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THE CAP ENVIRONMENTAL AND CLIMATE AIMS FOR EU'S COUNTRIES VS. EUROPEAN GREEN DEAL EXPECTATIONS

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ABSTRACT: As a result of the European Green Deal Strategy (EGD), each EU Member State was obliged to specify own effort and aims for agriculture in formal document, i.e. national Strategic Plan for the Common Agricultural Policy (CAP) 2023-2027. The basic reference in the creation of national documents was the specificity of the country's agriculture, as well as the possibility to undertake ambitious measures to contribute to the goals described at the European level. The aim of this paper is to analyze the EU's Member States commitments regarding environmental and climate agricultural objectives in the broader perspective of the European Green Deal ambitions. The approach applied in the study was based on research of literature and legal documents, the European and national statement comparisons, public statistics and European Commission data analysis, which enabled the authors to conduct current and comparative analyses. The research proved the EU's countries' diversified engagement in environment and climate protection. Presented results indicated that the countries' involvement in the context of EGD objectives was recognised as insufficient.

KEYWORDS: Common Agricultural Policy (CAP), European Green Deal (EGD), sustainable development, natural environment protection, climate change

Introduction

The European Union's strategic development goals are defined in ten-year periods. The European Green Deal (Communication, 2019), published in December 2019, is the current document that sets goals for the third decade of the 21st century. Its aim is to pay more attention to the environmental aspects of development. However, this document needs to be seen in a broader context. On the one hand, it is a continuation of the existing development trends but, on the other hand, it is an attempt to show the Member States a new direction of development that would meet the challenges and needs of the societies of the first half of the 21st century. This requires a new, very ambitious attitude to the economy, social relations and institutions.

The challenges identified by the EU mainly relate to environmental problems, i.e. climate change, biodiversity degradation, access to environmentally friendly and cheap energy, the safe use of chemicals and the deforestation of Europe. The solution is a new strategy based on the circular economy and carried out in the form of a just transition. The latter concept means that this transformation should take place in a way that has the least consequences for the weakest and poorest social groups, so that they do not become the victims of change and are not further excluded (cf. Hainsch et al., 2020).

Agriculture is one sector in which socio-economic and environmental objectives are strongly intertwined. For years, this sector has been undergoing transformations in the direction of its greater greening. The effects of this are already beginning to be seen, but the measures currently being put in place are significantly increasing the EU's ambitions and farmers' commitments. This is particularly evident at EU level, where – in specific strategies – i.e. Farm to Fork (Communication, 2020a), Biodiversity strategy (Communication, 2020b) and Fit for 55 (Communication, 2021) the objectives to be achieved by agriculture are set.

According to the authors, at the European level, the most important agricultural targets mentioned in the above-indicated documents that particularly concern land use are (Prandecki & Wrzaszcz, 2022):

- Fertilization management:
 - reduce nutrient losses by at least 50% while ensuring no deterioration in soil fertility, that can result in reduction of fertilizer use by at least 20% by 2030,
- Pesticide management:
 - reduce by 50% the use and risk of chemical pesticides by 2030,
 - reduce by 50% the use of more hazardous pesticides by 2030,
- Development of organic farming:
 - boost the development of EU organic farming areas with the aim to achieve 25% of total agricultural land under organic farming by 2030,
- Protecting biodiversity in agricultural areas:
 - achieve the goal of bringing back at least 10% of agricultural area under high-diversity landscape features. These include, among other things, buffer strips, fallow land, hedges, non-productive trees, terrace walls, and ponds,
- Climate action:
 - reduction of greenhouse gasses at least Effort Sharing sectors, of 40% compared to 2005 levels.

These objectives have been translated into Member States' actions through the Common Agricultural Policy (CAP), the current version of which covers the years 2023-2027. As a result, each country of the European Community was obliged to specify their own efforts and aims for agriculture in a formal document, i.e. national Strategic Plan for the Common Agricultural Policy (CAP) 2023-2027 (CSP). The basic reference in the creation of national documents was the specificity of their agriculture, especially relevant to the scope of environment and climate, as well as the possibility to undertake ambitious measures to contribute to the achievement of EU's goals at the European Community level. Taking into consideration conditional subsidizing of agriculture based on the pro-environmental approach, this issue also has a significant economic importance. Farms' subsidizing was strongly connected with environmental and climate measures (Wrzaszcz, 2023).

Taking into consideration the presented above issues, the aim of this paper is to analyze the EU's Member States commitments regarding environmental and climate agricultural objectives in the broader perspective of the European Green Deal ambitions.

Literature overview

The aim of the EGD is to build, in the perspective of the year 2050, a modern, resource-efficient and competitive economy. The new EU should be characterized by: climate neutrality, separation of economic growth from the use of natural resources, and care for its residents (European Commission, 2022). Climate neutrality should be understood as achieving net zero greenhouse gas emissions by balancing those emissions, so they are at least equal to the emissions that get removed through the planet's natural absorption (UNFCCC, 2021). In the EU, this goal is to be achieved in two ways: through market instruments called EU ETS, and through state regulations in the so-called non-ETS sectors, including agriculture. In those sectors, the emission reduction decisions are taken at the European Council level. The emission level for each member state is published in Effort Sharing Regulation (Regulation, 2023).

This means that similar goals and actions will be pursued in the coming decades, and the emphasis on environmental aspects is likely to increase. As a result, we are dealing with a sustainable approach to development, in which environmental and social goals are as important as the economic ones. This is most evident in strategies considered to be typically economic, e.g. Industry 5.0, in which environmental problems were previously practically overlooked, but now they are being strongly emphasized (Kotyński & Prandecki, 2023).

A holistic approach to development means that the EGD is a concept that affects states and societies on many levels, i.e. mainly in the economic sphere, but not only pertaining to production processes (as marketing or logistics are also subject to change), but – more broadly – taking into consideration the economy and the world at large. The European Union is trying to present this change as a great opportunity for the development of the EU (Communication, 2019), which has been stagnating for a long time. For this reason, great emphasis is placed on innovative and resource-efficient solutions. In addition, changes should lead to: reduction of pollutant emissions, creation of new jobs and economic growth, reduction of energy poverty and external energy dependence, as well as the improvement of health and the quality of life (Prandecki & Wrzaszcz, 2022). These changes will affect not only the EU itself, but also its position in the world (Leonard et al., 2021).

However, such an approach is a big challenge, as it requires deep social changes and, in particular, considering the world, the development of civilization and the role of humans in the currently undergoing processes. With a growing understanding of the effects of human activity, we are increasingly aware that human behavior has a strong impact on the nature of the entire planet (Rockström et al., 2009; Richardson et al., 2023), even on a geological scale. For this reason, it is postulated to distinguish a new geological epoch – the Anthropocene, in which man is the greatest force influencing the world (Revkin, 2011; Rafferty, 2023).

The scale of changes proposed by the EGD means that many circles are opposed to this strategy. This opposition has many reasons, but it is growing as the implementation of this strategy progresses. Initial assumptions about the EGD were received with enthusiasm or indifference, but this has occurred under significantly different conditions, i.e. before the Covid-19 pandemic and before the war in Ukraine. Both of these events have had a strong impact on European economies and household finances. The deteriorating conditions, combined with a general opposition to change and a flawed assertion that there is still time to counteract environmental problems (cf. Prandecki, 2024) are all causing a growing skepticism towards the EGD among European societies.

Moreover, in the initial period of creating and implementing EGD, the postulates were abstract in nature, and only with time did they begin to turn into concrete solutions e.g. through specific strategies like Farm to Fork Strategy (Communication, 2020a) or Biodiversity Strategy (Communication, 2020b). The processes of detailing the main assumptions of the EGD result in an increase in the number of stakeholders affected by these regulations. As a result, critical voices are coming from more and more circles. Farmers, industrialists, public opinion and even governments are questioning the EGD and calling for a regulatory pause (Malingre, 2024), or even for deregulation and the post-

ponement of the entire strategy. The biggest manifestation of this discontent is the farmers' protests, i.a. in Belgium, France, Greece, Germany, Poland and Romania (Cokelaere & Brzezinski, 2024; Henley, 2024; Blenkinsop et al., 2024), who point out that demanding environmental and climate goals impose costly obligations on them that are difficult to meet and limit the competitiveness of their products in relation to products that do not have to meet these requirements, e.g. duty-free imports from Ukraine.

In addition, a sense of reluctance among the stakeholders is caused by a lack of faith in the possibility of solving global problems. It is important to note that many environmental challenges are of this nature, especially climate change. Such an attitude is visible not only among farmers, but within other groups too. Contrary to the assurances of the European Commission, the inhabitants of the EU do not want to believe that the world will follow in their footsteps; instead they fear that strict European standards will result in the loss of competitive advantages. Such an attitude means that public opinion, frightened by the EU's strict climate targets, is increasingly considering the support of right-wing and conservative political circles, which may cause a change in the balance of power in the European Parliament, and thus inhibit or slow down the reform process (Berthelsen, 2023; Herbert, 2023).

However, since 2018, efforts have been made to amend the document. The aim of this process was to achieve a fairer, greener and a more flexible CAP to better reflect the new challenges of EU agriculture (Gündoğar, 2023). This means that not only are environmental aspects of the CAP essential, but also social and economic ones. The modern CAP is another huge step towards sustainable development in agriculture. As part of it, in the second half of 2022, the Member States agreed with the European Commission on strategic plans that define the objectives to be undertaken in the years 2023-2027. These commitments are very ambitious and require significant reforms among the Member States (Wrzaszcz, 2023). Their scale varies depending on the capabilities of a given country but, in each of them, the effort will be significant; both in terms of financial outlays and time, but also in terms of organization. In particular, these concerns are related to measures aimed at protecting the environment, which are becoming increasingly important in the CAP (Wrzaszcz, & Prandecki, 2020; Pe'er & Lakner, 2020; Heyl et al., 2020; Zieliński et al., 2022; Szczepaniak & Szajner, 2022).

Research methods

Materials used in the research can be divided into two main sources. The first one namely, literature sources and legal regulations (desk research method). The second one international database resources, which have been subjected to empirical analysis. Those data were used to analyze the current state of agriculture, as well as time series presenting situations and changes taking place in the European agriculture at the members' level.

Desk research was conducted in the scope of environmental and climate issues connected to agricultural activity. Those premises served as the basis for the implementation of legal rules in the form of regulations. Taking into consideration the above, document analysis was prepared. The main documents to be assessed in the scope of environmental and climate purposes were the EGD strategy (Communication, 2019), Farm to Fork strategy (Communication, 2020a), Biodiversity strategy (Communication, 2020b) and strategy papers on climate action, including the European Climate Law (Regulation, 2021).

The main tool used in the study was the comparison analysis of the main objectives contained in strategic documents concerning agriculture, i.e. national Strategic Plans for the CAP 2023-2027 of the EU's countries in the context of EGD, illustrated with selected statistical data on the agricultural context and its impact on the environment. The objectives of EGD in agriculture in Poland are described in the Polish Strategic Plan for the Common Agricultural Policy for the years 2023-2027 (MRiRW, 2022). Each country was obliged to prepare a strategic plan for national agriculture. The evaluation of these documents was necessary to assess the European and national strategic objectives in the agricultural sector. The comparative analysis of the EU strategic documents unable to present the engagement of each member state in the EGD targets.

Based on the EGD purposes for the EU, basic international statistics were chosen to present the level of indicators and selected tendencies relevant to the environment and climate pressures in the

context of European strategic targets. For this purpose, the European Commission and EUROSTAT data sources were used as context indicators (The new Performance Monitoring and Evaluation Framework, PMEF) that provide information on the agricultural sector and rural areas, as well as general economic and environmental trends. All indicators were used in the EU and country's level analysis regarding EGD aims. Taking into consideration the scope of those indicators, data availability is diverse. The most valid and available data were included into the research, primarily concerning 2022, but also for the period between 2011 and 2022 or even longer in the case of selected issues. The empirical analysis allowed the authors to indicate the current direction of changes in the agricultural sector and relate them to the objectives of the EGD. Used data sources enabled the authors to conduct a comparative analysis that served as the background for theoretical considerations based on climate and environmental premises and formal requirements.

The new Performance Monitoring and Evaluation Framework includes indicators that help measure the CAP performance. Those indicators include context indicators, results indicators, as well as output indicators.

Considered in the research were selected context indicators that serve as the background for the analysis of the countries' engagement in the EGD aims. Context indicators provide information on the agricultural sector and rural areas, as well as general economic and environmental trends. Selected indicators in the research are as follows: utilized agricultural area (context indicator: C31 Land cover), greenhouse gasses emissions (C45), farming intensity (C33) and pesticide sales (C48) (European Commission, 2024c). The above informed the authors about the significance of agriculture in a given territory, as well as potential threats to the environment and climate.

To measure the connection between the EGD purposes and the CAP measures, result indicators were analyzed. Result indicators link the CAP actions to their purpose, while Member States set targets to quantify their ambition in the implementation of the CAP. The following indicators were used in the research: R.29 – Development of organic agriculture (Share of UAA supported by the CAP for organic farming); R.24 – Sustainable and reduced use of pesticides (Share of utilized agricultural area (UAA) under supported specific commitments which lead to a sustainable use of pesticides in order to reduce risks and impacts of pesticides such as pesticides leakage); R.34 – Preserving landscape features (Share of utilized agricultural area (UAA) under supported commitments for managing landscape features, including hedgerows and trees); R.22 – Sustainable nutrient management (Share of utilized agricultural area (UAA) under supported commitments related to improved nutrient management) and R.23 – Sustainable water use (Share of utilized agricultural area (UAA) under supported commitments to improve water balance). Listed indicators unable to describe countries' engagement in EGD aims realization.

Results of the research

The EGD underlined the need for reinforcing a sustainable direction of agriculture development in the EU, based on the problems observed in the natural environment and climate. Agriculture is a very important sector of the economy of each country, not only considering economic aspects, but also social and environmental ones. The scale and quality of agricultural practices determines the sector's impact on the society at large. One of the most important issues in this regard is the management of agricultural areas, including chemical means of production, and the scale of greenhouse emissions from the sector.

Agriculture in EU countries – context approach to the sector evaluation with regard to natural environment and climate impact

The fundamental information about the agricultural sector of the EU and its member states is delivered by the European Commission. Context indicators provide information on the agriculture and rural areas, as well as general trends, including environmental and production aspect of agricultural activity, taking into account regional specificity and diversity of the Community.

The broad importance of agriculture in the context of sustainable development is determined by the space that is at the disposal of agricultural producers. The determinant of this space is the surface of the utilized agricultural area. The majority of area is dedicated to agricultural production in the EU

(Figure 1) that is one of the most important arguments to pay significant attention to the quality of agricultural practices in the light of environmental and climate pressures.

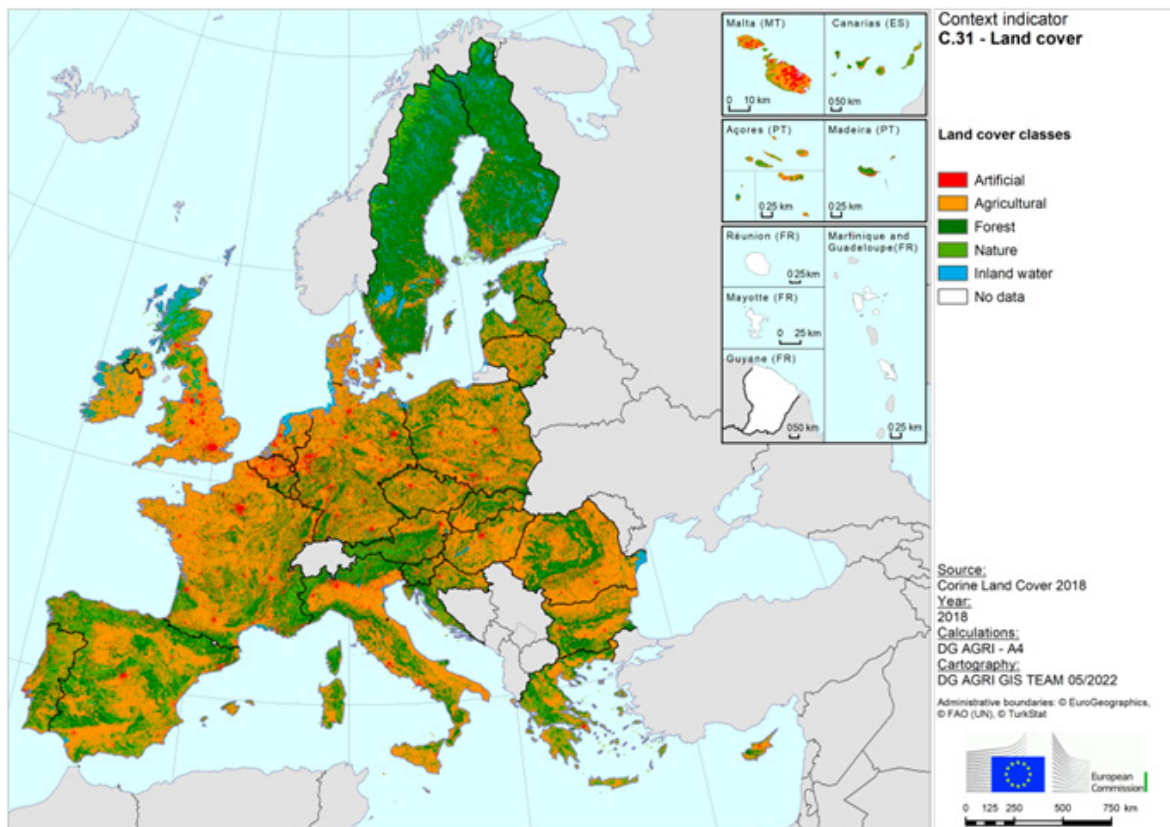


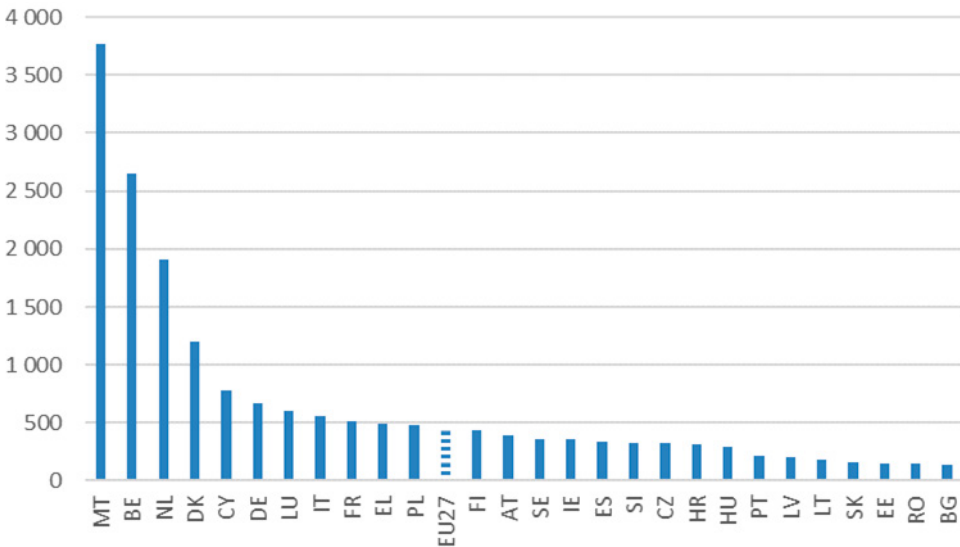
Figure 1. Land cover in the EU in 2018

Source: Commission (2024c).

Pressure exerted by farming on the environment and the climate is reflected by the level of farming intensity that informs about the total scale of chemical means of production used (Figure 2). This issue is strongly connected with the main aims of EGD. At the EU level, farming intensity is measured as the level of inputs used per production factor (land, capital, labour force). The most common approach concerns intensity of land use, expressed in relation of inputs per cultivated area of agricultural land. While intensification is defined as the increase in farming intensity, while extensification describes the opposite trend. The volume of inputs used is estimated by dividing input expenditures (per hectare) by the input price index for the year and country in question. Fertilizer expenditure (purchased fertilizers and soil improvers) is divided by the fertilizer price index in the country of the same year in order to estimate the volume used. Similarly, crop protection expenditure (plant protection products, traps and baits, bird scares, antihail shells, frost protection, as well as purchased feed (European Commission, 2024c). As Figure 2 indicated, the intensity of production is diverse in the EU. The average input is estimated at the level of 476 euro/ha, while the difference between maximum and minimum value at the country level is in the scope 3769 euro/ha – the case of Malta and 134 euro/ha (Bulgaria). Farming intensity is especially high in Malta, Belgium, Netherlands and Denmark – above 1000 euro/ha. On the other end of the spectrum we find Bulgaria, Romania, Estonia, Slovakia, Lithuania and Latvia – below 200 euro/ha.

A special component of evaluating farming intensity is pesticide sales and use, as singled out by the European Commission. Sales of pesticides serves as a proxy for pesticides use in agriculture. The indicator specifies the sales of pesticides for each of the following categories: fungicides and bactericides, herbicides, haulm destructors and moss killers, insecticides and acaricides, molluscicides, plant growth regulators, and other plant protection products. Taking into consideration the value of pesticides sales by UAA in the EU-27 in 2022, the level achieved reached about 1000 kg/ha.

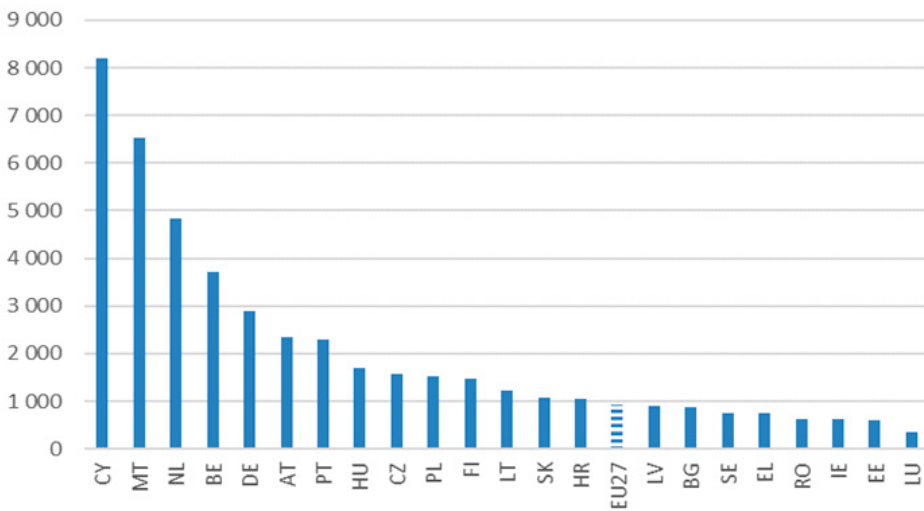
The majority of countries were characterized by the higher level of intensity expressed within this indicator. The counties with relatively small agricultural areas, e.g. Cyprus, Malta, Netherlands and Belgium exceeded 3500 kg/ha. The opposite of this group of countries is Luxemburg, Estonia, Ireland, Romania, Greece, Sweden, Bulgaria and Latvia with less than 1000 kg/ha.



MT Malta, BE Belgium, NL Netherlands, DK Denmark, CY Cyprus, DE Germany, LU Luxembourg, IT Italy, FR France, EL Greece, PL Poland, FI Finland, AT Austria, SE Sweden, IE Ireland, ES Spain, SI Slovenia, CZ Czechia, HR Croatia, HU Hungary, PT Portugal, LV Latvia, LT Lithuania, SK Slovakia, EE Estonia, RO Romania, BG Bulgaria.

Figure 2. Farming intensity of the EU's agriculture* – average input expenditure (euro) per hectare (ha) in 2020

Source: authors' work based on European Commission (2024c).



* Abbreviation for countries – see Fig. 2.

Figure 3. Pesticides sales by UAA in 2022*

Source: authors' work based on European Commission (2024c).

Taking into consideration the type of plant protection products, the dominant role is assigned to herbicides, haulm, destructors and moss killers (43% of pesticides sales in the EU-27), fungicides and bactericides (32%) and next insecticides and acaricides (17%). Analyzing the period of the last 10 years, a propotion between the sales of those major groups has changed. Recently, fungicides and bactericides have lost their prior significance, while the role of herbicides, haulm, destructors and moss killers, insecticides and acaricides, as well as plant growth regulators has increased. The relation between major groups of pesticides informs about changing agricultural needs. One of the

reasons for this change is the legal regulations allowing the use of stronger agents and the growing resistance of organisms to the pesticides.

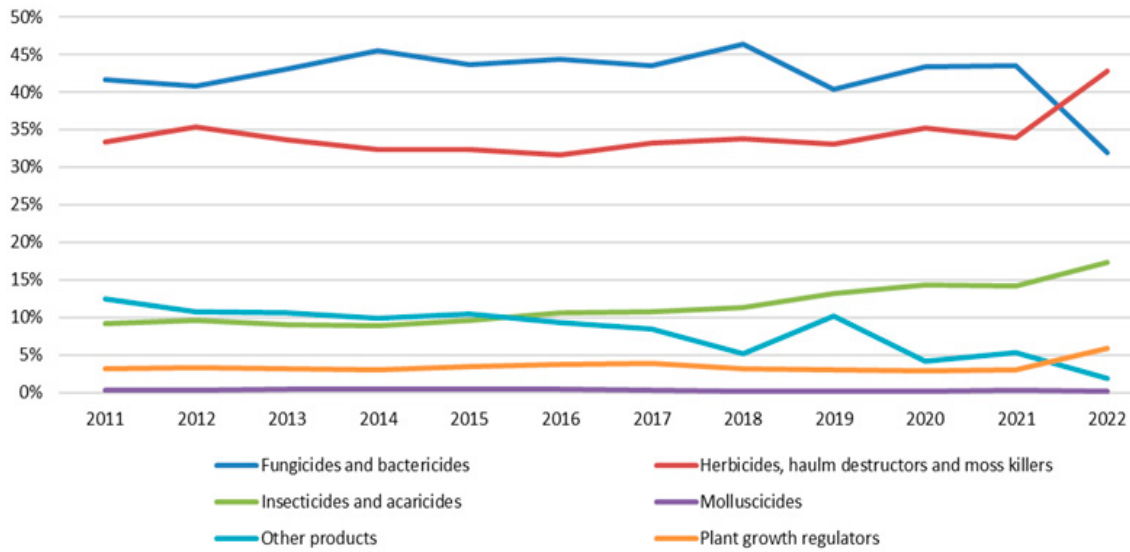
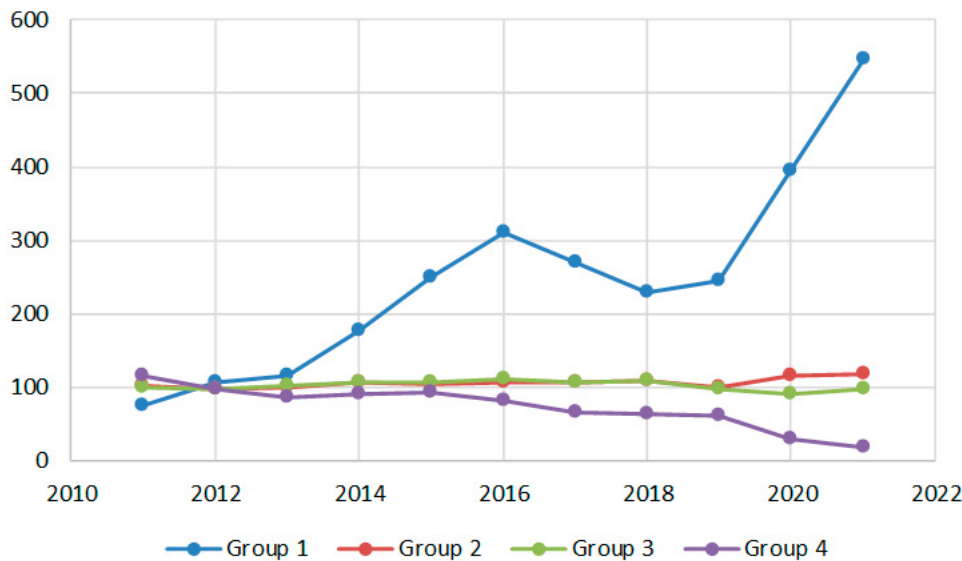


Figure 4. The structure of pesticides sales by major groups in EU-27, 2022

Source: authors' work based on European Commission (2024c).

A substantial indicator of the environmental pressure exerted by pesticides is the Harmonized Risk Indicator 1 (HRI). HRI refers to the risk associated with pesticides and it is based on European Statistics on the market availability of pesticides. Sales data collected by Eurostat are categorized and weighted based on the regulatory status of their active substances under Regulation (EC) No 1107/2009. The resulting weights are aggregated according to the Commission Directive (EU) 2019/782 resulting in a harmonized, EU-wide indicator that generally presents the pesticides category and its internal usage ratio within a given period.



* Group 1 – low-risk active substances; Group 2 – active substances; Group 3 – active substances candidates for substitution; Group 4 – non-approved active substances.

Figure 5. Harmonized Risk Indicator 1 by group of substances (Index, 2011-2013 average = 100) in EU-27*

Source: European Commission (2024c).

During 2010-2022, HRI by group of substances was subject to significant changes in the considered categories. In the case of low-risk active substances, there has been a significant increase, which indicates the use of an increasing volume of substances characterized by a relatively low burden on the natural environment. At the same time, a departure from the use of group 4 agents was noted. However, compared to the baseline years, there was an increase in HRI in total.

EGD is directed towards the achievement of climate neutrality. In this context, special attention is placed on the limitation of gas emissions from different sectors of the economy, including agriculture. One of the most important issues in this context is greenhouse gasses emissions (GHG), as well as ammonia emissions from agriculture that influences the state of the climate.

One of the relevant sub-indicators is net GHG emissions from agriculture including soils. On the one hand, aggregated annual emissions of methane (CH₄) and nitrous oxide (N₂O) from agriculture are included, as reported by Member States under the IPCC 'Agriculture' sector of the national greenhouse gas inventory submitted to the United Nations Framework Convention on Climate Change. That sector includes the sources of GHG from agriculture such as: enteric fermentation of ruminants (CH₄); manure management (CH₄, N₂O); rice cultivation (CH₄) as well as agricultural soil management (mainly CH₄, N₂O). The specified emissions are part of the binding emission reduction targets laid out under the Effort Sharing Regulation (Regulation, 2023) and reporting on these emissions is mandatory under the Governance Regulation (Regulation, 2021). On the other hand, the indicator of GHG emissions from agriculture also takes into consideration annual emissions and removals of carbon dioxide (CO₂), and (where these are not reported under the agriculture inventory) emissions of methane (CH₄) and nitrous oxide (N₂O) from agricultural land uses (grassland and cropland). The latter are reported by Member States under the IPCC 'Land Use, Land Use Change and Forestry' (LULUCF) sector of the national GHG inventory to the UNFCCC grassland and cropland. It is important to note that emissions of CO₂ from the energy use of agricultural machinery, buildings and farm operations, which are included in the 'Energy' inventory under UNFCCC, are not included in this indicator of GHG emissions. The specified indicators of emissions and removals are covered by the LULUCF Regulation (Regulation, 2018), and reporting on these emissions and removals is mandatory under the Governance Regulation (Regulation, 2021).

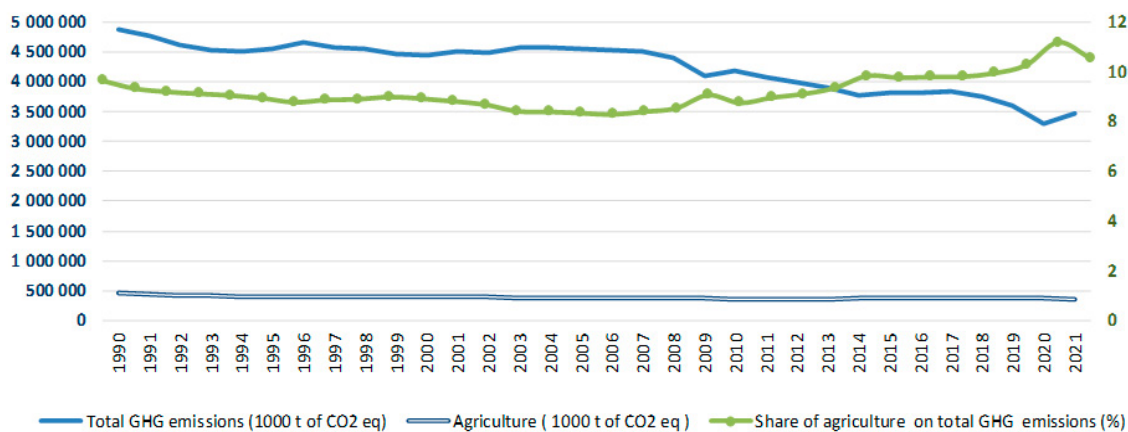
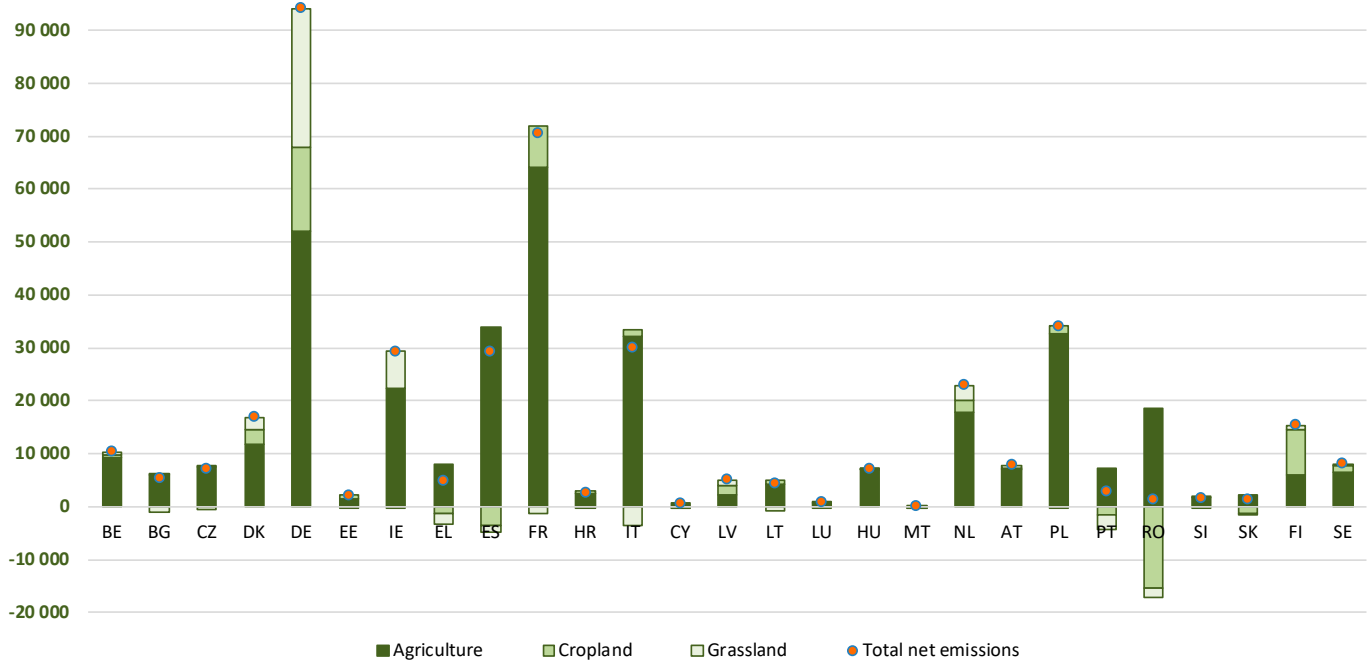


Figure 6. GHG emissions from agriculture in the EU-27 (the scale of emissions in total and from agricultural sector, amount in 1000 t of CO₂ eq, and share of agricultural sector in emissions in total, %)

Source: European Commission (2024c).

According to European statistics, GHG emissions are characterized by a downward trend over a long period of time. Comparing the two extremes of the study period, the volume of emissions decreased from 4900 thousand t (1990) to 3300 thousand t (2021); almost by 30%. This result is dictated by the ongoing changes in the economy, both in quantitative and qualitative terms. At the same time, in the period under review, i.e. since 1990, the volume of emissions from the agricultural sector decreased from 470 thousand t to 370 thousand t in 2021, which amounted to a decrease of approx. 20%. A comparison of these statistics shows that the agricultural sector is not keeping up with the reduction changes taking place in other sectors of the economy, mainly the energy sector

which is the leader of emissions reduction. Generally the non-ETS sectors which have more enterprises than others have tendencies to reduce emission at a slower rate than companies included in ETS. In addition, it is hard to properly measure those emissions in agriculture and thus implement policies relevant to for millions of farms. Moreover, the GHG reduction in agriculture should not affect food security, which makes this policy even more complex and less effective. Thus, agriculture responsibility for emissions has risen to 11%.



* Abbreviation for countries – see Figure 2.

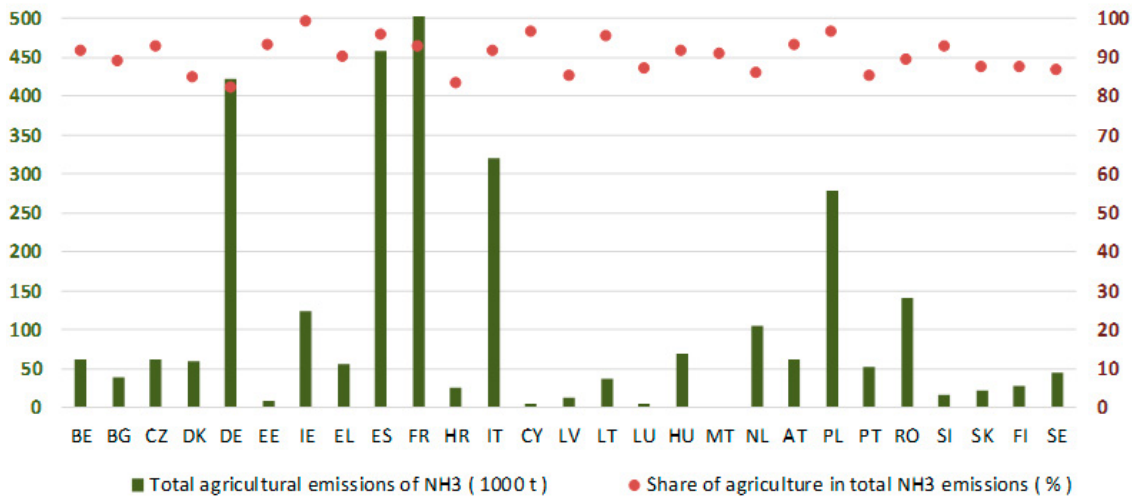
Figure 7. Total net emission including GHG emissions from agriculture, cropland and grassland in Member States* of the EU (1000 t of CO2 eq), 2021

Source: European Commission (2024c).

The sources of net emissions from the agricultural sector relate to the scale of agricultural production, the method of cropland cultivation and the use of permanent grassland. Each of these components has a different impact on the total amount of emissions from the sector, which is also due to the specificity of agriculture in individual countries. In the case of the vast majority of countries, the most important factor is the scale of agricultural activity, which determines net emissions from the sector at large. The exceptions in this regard are the cases of Finland and Romania. In the case of Finland, the largest part of the emissions comes from cropland. By contrast, the Romania case shows that all emissions from agriculture can be repaid through cropland management. The overwhelming majority of countries are distinguished by low absorption of emissions, hence the total amount of emissions is close to the result of net emissions. Beyond Romania, in the field of mitigating emissions through cropland and grassland management, we can see Spain, Greece, Italy and Portugal, followed by Slovakia, Bulgaria, France, Czechia, Lithuania and – to a small extent – Poland.

The second sub-indicator concerns ammonia emissions from agriculture (NH3) that measures total value, including subcategories from such sources as: synthetic N-fertilizers; dairy cattle; non-dairy cattle (meat production); swine; laying hens; broilers and all other agricultural subsectors. Taking into consideration the scale of agriculture influence on total NH3 emissions, the sector is responsible for more than 90% of them. The diversity among the scrutinized countries ranges from 82% to 99%. The numbers indicate, on the one hand, agriculture responsibility for emissions, on the other hand, possible scale of reduction of NH3 in total in the case of undertaking proper agricultural practices that goes towards gasses limitation.

Ammonia emissions are the derivative of the type of animals kept, as well as the scale and the manner of animal production that is reflected in total agricultural emissions of NH₃. The first places in this respect are occupied by France (more than 500 thousand t), Spain and Germany. At the opposite end we find Malta, Luxemburg, Cyprus and Estonia; below 10 thousands t of emissions.



* Abbreviation for countries – see Figure 2.

Figure 8. Ammonia emissions from agriculture in Member States* of the EU, 2021

Source: European Commission (2024c).

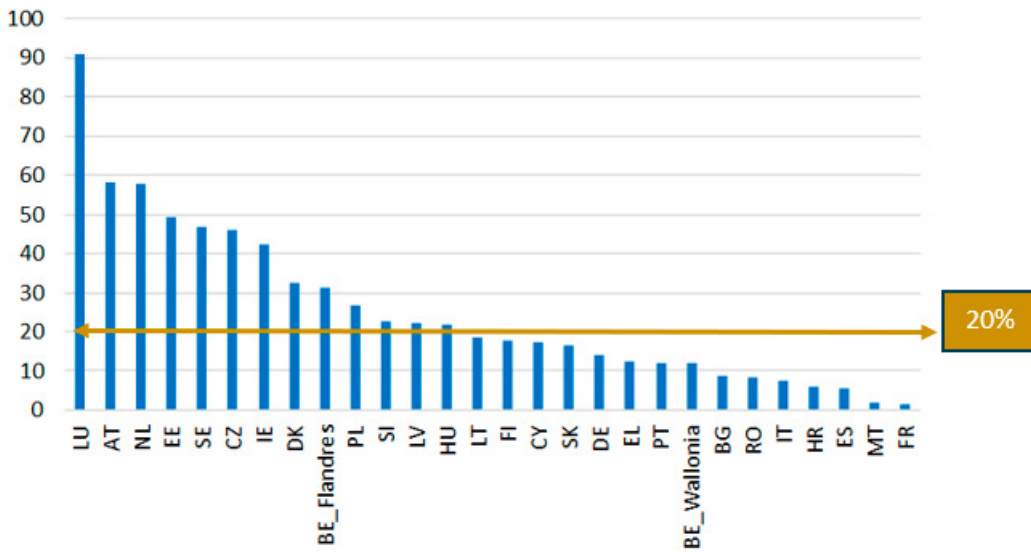
Summarizing, the presented values of the context of EGD implementation underlined the justification of the current direction of the EU policy, emphasizing the need to implement more environment- and climate-friendly measures. The scale of emissions from agriculture is significant and increasing that is the result of intensification process of agricultural production in the EU. The diversity of the EU Members justifies their different involvement in activities aimed to improve the state of the climate and the environment through agricultural practices. For this reason, this diversification should be also reflected in national Strategic Plans for 2023-2027 (CSP).

EU countries' engagement in the Common Agricultural Policy – empirical approach to the national sectors' evaluation with regard to the European Green Deal expectations

Each Member State of the EU was obliged to indicate its own aims connected with the realization of EGD. In agriculture, these goals should take into account the following actions: the reduction of fertilizer nutrient losses, the reduction of pesticide sales, the development of organic farming and the preservation of biodiversity. The national Strategic Plans for the Common Agricultural Policy for 2023-2027 underlined the sector's connection with the European targets for 2030. This reference specified the responsibility of individual countries in the achievement of EGD targets. Countries' declarations and their strategic objectives for the agricultural sector, as well as interventions (dedicated to farmers), are the point of reference in assessment of EU's member states environmental and climate motivations.

The Reduction of Nutrient Losses

One of the EGD aims is the reduction of nutrient losses by 50% that should result in the lower overall use of fertilizers, established at the level of 20%, while ensuring that there is no deterioration in soil fertility. Changes in this area are monitored by CSPs, based on the share of the utilized agricultural area (UAA) under supported commitments related to improved nutrient management (R.22) that inform about sustainable nutrient management (Figure 9).

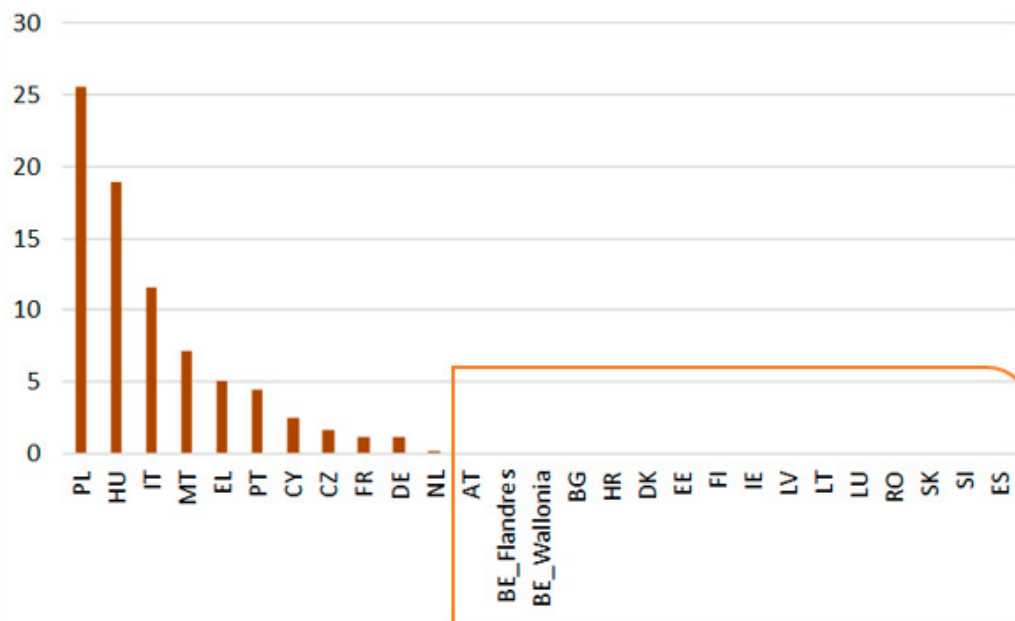


* Abbreviation for countries – see Figure 2.

Figure 9. Share of UAA under supported commitments related to related to improved nutrient management by 2027

Source: authors' work based on European Commission (2024d).

According to countries' declarations, approximately half of them plan to realize commitments to improve nutrient management on at least 20% UAA. The differences in this respect are significant between countries. Support under CSPs to increase nutrient efficiency, including through manure management and precision technologies, is expected to contribute to optimizing fertilizer usage, and thus reducing nutrient losses (Münch et al., 2023). Nevertheless, the aim of the EGD is to reduce the quantity of nutrient losses and it is difficult to assume to what extent this will be achieved at the EU level, especially taking into consideration the obligation to improve nutrient management in the specified areas of agricultural land.



* Abbreviation for countries – see Fig. 2. Most countries didn't declare this target to be achieved in the perspective of 2027 (countries indicated within the rectangle in the Figure).

Figure 10. Share of UAA under supported commitments to improve water balance by 2027

Source: authors' work based on European Commission (2024d).

In this context, the countries' commitments to improve water balance are important as well. According to the CAP rules, the determinant in this scope is the share of utilized agricultural area (UAA) under supported commitments, which defines sustainable water use (R.23, Figure 10).

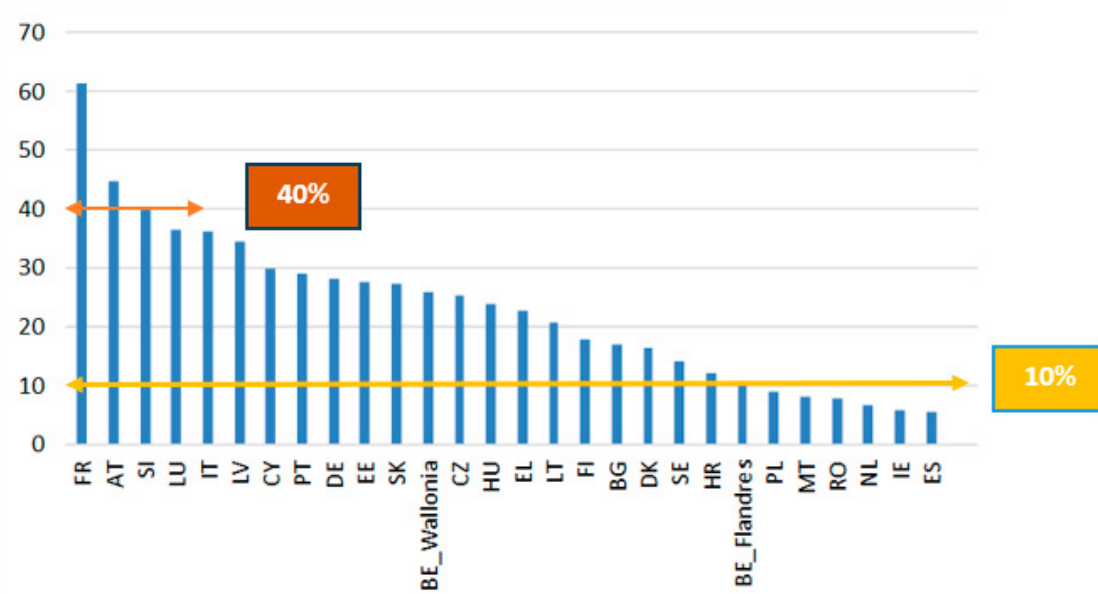
Only 11 CSPs planned interventions to improve water management. According to the countries' declarations, the share of agricultural land under supported commitments to improve water balance is targeting values between 0.1% and 25.6% of each Member State's agricultural land. The average value for the EU by 2027 is 4.5% of UAA. One example of measures that improve water and nutrients management is strengthened conditionality rules for buffer strips along watercourses and soil management. This, combined with numerous voluntary nutrient management interventions, will contribute to the Farm to Fork Strategy's target of halving nutrient losses by 2030 (Münch et al., 2023). Unfortunately, the majority of countries didn't decide to declare the UAA under supported commitments to improve water balance by 2027 (see Figure 10). According to the principles of creating strategic plans, each country makes individual decisions, taking into account its conditions and needs of local agriculture, which causes differences in the degree of their involvement in the implementation of the specific goals. However, each country must also properly justify the direction of its agricultural policy. It should be emphasized that the EGD goals have been set until 2030, which means that they will also be implemented through strategic plans after 2027. The priorities of agricultural policy in individual countries may not include the issue of water balance in the current perspective, which does not mean that it will not be more strongly emphasized in the next strategic plan. At the same time, it is worth noting that water management is not a direct goal of the EGD, but an indirect result of the implementation of the present strategic plans.

The Reduction of Pesticides Usage

Another aim of the EGD dedicated to the reduction in the usage of chemicals is the limitation of pesticides by 50%, especially the most dangerous ones. Under the CAP 2023-2027, all Member States are required to contribute to the reduction of pesticide use. The measurable (official) indicator to monitor their effects is the share of the utilized agricultural area (UAA) under supported specific commitments which can lead to a sustainable use of pesticides (in order to reduce risks and impacts of pesticides, e.g. pesticides leakage). While the link between these issues is logical, there is no direct commitment on the part of the Member States to achieve the reduction target by a large percentage.

Member States will be assessed on the basis of the value of the result indicator R.24 – Sustainable and reduced use of pesticides (Figure 11). The following types of interventions may be concerned, when specific requirements or conditions justify it: Schemes for the climate, the environment and animal welfare; Environmental, climate-related and other management commitments; Sectoral types of interventions (European Commission, 2024). The examples of practices covered by the principle of conditionality of the CAP support relate to crop rotation, protection of fallow land and landscape features, the use of buffer strips and the protection of permanent grassland; all essential elements of good agricultural and environmental conditions (GAEC). The examples can also include voluntary interventions (such as eco-schemes) that offer financial support to farmers to reduce the reliance on chemical pesticides through e.g. the adoption of enhanced integrated pest management principles, biological control methods, technologies for precision farming and more effective application of plant protection products (European Commission, 2023a).

CSPs have a high potential to contribute to reducing the use of chemical pesticides, as a result of the range of mandatory and voluntary measures offered to farmers (Münch et al., 2023). However, the declared result of the percentage of agricultural area covered by these measures does not guarantee success at EU level, because Member States have not declared specific reduction targets. The percentage of the area covered by the indicated activities ranged from 6% to 60% in individual countries. Spain, Ireland, Netherlands, Romania, Malta and Poland declared the value below 10%, while Slovenia, Austria and France aim to cover 40-60%. To compare, the aim for the EU is 27% UAA.



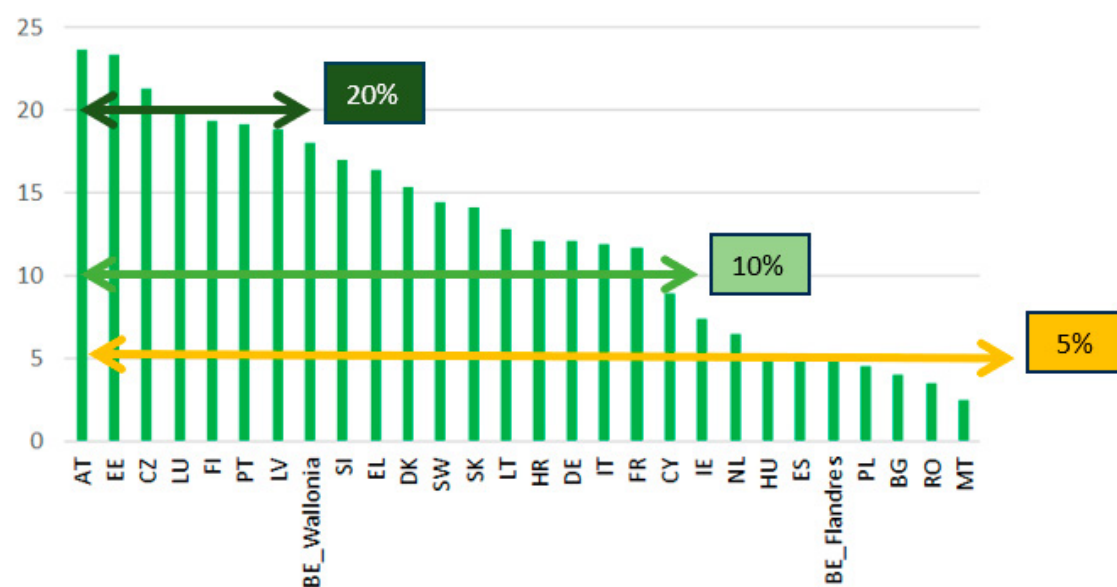
* Abbreviation for countries – see Figure 2.

Figure 11. Share of UAA under supported specific commitments which lead to a sustainable use of pesticides by 2027

Source: authors' work based on European Commission (2024d).

The Development of Organic Farming

In addition to reduction targets in terms of limiting the use of chemical inputs of agricultural production, the EGD indicates development goals. This numerical development goal pertains to the advancements in organic farming. It is assumed that organic farming will be developed, with the planned result of the EGD being 25% of the agricultural area allocated to this management system by 2030.



* Abbreviation for countries – see Figure 2.

Figure 12. Targeted area of UAA in organic farming, supported in period 2024-2027 in Member States of the EU by 2027

Source: authors' work based on European Commission (2024d).

The adopted development goal of organic farming in the EGD will also be monitored as part of the assessment of national strategic plans. In this case, too, it is mandatory to indicate the area that the Member State in question plans to devote to organic farming. All Member States are required to indicate the level of result indicator [R.29 – Development of organic agriculture: Share of utilized agricultural area (UAA) supported by the CAP for organic farming, with a split between maintenance and conversion] (European Commission, 2024).

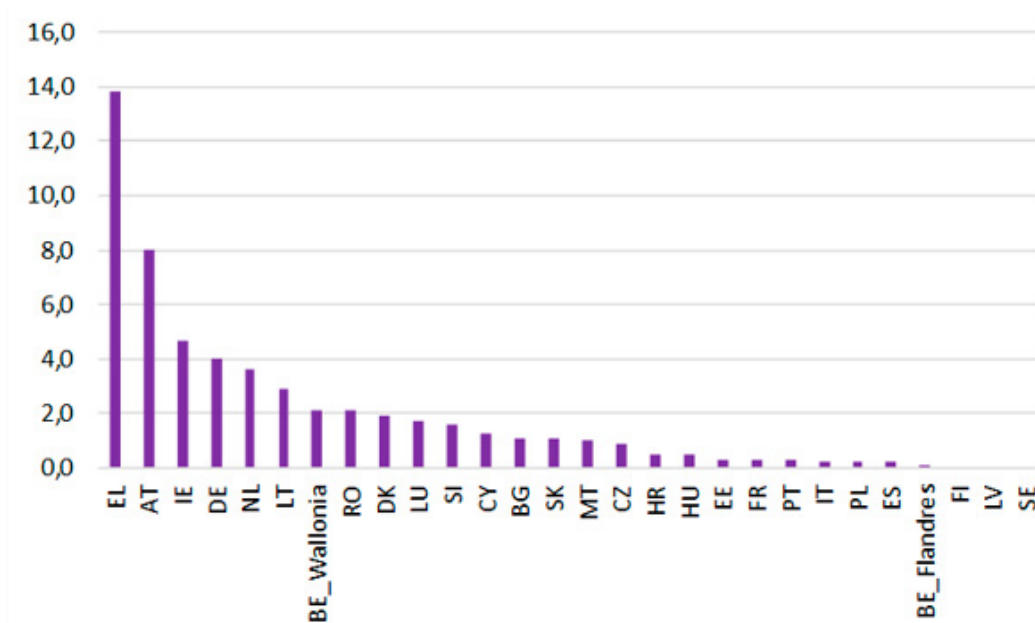
In the CAP strategic plans, Austria, Belgium-Wallonia, Denmark and Sweden set ambitious 2030 targets, with 30% of UAA expected to be organic by 2030 (European Commission, 2023a). At the EU level, it is expected that about 10% of the UAA will be supported as organic farming in 2027 (Münch et al., 2023). A comparison of these two shares shows significant discrepancies or, in other words, the difficulty of achieving 25% UAA in an organic system of production.

All 28 CSPs include funding to support organic farming that is worth emphasizing. While Member States' targets expressed in CSPs are not directly comparable, because they consider the perspective of 2027, not 2030. Countries' targets for the period 2023-2027 that covers present strategic programs are presented in Figure 12. At national level, the announced ambition for agricultural areas for organic production is between 3% and 24% of agricultural land by 2027. Figure 12 shows significant differences in the scope of organic farming, as only 3 countries indicated a share above 20%, 10 countries below 10%, including 4 countries below 5% by 2027.

The Preservation of Biodiversity and Landscape Features

The EGD underlined the need to protect valuable landscape elements that are, or will become habitats for biological life. According to the assumptions of the EGD, there should be at least 10% of agricultural area under high-diversity landscape features in the EU.

The main basis in the CAP for the use of land for landscape conservation is the share of UAA under supported commitments for managing landscape features, including hedgerows and trees (Figure 13). This figure is measured by the result indicator R.34 that represents the value of the areas which have landscape features, but do not include landscape features under conditionality, unless these features simultaneously would be supported under additional commitments going beyond the basic requirements (European Commission, 2023a).



* Abbreviation for countries – see Fig. 2. FI, LV, SE – not planned.

Figure 13. Share of UAA under supported commitments for managing landscape features, including hedgerows and trees by 2027

Source: authors' work based on European Commission (2024d).

According to the methodology used for calculating this indicator (R.34), included is the area under commitment that corresponds to the hectares actually covered by landscape elements, and not the entire agricultural area in which only a certain portion is devoted to biodiversity-friendly practices (European Commission, 2024). The target to 2027 for the EU is 2% of UAA. The majority of countries declared the values below 2%. Greece and Austria have adopted very high targets.

CSPs, as a result of a wide range of activities, contribute to increasing the presence of high-diversity landscape features in the achievement of the Biodiversity Strategy target 2030 (Communication, 2020b), although it is difficult to expect the full implementation of these objectives (Münch et al., 2023).

Discussion

The outcomes presented above considered selected contexts and results indicators of the CAP. Not even all environmental indicators have been taken into account. Such a presentation may be considered incomplete, however – in the opinion of the authors – it is essential to assess the current CAP in the context of EGD. The additional result indicators (European Commission, 2024) would increase the amount of available information, but they wouldn't be directly related to the strategic objectives of the EGD in the context of agriculture. For this reason, the authors have decided to present the most important indicators, the description of which has already made it necessary to discuss many topics.

The presented context indicators show that environmental and climate actions before EGD were not sufficient to meet the assumed objectives. Even the greenhouse gasses reduction, described as one of the achievements of the EU, seems to have stagnated in recent years.

European agriculture varies significantly depending on the Member State. This is evident at the level of agricultural production intensity, the use of inputs like nutrients or pesticides and emissions (e.g. GHG or ammonia). This diversity means that the national Strategic Plans and environmental objectives adopted in each Member State must differ from each other. They are tailored to the capacity of each country to act. The results show that Member states' commitment to the EGD in agriculture also varies.

Taking into consideration the above-mentioned issues of the EU's members' engagement in realization of the EGD purposes, it can be concluded that the achievement of the reduction of nutrient losses and pesticides, as well as development of organic farming and biodiversity protection will be a significant challenge for the EU as a whole. Member States have proposed a number of measures aimed at agricultural producers, but it is difficult to estimate the interest of farmers in participating in these measures. Member States, in most areas, have adopted fairly general indicators for measuring the result of their actions in the period 2023-2027, often directly not corresponding to the objectives of the EGD.

The European Green Deal was supposed to be a strategy that would give the European Union a development impulse that would put the economies of the Member States on the path of sustainable development. For this reason, two courses of action are visible in this document. On the one hand, these are development stimuli, mainly comprising innovations. On the other hand, these are limitations that lead to a change in thinking about the natural environment and the human impact on it. The justification for the restrictions is the need to counteract current and future threats that may lead to a slowdown, or even a collapse in the economic development of Europe and the world.

The limitations mentioned above are increasingly becoming the subject of discussion. Initially, the assumptions of the EGD were accepted by societies as necessary activities for further development. Over time, when it turned out that the need to change habits affected an increasing number of stakeholders, dissatisfaction grew. There is a generally positive attitude towards environmental protection, but not at one's expense.

As a result of negative opinions and protests in 2024, the European Commission is gradually withdrawing from some of the provisions that have been drafted, or even already adopted. Similar measures are also being taken at a national level. Such actions give rise to doubts as to the feasibility

of achieving environmental objectives for agriculture, regardless of the current situation in individual countries and their strategic plans.

The CAP is supposed to be a form in which EGD is implemented into agriculture. However, its preparation at the same time as the creation of thematic strategies, directives and regulations describing the EGD goals, made it difficult to properly implement those goals into practice. In other words, for most of the EGD targets, Member States have not declared a numerical contribution to the Union target. Most national strategic plans lack precise declarations of country contribution to a specific environmental and climate goal. Contributions to the EGD objectives are included throughout the CSPs, but they are largely unquantified and unspecified. The eco-schemes, next to the agri-environment and climate measures, including organic farming and strengthened conditionality, contribute to the EGD objectives. The extent of that contribution, however, will depend on the uptake and implementation of pro-environmental measures by farmers (Directorate-General for Agriculture and Rural Development, 2023). The new Performance Monitoring and Evaluation Framework (PMEF) is one of the key elements of new delivery model, but the proposed system of indicators appears incomplete for evaluating the specific objectives of the EGD, in the scope of climate and environmental effects (Münch et al., 2023).

This resulted in CAP becoming an intermediate solution, i.e. steering Member States' agriculture in the right direction, but not enforcing actions ambitious enough to meet the EGD goals. It seems that the European Commission's mistake was to implement the EGD goals too hastily in order to achieve them by 2030. A slightly slower pace and better preparation of legal regulations, as well as increasing social awareness of the needs could have led to better results. For this reason, there is a need for further action, which is a direct result of the various strategies detailed by EGD. In this regard, we can point to regulations on counteracting climate change that were agreed upon after the national Strategic Plans came into force.

Treating the CAP as an intermediate solution resulted in the need to introduce more restrictive solutions through additional legal acts not directly related to the agricultural sector. They mainly concern nature protection, but also appear in industry regulations. Such indirect implementation of some of the obligations concerning farmers causes tension and anxiety in this social group. This additionally increases the negative attitude towards the entire EGD strategy and affects its social acceptance.

Thereby, a number of important documents regarding EGD have been postponed in 2024. This includes the Regulation on the Sustainable Use of Plant Protection Products (Proposal, 2022b) and the Nature Restoration Law (Proposal, 2022a). Both documents could have been of great importance for the implementation of the EGD in the area of agriculture and significantly could have increased the environmental commitments of this sector compared to the CAP.

The first of these documents mainly concerns the reduction of pesticide use, which is one of the most important goals in the Farm to Fork Strategy. The problem of pesticide use is already regulated in the European Law, however, new and more restrictive regulations are needed to fulfill the EGD target. The European Commission decided to abandon this project in February 2024 due to declining support for these solutions, even among the authors of this document (PAN Europe, 2024; Liboreiro & Fortuna, 2024). At the same time, as indicated above, there is no direct reference to pesticide reductions in the CAP and national Strategic Plans.

The discussion on the Nature Restoration Law was postponed to an indefinite future (O'Carroll, 2024), because there was little chance of its acceptance at the level of the European Council. This document mainly concerns the protection of biodiversity, but achieving this goal is only possible with the active involvement of agricultural sector. As a result, the Nature Restoration Law includes targets related to agriculture for 2030, 2040 and 2050. They also go far beyond the provisions of the CAP and the national Strategic Plans. Many Member States have similar doubts, i.e. the lack of alignment of the targets with country's specificities. The withdrawal from the Nature Restoration Law is significant, because this legal act is considered one of the flagship elements of the EGD.

The reluctance to adopt the EGD is also visible at the national level, as primarily manifested by farmers' protests. In the future, e.g. with the entry into force of the ETS2, this opposition may also include other stakeholder groups. ETS2 is a new emission trading system which is similar but separated to the existing EU ETS. It will cover and address the CO₂ emissions from fuel combustion in buildings, road transport and additional sectors such as small industry not covered by the existing EU

ETS (European Commission, 2023b). It means that a lot of new stakeholders will have to face it and it may exacerbate negative opinions towards the EGD. Current disputes have already led to a change in the European Commission's position on GAEC 8 of CAP, obliging i.a. farmers to keep certain areas non-productive (European Commission, 2024a). Admittedly, the EC has only decided to suspend the application of this provision until the end of 2024, which is to be done through the implementation of relevant national regulations, so the suspension will apply selectively only in those countries that decide to do so.

In addition, the EC proposes a review of conditionalities in case of crop rotation – GAEC 7 – and on soil cover during sensitive periods – GAEC 6 (European Commission, 2024b). These changes have been positively received in many countries, including Poland (Basiak, 2024). At the same time, they have a very symbolic meaning. In recent years, the EC has decided to reduce environmental restrictions under the influence of external factors, i.e. the war in Ukraine. The current step backwards is the result of tensions within the EU. This shows that the assumptions of the EGD are built on fragile foundations. In this context, considerations on the possibility of implementing the EGD through the CAP seem to be of increasing importance.

Another issue that requires discussion and further research is the main objective of the EGD, which is to reduce greenhouse gas emissions. Specific commitments for Member States in the non-ETS sector were published after the entry into force of the national Strategic Plans. As a result, in practice, there are only non-binding references in the CAP indicating the desire to reduce emissions from agricultural sources, which – compared to the small reduction effects in previous years and the growing share of emissions from agriculture – does not encourage optimism. There is a serious risk that the measures taken will not be sufficient to meet the objectives of the EGD for 2030.

In practice, the withdrawal from the key legal acts concerning the EGD and the results presented in this paper show that the impact of the European strategy is significantly weakened. A comparison of the context approach and the countries' engagement in the CAP leads to the question: is the CAP 2023-2027 a sufficient tool to put European agriculture on the path towards EGD implementation by 2030? The presented results lead to the belief that the actions taken are heading in the right direction, but they may not be sufficient to achieve the assumed, very ambitious goals.

The above concerns mean that research into the possibilities of implementing EGD in agriculture through CAP and national Strategic Plans should be continued and monitored. This is important from the point of view of the Member States and their commitments, as well as the EU as a whole and its strategic objectives.

Conclusions

The European Green Deal is a strategy that emphasizes environmental development goals. However, its assumptions concern not only the natural environment, but a broader view of the development of humanity, which is to be more human-friendly and more adequately meet the challenges of the future. This is to be achieved through a new approach to the economy, which will be based on innovations developed in accordance with the principle of the circular economy and minimizing the risk of exclusion.

The above assumptions apply to all economic sectors, including agriculture, which is in a special situation, because agricultural production is strongly dependent on the natural environment, which can simultaneously being negatively impacted by it in the process. For this reason, on the basis of a number of strategies resulting from EGD, the most important of which are the Farm to Fork and the Biodiversity Strategy, numerous measures are taken in agriculture to reduce the pressure of this sector on the environment.

The environmental objectives of the EGD in agriculture focus on issues that should be considered the most important from the point of view of the long-term development of the sector. For this reason, the assumptions of the EGD in agriculture should be considered correct. At the same time, the implementation of these assumptions is causing dissatisfaction among farmers, who are actively protesting against various provisions resulting from this strategy by means of strikes. This shows that the way these assumptions are implemented and communicated may not be adequate to the needs and capabilities of farmers.

The conducted research, i.e. the analysis of context indicators, shows that the pro-environmental changes in agriculture introduced before the EGD occurred very slowly and it is necessary to intensify their pace. At the same time, the analysis shows a large diversity of agriculture among Member States, which influenced the shape of the actions based on the EGD.

The present CAP covers the years 2023-2027, i.e. the basic period of the EGD. At the same time, there are three years left after its completion in which additional measures can be taken. For this reason, the results planned in the CAP cannot be directly compared with the objectives of the EGD. At the same time, it should be borne in mind that these three years are too short a period to make significant changes.

The result indicators that are included in the CAP 2023-2027 are more closely linked to previous agricultural policies than to the EGD. This makes it difficult to assess the CAP in the context of the European strategic plans. The only exceptions are information on the area of organic farms. Regardless of these difficulties, the presented results lead to the belief that the actions taken are insufficient to achieve the objectives of the EGD. This means that there is a high risk of failure to meet the EGD objectives in agriculture. This will have an impact not only on the 2030 targets, but also on the long-term goals planned for 2050 and the policy for 2040.

Concerns about the feasibility of implementing the EGD are intensifying due to farmers' strikes in various EU countries. Their background is diverse, which is due to the specificity of agriculture in these countries and their individual problems. However, some demands are common. In many EU countries, farmers believe that the bureaucracy associated with the implementation of the CAP and the EGD in agriculture is too complicated. They also believe that the environmental and climate goals are too ambitious. According to the farmers, the realization of those goals can result in the loss of competitive advantages of EU agriculture over the rest of the world. The negative attitude of farmers towards the EGD has already resulted in the European Commission deciding to suspend some of the existing rules and to postpone the procedure for adopting others, which are important for the achievement of the strategic objectives of the EGD. However, some groups of farmers are not satisfied with these actions and continue their opposition to the EU policy.

The presented results and conclusions drawn from them indicate that agriculture in the European Union is slowly evolving towards sustainable development, but the pace of these activities is much lower than expected. This, in turn, may mean that it will not be prepared for the challenges that are likely to arise due to increasing climate change and biodiversity degradation.

The contribution of the authors

Conceptualization, W.W. and K.P.; literature review, W.W. and K.P.; methodology, W.W. and K.P.; formal analysis, W.W. and K.P.; writing, W.W. and K.P.; conclusions and discussion, W.W. and K.P.

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CELE ŚRODOWISKOWE I KLIMATYCZNE WPR DLA KRAJÓW UE A OCZEKIWANIA W ZAKRESIE EUROPEJSKIEGO ZIELONEGO ŁADU

STRESZCZENIE: Na podstawie Strategii Europejskiego Zielonego Ładu (EZŁ) każde państwo członkowskie UE zostało zobowiązane do określenia własnych wysiłków i celów dla rolnictwa w formalnym dokumencie, jakim jest Narodowy Plan Strategiczny Wspólnej Polityki Rolnej (WPR) 2023-2027. Podstawowym uwarunkowaniem uwzględnianym przy tworzeniu dokumentów krajowych była specyfika rolnictwa występująca w poszczególnych państwach, a także możliwość podejmowania ambitnych działań przyczyniających się do osiągnięcia celów UE na poziomie europejskim. Celem artykułu jest wskazanie zobowiązań państw członkowskich UE w zakresie celów środowiskowych i klimatycznych rolnictwa, nawiązujących do ambicji EZŁ. Podejście zastosowane w artykule opierało się na badaniach literatury i dokumentów prawnych, porównaniach sprawozdań europejskich i krajowych, statystyce publicznej – EUROSTAT oraz analizie danych Komisji Europejskiej, które umożliwiają prowadzenie analiz bieżących i porównawczych. Badania wykazały zróżnicowane zaangażowanie krajów UE w ochronę środowiska i klimatu oraz niewystarczającą skalę zaangażowania w kontekście celów EZŁ.

SŁOWA KLUCZOWE: Wspólna Polityka Rolna (WPR), Europejski Zielony Ład (EZŁ), rozwój zrównoważony, ochrona środowiska przyrodniczego, zmiana klimatu