

# Statistics of agriculture in Ukraine during the war and after its end: what, how, where are we moving?

# Relevance of the topic

Because the Ukrainian agricultural sector is so very relevant for the domestic and global economies and its potential has not been fully realized, an enormous responsibility rests on the country's policy decisions.

Accurate and up-to-date agricultural statistics are the bedrock of informed decision-making. The particular benefits are:

- 1) develop strategies for adapting to challenges;
- 2) identifying trends and enabling better resource management;
- 3) identifying areas where infrastructure and support services are needed to improve the livelihoods of rural communities;
- 4) assessing and managing risks;
- 5) promoting transparency and accountability;
- 7) bolstering investor confidence by offering a clear picture of the market, potential returns, and associated risks. This, in turn, promotes capital inflow, technological advancements, and infrastructure development.

# Key topics

- 01 Reviewing the agricultural data and statistics in Ukraine**
- 03 Benchmark for improvement of agricultural statistical data in Ukraine**
- 05 Framework for improvement**

# **Reviewing the agricultural data and statistics in Ukraine**

# Agricultural data sources

State Statistics Service of Ukraine

National Bank of Ukraine

State Customs Service of Ukraine

State Service of Ukraine for Geodesy, Cartography and  
Cadastre (State Geocadaster)

Agricultural associations

Analytical centers (surveys)

# Agricultural data sources

Source	Group of indicators	Frequency of published data
<a href="#">State Statistics Service of Ukraine</a>	Sown areas	Yearly
<a href="#">State Statistics Service of Ukraine</a>	Harvesting	Monthly
<a href="#">State Statistics Service of Ukraine</a>	Use of fertilizers and PPP	Yearly
<a href="#">State Statistics Service of Ukraine</a>	Production and stocks of livestock commodities	Montly
<a href="#">State Statistics Service of Ukraine</a>	Production and stocks of crops	Yearly
<a href="#">State Statistics Service of Ukraine</a>	Production costs and purchase of materials	Yearly
<a href="#">State Statistics Service of Ukraine</a>	Processing of meat and raw milk	Quarterly
<a href="#">State Statistics Service of Ukraine</a>	Processing of cereals, legumes, grapes	Monthly
<a href="#">State Statistics Service of Ukraine</a>	Protection of forests	Yearly
<a href="#">National Bank of Ukraine</a>	Farmers' deposits	Monthly
<a href="#">National Bank of Ukraine</a>	Farmers' loans	Monthly
<a href="#">State Tax Service of Ukraine</a>	Tax data	Not published
<a href="#">State customs Service of Ukraine</a>	Foreign trade	Monthly
<a href="#">State Service of Ukraine for geodesy, cartography and cadastre</a>	Land use and land market data	Monthly
Associations of agricultural producers	Production data	Various

# State Statistics Service of Ukraine

SSSU is the main source of agricultural statistics. Representative sample of agricultural enterprises, and 2) «Фізична особа – підприємець, ФОП».

There are around 6 million agricultural land owners in Ukraine who may be cultivating their small land parcels and sell the produce on the local markets. SSSU collects the data on such producers as rural households, but it does not include high level of production details (!).

In 2019, 30.1% of the total value of crop commodities and 48.7% of the total value of livestock commodities were produced by such entities. When using the data for policy decision making, especially what concerns EU accession, food security, production factors demand, absence of such a large share of agricultural producers from the data poses a very serious problem.

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## Statistical reporting to the SSSU – 17 forms

**Specialized reporting of agricultural enterprises** (planted areas, production volumes, production costs, use of fertilizers and pesticides, livestock, etc.)

**General reporting submitted by agricultural enterprises includes information** (use of hired labor and wages, fuel consumption, and volume of capital investments, among other things)

**Specialized reporting of the food processing industry** (incoming grain and legume crops, animals, milk, grapes to processing plants)



# State Statistics Service of Ukraine

In terms of interconnectedness, SSSU is the only institution that utilizes not only its own data, but administrative data from other sources as well. For agricultural indicators, the following institutions provide administrative data to SSSU:

- National Bank of Ukraine (used for business activity of enterprises data)
- State Service of Ukraine for geodesy, cartography and cadaster (used for agricultural land use data)
- State Forest Resources Agency of Ukraine (used for hunting and forestry data)
- State Agency of Fisheries of Ukraine (used for fish production data)
- State Treasury Service of Ukraine (used for economic accounts of agriculture)
- State Customs Service of Ukraine (used for foreign trade data)

As of 2023, no specific practices of data collection, which are activated only for very specific need or under specific circumstances are established in Ukraine.

# State Statistics Service of Ukraine

Report submitting can be done only in **electronic form**:

- “Respondent’s cabinet” – all forms
- SAR – annual 29s-g (area and production of crops) and monthly 24 s-g (heads and production of livestock)

**Data entry is done in a form with single entry and submission**

Registration in **SAR** (system for effective agricultural support distribution): personal electronic account for the farmer - data from other state registers regarding their economic activities, land bank, livestock, etc., are automatically uploaded.

**SAR is currently connected to** the Unified State Register of Legal Entities and Individual Entrepreneurs, the State Land Cadastre, the State Register of Property Rights, as well as the Unified State Register of Animals. Each time the user logs into the Cabinet, information from the registers is updated.

# State Statistics Service of Ukraine

In September 2023 the Government of Ukraine adopted the Regulation On the approval of the **Official Statistics Development Program until 2028**.

The main goal of this program is to integrate (finalize the integration) of the Ukrainian Statistical Service into the principles for statistical data of the United Nations and the European Union especially as a result of the EU candidate status of Ukraine.

The Regulation states the achievements of the Statistical Service in the following major directions:

- "Modernization of State Statistics" – measures by the State Statistics Service for the implementation of international standards and recommendations, conducting state statistical observations under extraordinary and insurmountable circumstances (including during the legal regime of a state of war in Ukraine).
- "Transparency and Accessibility of Statistical Information" introduced the preparation and publication of microdata files for public use and created the mobile application "Statistics on your smartphone"
- "Reducing Reporting Burden" to enable respondents to report to the state statistical authorities free of charge in an online mode, and developed the software "Respondent's Cabinet." At the same time, to reduce the reporting burden on respondents, the number of non-continuous observations has been increased. An integrated system for short-term enterprise statistics has been established, and the use of administrative data as an alternative source

# Benchmark development

# COLLECTING STATISTICAL DATA IN DIFFICULT-TO-REACH AREAS



- E-Agriculture – Mobile Data Collection
- Drones technology
  - capture near-real time data
  - strong monitoring and evaluation tools to provide evidence based learning and feedback
  - analytics dashboards

*Drones technology was used for projects in nine states in India, and in 15 other countries including, Afghanistan, Nigeria, Nepal, Papua New Guinea and Ethiopia.*

- Remote Sensing and GIS Mapping

# STATISTICS IN OTHER COUNTRIES



- National (Agricultural) Statistics Service
- Census – every (5) years and Surveys – annually, monthly, quarterly
- Most of the data entered online via the Respondents cabinet, telephone surveys (USA), surveys by in-person (regional level in Germany for some indicators)
- Allows pre-load from the previous period and automated calculations (USA)
- Public access to aggregated data, special allowance access to micro-data
- Geostatistics Portal: basic statistics for territorial units and search for objects, select and view ready-made map visualizations from the catalogue of resources (Poland, USA)
- [Local Data Bank \(Poland\)](#)
- Citizens could report data on various topics through this app, such as waste management (Poland)

# Eurostat for agriculture

1. Unit Value Statistics for Agricultural Products
2. Selling Prices of Agricultural Products
3. Purchase Prices of Agricultural Production
4. Price Indices of Agricultural Products
5. Land Prices and Rents
6. Economic Accounts for Agriculture
7. Retail Sales of Food, Beverages, and Tobacco
8. Other Gainful Activities and Support for Rural Development
9. Type of Tenure
10. Agricultural Labour Input Statistics
11. Farm Management and Practices
12. Agricultural Training of Farm Managers
13. Structure of Agricultural Holdings
14. Job Vacancy Statistics
15. Irrigation
16. Soil Erosion
17. Manure Storage
18. Consumer Surveys
19. Livestock Population
20. Livestock production
21. Crop Production
22. Energy Crops, Fodder crops and GMO
23. Organic Farming
24. Environmental impact

# Eurostat for agriculture



## Trading

- ▲ By HS6
- ▲ By CN8
- ▲ By statistical procedure
- ▲ By mode of transport
- ▲ By tariff regime
- ▲ Activity and enterprise size class
- ▲ Type of trader
- ▲ Type of ownership
- ▲ Trading partner
- ▲ Invoicing currency



# Eurostat for agriculture

- ▶ **Data collection is done in EU countries by national statistical authorities in compliance with common EU statistical regulations and standards, monitored by Eurostat.**

These national authorities verify and analyse national data and send them to Eurostat. Eurostat then carries out data validation and quality control checks and produces aggregated figures, particularly at EU level. These data are published at EU, euro area, national and, where possible, regional level and are published regularly in compliance with an established publication calendar.

# Eurostat for agriculture

Member States conducting sample surveys in order to obtain statistics shall take all necessary steps to ensure that data meet the following precision requirements.

Shall not exceed, at national level, 3 % for the area under cultivation for each of the following groups of main crops: cereals for the production of grain (including seed), dried pulses and protein crops for the production of grain (including seed and mixtures of cereals and pulses), root crops, industrial crops and plants harvested green.

# Eurostat microdata for agriculture

Microdata are sets of records containing information on individuals, households or businesses. Eurostat use them in official statistics to produce aggregate information.

Access to confidential microdata is restricted to protect the anonymity of individuals or businesses. Eurostat can provide access to our microdata **for scientific purposes only.**

<https://ec.europa.eu/eurostat/documents/203647/771732/Datasets-availability-table.pdf>

EU-SILC - the EU statistics on income and living conditions

EU-LFS – employment and unemployment

EU-CIS – community innovation survey

**EU-SES – Structure of Earnings Survey**

EU-CVTS – frequency of training in enterprises

ICT HH – access to information and communication technologies by households

RFS – European road freight transport survey

HIS – European Health Interview Survey

**HBS – Household budget survey**

**FSS – Farm structure survey**

# Farm Structure Survey (FSS)



The Farm Structure Survey is conducted among EU member states according to a common methodology on a regular basis - every 3-4 years in the form of a sample survey, and every 10 years in the form of a census.

The survey covers most agricultural producers, except for the smallest **less than 5 hectares**. Data are collected by statistical agencies of EU member states and transmitted to the European Commission. The European Commission compensates **up to 75%** of the costs of data collection and processing.

Participation in the survey is **mandatory** for all agricultural producers, whether it be for a census or a sample selection.

The survey is divided into three main sections: **general and demographic information, land use and livestock**. The sections on livestock and land use also provide information on the area/number of animals certified for organic production. In addition to the three main sections, there is a set of 8 thematic modules, the presence of which in the survey varies depending on the country and year of the survey: **Labor force, Rural development, Animal housing and manure management, Irrigation, Soil management, Machinery and Equipment, Orchard, Vineyard**.

# Experimental Statistics

- ▶ Multifactor productivity
- ▶ International sourcing
- ▶ Micro high-growth enterprises
- ▶ Income and consumption:  
social surveys and national  
accounts
- ▶ QALI, Quality-Adjusted Labor  
Input
- ▶ Structure of multinational  
enterprise groups in the EU
- ▶ Labor market transitions

# FADN

The Farm Accountancy Data Network (FADN) is an instrument for evaluating the income of agricultural holdings and the impacts of the Common Agricultural Policy. **Data is collected annually from the selected farms.**

FADN collects data from a sample of farms in each EU member state. The sample is designed to be representative of the overall agricultural sector in terms of size, region, and type of farming. These data variables include information on **production outputs, input usage, costs, revenues, subsidies, and other financial and economic indicators.** (table with all variables provided in next slide)

Currently, the annual sample covers approximately **80.000 holdings**. They represent a population of about **5.000.000 farms in the EU**, which covers approximately 90% of the total utilised agricultural area (UAA) and account for about 90% of the total agricultural production.

# FADN



<b>Table A</b>	<b>General information on the holding.</b> Identification and classification of the farm	<b>Table H</b>	<b>Inputs.</b> Costs in cash and in kind, quantities of selected inputs
<b>Table B</b>	<b>Type of occupation.</b> Breakdown of the farm area: owned, rented or sharecropped	<b>Table I</b>	<b>Crops.</b> The area, quantity and value of all crops, animal products and other activities
<b>Table C</b>	<b>Labour.</b> All labour, paid and unpaid, which has contributed to work on the farm during the accounting year.	<b>Table J</b>	<b>Livestock production.</b> Opening and closing valuations and average number of livestock, purchases and sales.
<b>Table D</b>	<b>Assets.</b> Value of all non-capital inputs used in the production of non-capital products during the accounting year.	<b>Table K</b>	<b>Animal products and services.</b> per animal category
<b>Table E</b>	<b>Quotas and other rights.</b> Quotas and other rights included those acquired free	<b>Table L</b>	<b>Other gainful activities directly related to the farm.</b>
<b>Table F</b>	<b>Debts.</b> Outstanding amounts I.E. loans contracted minus the repayments already made	<b>Table M</b>	<b>Subsidies.</b> Defined as specific payments made directly to the farm business from public funds, excluding those for investment in land, plant, machinery and equipment.
<b>Table G</b>	<b>Value added tax (VAT).</b> The VAT system applying and in certain cases VAT payments and receipts		

# Benchmark

- ▲ Indicators, frequency
- ▲ Approach to information collection: mandatory, census, sampling
- ▲ Regulatory legislation and standards
- ▲ Collection ease
- ▲ Ease of access and visualization
- ▲ Access to micro-data



# Benchmark

## Indicators, frequency

### Annex 6

The territories of Ukraine under occupation are not safely accessible by any civil terrestrial, water or air vehicle, neither it is safe to contact people with the mobile application.

Only satellite imagery data are available. In this respect, the available data imagery models for the South and East of Ukraine must be found and adapted to the statistical needs.

Creation of the list of companies having constant access to satellite data on south and east of Ukraine crops and other farming images

Linking a scenario-based crops growth model

Generating of scenario-based projections of some statistical data from these territories.

# Benchmark

- ▲ Approach to information collection: mandatory, census, sampling
- ▲ Collection ease

# Proposals for coordinated efforts

The collection of the data, as is already stated by the latest Government's regulation, shall be based on surveys for higher frequency, and on census once in a defined period of time.

Collect the questionnaire-based information via the web-portal:

- Ability to enter the data and automatized calculation
- Keep historical records for the reference
- Allow pre-load from other data collecting public services

The producers shall be encouraged to participate in the census and the surveys.

A working example of such a system is [Online Survey Response system of the United States Department of Agriculture National Agricultural Statistics Service](#).

The organizational structure and subordination of the agricultural statistics only requires direct and unlimited access by the Ministry for Agrarian and Food Policy of Ukraine officials and the appointed persons. Furthermore, the portal shall be equipped with the Customer/Respondent support system and feedback system.

# Proposals for coordinated efforts

- Establish an inter-agency working group on agricultural statistics involving critical stakeholders like the Ministry of Agrarian Policy and Food (MAPF), the State Statistics Service of Ukraine (SSSU), the Ministry of Economic Development, Ministry of Digital Transformation, agricultural associations, research institutions, etc.
- Develop data-sharing agreements and APIs for automatic data transfer between the MAPF, SSSU, State Agricultural Register, tax authorities, and other databases to reduce duplication and streamline data collection.
- Create a unified portal/dashboard for agricultural statistics, integrating data from various sources.

# Benchmark

- ▶ Regulatory legislation and standards

# Proposals for coordinated efforts

Complete alignment with the EU legislation and the Guidelines

# Benchmark

**Ease of access and visualization**

**Access to micro-data**

**Constant improvements**

# Proposals for coordinated efforts

- Create a unified portal/dashboard for agricultural statistics, integrating data from various sources.
- Provide regulated access to anonymized microdata for academic and policy research purposes, subject to strict confidentiality standards.
- Create targeted funding programs to support pilots and research on improving agricultural data collection through new technologies like IoT sensors, satellite imagery, drones, mobile applications.
- Organize regular conferences, seminars, and training sessions involving data producers (SSSU, MAPF, etc.) and users (policymakers, analysts, academia). This would foster a better understanding of emerging data needs and potential uses, supporting the coordinated development of agricultural information systems.



# To improve capacity in a phased manner

## **Phase 1 Assessment and Planning**

Current State Assessment: Conduct a comprehensive review of the existing data collection processes, infrastructure, and human resources within the State Statistical Service;

- Evaluate the accuracy, timeliness, and completeness of current agricultural data;
- Identify any bottlenecks, challenges, or gaps in the current system.

Benchmarking and Best Practices: Study and analyze successful models from EU and USA statistical agencies in agricultural data collection;

- Identify key performance indicators (KPIs) and benchmarks for comparison.

Stakeholder Engagement: Establish a cross-functional team consisting of statisticians, IT professionals, and agricultural experts. Actively involve key stakeholders, such as farmers, agricultural organizations, and technology providers, to gain a comprehensive understanding of their requirements and expectations.

# To improve capacity in a phased manner

## Phase 2: Infrastructure and Technology Upgrade

### IT Infrastructure Enhancement:

- Conduct a thorough audit of the current IT infrastructure to identify gaps or shortcomings.
- Evaluate the possibility of integrating API keys to facilitate faster data transfer between different databases and potentially avoid duplication of information during surveys;
- Develop a roadmap for infrastructure, API integration, including hardware upgrades, software licenses, and cybersecurity measures in compliance with EU agriculture and data gathering policies;
- Collaborate with experienced IT consultants to implement the necessary changes. Involve experts from the Ministry of Digital to improve the already existing methods of collecting information, transferring them to more automated ones;
- Once a month, round tables where possible methods of improving information collection will be discussed between the relevant IT departments of the Ministry of Digital, State Statistics, the Ministry of Agrarian Policy and Food of Ukraine, stakeholders, and analytical centers. *These roundtables can also discuss new statistical data that is useful for better and deeper analysis, as well as possible ways of obtaining them, such as adding them to existing statistical forms or creating a new data collection mechanism.*

Pilot Technology Implementation: Select a representative sample region or district for the pilot program; Implement data collection solutions, such as mobile apps, sensor-based tools, or a website with relevant tools; Gather user feedback, analyze data accuracy, and make necessary adjustments to the technology stack.

# To improve capacity in a phased manner

## **Phase 3: Process Optimization and Standardization**

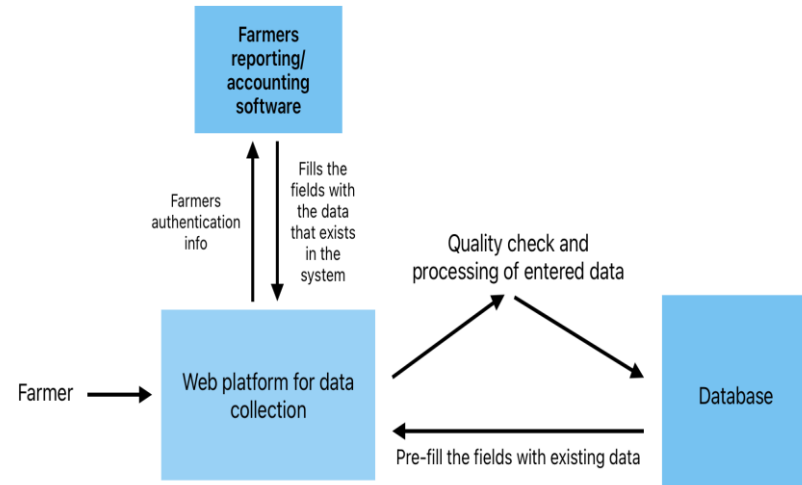
### Standardization of Data Collection Methods:

- Evaluate the success of pilot programs. If the pilot surveys of agricultural producers meet certain efficiency criteria, expand the new survey to the entire country
- Develop a set of standardized protocols for data collection to ensure consistency and comparability
- Implement automated validation checks within the data collection tools to minimize errors at the source

Conduct training programs focusing on advanced statistical methods, data interpretation and effective communication of results, as well as the use of new methods of information collection (mobile applications or sensor-based tools).

# Data collection during the war and crisis. Pilot platform

A questionnaire will be developed within the **simplistic online interactive platform**, and a program developed for **preliminary data collection from the platform**, its **quality check** and **automatized calculation and display of the selected set of indicators**, and respondents' **feedback system**.



# Data collection during the war and crisis. Pilot platform

Main System Components:

**Data input website:** user-friendly website with an authentication form and data entry fields. The website connects to the database to send and retrieve information for specific users.

**Database:** A central repository where all entered data is stored securely.

**Data Processing Algorithm:** This component processes the received data, including verification to ensure accuracy and consistency. Any discrepancies trigger requests for clarification from the user.

**Integration with Reporting Software:** The ability to integrate with reporting software, although specific integration requirements depend on the software used by each individual enterprise. For the data collection website, a simple design will suffice, featuring project information, user authentication, and data entry fields. Data should be seamlessly transferred to and from the database. Feedback and responses from farmers can be collected through a separate questionnaire displayed to users after entering their data.



**Thank you**

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