide a comprehensive picture and a reliable assessment of the several aspects at play.

To provide a more accurate assessment of soil's health, **we advise replacing such criterion with a Soil health index, which would represent a more context-specific approach.** Such an index would encompass multiple indicators and reflect the overall health and quality of the soil, considering its physical, chemical, and biological properties.

In this sense, **we urge the Commission to define this Soil health index through a delegated act during the monitoring period established by the Soil Monitoring directive.** This approach would

allow for a more nuanced and effective evaluation of soil health, better aligning with the specificities of various soil types and conditions across the EU.

4. Regulatory Consistency

Avoid additional administrative burden and double regulation for industrial soils

Land, in general, has been altered by human activities over the last centuries and beyond, which led to the creation of “artificial lands” which are well defined in the proposal. It is impossible for this land-type to simultaneously achieve a healthy status and being fit for its purpose e.g. provide stability for installations or the protection from hazardous substances entering the soil. “Artificial land” should therefore be excluded from the objective to achieve healthy soils. If the conditions of artificial land are such that it poses an unacceptable risk to human health or the environment, it will fall within the scope of Chapter IV Contaminated sites.

The current proposal introduces provisions that, being applicable to all European soils, also cover industrial soils which are already subject to regulation under various pieces of legislation, such as the IED, EIA and SEVESO Directives. For instance, the Industrial Emissions Directive already includes provisions for the industrial production sites on soil to ensure that this resource is fully protected, and that contamination is avoided during the life of the permit. These provisions include background information on the current state of the soil e.g. details on former activities and potential contamination. The Seveso-III Directive (Directive 2012/18/EU) on the control of major-accident hazards involving dangerous substances provides for the relevant framework on risk management measures to prevent major accidents and to limit their consequences. While the environmental Impact Assessment Directive states that the environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on, among others, soil, water, air and climate.

To promote effectiveness and avoid unnecessary burdens, we highlight the **importance of avoiding double legislation and ensure clarity and coherence among the existing industrial regulations.**

This will not only optimize compliance efforts for industries but also enhance environmental protection and risk management for industrial soil sites, fostering a sustainable and well-coordinated strategy.

Finally, Article 23 of the Soil Monitoring law proposal refers to turnover of the legal person or of the natural person having committed the violation. The amount of administrative fines should be proportionate to the nature and severity of the illegal conduct. Fines should take away the benefits of non-compliance without being excessive. Turnover as a basis to calculate an administrative fine can lead to unfair results. It is important that penalties are designed in a way that encourages



compliance, and that the level of such penalties remain proportionate to the nature and severity of violations.

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