Proposal of the EU Commission for a Soil Monitoring Law

The position of the German Plant Care Industries Association (Industrieverband Agrar e. V.)

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Inhalt

1. Summary

The Industrieverband Agrar e. V. (IVA) represents the interests of manufacturers of inputs for sustainable crop production in Germany. The business areas of the member companies include crop protection, plant nutrition, pest control as well as biostimulants and plant breeding. As representatives of the suppliers of the above-mentioned products, we are aware of our great responsibility for sustainable crop production. Thus, fertilisers, by supplying our soils with necessary nutrients and plant protection products, contribute significantly to food safety and the preservation of ecosystem services. The IVA is committed to the political goal of sustainably developing plant cultivation in Germany and Europe and therefore thanks you for giving us the opportunity to comment on the "Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Soil Monitoring and Resilience (Soil Monitoring Law)", published on 5 July 2023.

As the basis for security of supply, with sufficient food and feed of high quality, biomass and ecosystem services, agriculturally used soils in particular are the basis for maintaining prosperity in Europe. Therefore, the IVA fundamentally support the EU Commission's intention to maintain and improve the health of soils. We, too, see agricultural practice as the key to achieving the formulated goals and therefore advocate corresponding efforts to keep soils healthy. Moreover, this is in the very own interest of farms, which depend on healthy soils for sustainably successful and productive agriculture. It is thus important to provide farmers with fertilizers and crop protection products of high quality and safety to meet the diverse requirements in the field of soil health and fertility. In addition, biostimulants, new breeding methods and digital decision-making aids will complement this requirement in the future.
Today, there are already farming methods and inputs that sustainably produce high yields with high qualities. Sub-area-specific soil testing, conservation tillage, the cultivation of catch crops, no-till systems, a needs-based supply of the necessary nutrients, an infestation-appropriate use of plant protection products as well as biostimulants and resilient plants are just a few examples. Definitions of these management measures should be provided. In our opinion, generalised approaches are unsuitable.
It is important that the concrete use of soils is taken into account in monitoring. Most agriculturally used soils in Europe have fulfilled arable functions for hundreds to thousands of years. Accordingly, it is only through targeted anthropogenic use that biological, chemical and physical conditions have developed in these soils that can be considered "healthy" in the sense of sustainable soil use, even though, for example, the carbon content in agriculturally used soils is lower than under grassland. Soil fertility thus plays a decisive role in the evaluation of agriculturally used soils. It takes utilization of the land into account and is the basis for the EU Commission's objective of security of supply. Soil fertility should therefore be included as a health indicator. It is defined as the ability of a soil to bear fruit, i. e. to serve as a location for plants and to produce permanent plant yields of high quality. Against this background, limit values and definitions must be fundamentally questioned and reconsidered, in order to achieve the goal of a sustainable and secure food supply in Europe and to meet its important role in the global markets.
Soil also represents a property value that should also be kept in a value-retaining condition by owners and users under property law. This is equivalent to soil fertility. The complexity described raises the question of the proportionality of a Soil Monitoring Law, as the topics described are already covered in detail and differentiated by national and European legislation. Thus, the objective is worthy of support, but a legislative initiative does not do justice to the complexity. Nevertheless, suggestions are made below to bring the EU Commission's initiative to a better result than was proposed.

2. Soil condition

The EU Commission's proposal for a Soil Monitoring Law is based on the assumption that about 2/3 of the agriculturally used soils in the EU are affected by erosion, nutrient surpluses, loss of organic carbon, compaction and salinisation and are thus infertile. For this purpose, individual factors are picked out arbitrarily and the condition of a soil is assessed on the basis of these few parameters. Only a distinction is made between "healthy" and "unhealthy". Such a binary approach to evaluation is not meaningful, as it does not consider natural conditions as a cause. However, the soil system and its evaluation are much more complex. A more differentiated and point-based assessment of soil health, on the other hand, would help to identify potential for improvement and to adapt management accordingly. This would make targeted measures possible in the first place and make them feasible for farmers. We therefore propose an index system for assessing soil health, which is closely oriented to soil use and soil type and, depending on this, defines target values to strive for.

3. Soil health and determination of indicators

In order to enable an assessment using an index system, indicators and assessment patterns are needed to evaluate the physical, chemical and biological condition of a soil. Existing tools can be used for this purpose. For example, the condition of a soil used for arable farming can be described using the field structure approach of the Thünen Institute/GKB (ger. *Gesellschaft für konservierende Bodenbearbeitung e. V.*, Society for Conservation Tillage). The farmer recognises weak points and takes targeted measures to eliminate them. The same applies to the chemical composition of a soil, which can be evaluated with the help of the evaluation system of the VDLUFA (ger. *Verband deutscher landwirtschaftlicher Untersuchungs- und Forschungsanstalten e. V.,* Association of German Agricultural Research and Testing Institutes) and influenced with targeted measures.
Overall, soil fertility must be considered as an essential indicator and defined clearly and realistically. As an example, refer to the proposal formulated above, according to which it is described by the ability of a soil to serve as a location for plants and to permanently produce plant yields of high quality. Since soil fertility is both the presence of a stable soil structure, a sufficient and balanced nutrient supply, a functioning soil life with a humus content adapted to the site, an active microbiome and a large destructive population (e. g. earthworms), soil fertility is a decisive factor in the assessment of soil health. Based on the factors of high soil fertility, sufficient nutrients must always be returned to the soil via fertilisation due to agricultural use to ensure sufficient nutrition for the plants and at the same time to maintain the fertile condition to prevent soil degeneration. For the land use form "arable farming", taking these parameters into account would provide a basis for secure food supply and the fulfilment of further ecosystem services. Other factors, such as the reduction of erosion, a decrease in selective anthropogenic contamination, as well as a higher storage of CO_2 by humus would also be included. In particular, humus increase is associated with good nutrient availability and high yields, because the more biomass is formed, the more roots and above-ground plant residues remain in/on the soil and are available for humus formation.
One indicator that is regularly examined is the pH value. 50 % of all arable soils worldwide have a less than optimal pH value. However, measures are already being taken to improve this condition. The VDLUFA position paper "Determination of the lime requirement of arable and grassland soils" provides recommendations for action for farmers based on soil type, humus content and direction of use. This is a practical example to provide soil managers with guidelines.

4. Nutrient Content

It is apparent that a blanket upper limit, for example for the content of nitrogen or phosphorus in the soil, is impracticable and also not expedient in many respects. For example, the limit value for phosphorus specified in the annex contradicts the goal of sustainable soil management in accordance with good professional practice. Plants need an optimal supply of nutrients in order to be able to exploit their yield potential,

especially in view of their limited vegetation period. This is the only way to produce sufficient food of high quality. The nutrients absorbed from the soil should be in a balanced ratio. A large proportion of these nutrients is removed from the field with the harvested crop and cannot be completely replenished from the soil supply over a longer period of time. Thus, fertilisation of the soil must take place to prevent nutrient depletion of the soil and loss of soil fertility.
According to the VDLUFA method, which is common practice in Germany and which indicates the CAL-P value, the suggested P limit value of 30-50 mg per kg soil corresponds to supply level C (A-E, A = clearly under-supplied, C = optimum to be aimed for, E = very highly supplied - it can be depleted). Supply levels A and B are tantamount to nutrient undersupply, which does not consider the nutrient removal of most crops and thus endangers soil fertility and consequently also humus reproduction. However, the limit value specified in the draft is based on the Olsen P method. A limit value to be applied uniformly in all member states is therefore practically not feasible due to the different analysis methods. Rather, it is necessary to take into account the methods of analysis commonly used in the Member States, which in some cases show considerable differences in the values for optimal nutrient supply (also for other nutrients).
A general upper limit for N content must also be viewed critically. In principle, there is a positive correlation between the clay content of a soil and its potential humus content. Soils with a high clay content tend to develop thicker humus horizons. A higher humus content is in turn associated with a higher proportion of bound nitrogen in the soil pool (in Germany this is between 2,000 and 16,000 kg/ha).
In order to ensure the supply of nutrients to crops without endangering the humus content of the soil, sufficient freely available nitrogen must be added. Without such fertilisation, the humus is mineralised and bound nitrogen (as well as carbon bound in the humus) is released, which in the long term impoverishes the soil and reduces soil fertility. In the sense of soil fertility, but also in the sense of sustainable carbon storage in agriculturally used soils, therefore, in addition to appropriate maximum nutrient levels (appropriate in relation to clay and humus content, yield capacity, precipitation levels, etc.), regionally specific minimum levels should also be set to safeguard this soil function, which should not be undercut.

5. Definition of Soil Districts

As European soils are very diverse in terms of their structure, different farming systems and climatic conditions, a differentiated approach to soils is essential. The structure, composition and use of soils must be taken into account. The considerable differences in soil types and properties, sometimes within a single farmed area, indicate the great financial and administrative effort that would be involved in a new mapping of the indicators mentioned so far. We therefore propose to use and retain existing mapping and assessments of the EU member states. In Germany, for example, the data of the *Reichsbodenschätzung* (soil validation) from 1934 can be used. In order to avoid inconsistent assessments between Member States, guidelines should be defined at the EU level to which these existing systems can be oriented and which can enable a uniform implementation at the local level. A completely new survey system to be developed at EU level and implemented by Member States would not do justice to the great heterogeneity of soils and would involve a disproportionate effort.

6. Soil Contamination

It is unclear what exactly is meant by the term "contaminated site" in the draft directive. The draft describes the term as follows: "'contaminated site' means a delineated area of one or several plots with confirmed presence of soil contamination caused by point-source anthropogenic activities". With regard to agricultural land, the question arises as to whether these "anthropogenic activities" within the framework of regular cultivation measures will also be assessed as "soil contamination".
In agricultural areas, "anthropogenic activities" take place regularly through organic and mineral fertilisation, liming and the use of approved plant protection products. However, applying "good agricultural practice" and assuming intact soil life, these activities are not considered relevant in terms of permanent

contamination. It should also be noted that matters already covered by other regulations should be excluded with reference to the relevant legal texts.
It is therefore necessary to distinguish between permanent contamination and the detection of degradation products, e. g. of plant protection products, in order to adequately classify anthropogenic activity. Active substances of plant protection products are tested and approved according to Regulation (EC) 1107/2009, the products are re-tested zonally and then approved for use. Monitoring (with sampling in some cases many weeks after application) would not provide further information as the higher initial concentrations have already been tested and approved for fate and effect.
Therefore, the reference in Annex 1 (Concentration of a selection of organic pollutants), according to which soil contamination by organic compounds can be checked, should not apply to substances authorised in the EU according to EU 1107/2009 and EU 2019/100. In our opinion, the Soil Monitoring Law must not lead to a possible ban of already authorised and extensively tested products. Furthermore, we do not believe that agricultural practice activities (plant protection, fertilisation, liming, etc.) should be considered as point inputs, as they are applied in approved quantities and intensities over a wide area. Finally, due to the year-round anthropogenic activities on agricultural land, we consider it essential to establish fixed points in time for sampling (e. g. reaching the temperature sum at the start of vegetation or reaching a certain soil temperature in spring) in order to obtain comparable values.
Another aspect not yet considered in the draft is the handling of soils that naturally contain heavy metals. Depending on the heavy mineral content of the parent rock of the soil formation, the heavy metal content of soils can sometimes significantly exceed the precautionary levels set by Member States, even in the absence of anthropogenic intervention. Such sites cannot automatically be considered contaminated. It is essential that geogenic background levels are taken into account when Member States establish limit or precautionary values.

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