KSE | Центр досліджень продовольства та землекористування

Policy brief

Types of agricultural producers in Ukraine

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Summary

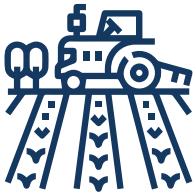
Based on the analysis of Ukraine's agricultural producers, this policy brief concludes that the distinct differences in productivity, production patterns, and operational characteristics among various types of producers justify treating them separately in the AGMEMOD-Ukraine model. Based on the provided overview and comparative analysis, 4 distinct groups of producers are determined: households, small farms (producers with a total area of up to 200 hectares), larger agricultural enterprises (producers with a total area of more than 200 hectares), and agricultural holdings.

Households

- Primarily subsistence farming, with surplus production sold in local markets. Farming activities are often conducted by family members.
- Not considered entrepreneurial activity and exempt from income taxes on land up to 2 hectares.
- Account for 28.73% of the total sown area of cereals and oilseeds in Ukraine.
- More focused on production of niche cereals (barley, oats, rye); almost no production of oilseeds.
- Yields are significantly lower that those of commercial farms.

Small Producers (<200 ha)

- Family-run farms; labor primarily comes from family members, with external labor used seasonally or for specific tasks.
- Yields are higher than households but lower than enterprises.
- Tend to cultivate fewer crops simultaneously, as compared to larger producers; mainly focused on cereals.
- Higher per-unit expenditures on inputs like fuel and labor, which impacts overall competitiveness.
- Face barriers in accessing formal financial services and modern technologies.



Big Producers (>200 ha)

- **Scale and Technology:** Utilize economies of scale and advanced technologies, leading to the highest yields across most crops (e.g., wheat, corn, barley).
- **Crop Focus:** Larger farms are more diversified and commercially oriented, producing a wider variety of crops compared to smaller farms.
- **Cost Structure:** More efficient in managing input costs due to access to bulk purchasing and better technology, resulting in lower per-unit input costs.
- **Productivity:** Higher overall productivity and efficiency compared to smaller producers, particularly in key cash crops like wheat and sunflower.

Agricultural Holdings

- Consist of a parent company managing multiple agricultural enterprises, often controlling thousands of hectares of land.
- Typically, part of vertically integrated structures, allowing for centralized management along the supply chain and access to external capital.
- Achieve higher yields than independent farms, but also face higher operational costs due to extensive use of inputs.
- Better positioned to absorb shocks and manage risks due to diversification, access to finance, and centralized management.

Introduction

This policy brief aims to provide a comparative analysis of the production characteristics of Ukrainian agricultural producers. By examining these differences, the brief seeks to differentiate producers into several distinct groups, based on their productivity, efficiency, and production patterns. The need for such analysis stems directly from the purpose of AGMEMOD model update. Uncovering the distinct challenges and opportunities faced by each producer type would allow to estimate their production parameters separately. Investigating these differences would allow to ensure a better fit of the model, thus increasing the precision and reliability of its projections. The aim of this policy brief is to answer the question, whether specific types and sizes of agricultural producers should be modelled separately from the other.

Ukraine's agricultural landscape is marked by a diverse array of producers, each playing a crucial role in the sector's overall performance. From households, producing agricultural goods for subsistence, to large-scale agricultural holdings that span thousands of hectares, the country's agricultural sector is a mosaic of different production systems. Small producers often operate family-run farms, focusing on both subsistence and market-oriented production, while large agricultural holdings, including medium-sized enterprises and expansive agribusinesses, leverage economies of scale and advanced technologies to maximize output.

Additionally, households contribute significantly to rural livelihoods, primarily engaging in small-scale farming for self-consumption and local markets. Understanding the distinct characteristics and challenges faced by each type of producer is essential for developing targeted policies that can enhance productivity and ensure the sustainable growth of Ukraine's agricultural sector.

In this policy brief, we provide an overview and comparison of the production characteristics of different organizational forms of agricultural producers in Ukraine. Then, we delve deeper into comparison of the small, medium, and large farms.

Types of producers by organizational form

Agricultural production in Ukraine is conducted by both households and enterprises. Households, as defined by Law of Ukraine №742-IV, conduct an economic activity without a legal entity registration. Farming is conducted individually or by family, which shares a household, with the aim of satisfying personal needs through the production, processing and consumption of agricultural products, and the sale of their surpluses. This type of farming is not considered an entrepreneurial activity and is exempted from income taxes generated by land up to 2 hectares. Households, whose land bank exceeds this amount should be registered as an agricultural enterprise – either as legal entity or as an individual entrepreneur. As of January 2024, there have been 3.85 million households involved in agricultural production[1], which constituted 28.73% of the total sown area.[2]

The smallest type of agricultural enterprises is family farm ("фермерське господарство"). According to Law of Ukraine №973-IV, it could be formed by an individual or family, and registered as either individual entrepreneur (if total area does not exceed 20 hectares), or a legal entity. All of the economics activity of the family farm should be conducted by family members. External labor could be used only for seasonal work or for specific tasks, which require special skills or knowledge. As of 2023, family farms constituted 17.08% of the total sown area.[3]

Other agricultural enterprises are corporate farms, which take various legal organizational forms (limited liability company, private enterprise, etc). These are usually larger companies, either operating by themselves or affiliated to the agricultural holdings. Corporate farms constituted 54.19% of the total sown area in 2023.[4]

The special case of the corporate farms is those, which are affiliated with agricultural holdings. These entities are typically part of vertically integrated structures, where the agricultural holding exercises centralized management, and strategic planning and shares resources across multiple enterprises. Besides that, agricultural holdings often have greater access to capital, advanced technology, and international markets, which sets them apart from stand-alone large

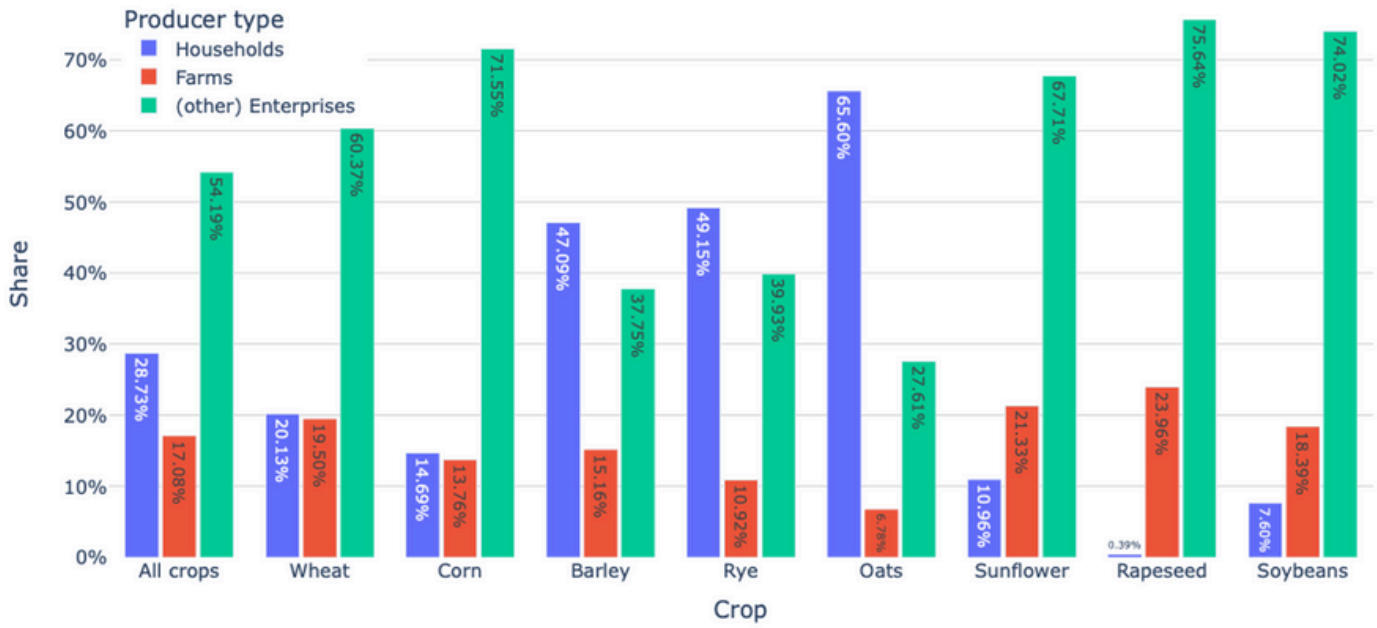
1 *SSSU. Personal peasant households as of January 1, 2024. https://www.ukrstat.gov.ua/operativ/operativ2022/sg/osg/osg_23_ue.xlsx*
2 *SSSU. Areas, gross harvest and yields of agricultural crops by their species. https://www.ukrstat.gov.ua/operativ/operativ2023/sg/pvzu/pvz23.zip*
3 *SSSU. Areas, gross harvest and yields of agricultural crops by their species. https://www.ukrstat.gov.ua/operativ/operativ2023/sg/pvzu/pvz23.zip*
4 *SSSU. Areas, gross harvest and yields of agricultural crops by their species. https://www.ukrstat.gov.ua/operativ/operativ2023/sg/pvzu/pvz23.zip*

enterprises. As a result, agricultural holdings can operate with a degree of productivity and competitiveness that is often higher by their independent counterparts, making them a special case in Ukraine's agricultural sector (Balmann et al., 2013).

This distinction should be made when analysing productivity and efficiency, as the structural advantages of agricultural holdings can significantly influence their performance outcomes. However, it is not always possible to single them out from the available data. This section overviews these firms together with regular corporate farms. A comparison of non-holding enterprises and those, which belong to ones, is provided in the next section.

As it could be seen from the data (Figure 1), published by SSSU (Table 1), crop choice tends to be similar for farms and corporate farms: both types of producers tend to focus on export grains and oilseeds (wheat, corn, sunflower, rapeseed, soybeans). On the other hand, share of households is much more pronounced in sown areas under other cereals – barley, oats, and rye. Speaking of oilseeds, households almost don't produce any of them. While constituting 28.73% of the total sown areas in 2023, their shares in oilseeds sown areas are quite small – 10.96% under sunflower, 7.60% under soybeans, and an almost non-existent 0.39% of rapeseed sown areas. In general, this difference in crop choices stems from the lower interest of households in production of cash crops.

Figure 1. Share of sown area under grain and oilseed crops by producer type in 2023.



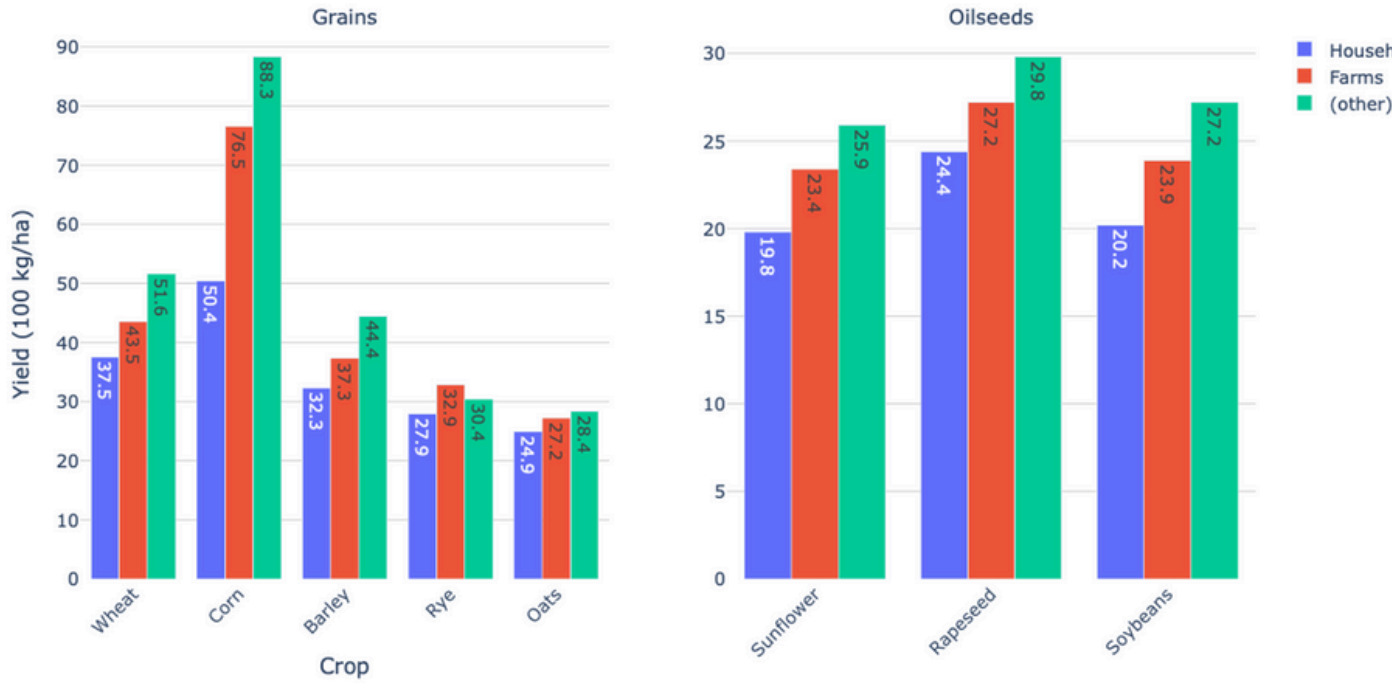
Source: *own calculation based on SSSU data*

Figure 2 presents the average yields of main grain (wheat, corn, barley, rye, and oats) and oilseed (sunflower, rapeseed, and soybeans) crops by producer type. For main export grains – wheat, corn, and barley, enterprises consistently achieve the highest yields, followed by farms. The most pronounced difference between the producer types is observed for corn – as compared to households, enterprises and family farms achieved 75% and 52% higher yields, respectively. On the other hand, yields of rye and oats are relatively similar across all three producer types.

The trend is similar for oilseeds, where enterprises lead, especially in rapeseed production with a yield of 2.98 tons per hectare.

This indicates that enterprises, benefiting from larger scale operations and likely better access to resources and technologies, outperform smaller producers like households, which exhibit the lowest yields across all crops. Farms, while better than households, do not reach the yield levels of enterprises, highlighting the productivity gaps among different agricultural producer types.

Figure 2. Average yields of main grains and oilseeds by producer type, 2023



Source: *own calculation based on SSSU data*

Agricultural holdings

As it was previously mentioned, agroholdings are a special case in the structure of agricultural producer types in Ukraine. It is an organizational form of agricultural enterprise that consists of a parent company that controls and manages numerous horizontally integrated agricultural enterprises, thus accumulating tens or hundreds of thousands of hectares of agricultural land. The development of these large-scale farming entities was primarily driven by the inflow of capital from other sectors and the ability to leverage economies of scale through mergers and acquisitions of smaller farms and enterprises (Ostapchuk et al., 2021).

Agricultural holdings play an important role in Ukraine's agricultural production, accounting for a significant share of gross production. As of 2024, there are approx. 120 agroholdings, each operating more that 10000 hectares, controlling approximately 29% of the entire total agricultural land used by commercial farms (Latifundist.com, 2024). According to Ostapchuk et al. (2021), agroholdings account for approximately 20% of the total crop production in Ukraine. These entities have also facilitated the modernization of agricultural practices by investing heavily in advanced production technologies and infrastructure (Balmann, 2014).

However, the impact of agroholdings is not without controversy. While they have driven significant increases in agricultural output and productivity, their overall efficiency relative to smaller, independent farms is debated. Research indicates that agroholdings often face higher operational costs due to their extensive use of inputs, labor, and capital, and do not always outperform non-holding farms in terms of profitability (Balmann, 2014; Matyukha et al., 2015). Despite their size and market presence, the efficiency gains from economies of scale are sometimes offset by bureaucratic inefficiencies and high levels of indebtedness, which are exacerbated by political and economic instability (Ostapchuk et al., 2021).

However, agroholdings benefit from better access to external capital compared to smaller farms. They are able to secure funding through international stock listings, bonds, and loans from financial institutions like the European Bank for Reconstruction and Development (EBRD) and the International Finance Corporation (IFC), which has further enabled their expansion and consolidation efforts (Gagalyuk & Valentinov, 2019).

In the context of Ukrainian agriculture, it is important to distinguish between agroholdings and standalone commercial farms due to the fundamental differences

in operational dynamics and responses to market and institutional conditions. Agroholdings, unlike independent farms, are structured to manage a higher level of complexity and risk through diversification and vertical integration. According to Gagalyuk and Valentinov (2019), agroholdings are better positioned to absorb shocks in a volatile economic environment because they consolidate resources across multiple enterprises and regions. This ability to pool resources allows them to secure stable access to capital from international markets, which is typically unavailable to smaller, standalone farms (Matyukha, Voigt, & Wolz, 2015). The differentiated access to finance enables agroholdings to invest in advanced technologies and infrastructure, buffering them against fluctuations in domestic markets and policy shifts.

Furthermore, the organizational structure of agroholdings gives them a strategic advantage in managing risks that arise from agricultural production and market uncertainties. The vertiacal integration along the supply chain (from cultivation to processing and export), enables agroholdings to stabilize their income streams and mitigate risks such as price volatility and supply chain disruptions. This is unlike independent farms, which tend to be more vulnerable to these factors due to their narrower operational focus and limited risk management capacity. As highlighted by Matyukha, Voigt, and Wolz (2015), while agroholdings may not always achieve higher efficiency, their operational model provides a resilience that is crucial in an environment with underdeveloped capital and land markets (Gagalyuk et al., 2017).

On the Figure 3 the comparison of crop yields between farms that are part of agroholdings and those operating independently is presented. It is based on the farm-level data from the 29-SH statistical forms submitted to the SSSU, covering 2017-2019 years. Agroholding farms are identified by matching EDRPOU codes from the Tripoli portal, distinguishing them from standalone farms. The figure shows that yields for wheat, corn, barley, soybeans, rapeseed, and sunflower are generally higher for farms within agroholdings compared to independent farms. For example, agroholding farms show a 29.39% higher yield for wheat and 19.48% for corn compared to non-holding farms, while differences for crops like rapeseed are minimal. However, these differences in yield do not necessarily indicate differences in efficiency, as efficiency involves other factors beyond yield, which will be explored further.

Figure 3. Comparison of holding and non-holding firms' yields

Source: *own calculation based on SSSU data*

These differences justify treating agroholdings and standalone commercial farms separately when modeling crop choice, production costs, and yields. Agroholdings' focus on resilience through diversification, vertical integration, and access to external capital creates a different set of incentives and constraints than those faced by independent farms, which must rely on more traditional risk management strategies and limited local resources.

Size of agricultural enterprises

The relationship between farm size and productivity has long been debated in agricultural economics. Traditional research often finds an inverse relationship between farm size and productivity, suggesting that smaller farms, due to their intensive use of labor, achieve higher yields per hectare (Rada & Fuglie, 2019). However, newer studies argue that this relationship can vary depending on the context and the type of productivity being measured, such as total factor productivity (TFP), which considers inputs like land, labor, and capital. Nivievskyi et

al. (2023) argue that while small farms may exhibit higher productivity per unit of land due to labor intensity, while medium and large farms can achieve higher overall productivity and efficiency through economies of scale, better access to capital, and advanced technologies. Therefore, the size-productivity relationship is complex and context-dependent, reflecting both the structure of agricultural markets and the policy environment.

As it was already mentioned, Ukraine's agricultural sector is characterized by a diverse range of producer sizes, from small household farms to medium-sized individual farms and large agroholdings. Small family farms, together with households, remain significant in terms of employment and rural development but contribute less to gross agricultural output (GAO), as compared to the larger enterprises. According to Nivievskyi et al. (2023), small-scale farms manage around 38% of Ukraine's agricultural land and produce about 41.5% of the total agricultural output. However, their share is gradually decreasing due to the expansion of commercial farms and large agroholdings that can leverage more substantial investments and operate more efficiently on a larger scale.

Small agricultural producers in Ukraine are fundamentally different from medium and large ones in terms of their structure, objectives, and operational challenges. Unlike larger farms, which are more commercially oriented and capable of adopting modern farming technologies, small producers are often focused on the local markets and rely heavily on family labor. This makes them more vulnerable to market and environmental risks. According to Nivievskyi et al (2023), small farms face significant barriers in accessing formal financial services and markets due to limited collateral, high transaction costs, and the recent land market reforms. As a result, small producers tend to operate with lower levels of productivity and investment, which contrasts with larger, capital-intensive farms that can achieve greater economies of scale and have more flexibility to respond to market demands.

Based on these characteristics, supported by an analysis of yield values of differently sized farms, we chose a threshold of 200 hectares to define the small farms for the further comparative analysis. Additionally, we've introduced another threshold of 500 hectares to assess how medium-sized enterprises compare to small and large ones.

The two tables below provide a comparison of main cash crop yields and cultivation patterns among small, medium, and large agricultural producers in Ukraine, using

farm-level data from the 29-SH forms submitted to the State Statistics Service of Ukraine (SSSU) for 2017-2019. These tables categorize farms by size: small (less than 200 hectares), medium (200 to 1000 hectares), and large (more than 1000 hectares).

Table 1 presents the average yields (measured in 100 kg/ha) for six major crops—wheat, corn, barley, soybeans, rapeseed, and sunflower—across different farm sizes, along with the average number of crops cultivated. The data indicates that larger farms tend to have higher yields for all crops. For example, wheat yield increases from 30.30 for small farms to 39.48 for medium farms and 42.87 for large farms. Similar trends are observed for corn, barley, soybeans, rapeseed, and sunflower, where larger farms achieve progressively higher yields. This suggests that larger farms may have better access to modern technology, inputs, and capital, enabling them to achieve greater productivity. Additionally, the number of crops cultivated also increases with farm size, from 2.00 crops for small farms to 4.28 for medium farms and 5.50 for large farms, indicating that larger farms are not only more productive but also more diversified in their crop production.

Table 2 shows the percentage of enterprises, by size, that produce each crop. It reveals that medium and large farms are more likely to be involved in the production of key crops such as wheat and sunflower compared to small farms. For instance, 87.41% of medium-sized farms and 94.65% of large farms produce wheat, while only 48.61% of small farms do. This pattern is similar for sunflower, which is produced by 82.47% of medium farms and 92.00% of large farms, compared to 44.47% of small farms. This suggests that medium and large farms are more commercially oriented and engaged in the cultivation of staple crops, likely due to their ability to scale operations and manage risks better. In contrast, small farms are less diversified and may focus on fewer crops due to limited resources or different production objectives, reflecting their different roles in the agricultural sector.

Table 1. Yields and number of crops crops cultivated

	Small (<200 ha)	Medium (200-500 ha)	Big (>500 ha)
Wheat yield, 100 kg/ha	30.30	39.48	42.87
Corn yield, 100 kg/ha	54.90	71.25	75.37
Barley yield, 100 kg/ha	19.48	23.93	26.29
Soybeans yield, 100 kg/ha	19.41	23.34	24.94
Rapeseed yield, 100 kg/ha	22.46	25.57	26.11
Sunflower yield, 100 kg/ha	17.75	24.89	25.91
Number of crops cultivated, average	2.00	4.28	5.50

Table 2. Share of enterprises in the dataset which produce crop X

Crop	Small (<200 ha)	Medium (200-500 ha)	Big (>500 ha)
Wheat	48.61%	87.41%	94.65%
Corn	26.04%	57.55%	71.76%
Barley	3.85%	6.71%	10.72%
Soybeans	20.41%	33.87%	36.97%
Rapeseed	4.45%	29.43%	45.42%
Sunflower	44.47%	82.47%	92.00%

Table 3 presents data on expenditures per hectare for seeds, fuel, fertilizer, and labor, as well as selling expenditures per quintal (100 kg) for wheat, corn, soybeans, rapeseed, and sunflower, across four groups of agricultural producers: small, medium, large farms, and holdings in Ukraine. All values are provided in Ukrainian Hryvnia (UAH) per 100 kg of production. The table shows distinct differences in cost structures between these groups, highlighting how scale and organizational structure impact input costs and selling expenses.

Generally, small farms tend to have higher expenditures per hectare for most inputs compared to larger farms and holdings. For example, the cost for soybeans' fuel per hectare is highest for small farms at 2997.17 UAH, compared to 2216 UAH for medium farms, 2039.44 UAH for large farms, and 1704.61 UAH for holdings. Similar pattern is seen across most other crops and inputs, suggesting that small farms may lack access to cost-reducing technologies and bulk purchasing power. In contrast, holdings and large farms usually have lower expenditures per unit of production, indicating better access to resources, economies of scale, and more efficient input use. For instance, wheat fertilizer expenditure per hectare is highest for holdings at 3489.72 UAH, while it is lower for large farms at 3471.86 UAH, medium farms at 3390.22 UAH, and small farms at 2657.91 UAH, reflecting potential differences in input intensity and management practices.

Medium and large farms generally have similar cost patterns, particularly for inputs like labor and seeds. However, the expenditures of holdings often align more closely with medium and large farms than with small farms, suggesting that medium and large farms and holdings share similar operational efficiencies. Overall, the data shows that smaller farms face higher input costs per unit of output, which could impact their competitiveness compared to larger farms and holdings, which benefit from reduced costs through economies of scale and more efficient management of inputs.

Table 3. Per-unit input and selling expenditures of small, medium, big, and agroholding farms

	Small (<200 ha)	Medium (200-500 ha)	Big (>500 ha)	Holdings
Wheat production, seed expenditures, UAH/ha	1111.27	1268.68	1086.35	1440.88
Wheat production, fuel expenditures, UAH/ha	2014.88	1962.16	1901.84	1441.54
Wheat production, fertilizer expenditures, UAH/ha	2657.91	3390.22	3471.86	3489.72
Wheat production, labor expenditures, UAH/ha	1262.71	838.08	821.01	1039.27
Wheat production, selling expenditures, UAH/100 kg	39.06	16.14	18.21	35.06
Corn production, seed expenditures, UAH/ha	1364.46	1754.13	1455.03	1681.38
Corn production, fuel expenditures, UAH/ha	1765.41	2876.64	2351.38	2013.91
Corn production, fertilizer expenditures, UAH/ha	2854.72	4283.3	4449.43	2821.8
Corn production, labor expenditures, UAH/ha	876.12	1154.69	1106.79	1452.59
Corn production, selling expenditures, UAH/100 kg	5.6	16.59	19.93	16.7
Soybeans production, seed expenditures, UAH/ha	2256.3	1917.7	1680.11	2079.92
Soybeans production, fuel expenditures, UAH/ha	2997.17	2216	2039.44	1704.61
Soybeans production, fertilizer expenditures, UAH/ha	2474.49	3568.52	2703.25	1858.63

Soybeans production, labor expenditures, UAH/ha	1538.33	947.24	976.08	1050.87
Soybeans production, selling expenditures, UAH/100 kg	116.79	38.05	46.65	67.06
Rapeseed production, seed expenditures, UAH/ha	1367.31	1665.99	1539.47	1523.81
Soybeans production, fuel expenditures, UAH/ha	3224.19	2476.11	2259.01	1744.67
Soybeans production, fertilizer expenditures, UAH/ha	4796.29	4944.8	4936.74	4411.27
Soybeans production, labor expenditures, UAH/ha	1179	974.4	982.8	1122.61
Soybeans production, selling expenditures, UAH/100 kg	10.97	35.2	35.04	48.14
Sunflower production, seed expenditures, UAH/ha	2154.95	2101.38	2135.16	2137.7
Sunflower production, fuel expenditures, UAH/ha	2078.05	2121.3	2032.4	1436.22
Sunflower production, fertilizer expenditures, UAH/ha	2755.49	2902.14	2725.83	2233.14
Sunflower production, labor expenditures, UAH/ha	957.71	805.12	852.79	945.79
Sunflower production, selling expenditures, UAH/100 kg	61.54	24.85	25.16	31.97

Source: *own calculation based on SSSU data*

Given the observed differences, it is reasonal to sprlit non-holding commercial farms into two groups: (1) small farms, defined as those which have a total area of up to 200 hectares, and (2) medium and large farms, combined into a single group (with total areas of more that 200 hectares).

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