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EU FADN farm classification: first experience of Ukraine in a European perspective

The article analyzes the typology of agricultural holdings within the Farm Accountancy Data Network (FADN) and its impact on the formation of the common agricultural policy. The study emphasizes the importance of FADN as a tool for collecting, processing and analyzing economic data on farms, which contributes to the development of effective management strategies and policy-making processes.

Particular attention is paid to methodological issues of farm classification and potential benefits of adapting EU experience to the Ukrainian specifics of the agricultural sector. The article describes the methodology used for typological classification based on economic size and farm type (such as specialist crop or livestock farms). It involves grouping farms based on Standard Output (SO). This classification helps identify structural characteristics, income levels, and production focus among farms. The procedure of the farm classification can be described in the following steps: Stage 1: Calculation of Standard Output Coefficients (SOC). Stage 2: Calculation of SO for each production (crops and livestock). Stage 3: Calculation of the total SO of the farm. Stage 4: Determination of the Economic Size of the farm. Stage 5: Determination of the Type of Farm. In addition, the study identifies problems associated with data collection, methodological discrepancies and the integration of small farms into the FADN system.

The authors emphasize that the importance of maintaining harmonized typological classifications across EU member states. Such consistency ensures the reliability of cross-country comparisons and supports the formulation of effective agricultural policies that address the diversity of farming structures within the Union. So, the implementation of FADN in Ukraine will contribute to the harmonization of agricultural statistics and comparative analysis at the European level. The article concludes that further improvement of the typology framework and strengthening of digitalization efforts will contribute to better policy formulation and sustainable development of agriculture of Ukraine.

Key words: *FADN, farm classification, common agricultural policy, economic farm size, farm type.*

Introduction. The effective functioning of the agricultural sector of Ukraine requires sound decisions in the field of agricultural policy based on the knowledge of the technical and economic aspects of the agricultural sectors. In this perspective, an important instrument will be the implementation

n Ukraine of a microeconomic data collection at the level of agricultural holdings like the Farm Accountancy Data Network (FADN), born with the aim to monitor the economic condition of agricultural producers in EU countries and evaluate the impact of the agricultural policies. The development of this network is also one requirement in the adoption of Acquis Communautaire. On 17th June 2022 the European commission recommended that the European Council grant Ukraine candidate status for accession to EU and on 23rd June 2022 the European Parliament adopted a resolution calling for the immediate granting of candidate status for EU membership to Ukraine, recognized the same day by the European Council. An important process in the adoption of the Acquis is joining into the Common Agricultural Policy (CAP) and this includes the development of FADN.

One of the most important steps in the introduction of the FADN is the farm classification according to special standards ruled by the EU Regulations. The aim of this work is to illustrate the state-of-art of this process: Ukraine is starting to work in this process of alignment with EU that is not easy because of different statistical systems and characteristics of agricultural sector.

The NIRAS project is providing important assistance on this path. NIRAS is a multidisciplinary engineering and consulting company founded in Denmark in 1956. Their areas of expertise include agricultural policy and agribusiness, local development, governance, energy efficiency, infrastructure rehabilitation, etc. In 2011–2015, NIRAS led the creation of the FADN system in Serbia. NIRAS has been operating in Ukraine for over 20 years. An important initiative of theirs is the project "Institutional and Policy Reform for Small Farming in Agriculture" (IPRSA), also known as "EU4SmallFarms". This project was launched in July 2021 and is funded by the EU, aimed at supporting the Ministry of Agrarian Policy and Food in reforming agricultural and rural policy. In fruitful cooperation between IPRSA, the Ministry of Agrarian Policy and the State Statistics Service, the implementation of FADN in Ukraine is currently underway.

Results and discussion. The work is divided in three main paragraphs. In the second one, the FADN is briefly described with a specific explanation of the importance of farm classification according to the methodology. The procedure is required and well explained in EU regulation and handbooks and the contents are briefly reported in the third paragraph. The methodological application of farm classification in an agricultural holding is the core of the fourth paragraph where the concept of Standard Output is explained, together with the procedure of calculation and classification according to the available data sources.

Before illustrating the contents, it is important to remark that the work is based on the procedure of FADN, now transformed in Farm Sustainability Data Network (FSDN) to consider environmental and social sustainability of agricultural holdings. However, the procedure of farm classification remains the same and for this reason the regulatory framework refers to FADN and not to FSDN. The new survey will include more variables to take into account of different aspects of farm management but the analysis of the contents is not the objective of this work.

The process of farm classification according to EU requirements in Ukraine will be carried out in accordance with the strategic directions of the development of the agricultural sector, provided by the Strategy for the Development of Agriculture and Rural Areas in Ukraine for the period until 2030 and the approval of the operational plan of measures for its implementation in 2025–2027, approved by the order of the Cabinet of Ministers of Ukraine dated 15 November 2024 No. 1163-p [1] and in accordance with the implementation of the indicators of the Plan of Ukraine, approved by the order of the Cabinet of Ministers of Ukraine dated 15 November 2024 No. 1163-rvid [2].

FADN and the importance of farm classification. FADN is a European system of sample surveys that are run each year to collect structural and accountancy data from farms. Its aim is to monitor the income and business activities of agricultural holdings and to evaluate the impacts of the CAP. The scope of the FADN survey covers only farms whose size exceeds a minimum threshold (determined by the Member States according to their characteristics), taking into account only holdings with a market orientation. FADN is the only harmonised source of microeconomic data, which means that the accounting principles are the same in all Member States. One important aspect in FADN is the farm classification: agricultural holdings are classified by economic size and type of farming on the basis of their Standard Output (SO). The SO of an agricultural product (crop or livestock) is the average monetary value of the agricultural output at farm-gate price, in euro per hectare or per head of livestock.

This classification is important for several reasons:

– It serves for the sample selection plan. FADN is a sample survey and the sample selection is carried out according to three stratification criteria: region, type of farming and economic size. The last two are determined using the SO classification.

– Optimization of data collection and analysis. Classification of farms by size, type of farming and regional characteristics allows to increase the representativeness of sample (an individual weighting is applied to each farm in the sample and it corresponds to the number of farms in the three-way stratification cell) and the accuracy of final analysis.

– Harmonization with EU standards. Taking into account European regulations and methodology, the process will permit to implement FADN contributing to the integration of Ukraine into European agricultural markets and financial mechanisms for supporting agriculture.

– Adaptation to national conditions. Ukrainian agriculture has unique features, such as the dominance of small agricultural producers, the significant role of individual farms and climatic zoning. The classification should take these aspects into account to ensure objective analysis and targeting in a more efficient way subsidies or other assistance measures.

The importance of developing and using typologies of agricultural producers has been studied in many scientific works. A number of articles examine how typologies of agricultural producers help to identify patterns in different agricultural systems and describe diversity in the agricultural sector. Some authors [3] propose a conceptual model that links the goals of typologies of agricultural producers with different stages of the political process, which increases their effectiveness and usefulness in the formation of agricultural policy. They emphasize that such typologies can significantly increase the effectiveness of agricultural policy if they are properly integrated into its development, implementation and evaluation. The classification of livestock activities is the core of another work [4] that examines the theoretical and methodological foundations of classifying livestock farms according to the methodology of farm classification in FADN in order to increase their sustainability. The authors analyze different approaches to classify the farms, taking into account the characteristics of production, economic indicators and adaptive capabilities. The main attention is paid to the development of a methodology that allows assessing and increasing the resilience of livestock farms to external challenges and changes in market conditions. FADN data can be used also to classify farms according to other features like the level of economic competitiveness and environmental sustainability to assess the impact of the EU CAP. The results of this work can be used for the targeted distribution of support in the CAP and improving environmental incentives for agricultural producers [5].

However, the classification of agricultural holdings in Ukraine according to the EU methodology is not easy for several reasons. The first is linked to the statistical data: Ukraine lacks a comprehensive database on agricultural producers that meets EU standards (in particular, the Integrated Farm Statistics (IFS)) and for the moment there is not an Agricultural Census that is the base for the farm classification and sample design. Furthermore, statistical surveys often do not cover individual farms and this complicates the classification. The second relates to the inconsistency of the Ukrainian classification with European standards: FADN classification is based on the concept of Standard Output, a rather complex methodology that requires significant labor resources and time for its adaptation in Ukraine. In 2017, the State Statistics Service of Ukraine developed Methodological provisions on the typology of agricultural producers, approved by the order of the State Statistics Service of Ukraine dated 21.12.2017 No. 332 [6]. The classification is not the same as FADN and it must be adapted.

Regulatory framework: the most important EU legislation. FADN methodology, including the farm classification, is ruled by specific regulations.

The first is the Council Regulation (EC) No 1217/2009 of 30 November 2009 setting up a network for the collection of accountancy data on the incomes and business operation of agricultural holdings in the European Community (Codified version) [7]. This is the basic legislative act and the main regulation governing the functioning of FADN in the EU countries. It defines the objectives of the network (monitoring the income, financial performance and business operations of agricultural producers in support of the CAP) and lays down the basis for the classification of farms.

Rules for the application of Council Regulation (EC) No 1217/2009 are based on the Commission Implementing Regulation (EU) No 2015/220 of 3 February 2015 [8] that:

- establishes the rules for implementing Council Regulation (EC) No 1217/2009;
- defines the data collection methods, the criteria for selecting farms for the FADN and the procedure for their classification;
- introduces a farm classification based on SO, which allows for the classification of farms by economic size and specialization;
- establishes a unified classification system that allows for comparative analysis between EU countries;
- defines the role of the Typology Handbook as a methodological guide for EU Member States.

The Typology Handbook (RI/CC 1500 rev. 5) [9] is the practical instrument that describes how the farm classification is carried out. It is a methodological describing the procedures for grouping farms, the procedure for calculating SO and the methodology for classifying farms by economic size and specialization.

Following the theoretical and methodological indication of this Regulations and Handbook, a first attempt to classify the agricultural holdings in Ukraine has been made.

Methodological application for FADN farm classification in Ukraine. The concept of Standard Output. This chapter describes the approach followed for the FADN farm classification in Ukraine. It is a first attempt carried out on the basis of the available

data, useful for a first comprehension of the EU FADN methodology and for a better future application.

As already mentioned, FADN farm classification is based on the Standard Output (SO) and not on the European Union Classification of Economic Activities (Nomenclature statistique des Activites economiques dans la Communaute Europeenne – NACE). This is due to several key reasons, related to the specifics of the agricultural sector and the need of analyzing the economic activities of agricultural producers:

1. The Standard Output reflects the average output of agricultural farms. As stated, the Standard Output coefficient of an agricultural product (crop or livestock) is the average monetary value of the agricultural output at farm-gate price in euro per hectare or per head of livestock. "Average" means that the value refers to an average situation in a given region and in a certain period (5 years) Values are updated. Farm are classified on the basis of the average value of the products, independently of the conditions of the year, their technologies, etc. This allows for a homogeneous approach to the analysis and classification of farms based on their production processes and not on structural characteristics.

2. Data unification and standardization. All farms in a given region or country have a single SOC for a given agricultural product and this eliminate the influence of individual characteristics or particular conditions on the calculation.

3. Averaging of fluctuations in productivity and price indicators. Productivity and price indicators for agricultural products change every year, so the SO coefficient is calculated based on average data for 5 years to avoid the influence of abnormal years. Using a single SO coefficient at regional or national level prevents distortion of economic analysis due to seasonal or local fluctuations.

4. Simplification of administrative accounting and reporting. If each agricultural holding uses its own values for productivity and price indicators, this would complicate the collection and processing of information at the EU level. SOC at the regional and national levels allow for a quick classification of agricultural producers without additional calculations.

5. Farm-specificity. NACE classification may be less effective for the agricultural sector because it does not take into account the specific characteristics of agricultural producers in terms of size, type of products, technology and other economic indicators. NACE is mostly focused on more general categories applied to a wide range of industries and does not have the details required by EU legislation for FADN classification.

6. Focus on economic aspects of activity, not on organizational form. The FADN farm classification focuses more on the farm economic productivity rather than on their organization (which is the main one in NACE). Therefore, the Standard Output allows for more precise classifications by type of holding, based on their productivity and economic activity.

7. Comparison of different farming systems. By using the Standard Output, farms are classified on the basis of their prevalent activity and economic size. This makes comparisons easier to be performed, allowing also benchmarking procedures in the same category.

8. Practical aspects of data collection. NACE is usually applied to broad economic categories and classifications at national level, which can lead to overly general results for agriculture. The Standard Output classification in FADN is based on a detailed set of crop and livestock activities and the survey results refer to a specific agricultural sector.

Data sources. To calculate the SO for the farm classification, statistical data on productivity in crop or livestock production, as well as the farm-gate prices of main and secondary products, are used. Statistical methods (in particular cluster analysis and expert assessment) are applied for the calculation of SO coefficients.

The main data sources are:

- State Statistical Report, in particular:
  - Form No. 29-sg (annual) "Report on areas and gross yields of agricultural crops, fruits, berries and grapes": contains data on areas and volumes of primary and secondary products.
  - Form No. 24 (annual) "Report on production of livestock products, number of farm animals and their provision with feed": contains data on volumes of primary and secondary products of livestock.
  - Form No. 21-zag (annual) "Report on the sale of agricultural products" and Form No. 2-ferm (annual) "Report on the costs of producing agricultural products (works, services)"; contains the farm-gate prices of the primary and secondary crop and livestock products.
- In case of scarcity of data or lack of statistical reporting data an expert assessment has been made on the basis of the experience of the employees of State Statistics Service of Ukraine, the Ministry of Agrarian Policy and Food of Ukraine and other experts of the agricultural products market.
- Data from the State Agrarian Register or FADN surveys to determine the type of agricultural producer.

Procedure followed for the calculation of Standard Output Coefficients. The procedure followed for the calculation of SO Coefficients can be described in the following steps (Figure 1).

The farm classification based on the application of SOC allows the comparability of data between different types of farming and EU countries. This is done for several reasons.

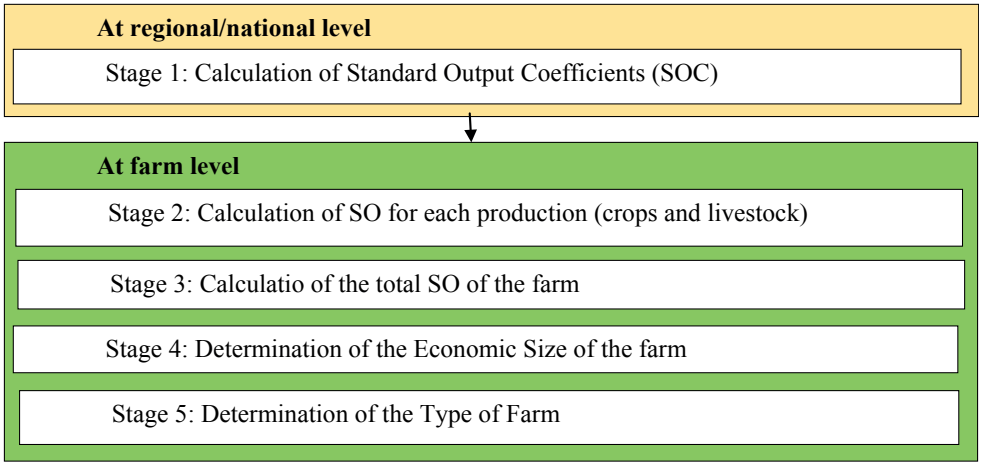

Figure 1. Steps followed for the farm classification

SOC are calculated for primary and secondary products, classified according to their economic importance and role in the farm. The primary product is obtained as a result of the main activity of the farm. It has a high economic value and is the main source of income (i.e. wheat, milk, beef, eggs, honey). Secondary products are by-products that are formed in the production process of the primary product. They have a lower value than the value of the primary product. For example, straw is a secondary for cereals, wax is a secondary for honey.

Depending on the year in which the SO coefficients are calculated, SOC are determined on the basis of the indicators of the previous 5 years and the SOC series will take its name from the central year of these 5. For example, if the calculation is carried out in 2026, the years to be taken into consideration will be 2021, 2022, 2023, 2024, 2025 and the series will be SOC 2023.

As stated, the SOC of an agricultural product (crop or livestock) is the average monetary value of the agricultural output at farm-gate price, in euro per hectare or per head of livestock. For primary products, the SOC is determined multiplying the yield of crops per hectare (or per 100 m2 for mushrooms) or the head of animals (poultry per 100 heads or beehive for the bees) per the farm-gate price. Yield and prices are calculated as average of the 5 years period considered.

The formula for calculating the SO coefficient for the primary products is:

$$SO_{ij} = \bar{P}_{i,5} \cdot \bar{Y}_{i,5} ,$$

where SO_i – SO coefficient for product i (UAH/ha or UAH/LU). The livestock unit, abbreviated as LU, is a reference unit which facilitates the aggregation of livestock from various species and age;

$P_{i,5}$ – average farm-gate of product i for 5 years (UAH/c, UAH/LU). The center or quintal is a historical unit of mass in many countries which is usually defined as 100 base units, such as kilograms or pounds.;

$Y_{i,5}$ – average yield (for crop production, q/ha) or productivity (for livestock production, kg/LU) for 5 years.

The 5-year average value is converted into euros at the 5-year average exchange rate.

The SO coefficient for a primary product having also a secondary production is determined as average value of the multiplication of the productivity (yields or heads of livestock) by the farm-gate prices of the primary product plus the multiplication of the productivity by the farm-gate prices of the secondary products over 5 years.

The formula for calculating the SO coefficient for a primary product for which secondary products are defined is:

$$SO_{ij} = \bar{P}_{i,5} \cdot \bar{Y}_{i,5} + \bar{P}_{j,5} \cdot \bar{Y}_{j,5} ,$$

where SO_{ij} – SO coefficient for primary and secondary product i (UAH/ha or UAH/LU);

$P_{i,5}$ – average farm-gate of the primary product i for 5 years (UAH/c, UAH/ LU);

$Y_{i,5}$ – average yield (for crop production, c/ha) or productivity (for livestock production, kg milk/LU) of the primary product for 5 years;

$P_{j,5}$ – average farm-gate of secondary product j in year t (UAH/c, UAH/LU);

$Y_{j,5}$ – average yield (for crop production, c/ha) or productivity (for livestock production, kg/head) of secondary products for 5 years.

The values of farm-gate price and productivity indicators of agricultural products can be determined both at the national and regional levels. For more accurate calculations of the SO coefficient, it is better to use the values of indicators at the regional level, if available. To do this, regions with similar characteristics were grouped. If there is no data on productivity indicators for the relevant type of product in a region, then data from the group of regions to which the relevant region belongs can be used. You can also use the approach of obtaining available data from neighboring regions.

Example of calculation of the Standard Output Coefficient. The survey is carried out in 2024, therefore the average value of the SO coefficient is calculated based on the 5 previous years: 2019 - 2023. Calculation of SO coefficients is carried out using the example of data for the Zhytomyr region (Table 1 (data of the State Statistics Service) and Table 2 (expert assessments)).

The SO coefficient is 26013.17 UAH/ha. The average exchange rate of UAH per euro for 2019-2023 is 34.7 UAH per euro. Therefore, the SO coefficient of wheat is 749.66 euros/ha.

Regarding the secondary production of wheat, the average straw/grain yield coefficient = 0.8. At the same time, only 25% of the straw is used or sold.

Table 1

Calculation of the SO coefficient for the primary product (wheat for grain)

Year	Yield, c/ha	Farm-gate price, UAH/c
2019	44.2	391.93
2020	43.3	510.28
2021	46.5	651.36
2022	41.1	864.72
2023	48.2	491.47
Average value	44.7	581.95

Table 2

Calculation of the SO coefficient for secondary product (straw)

Year	Yield, c/ha	Farm-gate price, UAH/c
2019	8.84	40.77
2020	8.66	50.18
2021	9.30	64.34
2022	8.22	60.98
2023	9.64	53.43
Average value	8.9	53.94

The SO coefficient is 53.94 UAH/ha. The SO coefficient of straw is 13.83 EUR/ha.

The SO coefficient for primary and secondary products is:

749.66 EUR/ha + 13.83 EUR/ha = 763.49 EUR/ha.

The total SO is determined as the product of the SO coefficients per hectare or number of animals:

$$TSO_{prod} = A_i \cdot SO_i ,$$

where TSO_{prod} – total SO of products (euro);

A_i – area under crop (ha) or number of animals for production *I*;

SO_i – SO coefficient of product *i* (euro/ha or euro/head).

According to Article 5b of Regulation (EC) 1217/2009, the economic size of the farm is determined by the Total Standard Output (TSO) indicator based on the sum of the SO of individual agricultural products:

$$TSO_{gosp} = \sum_{i=1}^{n} TSO_{prod} ,$$

where TSO_{gosp} – total SO of the farm (euro);

TSO_{prod} – total SO of products (euro);

n – number of types of products produced by the farm.

Example of farm classification according to the FADN methodology. Once the Standard Output is calculated, the next step is to classify the farm per Economic Size and Type of Farming on the basis of the total SO calculated and according to Regulation 2015/220. The classes of Economic Size are reported in Table 3.

Regarding the determination of the Type of Farming (it is a 3-digit code), it can be defined on the basis of three conditions (Condition 1, Condition 2, Condition 3) listed in Annex IV of the Regulation (EU) 2015/220:

- Condition 1 (C1) determines the general type of specialization of the farm (e.g., specialization in field crops).
- Condition 2 (C2) determines the main type of specialization (e.g., specialization in cereals, oilseeds and protein crops).
- Condition 3 (C3) determines the specific type of specialization (e.g., specialization in cereals, except for rice, oilseeds, dried legumes and protein crops).

Condition 1: General type of specialization. The first condition is to compare the TSO values for individual product groups of the farm with two-thirds

Table 3

Economic Size Classes

Class	Limits, euro
I	Less than 2000
II	From 2000 to 4000
III	From 4000 to 8000
IV	From 8000 to 15000
V	From 15000 to 25000
VI	From 25000 to 50000
VII	From 50000 to 100000
VIII	From 100000 to 250000
IX	From 250000 to 500000
X	From 500000 to 750000
XI	From 750000 to 1000000
XII	From 1000000 to 1500000
XIII	From 1500000 to 3000000
XIV	Over 3000000

of the TSO of the farm according to the established criteria in Application 8 (condition C1):

$$\frac{TSO_{prod}}{TSO_{gosp}} > \frac{2}{3}.$$

If the share of TSO of a particular type of product is more than 66.7% of the TSO of the farm, then the agricultural producer belongs to the corresponding general type (for example, a farm specializing in field crops). If no group exceeds 66.7%, the procedure requires the analysis of the mixed type of farm.

Condition 2: Main type of specialization: Once the general type of specialization is determined, the C2 must be defined to determine the main type of specialization according to the established criteria. Even in this case, if one of the subgroups exceeds 66.7% of the TSO of the group, then the main type of farm is determined (for example, specialization in grain, oilseed and protein crops). If there is no such dominant subgroup, then the specialization of the farm is determined at the C1 level.

Condition 3: Specific specialization: Once the main type of specialization is determined, the procedure requires the determination of the specific type of specialization according to the established criteria. If one of the subgroups exceeds 66.7% of the TSO of the group, then a specific type of farm is determined (for example, specialization in cereals, except for rice, oilseeds, dried legumes and protein crops). If no product exceeds the threshold, the specialization remains at the level of the main type.

In case of undetermination of the three conditions, the farm is classified in a residual group (TF=844 Various mixed crops and livestock).

According to Regulation 2015/220, holdings are divided into three main specializations: Crop products, Animal production and Mixed holdings. Holdings with specialization "Crop products" under condition 1 are divided into three groups: Specialist field crops (code 1), Specialist horticulture (code 2) and Specialist permanent crops (code 3). Under condition 2 – into 9 groups: Specialist cereals, oilseeds and protein crops (code 15), General field cropping (code 16), Specialist horticulture indoor (code 21), Specialist horticulture outdoor (code 22), Other horticulture (code 23), Specialist vineyards (code 35), Specialist fruit and citrus fruit (code 36), Specialist olives (code 37) and Various permanent crops combined (code 38). Under condition 3 – into 29 groups. In particular, Specialist field crops are divided into Specialist cereals (other than rice) oilseeds and protein crops (code 151), Specialist rice (code 152) and Cereals, oilseeds, protein crops and rice combined (code 153).

Holdings with specialization "Animal production" under condition 1 are divided into two groups: Specialist grazing livestock (code 4) and Specialist granivores (code 5). Under condition 2 – into 7 groups: Specialist dairying (code 45), Specialist cattle – rearing and fattening (code 46), Cattle – dairying, rearing and fattening combined (code 47), Sheep, goats and other grazing livestock (code 48), Specialist pigs (code 51), Specialist poultry (code 52) and Various granivores combined (code 53). Under condition 3 – into 14 groups. In particular, Specialist pigs are divided into Specialist pig rearing (code 511), Specialist pig fattening (code 512) and Pig rearing and fattening combined (code 513).

Holdings with specialization "Mixed holdings" under condition 1 are divided into three groups: Mixed cropping (code 6), Mixed livestock (code 7) and Mixed crops – livestock (code 8). Under

condition 2 – into 5 groups: Mixed cropping (code 61), Mixed livestock, mainly grazing livestock (code 73), Mixed livestock, mainly granivores (code 74), Field crops – grazing livestock combined (code 83) and Various crops and livestock combined (code 84). Under condition 3 – into 18 groups. In particular, Mixed livestock, mainly granivores is divided into Mixed livestock: granivores and dairying (code 741) and Mixed livestock: granivores and non-dairying grazing livestock (code 742).

If the CO is 0, then the holdings are marked as non-classified (code 9). SO is equal to 0 when it has been not possible to calculate the SO coefficient (atypical production, no data for the calculation of SO). Applying this approach to the case of the farm of Zhytomyr region the farm classification can be explained with a practical example.

Input data of the farm in Zhytomyr region:

– Crops:
- Wheat: 70 ha;
- Corn: 50 ha;
- Potatoes: 15 ha.

– SO coefficients:
- Wheat: 867.80 EUR/ha;
- Corn: 1088.51 EUR/ha;
- Potatoes: 3498.99 EUR/ha.

Determination of the economic size: calculation of the Total Standard Output (TSO) of the farm:

– Wheat: 70 ha · 763.49 (867.80) €/ha = 53444.30 €;

– Corn: 50 ha · 1088.51 €/ha = 54425.5 €;

– Potatoes: 15 ha · 3498.99 €/ha = 52484.85 €;

– TSO = 53444.30 + 54425.50 + 52484.85 = = 160354.65 €.

Since the total TSO of the farm is 160354.65 €, it belongs to the 8th economic size class (see Table 3).

The Type of Farming is determined checking the three conditions.

C1: Determining the general type of farm specialization (share of TSO by main groups)

Field crops (TSO from wheat, corn, potatoes):

(53444.30 + 54425.50 + 52484.85) · 100%/ 160354.65 = 100%.

The farm belongs to the specialization in field crops, since they account for more than 66.7% of the farm's TSO.

C2: Determining the main type of specialization in crop production (share of TSO by main groups):

Specialized grain, oilseed and protein crops (TSO from wheat and corn):

(53444.30 + 54425.50) · 100%/ 160354.65 = = 67.3%.

General field crops (TSO from potatoes):

52484.85 · 100%/ 160354.65 = 32.7%.

Result: The farm belongs to the specialization in specialized grain, oilseed and protein crops, since they account for more than 66.7% of the farm's TSO.

C3: Determining the specific type of specialization (share of TSO by main groups):

Specialized grains (except rice), oilseeds and protein crops (TSO from wheat and corn):

(53444.30 + 54425.50) · 100%/ 160354.65 = = 67.3%.

Specialized root crops (TSO from potatoes):

52484.85 · 100%/ 160354.65 = 32.7%.

Result: The farm belongs to the specialization in specialized grains (except rice), oilseeds and protein crops, since they account for more than 66.7% of the farm's TSO.

The Type of Farming is the 3-digit code 151.

Conclusions and recommendations. The introduction of the FADN-based farm classification methodology is a key step in the process of integration of Ukraine in the European Union. The successful implementation of this initiative depends on the effective collection of data, the adaptation of international standards to national conditions, and active cooperation between the state and the agricultural sector.

The first implementation of the FADN farm classification is a challenge for a country like Ukraine, where there is not this type of survey at farm level for all the agricultural holdings included the smallest ones. Beside the mandatory task to obtain the Acquis, this kind of survey can be useful for the national policy makers because it will increase the quantity of information regarding the condition of agricultural sector, allowing more targeted policies and more effective development of subsidies and financial programs. The process will be not easy because of several problems: there is a lack of a comprehensive monitoring of the agricultural sector (the Agricultural Census is crucial to design the FADN sample); there is an inconsistency of the National classification with European standards; a large proportion of individual farms does not keep official records; probably there will be a low interest of agricultural producers in reporting due to fears of tax burden and complexity of the survey even if the FADN has a very strong policy of confidential data protection (elementary data are not published and all the analysis are done in an aggregate way in order to make impossible the identification of the single farm).

Several recommendations for the future are inherent the adaptation of the EU methodology to Ukrainian conditions that will require improvement of statistical procedures, in particular, creation of a complete database of agricultural producers by defined indicators and types of products. For a successful implementation, it is necessary to ensure active communication with agricultural producers, stimulating their participation in the FADN. Another important concern is the relationship with farmers: a significant share of agricultural production in Ukraine is concentrated in small individual farms that are not obliged to maintain official accounting. This is a common problem in many EU Member State,

solved asking for invoices, specific documents, direct interviews. FADN is a voluntary survey, carried out by data collectors and the trust relationship with the farmer is considered crucial for the success.

Future research perspectives:

1. Assessment of digitalization processes in farm data collection and their impact on data accuracy and availability. Future research should focus on how digital tools improve the accuracy and accessibility of farm classification data. The integration of automated data collection, artificial intelligence, and remote sensing can enhance typology-based analyses, ensuring real-time monitoring and compliance with sustainability requirements. Investigating the potential of digital platforms to streamline data processing will contribute to the development of more efficient farm classification systems.

2. Study of the integration of small and medium-sized farms into the FADN system and their role in agricultural policy development. Research on tailored classification approaches for small and medium-sized farms will be essential to ensure their accurate representation in agricultural data networks. Understanding the specific economic and environmental challenges faced by these farms will help improve the inclusivity of classification methodologies. This, in turn, will allow for more precise policy recommendations that support the sustainability and competitiveness of different farm types.

3. Study of the relationship between FADN-based classifications and access to financial support for farmers. Farm classification plays a crucial role in determining eligibility for financial aid and sustainability incentives. Investigating how typologies affect access to funding can help refine classification models to ensure an equitable distribution of financial resources. Research should explore ways to align classification criteria with funding mechanisms to promote financial stability and environmental sustainability in the agricultural sector.

4. Development of a harmonized farm classification methodology that takes into account regional agricultural characteristics and sustainability factors. Future studies should explore how regional variations in agricultural practices can be integrated into a harmonized classification system that aligns with evolving sustainability policies. This includes incorporating environmental, social, and economic criteria into farm classification frameworks. A well-defined typology will enable more effective decision-making at both national and EU levels, fostering long-term resilience and adaptability in the agricultural sector.

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Класифікація сільськогосподарських виробників FADN ЄС: перший досвід в Україні в європейській перспективі

У статті аналізується класифікація сільськогосподарських виробників у рамках Мережі даних сільськогосподарського обліку (FADN) та її вплив на формування спільної аграрної політики. У дослідженні підкреслюється важливість FADN як інструменту для збору, обробки та аналізу економічних даних про сільськогосподарських виробників, що сприяє розробці ефективних стратегій управління та аграрної політики.

Особлива увага приділяється методологічним питанням класифікації сільськогосподарських виробників та потенційним перевагам адаптації досвіду ЄС до української специфіки сільськогосподарського сектору. У статті описано методологію, яка використовується для класифікації на основі економічного розміру та типу сільськогосподарського виробника (наприклад, спеціалізовані рослинницькі або тваринницькі господарства). Вона передбачає групування сільськогосподарських виробників на основі стандартного випуску (SO). Ця класифікація допомагає визначити структурні характеристики, рівні доходів та виробничу спрямованість серед сільськогосподарських виробників. Процедуру класифікації сільськогосподарських виробників можна описати такими кроками: Етап 1: Розрахунок коефіцієнтів стандартного випуску (SOC). Етап 2: Розрахунок SO для кожного виду виробництва (рослинництво та тваринництво). Етап 3: Розрахунок загального SO сільськогосподарського виробника. Етап 4: Визначення економічного розміру сільськогосподарського виробника. Етап 5: Визначення типу сільськогосподарського виробника. Крім того, дослідження визначає проблеми, пов'язані зі збором даних, методологічними розбіжностями та інтеграцією малих сільськогосподарських виробників у систему FADN.

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Ключові слова: *FADN, класифікація фермерських господарств, спільна сільськогосподарська політика, економічний розмір ферми, тип ферми.*

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