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SYSTEMS OF SUSTAINABILITY MEASUREMENT IN THE AGRICULTURAL SECTOR (BY THE EXAMPLES OF RISE AND POSITION GREEN)

СИСТЕМИ ВИМІРЮВАННЯ ПОКАЗНИКІВ СТАЛОГО РОЗВИТКУ В АГРОСЕКТОРІ (НА ПРИКЛАДІ RISE ТА POSITION GREEN)

Summary. *Introduction. Today, governments of developed countries and international projects are actively working on sustainable development indicators. EU agricultural policy encourages farmers to implement eco-friendly farming practices and report on their effectiveness. Considering the vector of European integration, the post-war recovery of the Ukrainian agricultural sector will require business entities to follow the experience of European colleagues to apply for foreign investments.*

Purpose. The article's purpose is a SWOT analysis of methods and systems for measuring indicators of sustainable development in agriculture, which can be implemented in Ukraine in the context of the post-war reconstruction of the agricultural sector based on the green economy.

Materials and methods. The information base of this research is open data from the websites of international projects and organizations, survey materials conducted by the Center for Environmental Initiatives "Ekodiya", and the works of foreign and Ukrainian researchers devoted to assessing indicators of sustainable development.

The methodological basis of the research is the method of systematic analysis and comparison, together with the use of induction and deduction, analogy, and logical generalization.

Results. The article reveals the advantages and disadvantages of methods that can be implemented in Ukraine to measure indicators of sustainable development in the agricultural sector. In particular, topics and indicators of sustainable development according to the RISE method and the method of preparing reports in the Position Green software were disclosed. SWOT analysis showed that the RISE method needs to be updated regarding software; however, it allows for preparing various development scenarios and including interviewer comments in the report. Instead, in the Position Green software, the Sustainability Report can be designed based on different standards to meet the relevant business needs. With flexibility in creating reports and a comprehensive toolkit for collecting the necessary data, the Position Green software optimizes activities to reveal the unique potential for value creation and positive impact.

Prospects. These measurement systems will be added to the sustainable development platform we are developing as part of the MSCA4Ukraine program funded by the European Union. In further studies, we will present a sustainable development platform adapted to national specifics, enabling agricultural enterprises to report on the results of implementing eco-friendly farming practices, which is vital in attracting foreign investments for the post-war recovery of Ukraine's agricultural sector.

Key words: *sustainable agricultural practices, report on sustainable development, RISE method, Position Green software, sustainable development indicators, agriculture.*

Анотація. *Вступ. Сьогодні уряди розвинутих країн та міжнародні проекти активно працюють над індикаторами сталого розвитку. Аграрна політика ЄС стимулює фермерів впроваджувати стійкі екологічні практики та звітувати про їх ефективність. В умовах євроінтеграції повоєнне відновлення українського агросектору вимагатиме від суб'єктів господарювання наслідувати досвід європейських колег, щоб претендувати на іноземні інвестиції.*

Мета. Метою дослідження є SWOT-аналіз методів та систем вимірювання показників сталого розвитку в сільському господарстві, які можуть бути використані в контексті повоєнного відновлення українського агросектору на засадах зеленої економіки.

Матеріали і методи. Інформаційною основою дослідження є відкриті дані із сайтів міжнародних проєктів та організацій, матеріали опитування проведеного Центром екологічних ініціатив «Екодія», а також праці іноземних та українських дослідників, що присвячені оцінці показників сталого розвитку.

Методологічною основою дослідження є метод системного аналізу і порівняння разом із застосуванням методів індукції та дедукції, аналогії та логічного узагальнення.

Результати. У статті розкрито переваги і недоліки методів, які використовуються для вимірювання показників сталого розвитку в агросекторі. Зокрема, розкрито теми та індикатори сталого розвитку за методом RISE та методику підготовки звітів на платформі Position Green. За допомогою SWOT-аналізу виявлено, що метод RISE є дещо застарілим в аспекті програмного забезпечення, однак, він дає можливість підготовки різних сценаріїв розвитку та включення коментарів інтерв'юера у Звіт. Натомість у платформі Position Green Звіт про сталий розвиток може бути підготовлений на основі різних стандартів для задоволення відповідних бізнес-потреб. Завдяки гнучкості у створенні звітів та широкому інструментарію збору необхідних даних платформа Position Green оптимізує заходи щодо створення цінності та позитивного впливу.

Перспективи. Розкриті в статті системи вимірювання доповнять платформу сталого розвитку, яку ми зараз розробляємо в рамках програми MSCA4Ukraine, що фінансується Європейським Союзом. В подальших дослідженнях буде представлена адаптована до національної специфіки платформа сталого розвитку, яка дасть можливість аграрним підприємствам звітувати про результати впровадження екологічно-стійких практик, що є важливим в залученні іноземних інвестицій на повоєнне відновлення агросектору України.

Ключові слова: *екологічно-стійкі практики, звіт про сталий розвиток, RISE-метод, платформа Position Green, показники сталого розвитку, аграрний сектор.*

Introduction. In recent decades, at the global level, the concept of sustainability has gained increasing importance in the debates of scientists and practitioners regarding agrarian policy [9]. Every day, the number of users of non-financial reporting of agribusiness is growing; the issue of monitoring and evaluation of agricultural practices is put on the agenda; society requests appropriate indicators to assess aspects of the sustainability of these practices [3; 4; 8; 10; 12; 15; 16]. Thus, it is evident that the further development of agriculture is inextricably linked with the transition to energy-saving and eco-friendly technologies for growing crops and feeding animals.

The results of a sociological survey conducted by the Center for Environmental Initiatives "Ekodiya" among representatives of small and medium-sized agricultural enterprises in the summer of 2023 [5] indicate that Ukrainian farmers share concerns about the scale of damage caused to the environment

by the traditional practice of cultivating the soil and growing crops. Notably, small and medium-sized agricultural producers are the most vulnerable to the manifestations of the climate crisis but are more flexible in introducing new approaches and practices on their farms. Therefore, they can be considered as the basis of a sustainable economy of rural communities and food security at the national level.

In Ukraine, the problem of sustainable agricultural practices is that, as evidenced by the survey results, most farmers indicated that they do not fully understand sustainable agricultural practices. Often, farmers associate sustainable agricultural practices purely with organic production. At the same time, they state that they do not see an economic rationale to apply this approach in their activities [5]. This problem is a signal for researchers, which should motivate them to investigate sustainable agricultural practices more deeply, their connection with corporate social responsibility, and reveal systems for measuring indicators of sustainable development in agriculture. In addition, in the context of the post-war reconstruction of agriculture and rural communities, the interest and willingness of Ukrainian farmers to implement the best sustainable agricultural practices is an essential component of implementing national policy and European integration obligations.

The literature review shows that the issue of sustainable agricultural practices in Ukraine is not yet on the agenda. Instead, most Ukrainian researchers' publications are devoted to corporate social responsibility [4; 7; 12], rural areas' development [2], and agricultural production's environmental aspects [11; 13]. In particular, M. Babich justified the feasibility of developing short supply chains at the local level. According to the researcher, this approach will contribute to the activation of social interaction, improvement of health and well-being of the population, achievement of economic benefits by farms, reduction of energy consumption and carbon dioxide emissions, and sustainability of the agricultural system [2]. According to O. I. Peredrii, ecological certification is a marketing tool that will contribute to effectively implementing sustainable development [13]. M. V. Lyashenko proves the practicality of the localization of animal husbandry to further reduce the industry's impact on the environment without reducing the total number of livestock by reorienting the sector to small forms of management: farms and peasant farms [11]. T. M. Bolgar and L. F. Korchagina state that the activities of enterprises aimed at achieving sustainable development goals through appropriate management decisions, which include measures to improve the environmental condition, social relations and corporate responsibility, are called ESG activities. Their research shows that the ESG activity of Ukrainian companies is at the formation stage today. Still, the situation has worsened significantly due to the war — currently, the issue of economic survival is the focus of attention of enterprises [4].

Thus, in Ukraine, not only are farmers unfamiliar with sustainable agricultural practices, but the latter needs to be disclosed in scientific publications. In addition, the issue of corporate social responsibility of agribusiness, in the context of which sustainable agricultural practices should be considered, still needs to be resolved. As noted by A. A. Grebennikova, mostly, social responsibility for agricultural enterprises is perceived not as a tool for improving the social condition of employees, environmental ecology, product quality, and arrangement of rural areas but as a one-time fashionable, formal event. Thus, enterprises have a low awareness of this matter [7].

Farmers already use sustainable agricultural practices in developed countries, so foreign scientists pay more attention to the search for tools for evaluating their effectiveness. In particular, L. Latruffe et al. [10] describe sustainability indicators used in the literature following the typology based on the three sustainability pillars: environmental, economic and social. The researchers found that the environmental pillar has undergone an "indicator explosion" due to the multitude of themes covered and the attention given by society to this dimension of sustainability.

Measuring sustainability in agriculture is a very complex process. The indicators proposed by various scientists do not cover all dimensions and levels. In this aspect, D. Hayati, Z. Ranjbar and E. Karami believe that indicators used for agricultural sustainability should be location-specific. They should be constructed within the context of the contemporary socioeconomic and ecological situation [8]. Thus, effective, sustainable agricultural practices are adapted to local conditions and consider the national economic, social and resource context. This conclusion is confirmed by A. Bathaei and D. Jьtreimikien [3], who analyzed 101 indicators for three dimensions: social, environmental and economic.

Evaluation of sustainable agricultural practices requires the collection of an extensive array of various types of data, which complicates this process. Therefore, as H. Robling et al. noted, for some indicators, there are trade-offs between data availability and issues of comprehensibility and analytical validity [15].

As evidenced by foreign studies, measuring indicators of sustainable development in agriculture is quite complex, and its methodology is at the stage of dynamic changes. However, sustainable agricultural practices are a crucial vector of agricultural development. Proof of this is the List of potential agricultural practices that eco-schemes could support, published in 2021 by the European Commission and recommended for implementation in EU countries

[6]. Considering the prospects of the post-war recovery of Ukrainian agriculture based on sustainable development and green economy, the scientific community should prepare the theoretical basis for introducing sustainable agricultural practices. It is important to convey to farmers that corporate social responsibility, which they are already partially familiar with, is the same as sustainable agricultural practices (technologies). In addition, the analysis of the European experience of measuring indicators of sustainable development in agriculture will help to determine and select such a system of criteria and indicators that will be maximally adapted to the national specifics.

The article's purpose is a SWOT analysis of methods and systems for measuring indicators of sustainable development in agriculture, which can be implemented in Ukraine in the context of the post-war reconstruction of the agricultural sector based on the green economy.

Research methods. The work uses systematic analysis and comparison to reveal the methods and systems for measuring indicators of sustainable development in the agriculture of European countries. The author used the methods of induction, deduction, and logical generalization methods to reveal the topics and indicators of sustainable development according to the RISE method and the stages and features of preparing reports on the Position Green platform. Using the analogy method made it possible to substantiate the importance of reporting on sustainable development by the Ukrainian agricultural enterprises based on the experience of EU countries and the need for foreign investments.

Results. Over the past several decades, governments, international organizations, and academics have made significant efforts to identify appropriate indicators of agricultural sustainability. As noted by D. Hayati, Z. Ranjbar and E. Karami, in effect, indicators become a policy instrument to exert peer pressure among nations to perform better [8].

Modern countries research agriculture sustainability more than other countries. These countries care about the environment and acknowledge their responsibility to keep it clean and green. They work on indicators to introduce a new business paradigm, and then, using this new paradigm, they can decrease their costs and improve their profits [3].

The war further strengthened Ukraine's irreversible European integration course, which, accordingly, influenced the formation of state policy in all spheres, particularly in agriculture. In anticipation of financial infusions from European countries to restore the agricultural sector, it is worth studying how agriculture will be recognized as attractive for investment. Obviously, investors' decisions will depend on the ability of Ukrainian farmers and companies to demonstrate their environmental sustainability and commitment to the principles of sustainable development. Thus, there is a need to implement sustainable agricultural practices and evaluate them (present them in reporting) [12; 16].

In this study, we aim to reveal the advantages and disadvantages of those methods that can be implemented in Ukraine to measure sustainable development indicators in agriculture.

RISE method

RISE is a computer-based method developed at the School of Agricultural, Forest and Food Sciences, Bern University of Applied Sciences (BFH-HAFL) for the holistic analysis and evaluation of agricultural holdings [14]. Today, more than 4,000 enterprises in the agricultural sector in 60 countries use this method.

The RISE method allows for analyzing agricultural land's ecological, economic and social sustainability. The level of sustainable development is visualized in a polygon in which the red line passes through the zone (red, yellow, green) where sustainable development indicators are concentrated (there are 54 of them in total). Each indicator has a score from 1 to 100, determined according to indicators on ten sustainable development topics, and is shown in such a "web" by a black dot (Figure 1).

The most important source of data for measuring sustainable development according to this method is interviews with managers of enterprises and production units. The survey questionnaire contains 4 blocks and about 500 indicators.

After completing the questionnaire, the respondent receives a Report with indicators of sustainable development on topics, 60% of which are environmental, 20% are social, 10% are economic, and 10% are managerial (Table 1).

The Report includes recommendations for improving agricultural practices. Such recommendations can be, in particular, the transition of the enterprise to organic production to reduce the use of pesticides and increase soil fertility; investment in renewable energy with the help of a photovoltaic system to provide electricity not only to the enterprise itself but also to households in rural areas.

A license to use the RISE software costs €690 for one user, and the cost of online training for one user (8 hours) is €518. The RISE method consulting process (1 hour — €830) includes four stages (Table 2).

Based on the above description, we will conduct a SWOT analysis of the RISE method (Table 3).

Position Green

Position Green (https://www.positiongreen.com/, PG) is an automated sustainability management platform created by auditors and sustainability experts in Sweden in 2015 for ESG reporting. Today, 10 offices have been opened in Europe and North America, in which 300 employees work with representative offices in London, Brussels and New York. The

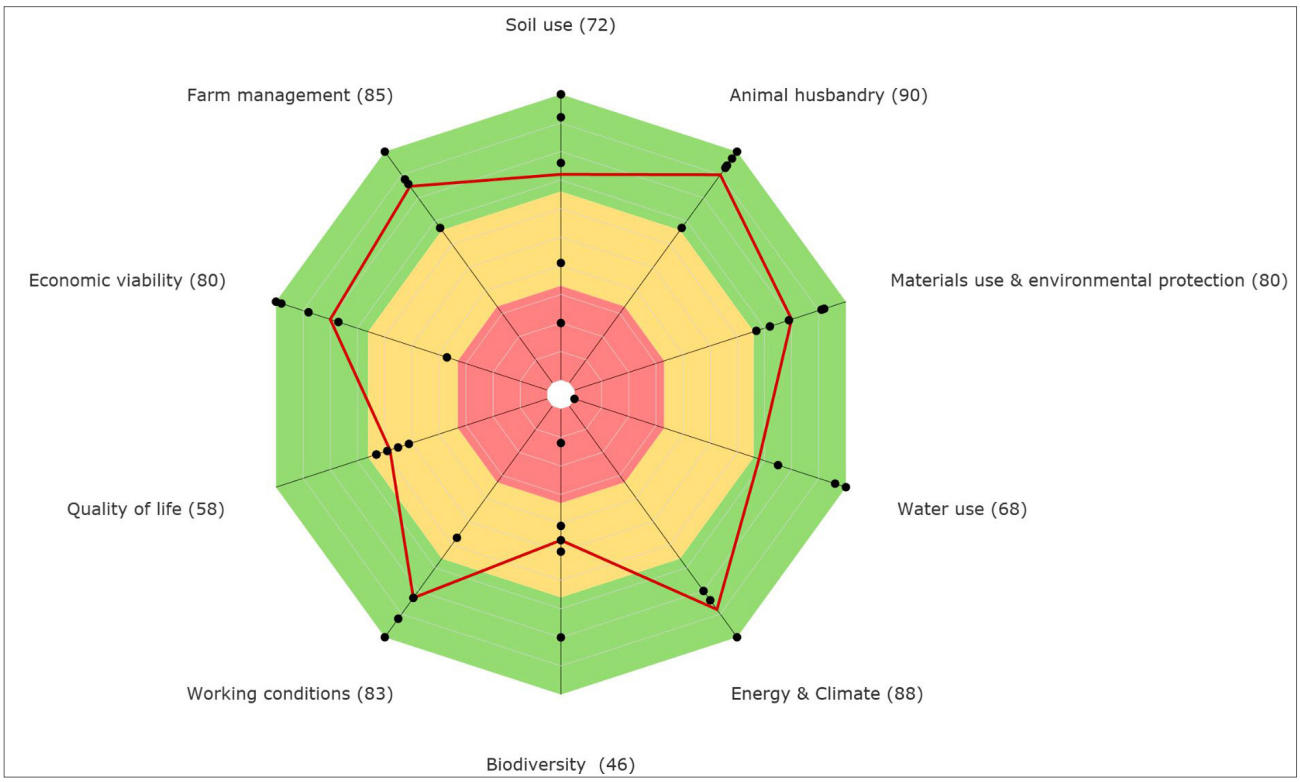


Fig. 1. The "web" of the RISE method
Source: [14]

platform is used by 600 customers from the EU, Great Britain and the USA [1].

PG allows automated data collection for compiling ESG reports, carbon accounting volumes 1–3, supply chain management, analysis and strategy of sustainable development of an enterprise that creates value and positively impacts people, the planet and shareholders, and data consolidation. The sustainability report is generated with integrated and exportable digital tags, integrates with other reporting forms, and is audit-ready with the ability to verify data. The platform offers functions for evaluating

Table 1

Topics and indicators of sustainable development according to the RISE method

No.	Topic and indicators
1	Use of land resources (land management, productivity of crop production, humus, soil reaction, soil erosion, soil compaction)
2	Animal husbandry (herd management, livestock productivity, a favourable environment for specific behaviour, housing conditions, animal health)
3	Use of materials and environmental protection (material flows, soil fertilization, plant protection, atmospheric pollution, soil and water pollution)
4	Use of water resources (water resources management, water supply, intensity of water use, irrigation)
5	Energy and climate (planning and control of energy consumption, energy intensity of agricultural production, balance of greenhouse gases)
6	Biodiversity (ecological infrastructures, distribution of ecological infrastructures, intensity of the agricultural output, variety of agricultural products)
7	Working conditions (personnel management, working hours, occupational safety, salary and profit level)
8	Standard of living (professional activity and training, financial situation, social relations, personal freedom and personal values, health)
9	Economic feasibility (degree of liquidity, profitability, stability, debt obligations, security of the source of income)
10	Farm management (business goals, strategy and implementation, information availability, risk management system, sustainable relationships)

Source: compiled by the author based on [14]

Table 2

The RISE method consulting process

Stage	Type of work
1. Preparation	Discussing the details of the consultation with a RISE consultant by phone and providing documents (approximately 0.5 hours)
2. Farm walk and interview	Collection of the necessary information by the consultant at the enterprise (approximately 6 hours)
3. Results and action planning	Discuss the analysis results and their significance for the enterprise with the consultant. Determination of priority goals and planning of relevant measures (approximately 2 hours)
4. Further advice and assistance	After 3–6 months, a summary with the RISE consultant. Discussion of open issues and planning of next steps (approximately 1.5 hours)

Source: compiled by the author based on [14]

Table 3

SWOT analysis of RISE software

Strengths:	**Weaknesses:**
Qualitative and quantitative indicators Ability to prepare various development scenarios Inclusion of the interviewer's comments in the Report The possibility of forming a short questionnaire without irrelevant indicators Use of regional and reference data Functionality in online and offline modes	Outdated software Duplication of individual indicators Some indicators are direct indicators of the Balance Sheet Application of some outdated statistical data
Opportunities:	**Threats:**
Software updates Increasing the reliability of the sustainability assessment by updating the data Issuance of certificates of compliance with the standards of sustainable development of agricultural production	High level of competition Inability to promote the product in regions with low purchasing power Increasing the level of costs for providing services to assess the level of sustainable development

Source: developed by the author

and comparing suppliers, identifying risks and their potential impact on them, and choosing ways to engage key suppliers and industry cooperation to improve supply chain management. Data integration is done automatically by importing files such as documents and spreadsheets. In addition, users can export the obtained data to documents, spreadsheets, ERP systems for production management, data processing tools (BI tools), and websites. The Academy module of this platform offers training courses for managers and teams to form strategic insights on sustainable development issues. Users can use different standards to prepare a sustainability report to meet relevant business needs (Figure 2).

1. Preparation in PG of the ESG-Report according to the Corporate Sustainability Reporting Directive (CSRD) and European Sustainability Reporting Standards (ESRS)

The Corporate Sustainability Reporting Directive (CSRD) is an EU standard that aims to make corporate sustainability reporting more standardized and coherent by requiring relevant companies to produce annual sustainability reports. The new European Sustainability Reporting Standards (ESRS) are a central element of CSRD and define how and what information and metrics companies must report to meet CSRD requirements.

Reporting under the ESRS is mandatory for all companies subject to the CSRD and must be included in the management report. The ESRS take a broader view of materiality than, for example, the GRI standards and are based on dual materiality from an impact and financial perspective. A double materiality assessment will help companies understand their effects, risks and opportunities across their upstream and downstream value chains, arising from business relationships, geographic locations, and more.

All companies covered by the CSRD (around 50,000) must align their sustainability reports with the ESRS. The CSRD covers all registered companies on EU-regulated markets, including small and medium-sized enterprises, but excludes microenterprises. This requirement also applies to all large companies (listed or not) if they meet at least two of the following three criteria:

– the total amount of the balance is more than 20 million euros;
– net turnover of over 40 million euros;
– the average number of employees during the financial year exceeds 250 people.

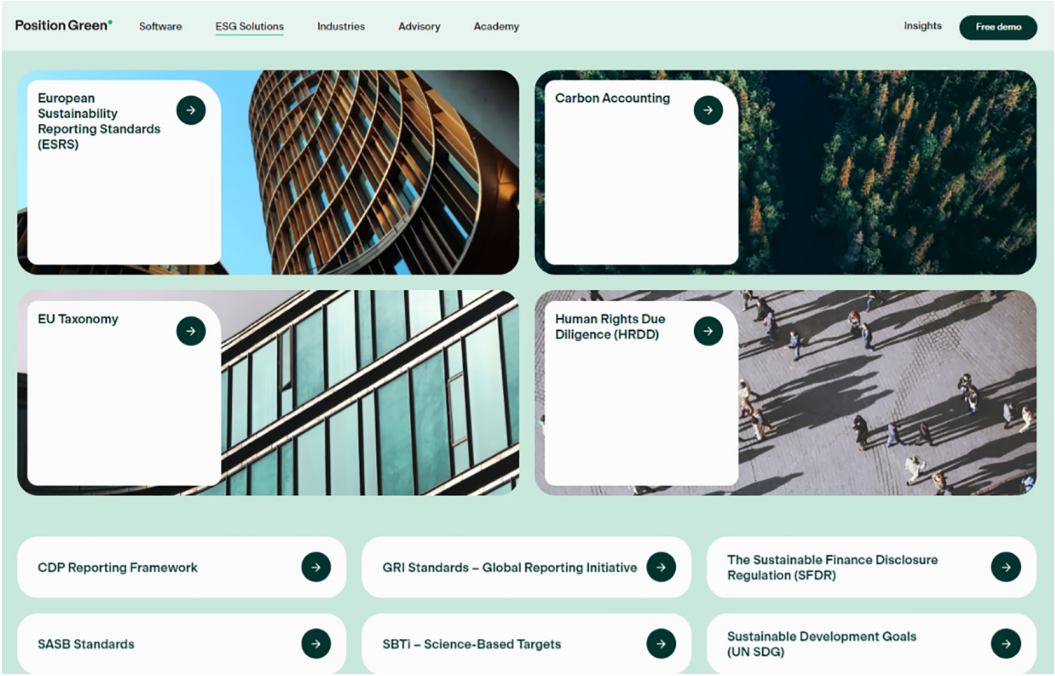


Fig. 2. Variety of goals and standards for preparing the Sustainable Development Report
Source: [1]

PG offers Assured disclosure templates and Sustainability statements.

ESRS implementation schedule:

January 1, 2024: Entities already covered by the Non-Financial Reporting Directive (NFRD) — large listed companies, large banks and large insurance companies with more than 500 employees, as well as large listed companies outside the EU, with more than 500 employees (reporting in 2025 based on data for 2024);

January 1, 2025: large companies not currently covered by the Non-Financial Reporting Directive (reporting in 2026 based on data for 2025);

January 1, 2026: small and medium-sized enterprises registered on the stock exchange, including SMEs that are not part of the EU stock exchange (reporting in 2027 based on data for 2026);

January 1 2028: Non-EU companies covered by CSRD (reporting in 2029 based on data for 2028).

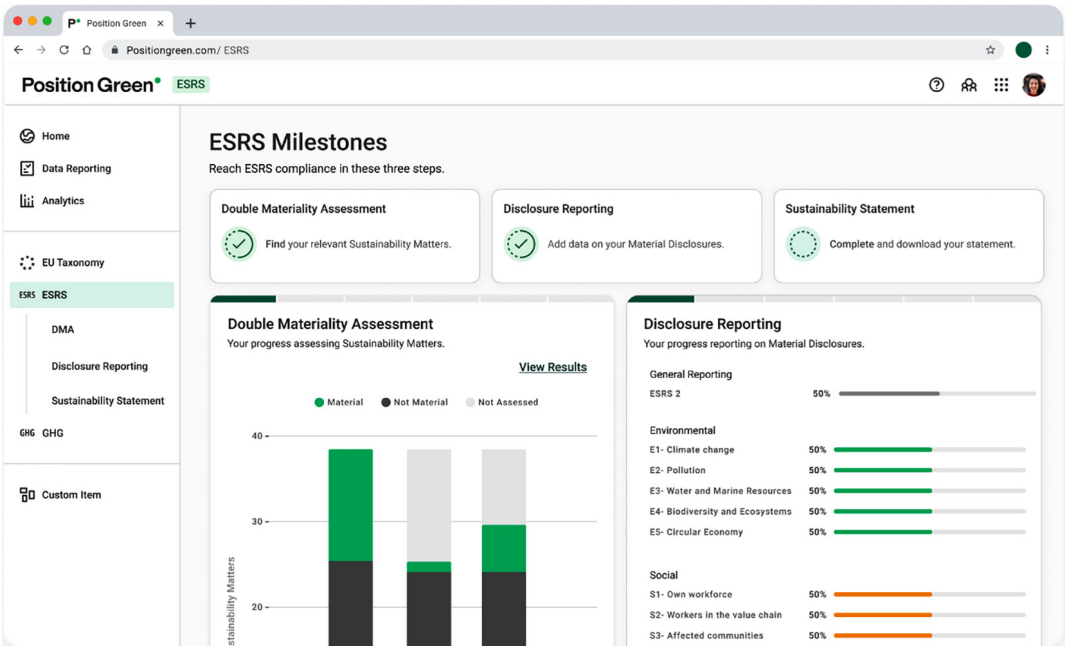


Fig. 3. Assured disclosure templates and Sustainability statements on the Position Green platform
Source: [1]

In addition, non-EU companies with a turnover of more than €150 million per year in the EU and which have a branch in the EU with a turnover of more than €40 million or a subsidiary that is a large company or a listed SME will have to report on the impact of sustainable development at the group level of this company outside the EU (reporting in 2029 based on data for 2028).

Double materiality assessment is a key element of ESRS, where the concept is broken down into impact materiality and financial materiality. In addition to the mandatory disclosures specified in the ESRS, companies are expected to report on all topics deemed material according to their double materiality assessment. The company must explain if climate change is considered insignificant. A brief explanation can be provided for other relevant standards that are not considered essential. When identifying risks, impacts and opportunities that are impactful and/or financially material, companies should assess critical dependencies and impacts in the value chain. Double materiality assessment is a compliance requirement under the CSRD/ESRS and a valuable exercise, as the assessment results can be instrumental in formulating new sustainability strategies and action plans.

2. Preparation in PG ESG-Report for attracting sustainable development investments

PG suggests using the ESG-Report at all stages of investment — from verification to investment monitoring and exit:

Stage 1. Screening. Assessment of your goals

PG helps accurately assess ESG issues in portfolio construction and asset selection. ESG checklists offer a comprehensive overview of progress against defined KPIs, reporting standards and stakeholder interests.

Stage 2. ESG due diligence. Consideration of important ESG aspects

Identify potential ESG impacts, risks, and opportunities before investing and develop a post-investment action plan to mitigate risks. An analytical system ensures that potential investments meet future regulations.

Stage 3. Investment monitoring. Monitoring and transformation

Manage the performance of your investments and work with investor reports, risk assessment, and impact at the fund and portfolio levels.

Stage 4. Exit. ESG management on the exit

Effective ESG exit management means creating quality sales reports demonstrating high asset value as an attractive investment.

The sustainable development investment module PG is based on the Sustainable Finance Disclosures Regulation (SFDR), which requires financial market participants and financial advisers in the EU to disclose how they take sustainability risks into account in their investment decisions and the sustainability impact of their investments.

The European Commission introduced the SFDR as part of a legislative package aimed at supporting the European Green Deal, promoting a sustainable economy and encouraging the financial sector to shift its focus to sustainable operations, thus reducing the negative impact of fossil fuels and carbon emissions. The SFDR entered into force in March 2021, and national regulators in the EU are now responsible for enforcing the provision.

The SFDR aims to increase the transparency and standardization of sustainable finance products and services, thereby removing barriers that prevent investors from accessing the sustainability data they need to make informed decisions. It also aims to avoid "greenwashing" and level the playing field in the EU so that European companies are not exposed to unfair competition from non-EU companies.

The SFDR affects various financial market participants (FMPs), such as asset managers, investment funds, pension funds, insurance companies, banks and credit institutions. The regulation imposes mandatory ESG disclosure obligations requiring FMTs to report on their portfolios' principal adverse effects (PAIs). PAI indicators are mandatory indicators that aim to show investors the potential negative impact of specific investments on sustainability factors. Under these requirements, fund managers, financial advisers and other financial institutions must collect ESG data and disclose any sustainability risks associated with their investments and financial products — on websites, in prospectuses and periodic reports.

3. PG has the function of preparing a ESG-Report by the EU taxonomy

The functions of the dynamic software are consistent with the requirements of the EU taxonomy and environmental goals and are adapted to the needs and structure of the enterprise. The integration of platforms with CSRD, SFDR, CDP and GRI norms is aimed at obtaining taxonomic data (KPI) on turnover, capital expenditure (CapEx) and operational expenditure (OpEx).

4. Preparation in PG ESG-Report based on SASB standards.

PG's SASB solution is designed to focus on the most critical measurement areas, simplify sustainability efforts, and integrate SASB standards into an enterprise's ESG strategy. The platform allows comparing historical and current data collected according to SASB standards over time.

The Sustainability Accounting Standards Board (SASB) was established in 2011 as an independent organization that develops and publishes industry standards for accounting for sustainable development. The SASB standards guide companies to disclose financial soundness information to investors

in a standardized, decision-friendly format. SASB standards cover various sustainability topics, including climate change, human rights, labour practices and product safety. They are designed according to industry specifics, considering different industries' unique sustainability risks and opportunities. Companies worldwide use SASB standards for annual reports, financial documents, company websites, and sustainability reports.

In 2021, a merger between the SASB and the International Integrated Reporting Council created the Value Reporting Foundation (VRF). In 2022, the IFRS Foundation merged the VRF and the Climate Disclosure Standards Board (CDSB) with its newly created International Sustainability Standards Board (ISSB), which assumed responsibility for the SASB standards.

5. Preparation in PG ESG-Report based on GRI standards.

The integrated GRI solution from PG is aimed at helping to analyze and disclose information about the sustainable development of an enterprise by GRI standards. The platform allows users to visualize quantitative data and get an overview of what has been provided for each GRI disclosure. GRI (Global Reporting Initiative) is an independent international standards organization that provides the world's most widely accepted sustainability reporting standards, covering topics ranging from biodiversity to taxes, from waste to emissions, diversity and equality to health and safety. The GRI standards provide a framework for organizations to publicly report on their impact on the economy, environment and people in a way that provides transparency and comparability to various stakeholders. Any organization can use the GRI standards regardless of size, industry, public or private status. GRI disclosures are also a valuable source of information for investors to assess a company's sustainability performance, identify risks and assess long-term growth potential.

6. PG provides an opportunity to measure, report and develop measures to reduce CO2 emissions in all areas and create climate strategies.

Regarding carbon accounting, the platform allows users to calculate their volumes for areas 1, 2 and 3 using all recognized methods (cost-based, activity-based, supplier-based) and a library of emission factors according to the Greenhouse Gas Protocol (GHG).

7. Preparation in PG ESG-Report based on the CDP standard.

The Carbon Disclosure Project (CDP) is an environmental reporting standard that informs customers, investors, employees and other stakeholders about the environmental impacts, risks and opportunities associated with climate change. Many investors use CDP data to evaluate companies' environmental performance and factor them into their investment decisions. CDP reporting involves companies answering a detailed questionnaire covering various environmental topics such as greenhouse gas emissions, energy consumption, water management, supply chain management and governance. CDP then evaluates the responses, and the results are shared with investors, customers and other stakeholders to help them make informed decisions about the company's environmental performance and sustainability practices. Answers to CDP questionnaire questions on greenhouse gas emissions, energy use, water use, and other indicators related to sustainable development are consolidated and available for tracking overtime on the PG platform. Enterprise GHG emissions (scope 1 and 2) are made public through CDP's Online Response System (ORS), and support is provided for scope 3 emissions from resource providers.

CDP reporting is relevant for companies from all sectors and industries, including agriculture. By reporting on environmental performance and sustainable development practices, agricultural companies can demonstrate that they are taking proactive measures to manage environmental risks. Demonstrating a commitment to sustainability and transparency also builds trust among stakeholders such as investors, customers and employees.

In 2022, a record 18,700+ companies went public through CDP, representing half of the world's market capitalization. The law requires major federal suppliers in the US to disclose environmental impact information through the CDP.

8. Sustainable development targets on the PG platform can be set through a Science Based Targets initiative (SBTi) by identifying, collecting and tracking emissions and greenhouse gas (GHG) data.

The platform allows users to track decarbonization targets and explore trend lines for target pathways and GHG reductions through visualization.

The Science Based Targets initiative (SBTi) is a partnership between CDP, the UN Global Compact, the World Resources Institute (WRI) and the World Wildlife Fund (WWF). SBTi was created to promote ambitious climate action in the private sector by enabling organizations to set science-based emission reduction targets in line with the goals of the Paris Agreement. SBTi provides scientific research, recommendations on best practices for emissions reductions, and technical assistance in setting science-based targets based on climate science.

Science-based targets help companies determine how much and how fast they need to reduce greenhouse gas emissions to meet efforts to limit warming to 1.5 °C. Setting a science-based target allows companies to ensure resilience to climate regulation and increases investor confidence.

At the start of 2023, more than 4,000 companies worldwide, representing more than a third of the market capitalization of the global economy, have

already set goals or are committed to working with SBTi. Both large companies and SMEs from all sectors can set science-based targets (SBTs). Businesses that sign the SBTi Commitment Letter are immediately recognized as "Committed" on the SBTi, CDP, UN Global Compact, and We Mean Business websites.

The company must have proper transparency in tracking emissions and an effective reporting system because it must report a certain number of reductions annually, according to targets developed based on the base year data.

9. The PG platform includes an integrated solution for collecting data on environmental, social, and management aspects of activities and identifying areas that significantly impact the environment by the UN's Sustainable Development Goals (SDGs).

Position Green's SDG solution enables users to identify and link business engagements to goals using tags and develop strategies to improve areas of impact related to the respective goals. Tagged data can be exported to specific parts of a company's sustainability report.

The UN Sustainable Development Goals (SDGs) are 17 global goals for 2016–2030 that were adopted on the Agenda in 2015. These goals recognize that poverty reduction must co-occur with implementing strategies that improve health care and education, reduce inequality, stimulate economic growth, combat climate change, and conserve oceans and forests.

Development goals allow companies to develop, communicate and report on their strategies, objectives and activities. In addition to responding to growing public demand for greater transparency and accountability, engaging with the CSD can create opportunities for market differentiation and a unique competitive advantage for attracting investment. Goal symbols are often included in the communication of a company's sustainability activities and signal a commitment to sustainable development on a global scale.

10. PG also offers Human Rights Due Diligence (HRDD).

To address this issue, PG software is aligned with the Corporate Sustainability Due Diligence Directive (CSDDD). The platform offers supplier survey templates based on OECD guidelines with key indicators designed to analyze human rights and performance risks quickly. A country risk assessment provides crucial insight into essential aspects, from workers' rights to corruption.

Like any management model, the Position Green platform has advantages and disadvantages (Table 4).

Conclusions. The main difficulty in measuring sustainability in agriculture is that it is a dynamic, not static, concept that requires a high level of observation and skills that can adapt to change. In addition, calculating such indicators requires a large set of various types of data, and their presentation to interested parties requires a flexible technology for generating relevant reports. Thus, more than a standard accounting system focused on a monetary measure is required for a farmer or agribusiness to demonstrate to an investor its commitment to the principles of sustainable development.

Implementing the measurement systems disclosed in this article can solve this problem. In our opinion, Ukrainian agricultural enterprises can successfully

Table 4

SWOT analysis of the Position Green platform

Strengths:	**Weaknesses:**
Parallel use of different standards (ESRS, GHG, EU Taxonomy, CDP, GRI, SASB, SBTi, SFDR, HRDD, UN SDG) Ability to integrate data and upload graphs The possibility of forming joint reports of subsidiary companies and/or branches Evaluation of the effectiveness of sustainable investments (sustainability investments) Application of questionnaires for simple answers: "yes", "no" Double assessment of the materiality of information Simplified data export for auditing Supporting internal sustainability experts to improve disclosure Advanced training with the help of e-learning	There are no average indicators (by industry) for comparison There is no highly specialized software for assessing the level of sustainability in agricultural production It does not have the possibility of open access for a comprehensive study of the platform's capabilities The platform is not responsible for data compliance with sustainable development standards High maintenance cost (€50,000/year)
Opportunities:	**Threats:**
The platform optimizes activities to unlock unique value creation and positive impact potential A community is formed for communication and the organization of joint networking events Software innovations for new sustainability reporting solutions	Sharp changes in consumers' mood regarding the need to use the platform Impossibility of quick adaptation by changes in regulatory and legal regulation Unreliability of the proposed climate impact scenarios

Source: developed by the author

use the computer-based RISE method and the sustainability management platform Position Green to evaluate the effectiveness of their implementation of sustainable agricultural practices. These measurement systems will complement the sustainable development platform [17] we are developing as part of the MSCA4Ukraine program funded by the European Union. Using these systems will contribute to the green reconstruction of Ukraine's agricultural sector in the post-war period.

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