

Environmental and Social Audit of Ukraine's Agricultural Production in 2023

November 30, 2023

Ivan Kolodiazhnyi



KSE

Center for Food
and Land Use Research
at Kyiv School of Economics

The designations employed and the presentation of material in this information product do not imply the expression of any opinion of the Kyiv School of Economics Center for Food and Land Use Research (KSE Agrocenter) concerning the legal or development status of any country, territory, city or area or of its authorities, or regarding the delineation of its borders or frontiers.

The views expressed in this information product are those of the author(s) and do not necessarily reflect the views or policies of the KSE Agrocenter.

Third-party materials. Users wishing to reuse material from this work that is attributed to a third party, such as tables, figures, or images, are responsible for determining whether permission is needed for that reuse and for obtaining permission from the copyright holder. The risk of claims resulting from infringement of any third party-owned component in the work rests solely with the user.

KSE Agrocenter information products are available on the website:

<https://agrocenter.kse.ua>

KSE Agrocenter

Center for Food
and Land Use Research
at Kyiv School of Economics

Table of Content

1. Introduction.....	2
1.1 Summary of ESA1	2
1.2 Executive Summary of ESA2	4
2. Agricultural financing in 2023	6
3. Audit methodology.....	9
3.1 Description of the database and data collection approach	9
3.2 Quality check.....	11
3.3 Results.....	11
4. Descriptive analysis of differences between receivers and non-receivers of “5-7-9” credit.....	11
4.1 General information on the respondents.....	11
4.2 Soil erosion problems and their control measures	14
Visual distribution of responses: Loan receivers and use	16
Visual distribution of responses: GRM systems of 5-7-9 loan program.....	18
Visual distribution of responses: Technological maps	20
Visual distribution of responses: Passport of the field and soil analysis.....	23
Visual distribution of responses: Cultural heritage.....	24
Visual distribution of responses: Keep records of inputs use	25
Visual distribution of responses: Organic production.....	26
Visual distribution of responses: Crop structure change	27
Visual distribution of responses: Land use rights and informal land use	28
Visual distribution of responses: Swamp destruction	29
Visual distribution of responses: Storage and disposal	30
Visual distribution of responses: Water resources	33
Visual distribution of responses: Suppliers of fertilizers and chemicals, application of chemicals	34
Visual distribution of responses: Biodiversity	39
Visual distribution of responses: CO2 footprint, EU membership, OHS.....	41
4.3 Summary	44
Farm survey questionnaire for the ESA	47

1. Introduction

This report presents the environmental and social audit (ESA) of environmental and social practices employed during agricultural production in Ukraine in 2023. It is prepared for the purpose of the Agriculture Recovery Inclusive Support Emergency (ARISE) project financed by the World Bank, which seeks to maintain agricultural production in Ukraine.

This ESA builds on the similar report (i.e., first ESA) prepared in April-May 2023 for the purpose of the World Bank’s Agricultural Program for Results with the analysis of environmental and social aspects of agricultural production in 2022.

The document is structured as following:

- Chapter 1 - Introduction and General Information about the ESA Report, including ESA1 and ESA2 Executive Summaries;
- Chapter 2 outlines the current state of agricultural loans and financing in 2023, while;
- Chapter 3 focuses on the audit methodology and description of the survey database;
- Chapter 4 provides a descriptive analysis of the variances between those who received "5-7-9" credit and those who didn't in 2023 and includes a summary of the audit results and data visualizations;
- Annex contains the survey questionnaire in both English and Ukrainian versions.

1.1 Summary of ESA1

Differences between the receivers and non-receivers of the 5-7-9 loans

	“Receivers”	“Non-receivers”
organic producers in the group	<u>no difference</u>	
detection of soil erosion	<u>no difference</u>	
involvement in land disputes	<u>no difference</u>	
conduction of crop rotation	<u>no difference</u>	
disposal without harm to environment	<u>81%</u> responses “according to the law”	<u>38%</u> responses “according to the law”
safe storage	<u>50%</u> responses “safe storage”	<u>38%</u> responses “safe storage”
technological maps use	<u>71%</u> - positive responses	<u>56%</u> - positive responses

technological maps change	<u>35%</u> responses “during the year”	46%responses “during the year”
keeping records of resource use	<u>69%</u> - positive responses	<u>40%</u> - positive responses
conducting soil analysis before sowing	<u>73%</u> - positive responses	<u>39%</u> - positive responses
cultural heritage reporting	<u>no difference</u>	
identification of biodiversity impacts	<u>no difference</u>	
OHS compliance	<u>96%</u> - positive responses	<u>67%</u> - positive responses
readiness to change for the EU membership	<u>no difference</u>	
CO2 footprint calculation	<u>no difference</u>	
aware of swamp destruction in the region	<u>no difference</u>	

Note: light color of the cell indicates no major difference discovered between the two groups, dark color indicates a significant difference in responses and the percentage value

Source: own elaboration

Considering the results described above, there are differences between agricultural producers who received the loan and who did not. While the majority of loan receivers are **medium-sized entities**, smallholder farms are to some extent out of the 5-7-9% program. Soil erosion and land rights disputes are not a common problem neither for those who received the loan nor for those who did not. Farms that received the “5-7-9” loans are stricter to the technical requirements when dealing with dangerous substances and have higher rate of technological maps utilization and conducting soil analysis for the production process. The “receivers” keep records. The surveyed producers are not really concerned with the calculation of the carbon footprint. However, most of the respondents from both groups revealed their readiness to improve production technics in accordance with the EU acquis. The table below summarizes the described differences.

To summarize, the agricultural producers who received the 5-7-9 loan use agrochemicals and fertilizers more carefully, keep records of them, mainly comply with the requirements for their storage and disposal, and consider the OHS better. Thus, they are more likely to be responsible towards the environment and labor protection norms.

1.2 Executive Summary of ESA2

The second Environmental and Social Assessment (ESA) was carried out from September to October 2023. To gain a better understanding of compliance with environmental and social standards, additional questions were added to the farm survey based on the experience from ESA1. The survey consisted of 64 questions and was categorized into three sections: general farm and production characteristics, fertilizers and chemicals, and the 5-7-9 affordable credit program, including its Grievance Redress Mechanism (GRM).

This report aims to examine the effects of the 5-7-9 loan program on Ukrainian agricultural producers' adherence to environmental and socially responsible farming principles in 2023.

In 2021, the profitability of grain production ranged from \$45/ton for barley to \$81/ton for wheat, and the oilseed industry saw profits between \$274/ton for soybeans and \$322/ton for sunflower seeds. Regrettably, in 2022, there were no profitable forms of grains or oilseeds. According to estimates from UCAB and MAPF, as well as data from the World Bank, only soybean production is projected to be profitable in 2023. It should be noted, however, that soybeans account for only 11% of the overall land devoted to growing grains and oilseeds. In 2023, it is expected that sunflower seed production will yield a modest profit. The significant increase in input costs, particularly fertilizers, was a major factor contributing to the decline in agricultural profitability. As a result, farmers reduced input application rates to cut production costs.

Chapter three of this report explains the survey methodology and data cleaning process.

In chapter four, we assessed how the loan program affected the environmental and social performance of agricultural producers through a survey of 263 farmers, which included 120 loan recipients and 143 non-recipients of the 5-7-9 loan program. Based on the study, we conclude:

- Credit receivers are stricter to the technical requirements when dealing with dangerous substances including storage and disposal;
- Credit receivers have a higher rate of conducting soil analysis for the production process as well as passport of the field;
- Credit receivers have higher rate of application of employee protection principles;
- Overall in Ukraine, there is no evidence of any practice of disrupting natural water ecosystems, specifically swamps, for agricultural purposes;

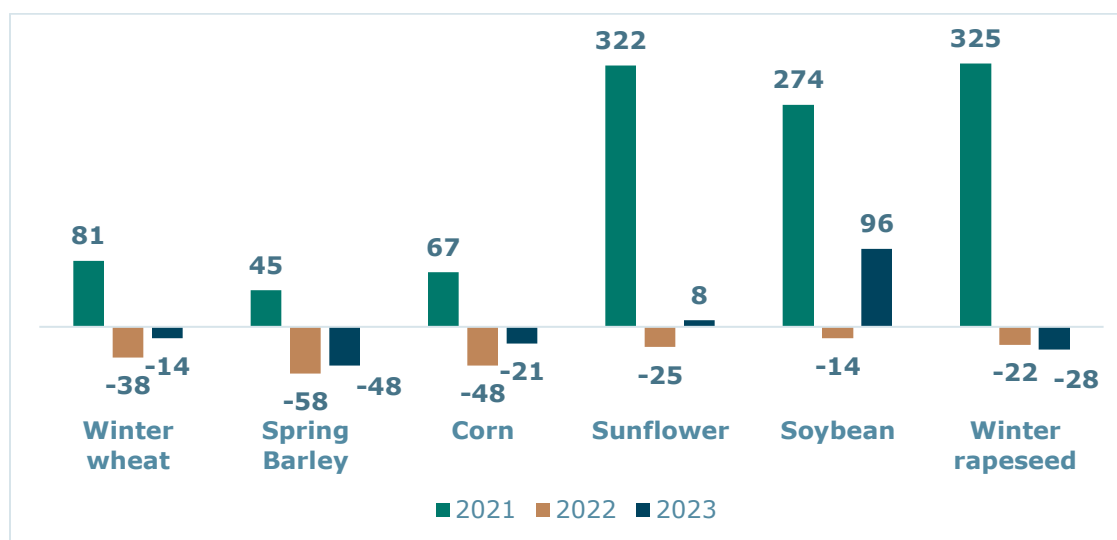
- Agricultural producers are increasingly recording their use of consumable resources such as water, gas, and heat due to the direct linkage to the rising prices of resources and a decrease in crop profitability. Therefore, balancing the consumption of resources provides a comprehensive overview of production costs and potential savings;
- The majority of agricultural producers acquire information on credit programs, including the 5-7-9 loan program, by receiving a call from a bank representative, which is considered the most effective method;
- Agricultural producers, who are aware of the 5-7-9 credit program, know little about the mechanisms for considering complaints and proposals.

2. Agricultural financing in 2023

Ukraine's agricultural sector has been severely hit by Russia's invasion. The difficult planting in the spring of 2022, a shortage of fuel and mineral fertilizers, as well as high prices for these inputs, missile attacks on the power system and elevators in the autumn 2022 - spring of 2023, the import ban to Poland and other EU countries¹², Russia's exit from the Black Sea grain initiative³, blocking and shelling of the port and terminal infrastructure of Odesa region⁴. All of this, together with relatively low local farmgate prices for agricultural products, has been making agriculture unprofitable.

In 2021, the average profitability of grain production ranged from \$45/ton for barley to \$81/ton for wheat. Oilseed profitability ranged from \$274/ton for soybeans to \$322/ton for sunflower seeds (Figure 1). In 2022, however, the production of all types of grains and oilseeds was unprofitable. Losses from production of grains and oilseeds are projected to decrease in 2023, but the production of grains will remain unprofitable. Only soybean production is projected to generate profit in 2023, though soybean is planted only on 11 percent of total grain and oilseed planted area. Sunflower seed production is projected to generate a very small profit in 2023.

Figure 1: Profitability of main grain and oilseed products, Ukraine, 2021-2023



Source: World Bank based on the UCAB and MAPF estimates

¹ <https://www.dw.com/en/eu-import-bans-for-ukraine-grain-shock-embattled-farmers/a-65540084>

² <https://www.polskieradio.pl/398/7857/Artykul/3154290,заборона-на-ввиз-і-транзит-збіжжя-з-перспективи-українських-експертів>

³ <https://www.reuters.com/world/europe/black-sea-grain-deal-expire-monday-if-russia-quits-2023-07-17/>

⁴ <https://www.voanews.com/a/russian-shelling-kills-7-including-days-old-baby-in-ukraine-/7223792.html>

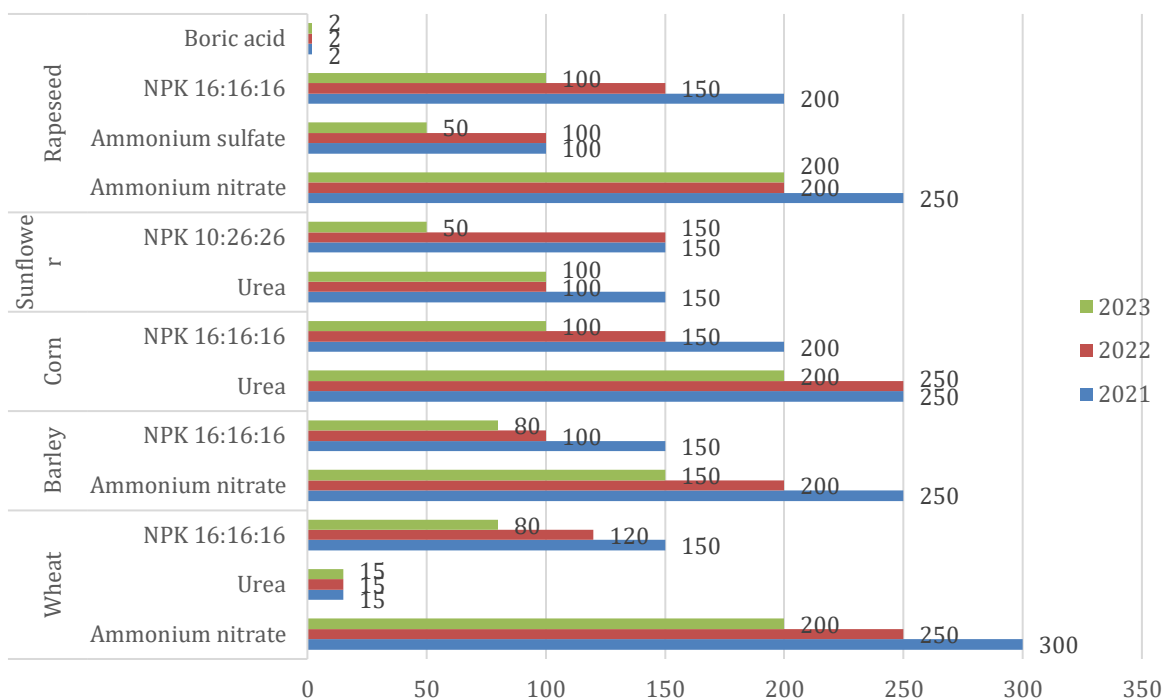
One of the reasons of the decline of agricultural profitability was the sharply increased input prices, especially that of fertilizers. Table 1 shows the input price spike in 2022, following Russia's invasion of Ukraine. Input prices declined in 2023, but still stayed largely much higher than in 2021. As a result, farmers reacted by reducing the input application rates to reduce production costs. While the application rates for seeds remained largely unchanged, though their quality is reported to worsen, the application rates for fertilizers have declined significantly for all crops over 2021-2023 (Figure 2). As a result, the lower use of fertilizers and other inputs has substantially lowered an overall environmental risk of agricultural production in Ukraine.

Table 1. Average farm input prices, Ukraine, 2021-2023

	2021	2022	2023
Seeds:			
Wheat seeds elite (UA varieties)	269	448	384
Barley seeds (farm saved)	123	208	176
Hybrid corn seeds (Dekalb, Syngenta, Pioneer)	140	162	145
Hybrid sunflower seeds (Syngenta, Pioneer)	175	198	180
Rapeseed seeds (Lembke, Dekalb, Pioneer)	175	194	180
Soybean seeds 1 repr.	768	832	768
Fertilizers:			
Ammonium nitrate	383	821	547
Urea	490	979	700
Potassium chloride	639	1,277	912
Ammonium phosphate	703	1,405	1,004
NPK 10:26:26	766	1,533	1,095
Chemicals:			
Roundup Max 45%	8.7	10.2	9.4
Follicure 25%	31.7	37.4	34.5
Fuels:			
Diesel fuel	0.9	1.9	1.3
Diesel engine oil	1.4	2.6	2.0
Transmission oil	1.5	2.8	2.2
Lubricant consistent	1.8	3.4	2.6

Source: World Bank based on the UCAB and MAPF estimates.

Figure 2. Application rates of key fertilizers, Ukraine, 2021-2023

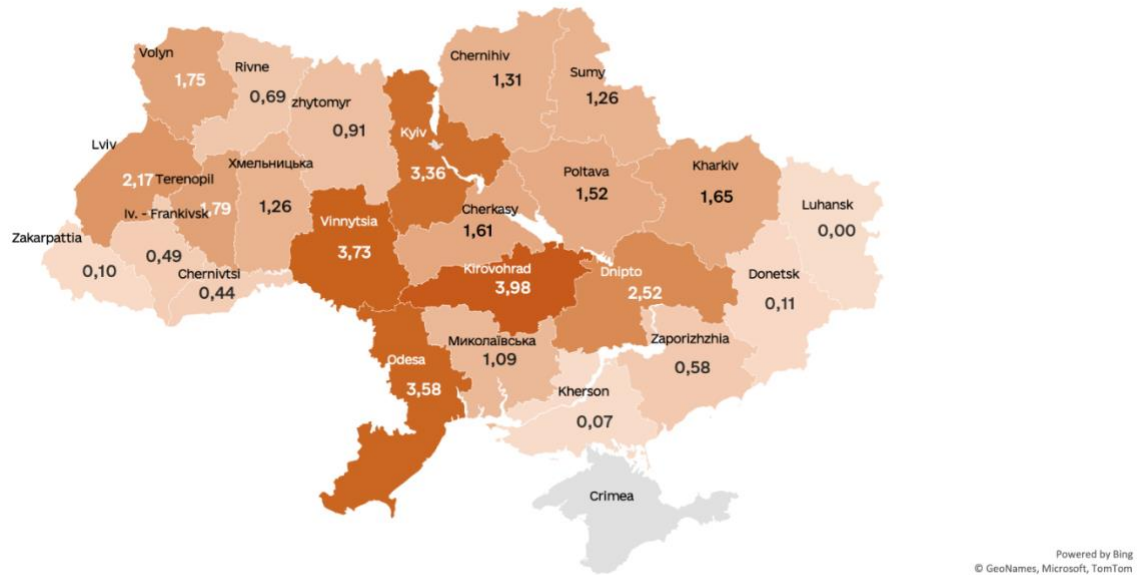


Source: World Bank based on the UCAB and MAPF estimates

As a result of the increased production costs, Ukraine’s agricultural producers required more funds to borrow to sustain plantings, harvests, and workers’ salaries. According to the latest report from the Ministry of Agrarian Policy and Food (MAPF)⁵, since January 2023 the agricultural producers were able to attract UAH65 billion of loans, of which UAH37.5 billion were received under the 5-7-9 credit program. This is 36% more than the value of loans under this program attracted by agricultural producers in 2022 (UAH27.6 billion). Over the first 10 months of 2023, 9.6 thousand agricultural producers benefited from partial interest rate compensation offered by the 5-7-9 credit program executed by the Business Development Fund (BDF). Figure 3 shows a regional distribution of loans in 2023. Prior to the war, bank loans accounted for about a half of the external finance for the purchase of farm inputs. Inputs sold on credit and other finance products covered the remaining gap. But during the war, the bank loans have become the main source of external finance for agricultural producers, as input suppliers stopped providing inputs on credit requiring farmers to pay for inputs during the purchase (at spot prices).

⁵ <https://minagro.gov.ua/news/ponad-65-milyardiv-griven-bankivskih-kreditiv-otrimali-agrariyi-v-comu-roci-na-rozvitok-gospodarstv>

Figure 3. Agricultural loans portfolio by regions, bln UAH



Source: MAPF 2023 calculations. Note: comma is used as decimal separator

3. Audit methodology

3.1 Description of the database and data collection approach

An outsourcing company with over than 10 years of experience in telephone survey administration was contracted to conduct the research. The survey questions were inputted into an online surveyCTO form for improved qualitative results. Enumerators had the ability to complete the form and instantly save the data within the application. Afterwards, they were able to download the raw data in csv format. The data collection, data cleaning and data analysis were carried out by the Ivan Kolodiazhnyi (economic analyst researcher), Valentyn Litvinov (data analyst), Mariia Bogonos (Project manager), Roksolana Nazarkina (junior researcher, data analysis and visualization expert), Hryhorii Stolnykovych (junior researcher, data analysis and visualization expert).

To carry out the survey, the data of agricultural producers were collected and analyzed. The following steps were involved in collecting and processing the data:

1. Obtaining the database of agricultural producers⁶, who in 2023 received the "5-7-9" credit. The database contains the "EDRPOU codes"⁷ (unique identification number of a legal entity in the Unified State Register of Enterprises and Organizations of Ukraine) and the "Name of Enterprise".
2. The database from Step 1 is merged with the 50_sg⁸ (report on the main economic indicators of work) and 29_sg (report on the area and gross harvest of agricultural crops). Datasets were merged using the EDRPOU codes of the agricultural producers. Merging two datasets was accomplished by using matching codes, such as common keys or unique identifiers in both datasets (EDRPOU codes). After merging the two databases, additional columns of information were received, such as the location of the agricultural enterprises, particularly "Oblast" and "Rayon", and their phone numbers.
3. The phone numbers of the enterprises are brought to a unified format, where the numbers contain nine digits and start with 0 (as opposed to the original non-unified numbers representation, e.g., "+380", "80", and "00"). The phone numbers were used for the follow-up survey.
4. The final version of the database contains the contact information: location and names of the agricultural enterprises, phone numbers, gross harvested area, fertilizers, and agrochemical use per enterprise, received or not received the "5-7-9" loan in 2023, etc.

The survey firm has received the database separated into three batches, each containing randomly selected agricultural enterprises, which included receivers and non-receivers.

The entire database of surveyed individuals included 18,288 respondents. Of those, only 263 completed questionnaires. Among the respondents, 120 participated in the 5-7-9 credit program, while the remaining 143 were agricultural producers who did not receive credit. The survey statistics is presented in the Table 2.

Table 2. Call statistics

General info		Additional info	
Total number of contacts in a database		25000	
Total numbers called during the survey		18288	
Total number of people answered/agreed to talk		378	

⁶ Data from Ministry of Agrarian Policy and Food (MAPF) of Ukraine.

⁷ <https://finances.in.ua/shcho-take-kod-iedrpou/>

⁸ Data from State Statistics Service of Ukraine.

Number of unfinished interviews		115	Refused to answer during the interview, or connection lost
Number of completed interviews		263	

Source: Call-center

3.2 Quality check

Before analyzing the results of the survey, a quality check was carried out. The questions on “land bank”, “share of export and local sales” and “share of different crops in total land use” were examined for potential errors and outliers. Respectively, there were several responses with ambiguous values, for example indicating percentages of cultivated areas, sometimes the sum of all cultivated areas exceeded 100% the same with “share of export and local sales”. To fix this, interviews were double-checked, and the correct values were manually incorporated.

3.3 Results

The following results are based on the analysis of the respondents’ answers to the questionnaire presented in the Annex Questionnaire. The analysis presents responses to all questions included in the Questionnaire, except the questions, to which all respondents provided the same responses with no variation that could be visualized.

4. Descriptive analysis of differences between receivers and non-receivers of “5-7-9” credit⁹

Note: The agricultural producers who received the 5-7-9 loan are referred to as “receivers”, and those who did not are termed “non-receivers” in this text. The following chapter provides a comprehensive analysis of the environmental and social conditions of both the recipients and non-recipients of the 5-7-9 loan.

4.1 General information on the respondents

⁹ Agricultural producers, who received loans under the 5-7-9 credit program, referred in the text as “receivers”, and those who did not “non-receivers”. Chapter below provides detailed analyses of environmental and social condition of recipients and non-recipients of 5-7-9 credit.

Before proceeding with specific questions, the respondents were asked to answer general questions concerning the location of farms and fields, the size land at their disposal, the types of crops produced, and the share of crops exported.

As presented in Table 3, the survey managed to collect a sample of responses from 23 regions of Ukraine (except temporary occupied Luhansk Oblast). Most agricultural producers, who took part in the survey, own land in Ukraine's southern and central regions (Mykolaiv, Dnipropetrovsk, Vinnytsia, Poltava, Cherkasy).

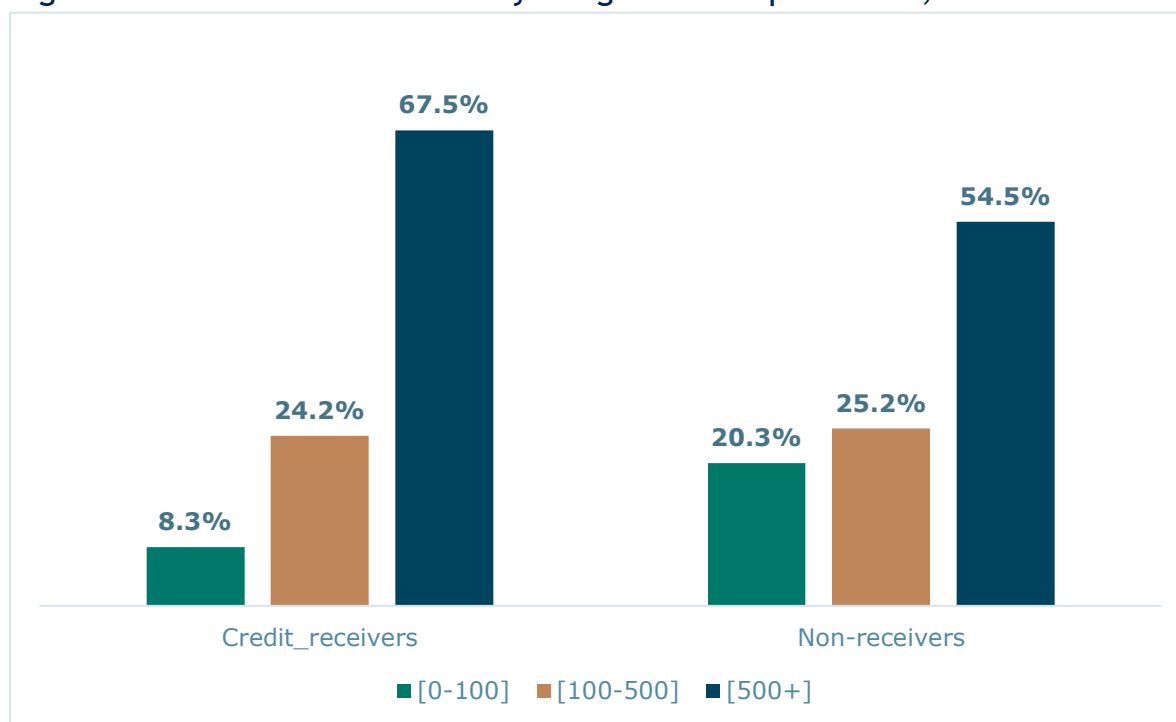
Table 3. Regional distribution of the respondents

Region	Receivers of 5-7-9 loans	Non-receivers of 5-7-9 loans	Total
Vinnytsia	7	9	16
Volyn	4	4	8
Dnipropetrovsk	15	16	31
Donetsk	3	3	6
Zhytomyr	4	8	12
Zakarpattia	2		2
Zaporizhya	1	4	5
Ivano-Frankivsk		3	3
Kyiv	9	8	17
Kirovohrad	13	12	25
Lviv	6	5	11
Mykolaiv	9	17	26
Odesa	10	7	17
Poltava	11	11	22
Rivne	3	4	7
Sumy	2	6	8
Ternopil	1	4	5
Kharkiv	1	5	6
Kherson		1	1
Khmelnyskyi	6	8	14
Cherkasy	7	2	9
Chernivtsi	2	3	5
Chernihiv	3	2	5
Total	120	142	262

Source: KSE analytical data

The most respondents of the survey were agricultural producers with the land size above 500 hectares of land, comprising 67.5% and 54.5% of both receivers and non-receivers, respectively (Figure 4).

Figure 4. The land bank of surveyed agricultural producers, ha



In the sample of the responses the crop distribution of agricultural producers who received and did not receive the loan is as follows (Table 4):

Table 4. Crops grown by receivers and non-receivers

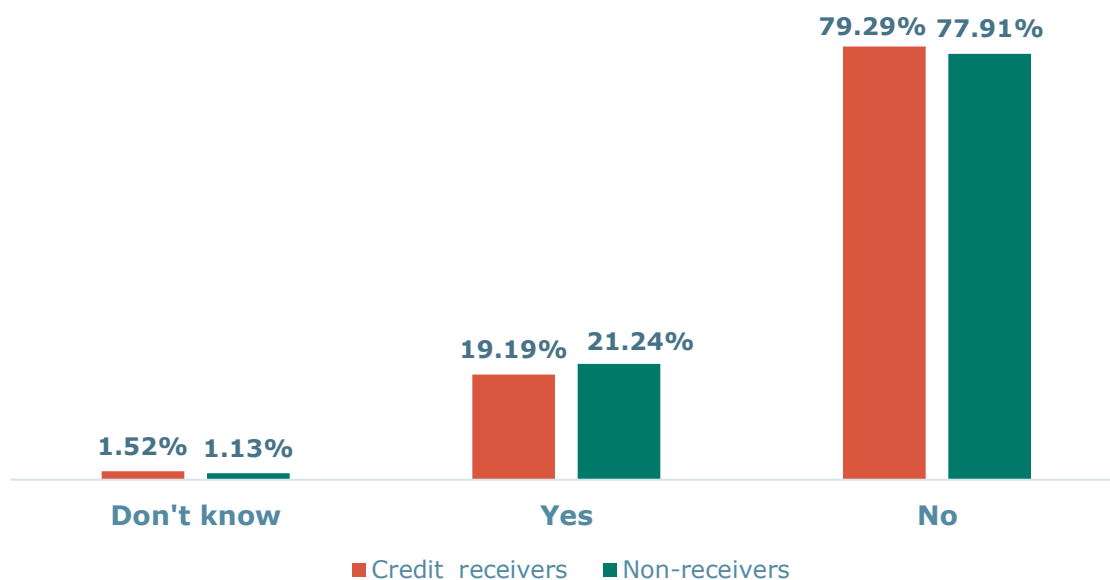
Crop	Receivers	Share from receivers	Non-receivers	Share from all non-receivers	Share from all respondents	Total
Wheat	112	93%	106	74%	83%	218
Spring barley	18	15%	29	20%	18%	47
Winter barley	43	36%	33	23%	29%	76
Corn	80	67%	67	47%	56%	147
Sunflower	80	67%	67	47%	56%	147
Winter rape	99	83%	94	66%	73%	193
Soybean	45	38%	33	23%	30%	78
Peas	55	46%	55	38%	42%	110
Sugar beat	16	13%	7	5%	9%	23
Other	27	23%	36	25%	24%	63

It can be concluded that there is no significant difference between receivers and non-receivers, as both groups tend to grow wheat, sunflower, corn and winter rapeseed. Although winter rapeseed did not rank highly in the last survey of crop growth (i.e., the first ESA), some agricultural producers are searching for a profitable crop alternative to classic wheat, corn, and sunflower. Among the "other" crops, oats, buckwheat, and mustard were most often present.

4.2 Soil erosion problems and their control measures

Soil erosion could be a significant issue that affects soil quality and reduces production for some farms. However, a survey has revealed that erosion-related problems are not applicable to all agricultural producers, regardless of whether they have received loans or not. The **79.6%** credit receivers of both ESA surveys did not face soil erosion. The results remain consistent for those who didn't receive the loan: **77.9%** of respondents didn't experience soil erosion issues (Figure 5). Among those facing soil erosion, the average damage is **16.95%** of the land area.

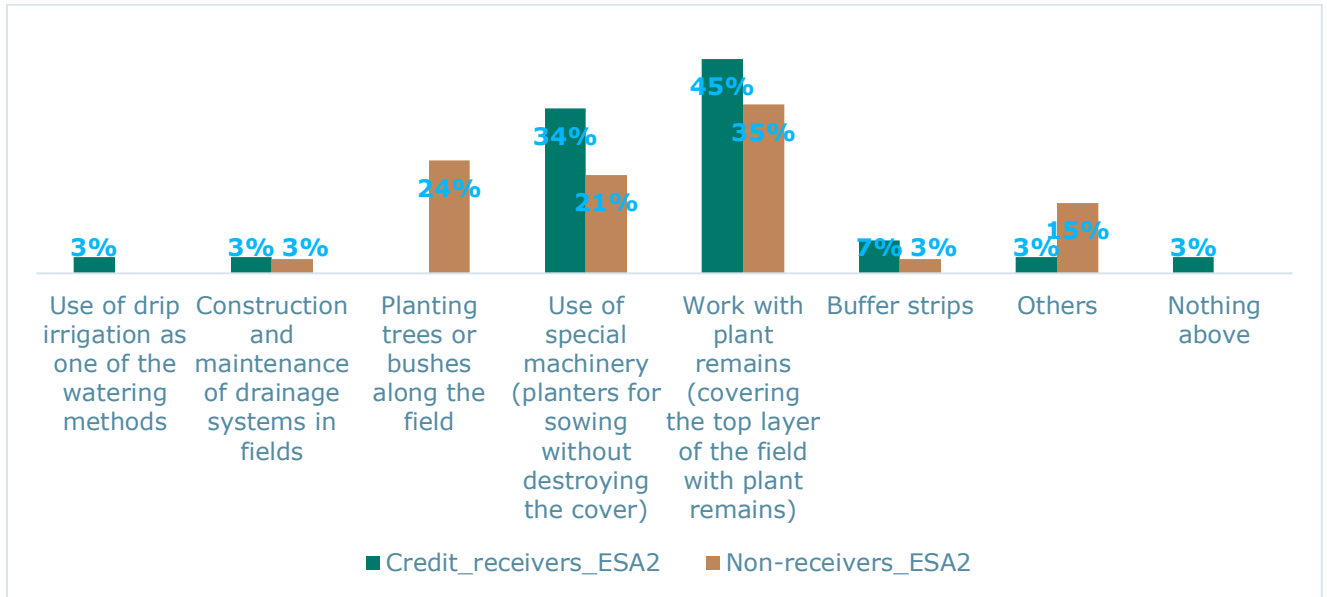
Figure 5. The presence of soil erosion among the ESA1 and ESA2 respondents



In the second ESA's survey, the question was added on how agricultural producers manage soil erosion, where they had the opportunity to choose one of several proposed options (question №36) or write their method of combating erosion. The most popular methods of erosion control in both groups include

"use of special machinery (planters for sowing without destroying the cover)" - 34% of loan receivers and 21% of those who didn't receive a loan, as well as "working with plant residues, covering the upper layer of the field with plant residues" - 45% and 35%, respectively (Figure 6).

Figure 6. Erosion control methods



Visual distribution of responses: Loan receivers and use

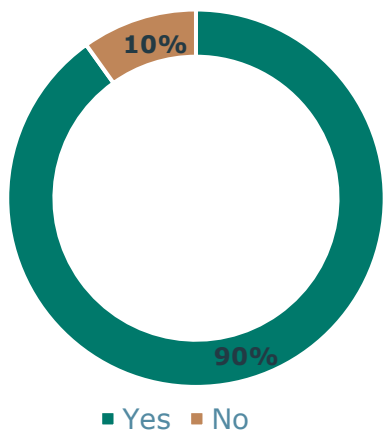


Figure 7. Do you know about the “5-7-9” loan program?

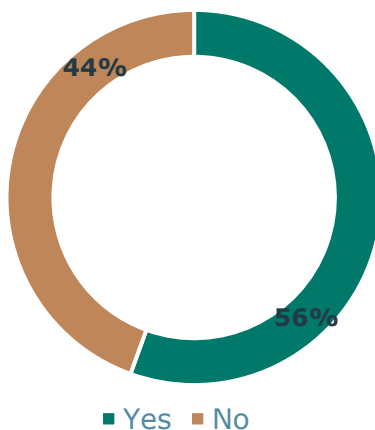


Figure 8. Did you apply for this program?

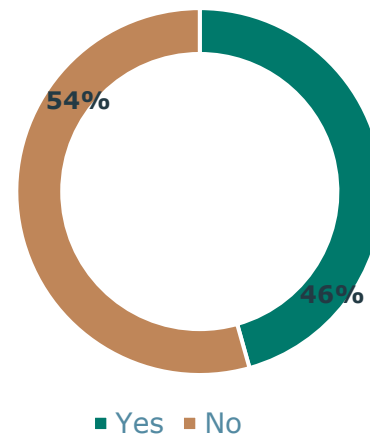
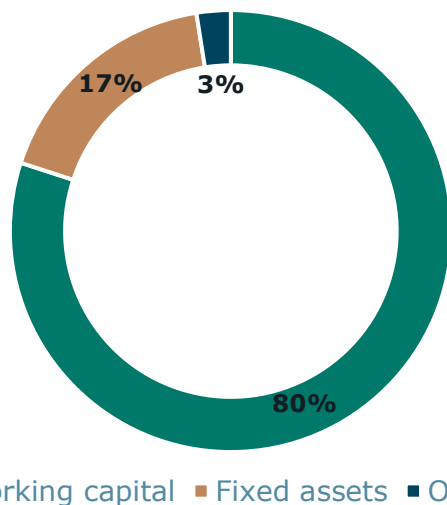


Figure 9. Have you received the “5-7-9” loan? (of the number of applicants, Fig. 10)



■ Working capital ■ Fixed assets ■ Others



Figure 10. What were the loan funds spent on?

Among the 263 surveyed agricultural producers:
90.1% have **heard** about the loan program
 → **61.6%** of which (55.5% of the total sample) **applied** for the program in 2023.
 → **82.2% received** the loan (45.5% of the total sample).
 In most cases, approximately 80% of loan funds were used for "working capital", which includes costs for fertilizers, seeds, fuel, wages etc. The 20% of loan receivers spent their fund on fixed assets without additional information on which one. Among "Others" options, the agricultural producers surveyed mentioned the purchase of agricultural machinery or the construction of agricultural facilities.

Figure 11. Which problems did you encounter when applying for program?

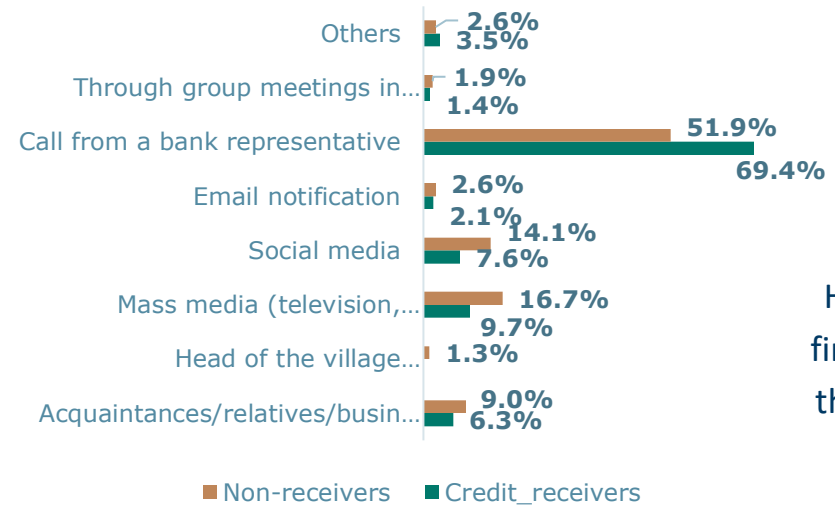
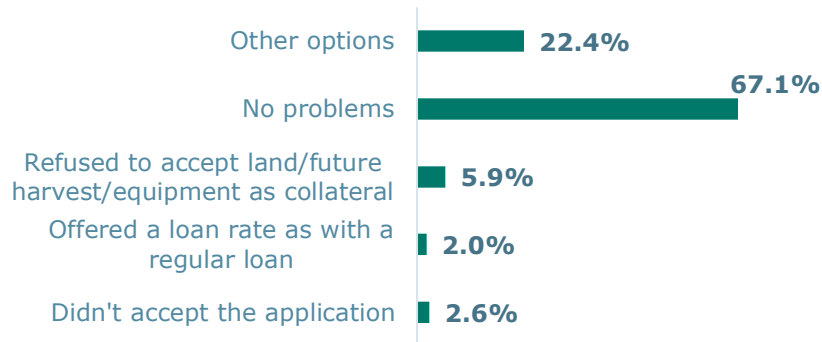


Figure 12. How did you find out about the program?

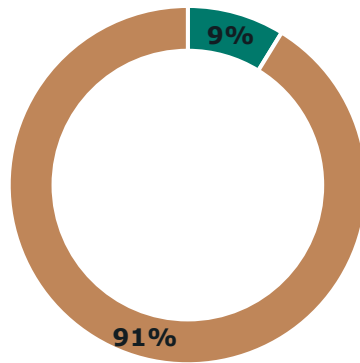
Most common source from which agricultural producers learned about the 5-7-9 credit program is a call from the bank, according to **69.4 %** of loan recipients and **52%** of non-recipients. The next most popular source of information is Mass media (9.7% and 16.7%) and Social media (7.6% and 14.1%, respectively). There are several common problems when applying; one of them is the category "Other options". Agricultural producers have reported lengthy processing times for their applications, as well as a high number of required documents by the bank. Also, land/future harvests/equipment were not accepted as collateral in 5.9% of cases and the application was rejected in 2.6% of cases.

How can the process be improved, a proposal to improve the 5-7-9 credit program?

Among the available options for improvement, agricultural producers have made many suggestions, and if we reject the options "no suggestion" or "everything is fine", several main options can be distinguished:

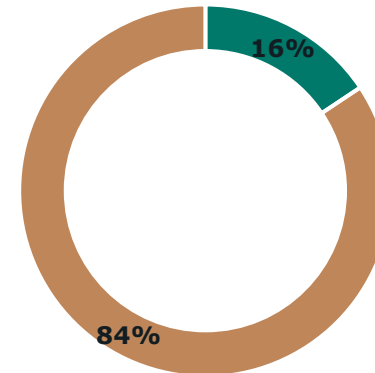
- 1) Speed the verification process;
- 2) A more individualized approach, depending on the region or the specifics of each agricultural producer's business;
- 3) Decrease the interest rate within the program;
- 4) Equivalent number of documents across different banks.

Visual distribution of responses: GRM systems of 5-7-9 loan program



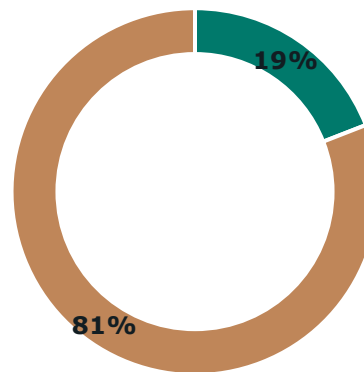
■ Yes ■ No

Figure 13. Do you know about the possibility and mechanism of filing complaints regarding the process of



■ Yes ■ No

Figure 14. Do you know about the possibility of filing a complaint at the government hotline number 15-45?



■ Yes ■ No

Figure 15. Do you know about the possibility of submitting a complaint to the hotline/e-mail address of the Ministry of Economy/Ministry of Finance?

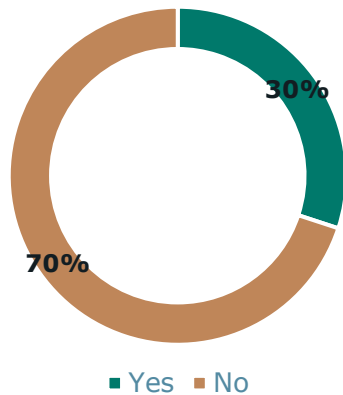


Figure 16. Do you know about BDF?

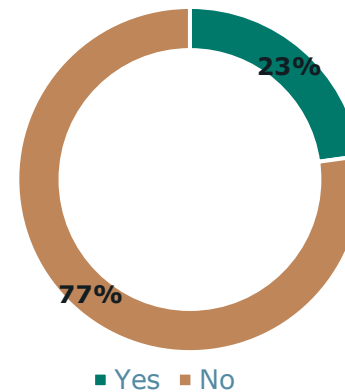


Figure 17. Have you ever made a complaint to the BDF regarding 5-7-9 credit program?

Among the 263 surveyed agricultural producers only:

8.7% have known about the mechanism of submitting complaints regarding the 5-7-9 loan program;

15.6% know about official hotline number 15-45 for complaints;

19% know about the possibility of submitting a complaint to the hotline of the Ministry of Finance/Ministry of Economy;

30% know about the Business Development Fund (BDF), and only **23%** of respondents know about the option to complain to BDF.

At the same time, none of the surveyed farmers lodged a grievance about the 5-7-9 loan program mechanism.

Visual distribution of responses: Technological maps

Loan receivers from ESA1 use technological cards **4.7%** more often than loan receivers from ESA2. On the other hand, among those who did not receive credit, the situation is inverted, with **2.3%** more agricultural producers in ESA2 using technological cards.

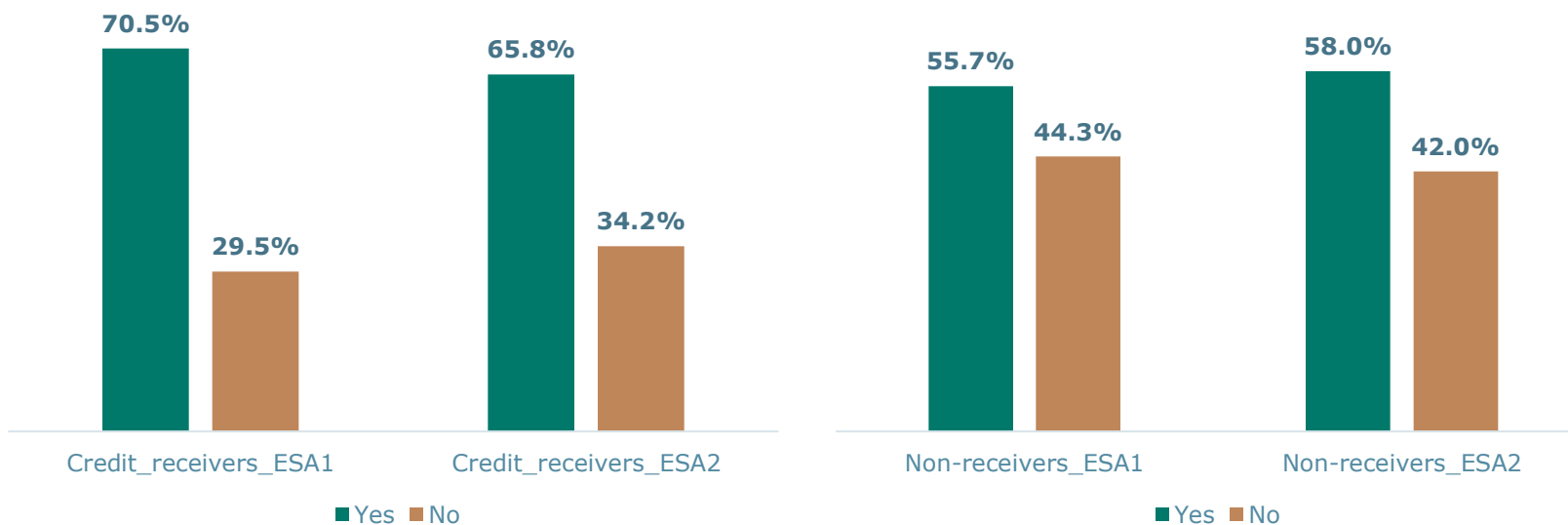


Figure 18. Do you use technological maps to calculate the right amount and timing of fertilizers and plant protection products?

Agronomists and directors of agricultural companies often develop technological maps. However, the proportion of directors who develop such maps decreased from **35%** to **33%** in ESA2, while the proportion for agronomists dropped from **51%** to **43%** among loan recipients. Meanwhile, private firms participate as developers more frequently in developing technological maps, accounting for **14%** of cases among ESA2 loan receivers.

This trend persists among non-recipients as well, with directors and agronomists more likely to create technological maps than others. The director's development of technological maps decreased from **44%** to **37%**, while agronomists stayed nearly constant at 45-46%.

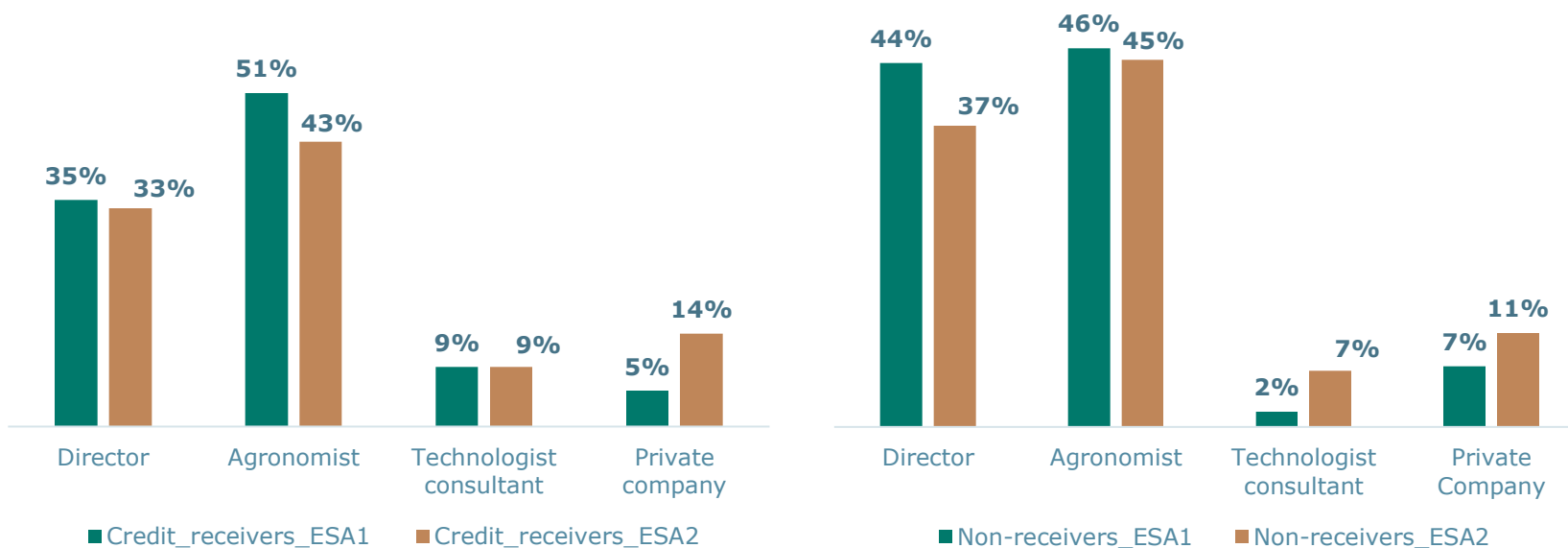


Figure 19. Who develops technological maps?

Comparing the frequency of technological map updates, ESA2 loan recipients reported a higher rate of changes than ESA1 loan recipients. Specifically, this amounts to **49%+30%** year-on-year (either within a year or once a year) for ESA2, compared to **35%+24%** for ESA1.

The same trend is observed among non-loan recipients, with **37%+45%** basis of agricultural producers from ESA2 changing their technological maps more often on a year-on-year basis than those from ESA1, where the indicator was at the level of **46%+17%**.

A more frequent change of technological maps may well be linked to the desire of agricultural producers to adapt to the challenges they now face. As mentioned above, the use of fertilizers and pesticides is decreasing, the price of fuel and other production inputs is increasing, and all this is forcing agricultural producers to be proactive and, accordingly, to change technological maps more frequently than they did a year ago.

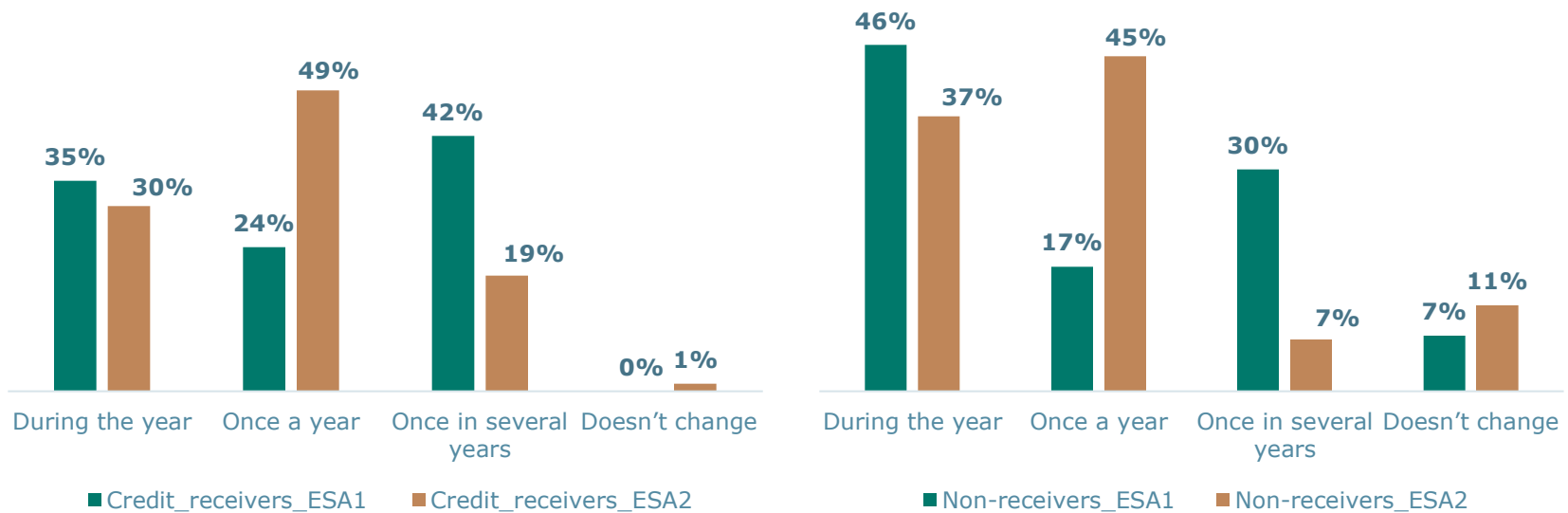


Figure 20. How often are they renewed?

Visual distribution of responses: Passport of the field and soil analysis

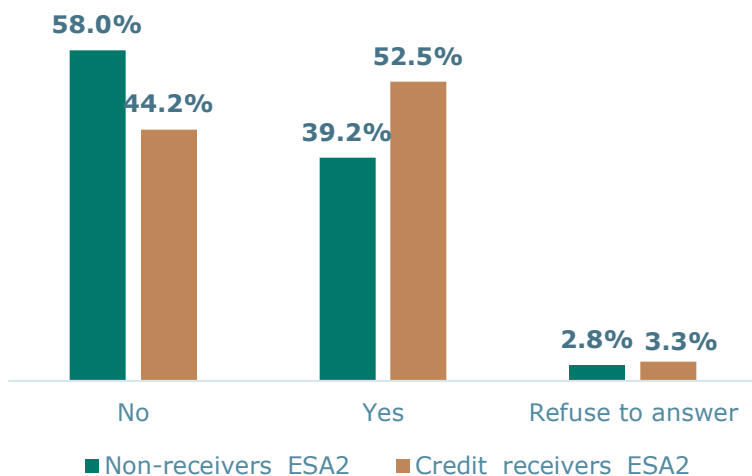


Figure 21. Is there an agrochemicals passport of the field?

Receivers have agrochemical passport of the fields and conduct soil analysis more often than non-receivers

The majority of credit recipients (both ESA_1 and ESA_2 surveys) conduct a soil analysis before the planting season, specifically **62%**, whereas less than half of non-recipients analyze the soil (**46%**).

This can be explained by the fact that credit receivers who attract additional funds can better approach soil quality assessment prior to sowing, ensuring accurate knowledge of soil conditions. This, in turn, facilitates a more precise calculation of the amount of required fertilizers during the season, which decreases the hazard of environmental damage to the soil and produce.

13% difference: 52.5% of receivers have a pass of the field compared to **39%** of non-receivers.

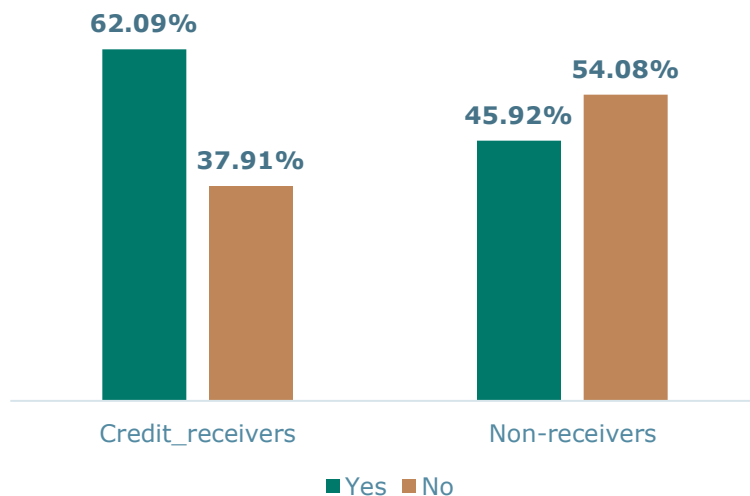


Figure 22. Before the start of the sowing season, is the soil analyzed?

Visual distribution of responses: Cultural heritage

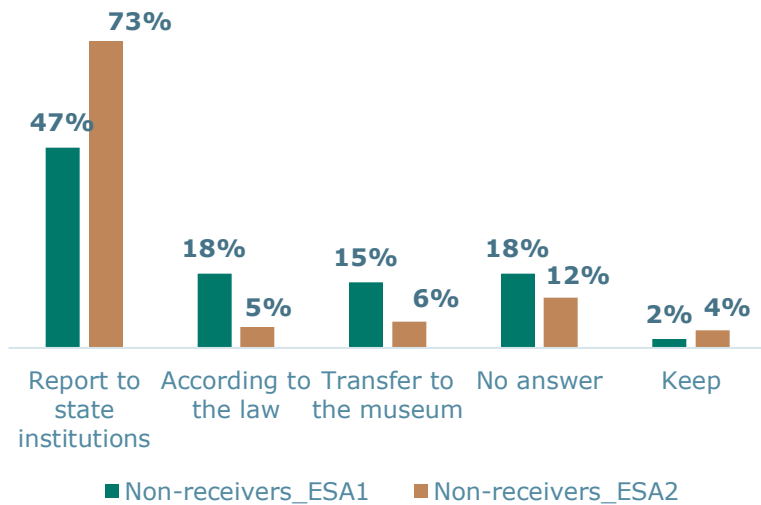
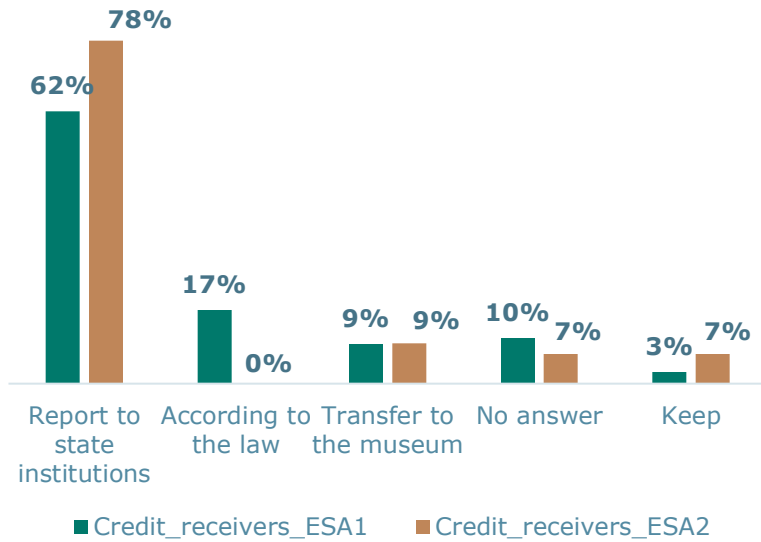


Figure 23. What would you do if you found a cultural heritage item on your land?

In the matter of cultural heritage, loan receivers often turn to the relevant state institutions

77.5% of the ESA2 credit receivers would report the discovered cultural heritage item to the state institution, against 61.5% of the ESA1 credit receivers. There was also an almost 30% increase in this indicator among non-recipients, with 73% of ESA2 respondents stating that they would inform the relevant state institution and 47.4% of ESA1 respondents.

Ways to improve proper way to respond to chance finds cultural heritage on the field

Not all agricultural producers have a clear understanding of the necessary actions upon discovering cultural heritage. Several interviewed agrarians expressed distrust in state institutions, fearing that any cultural heritage found would be entered on the balance sheet and later handed over to museums or the like. Others probably don't want to take the time to search for the contact information of relevant government agencies. Because they may need to stop agricultural work, whether sowing or harvesting, to conduct a thorough investigation of the field, given the possibility that it may not be the only cultural heritage found in the area. However, this initial effort is necessary to avoid being alone in the industry.

One solution is to create a brochure or guide for handling the discovery of cultural heritage that includes instructions for where to report the discovery and a detailed explanation of the transfer process to state authorities.

Visual distribution of responses: Keep records of inputs use

Receivers and non-receivers increasingly keep records of the consumable resources usage (water, gas, heat)

, **76%** of those who received credit from ESA2 reported keeping records of their water, heating, and electricity usage, compared to 69% in the ESA1. Similarly, in the non-receiver category, **53%** of respondents reported keeping records of their water, heat, and electricity usage, compared to only 40% in the first survey.

Most likely, these changes are directly linked to the increase in resources prices and a decrease in profitability. Thus, maintaining a balance in their consumption provides a comprehensive overview of production costs and potential opportunities for savings.

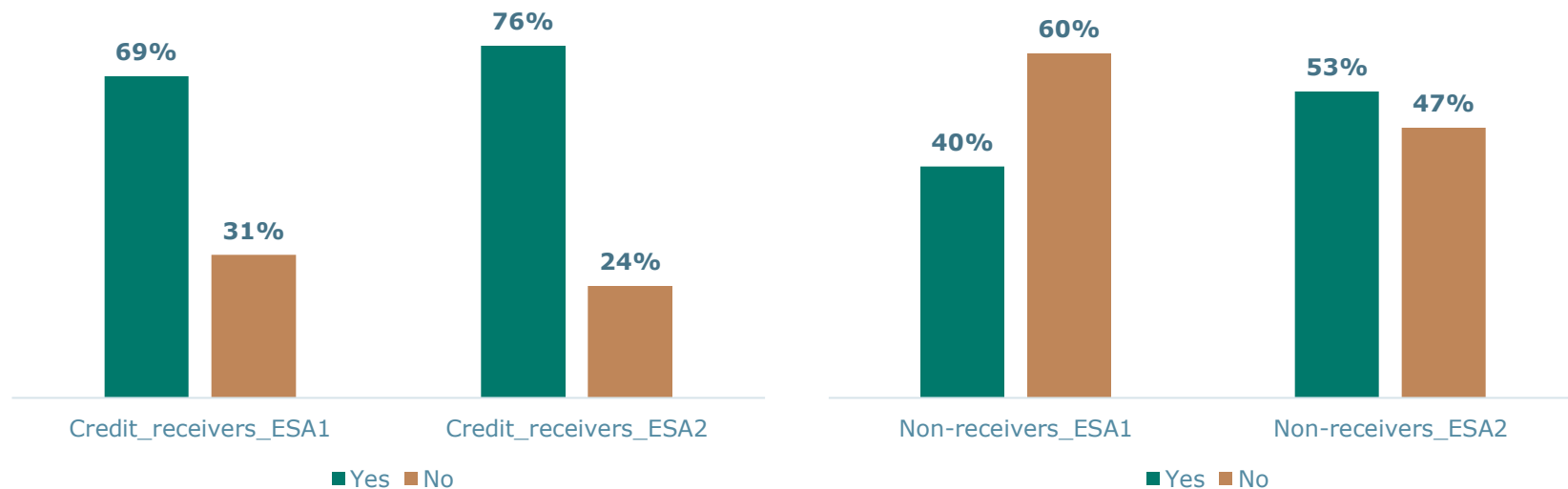


Figure 24. Do you keep records of the use of water, heating, and electricity in the farm?

Visual distribution of responses: Organic production

No major differences in organic production

Based on the ESA_1 and ESA_2 surveys, there is no evidence indicating that either organic or non-organic farmers are major recipients of loans. In fact, over 80% of respondents from both surveys reported that they do not cultivate organic crops.

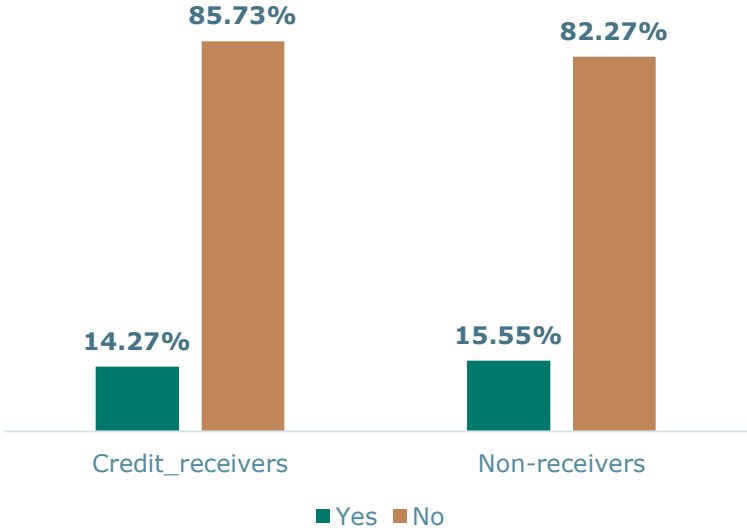


Figure 25. Distribution of organic and non-organic producers

Visual distribution of responses: Crop structure change

During the ESA1, over 57% of loan recipients reported that the crop structure remained unaltered in comparison to the year 2022. However, in the ESA2, only 37.5% of loan receivers reported such similarity. Thus, the majority of agricultural producers changed the structure of their crop rotation in 2023 compared to 2022.

The situation is similar for the non-receivers of the loan, during ESA1 it was possible to talk about parity, with almost 50% to 50% divided the responses regarding the change in the structure of crops. However, in ESA2 report shows a trend where most agricultural producers are already changing the structure of crops 54% and 46%, respectively.

The lack of profitability of cereals (e.g. wheat, corn) is forcing farmers to change their crop structure. They are shifting towards the sowing of technical and oilseed crops.

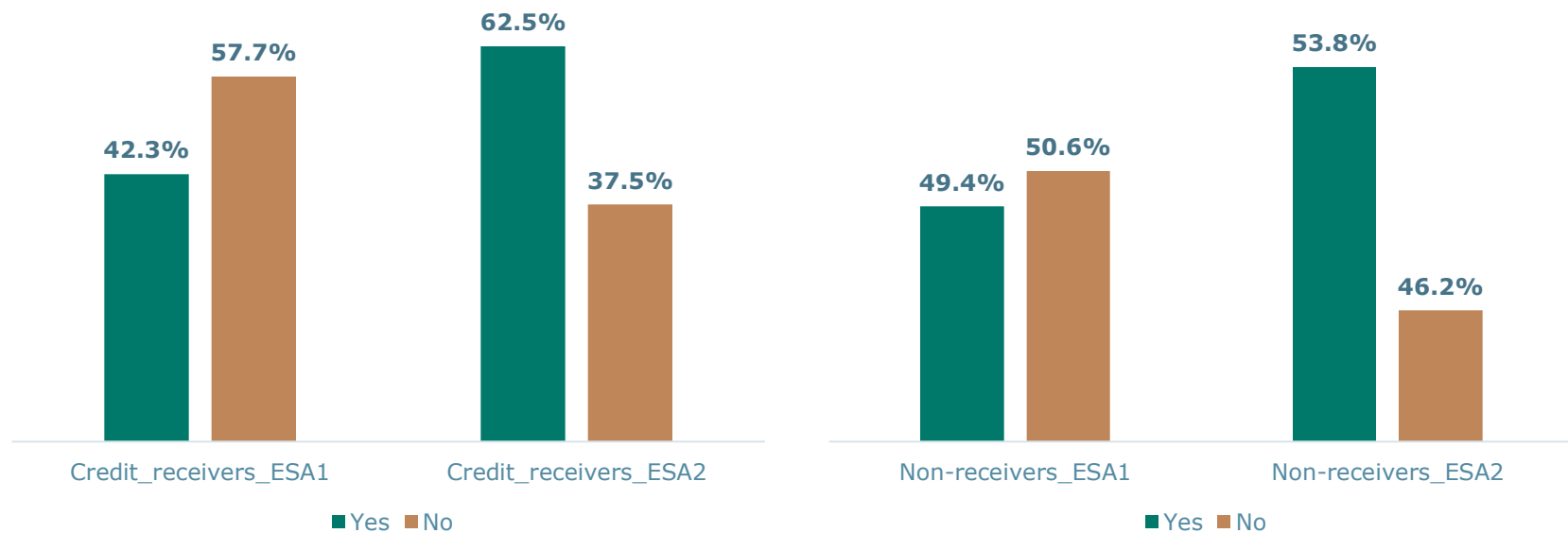


Figure 26. Did crop rotation structure change in 2023?

Visual distribution of responses: Land use rights and informal land use

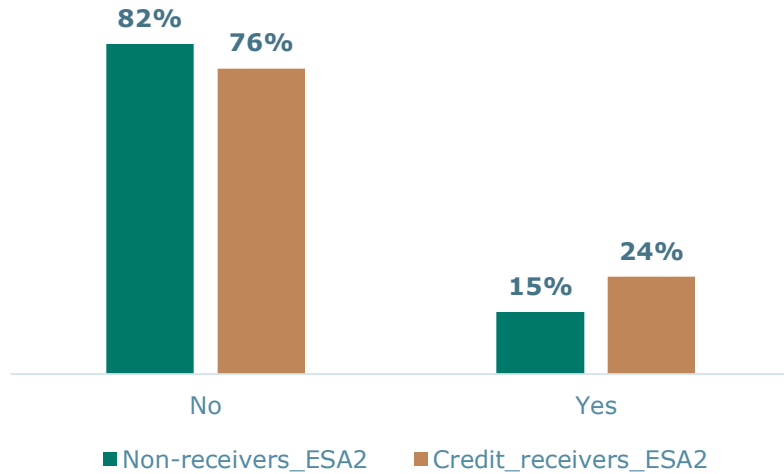


Figure 27. Have you known the cases of informal land use?

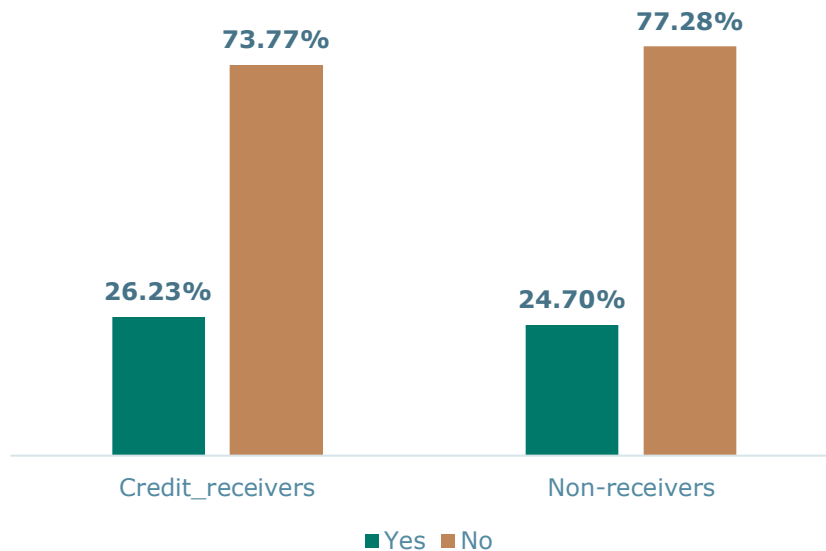


Figure 28. Have you ever been involved in litigation over land use rights?

No major differences in land disputes

The issue of litigation concerning land use rights exists in **74%** negative responses among credit receivers (both ESA_1 and ESA_2 surveys), and almost **77%** negative responses are from non-receivers.

Almost 80% of respondents in ESA2 are not aware of informal land use or sanitary protection zones. 24% of loan recipients have positive responses to such questions as “Have you known the cases of informal land use?” without any additional information.

Ways to improve awareness of sanitary protection zones

Since over 15% of both groups were aware of cases of informal land use or sanitary protection zones (SPZ). To prevent this, or to raise awareness of how to prevent it, the following can be suggested:

1. Conduct workshops and training for farmers, agronomists, and agricultural workers to gain hands-on knowledge in establishing and maintaining SPZs;
2. Demonstrate proper zoning techniques, protective equipment usage, and sustainable agricultural practices within SPZs;
3. Utilize digital platforms to expand outreach. Generate webinars, online courses, and informative websites dedicated to SPZ awareness;
4. Emphasize farms' successful adaptations to SPZ guidelines.

Visual distribution of responses: Swamp destruction

No major differences in swamp destruction

In the ESA surveys (both ESA_1 and ESA_2) 81% of respondents from both groups answered negatively when asked if they were aware of any instances of swamp destruction in the region.

Based on the results, it may be concluded that overall in Ukraine, there is no practice of destroying natural water ecosystems for agricultural needs, especially swamps.

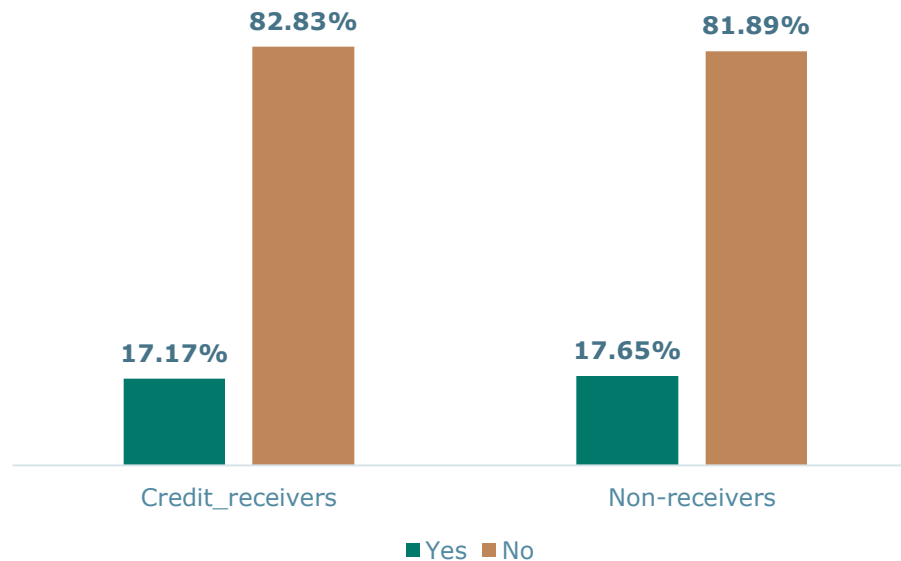


Figure 29. Are you aware of cases of swamp destruction in your region as a result of human activity?

Visual distribution of responses: Storage and disposal

How to increase awareness and build capacity for proper handling and storage techniques?

Even though more than 95% of the agricultural producers surveyed stored agrochemicals and fertilizers according to the laws and standards. Some of the agricultural producers stored agrochemicals in non-specialized warehouses without proper ventilation and insulation. Several steps can be taken to improve this situation:

1. Organize regular workshops and training sessions for farmers or amalgamated hromadas, agricultural workers and retailers on the proper handling, storage and disposal of agrochemicals and pesticides;
2. Emphasize the potential risks associated with improper handling and storage and the benefits of following recommended practices;
3. Work with agrochemical suppliers to provide storage services for purchased products with subsequent delivery just prior to application, or provide a map of potential specialized storage facilities where the farmer can store agrochemicals.

Loan receivers tend to store agrochemicals and pesticides before their application in the field

Most loan recipients buy agrochemicals and pesticides and store them in specialized warehouses (**63%**), while the remaining 35% use them directly in the field without storing them in specialized facilities.

An increasing number of non-recipients are also opting to store fertilizers and chemicals in dedicated entities, with **43%** choosing this option compared to 38% previously. However, the dominant choice remains the direct use of fertilizers or chemicals without storage - "brought and immediately used", which is preferred by over **50%** of agricultural producers in this category.



Figure 30. How are chemicals, agrochemicals and fertilizers stored?

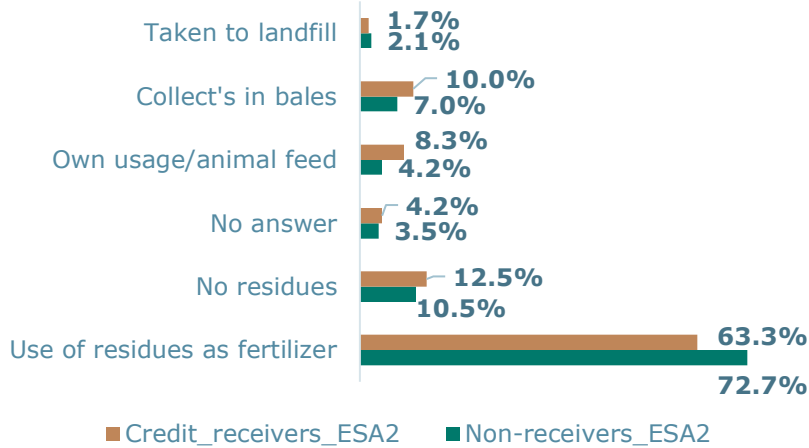


Figure 31. How is the residue disposed of after harvesting?

Loan receivers are better at environmentally friendly disposal

Converting post-harvest residues into fertilizer through ploughing, discing as a tillage method, and decomposition is a commonly used practice, with **63%** of loan receivers and **73%** of non-receivers utilizing this method.

In both iterations of the survey, most loan receivers – **81%** – dispose of the containers by signing contracts with relevant private firms or returning the containers to the supplier for further disposal. Others mentioned other ways, which are less safe or did not answer the question.

Among the non-recipients of loans, we see a positive change in approaches to the disposal of containers from agrochemicals. If, in the initial survey, only 43% of respondents in this category disposed of waste correctly (utilization or supplier dispose), then in ESA2, **64%** of non-receivers followed correct disposal procedures.

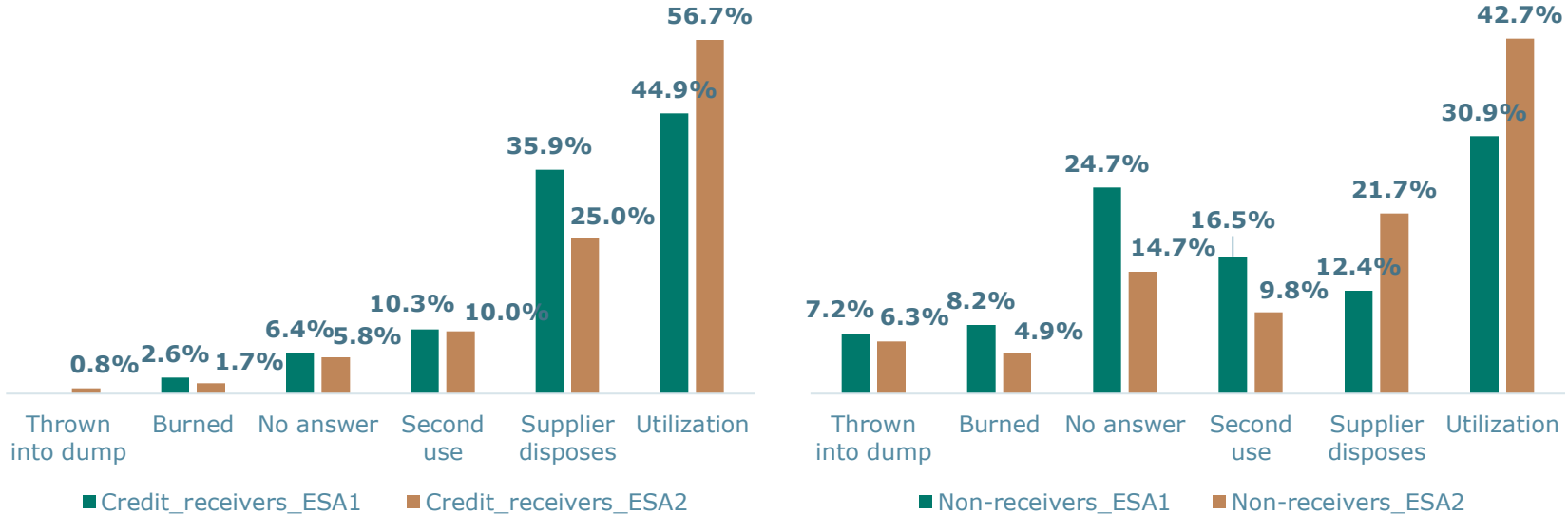


Figure 32. How are empty containers from agrochemicals and obsolete residues of pesticides disposed of?

How to improve the process and availability for the disposal of used containers?

Among the available options for improvement, agricultural producers presented numerous suggestions which were categorized into several main options:

1. No limitations on the quantity and size of containers accepted at the respective companies;
2. Enabling a larger number of suppliers to collect used containers for disposal;
3. More frequent collection of containers for disposal, with proper reporting.

Farmers require improved access to environmentally-friendly disposal methods for containers.

An increasing number of individuals who have received loans believe that it is essential to simplify the process of accessing environmentally friendly waste disposal. During the ESA1, 57% of respondents held this belief, whereas now, that number has risen to **63%**.

Conversely, among loan non-receivers, there has been a decrease in support for streamlining the procedure, with a drop of 18%. Now **65%** of non-receivers agree with this decision.

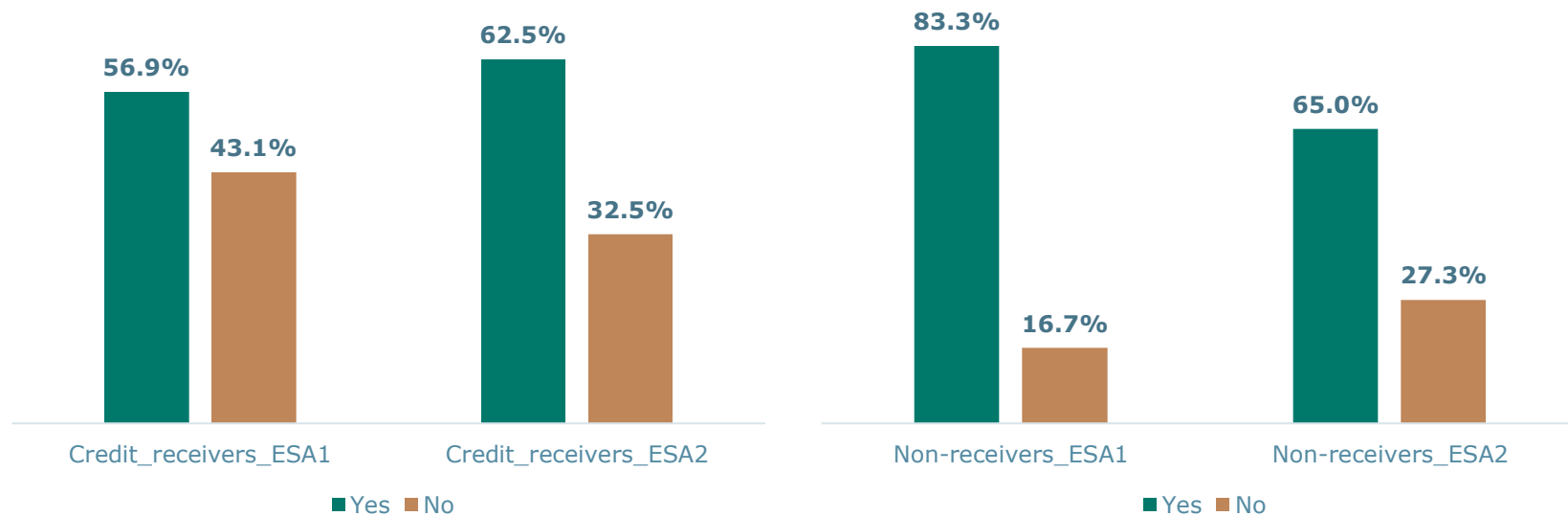
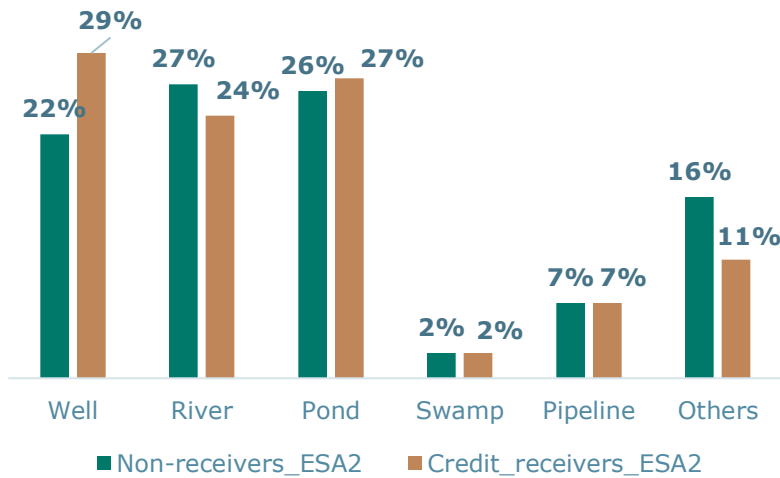


Figure 33. Do you think that access to environmentally friendly disposal of containers should be improved?

Visual distribution of responses: Water resources

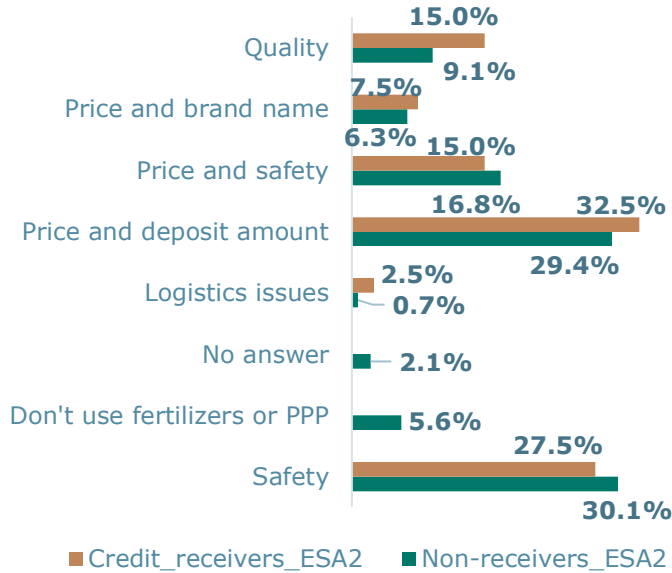


Availability of water resources

Wells, rivers and ponds are the most common water sources used by agricultural producers in their regions, with more than 20% in each category. At the same time, 16% of non-receivers and 11% of receivers chose the 'Other' option, explaining that they simply do not have access to water resources in the region or that they have dried up.

Figure 34. What water resources are available in the region?

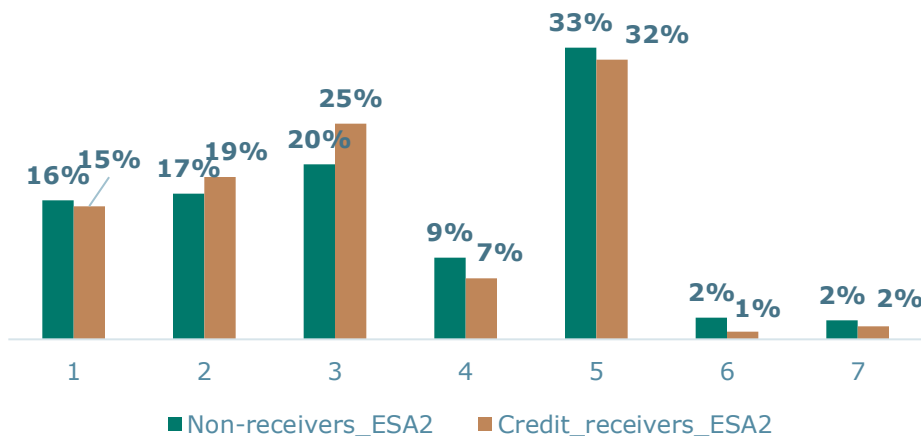
Visual distribution of responses: Suppliers of fertilizers and chemicals, application of chemicals



Price (amount of deposit, safety and brand) - this is the main thing that farmers look at when choosing a supplier of agrochemicals

When choosing a supplier of chemicals, agricultural producers mainly pay attention to price. In general, this is the case for almost **55%** of credit receivers and **52.5%** of non-receivers (when the three categories "price and deposit", "price and safety", "price and brand name" are taken together). The **safety** of agrochemicals is the second most important issue for farmers, mentioned by **30%** of receivers and **27.5%** of non-receivers.

Figure 35. What factors do agricultural producers pay attention when select supplier of fertilizers and PPP?



*See Table 5 for listed options (1...7)

Figure 36. Which of the options for applying agrochemicals are used?

Table 5. Options for notifying people about the use of agrochemicals from the ESA2 study

1	Compliance with the sanitary protection zone
2	Informing local residents in advance, at least 2 days before processing, and posting signs indicating the estimated time of completion of processing
3	Notifying beekeepers of the need to move hives to another honey collection site at a safe distance from the processing site.
4	A warning about the prohibition of agricultural work and grazing livestock within 1 km of the processing site.
5	Work in the morning (before 10 am) and evening (6-10 pm) with minimal upward airflow
6	None of above
7	Others

The most common method used by both categories of farmers is 'working in the morning (before 10 am) and in the evening (6-10 pm) with minimal upward airflow', answered by 33% of non-receivers and 32% of loan receivers. The next most popular method of notification of chemical application work is "Notifying beekeepers of the need to move hives to another honey collection site at a safe distance from the processing site" - 25% of loan receivers and 20% of non-receivers do this.

Nine respondents confirmed that during the treatment of fields with chemicals, there were effects on health and safety of members of the public and workers. Although no conclusions can be made on the difference between the receivers and non-receivers of 5-7-9 loan, it is worth mentioning the causes and effects named by the respondents:

- 1) "There have been cases when other owners of secondary land did not inform the beekeepers about the need to move the hives to another place of honey collection, at a safe distance from the place of processing";
- 2) "A field was cultivated in the neighboring district, causing respiratory problems to the inhabitants of that settlement (farm "X"), and a few years ago a fish died in the reservoir (farm "Y")";
- 3) "Deterioration of the health of the employees of a neighboring company after the introduction of herbicides";
- 4) "Complaints from local residents";
- 5) "When planting rape, another agro-holding started to treat the field with chemicals, which caused harm to the local population";

- 6) "Other agronomists caused damage to beehives by using chemicals and pesticides when cultivating the fields";
- 7) "Use of pesticides banned in the EU";
- 8) "There are cases where herbicides are used within the settlement";
- 9) "There have been complaints about another agricultural enterprise".

The presence of such situations may indicate noncompliance by certain agricultural producers or firms with the norms governing the application of agrochemicals and timely notification of fieldwork. When such situations arise, relevant state institutions or the environmental inspection can be contacted to ensure that such violations are appropriately recorded. Additionally, explain the rules for applying chemicals, or adjust the activities of agricultural producers or companies in such a way that similar situations do not occur again.

In addition to this question, the respondents were asked whether there were any cases of excess of chemical substances in the grown products. Only one positive answer was received, and it was mentioned that this excess was reported by consumers.

Among all the agricultural producers who participated in the ESA survey, 26 cases related to product quality were recorded. Of these, 6 were reported by the consumers of these products and 20 - "other" option. Most of these problems were related to weather conditions or internal problems (not specified by agricultural producers). To solve this problem, in 8% of cases the agricultural producers "threw away part of the harvest or the whole harvest", in 46% of cases "the grain was intended for food/export but it became fodder (for animal feed)" and 46% indicated "their option", which included:

- transferred to the seed category;
- reduced the price;
- stopped working with the exporter or laboratory because of false information on chemical content;
- returning the grain to the farm from which it was bought.

Another question addressed in the survey was regarding the type of fertilizers used by the agricultural producers. Below provided list of fertilizers name and frequency of use be different agricultural producers. Based on GHS Classification Criteria for Acute Toxicity¹⁰, the corresponding fertilizers were analyzed (Table 6).

Table 6. Analysis of toxicity of fertilizers reported to be used by respondents

¹⁰ GHS Classification Criteria for Acute Toxicity

Type	Name/Brand	Receivers	Non-receivers	Class of toxicity
Mineral fertilizer	'Макош'	3	6	Unlikely to present acute hazard
Mineral fertilizer	'Яра'	3	4	Unlikely to present acute hazard
Nitrogen fertilizer	'Селітра'	3	17	Highly hazardous
NPK (S) 12	'Поліфоска'	3	0	Unlikely to present acute hazard
Phosphorus-potassium fertilizer	'Трідон'	1	0	Slightly hazardous
Phosphorus fertilizers	'Амофос'	4	7	Unlikely to present acute hazard
Complex fertilizer	'Сульфат магнію'	0	1	Unlikely to present acute hazard
Mineral fertilizer	'Сульфат амонія'	3	3	Unlikely to present acute hazard
Potassium fertilizers	'Рідкі калійні добрива'	1	1	Unlikely to present acute hazard
Nitrogen-phosphorus-potassium fertilizer	'НПК'	3	2	Unlikely to present acute hazard
Fungicide	'Авіатор'	0	0	Slightly hazardous
Insecticide	'Матадор'	0	1	Slightly hazardous
Mineral fertilizer	'Фертис'	0	1	Unlikely to present acute hazard
Phosphorus fertilizers	'Суперфосфат'	1	0	Unlikely to present acute hazard
Organic fertilizers	'Гумат'	0	0	Unlikely to present acute hazard
Mineral fertilizer	'Діамофоска'	1	12	Unlikely to present acute hazard
Phosphorus fertilizers	'Фосфорні '	1	2	Unlikely to present acute hazard
Nitrogen-phosphorus fertilizer	'Сульфоаммофоска'	6	1	Unlikely to

				present acute hazard
Complex fertilizer	'Навалон'	1	0	Unlikely to present acute hazard
Specialized fertilizer	'Плантон'	1	0	Slightly hazardous
Nitrogen-phosphorus fertilizer	'Сульфомофос'	3	0	Unlikely to present acute hazard
Mineral fertilizer	'Потафоска'	1	1	Unlikely to present acute hazard
Micronutrients	'Бор, Сірка'	0	1	Slightly hazardous
Phosphorus fertilizers	'Суперфосфат Мілаяра'	0	1	Slightly hazardous
Nitrogen-phosphorus-potassium fertilizer	'Яраміла'	16	10	Unlikely to present acute hazard
Mineral fertilizer	Ostchem'	2	2	Unlikely to present acute hazard
Mineral fertilizer	Дніпроазот'	1	3	Unlikely to present acute hazard
Ammonium nitrogen	Socar'	1	0	Unlikely to present acute hazard
Urea-ammonia mixture	Ка-32'	2	1	Unlikely to present acute hazard
Ammonium nitrate	Карбамід	6	5	Unlikely to present acute hazard
Phosphorus mineral fertilisers	Сумихімпром	6	7	Unlikely to present acute hazard
Mineral fertilizer	Агрополихим	3	1	Unlikely to present acute hazard
Complex fertilizer	Ерідон	7	0	Unlikely to present acute hazard
Ammonium nitrate	КАС	4	0	Unlikely to present acute hazard
Potassium fertilizers	Калійні	1	1	Unlikely to present acute hazard

Source: own estimate based on Acute Toxicity Hazard Categories from the GHS and research

Visual distribution of responses: Biodiversity

Agricultural producers in both categories take measures to support biodiversity. In ESA2 there are 10% more loan receivers supporting biodiversity than in ESA1, 73% and 63% respectively. For non-receivers, the situation is the same, with more respondents from ESA2 taking measures for biodiversity, 77% and 72% of ESA1, respectively.

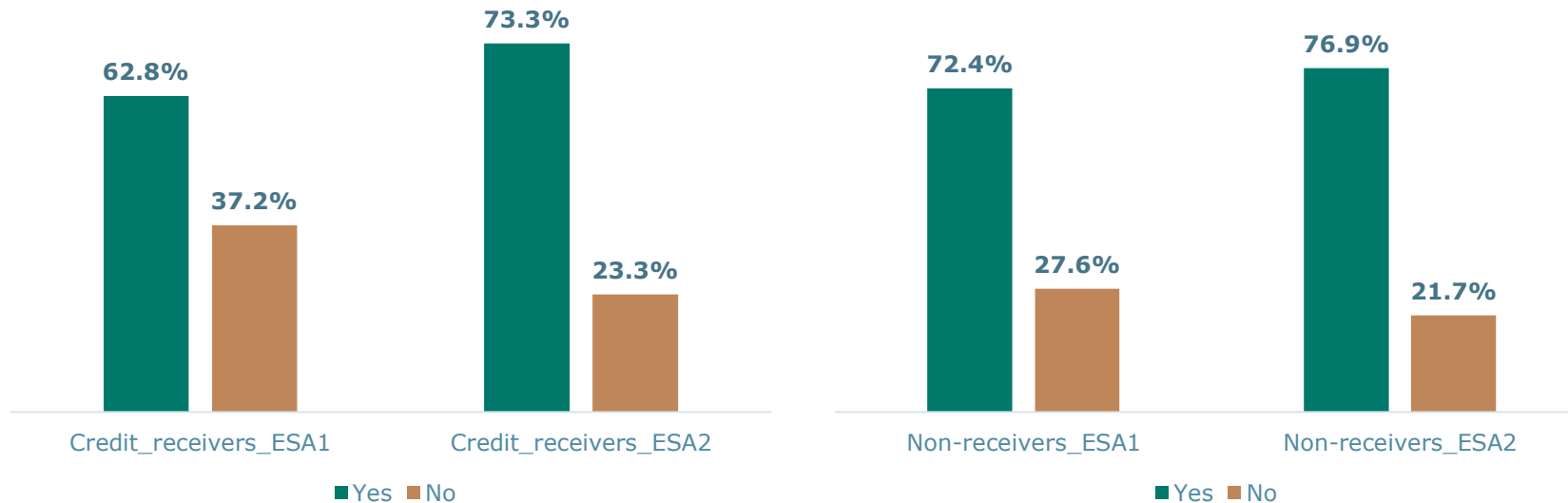


Figure 37. Do you take measures to support biodiversity?

Due to the lack of clear understanding among agricultural producers regarding the impact of crop cultivation on biodiversity, it is crucial to carry out:

1. Conduct an analysis or develop educational materials based on existing research on the impact of growing agricultural crops on the biodiversity of the field;
2. Enhance the knowledge of agrarians regarding how to enhance field biodiversity, taking into consideration particular grain, technical, or oil crops;
3. Invite professionals from universities and businesses to share their expertise and knowledge on promoting biodiversity, sharing prime examples during panel discussions.

No clarity on biodiversity

There is no clear answer to the question if and how crop cultivation can affect biodiversity on the field. If 'No answer' is discarded as an option, most ESA2 receivers, **31.7%**, think that it has a 'positive' effect, while **22%** of ESA1 receivers think that it has 'no effect' on biodiversity. There is also no consensus among non-recipients, with **29.4%** of ESA2 non-recipients believing that crop cultivation has a 'positive' effect and **30%** of ESA1 non-recipients believing that it has a 'negative' effect.

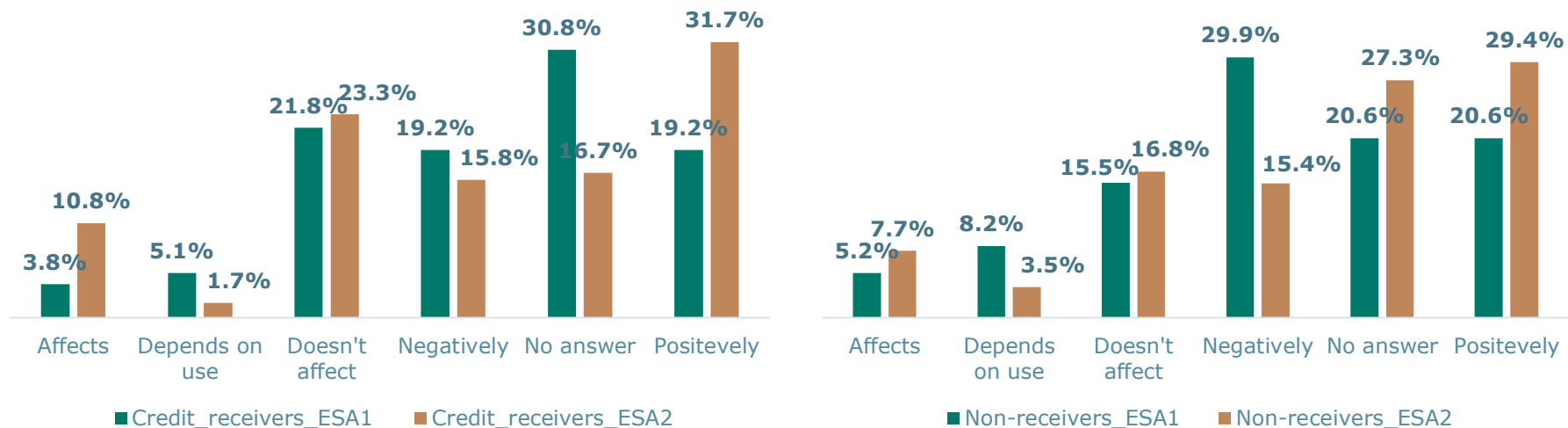


Figure 38. Do you think crop cultivation affects the biodiversity of the field?

Visual distribution of responses: CO2 footprint, EU membership, OHS

CO2 footprint

Calculating CO2 emissions is not mandatory in Ukraine, so it is not reasonable to expect most farmers to do it proactively. For example, Ukraine has developed an energy efficiency strategy up to 2030, which includes measures to reduce greenhouse gas emissions. Based on the [Ecodia data](#) agricultural sector is not a leader in the production of greenhouse gases compared to heavy metallurgy or greenhouse gases related to transportation. It is difficult or even impossible for an ordinary agronomist working with "old" equipment (where there are no electronics to calculate potential emissions during operation) to make calculations of greenhouse gas emissions. To address this, the following actions may be recommended:

1. Create applied educational materials where leading specialists in the field show how to correctly calculate CO2 emissions per harvested hectare or per 1 ton of product;
2. In each community, village, etc., install ecological trackers, devices that can record the presence of pollutant emissions in real time. Taking into account the distance to the field and the weather conditions, the actual amount of emissions generated during the cultivation of the field will be calculated.

Low Adoption of Carbon Footprint Calculation Among Agricultural Producers

Calculating the carbon footprint of cultivated goods remains an insignificant matter for agricultural producers. These are rather certain exceptions, only: **10%** of receivers and **6-8%** of non-receivers calculate CO2 emissions from their agricultural production activities.

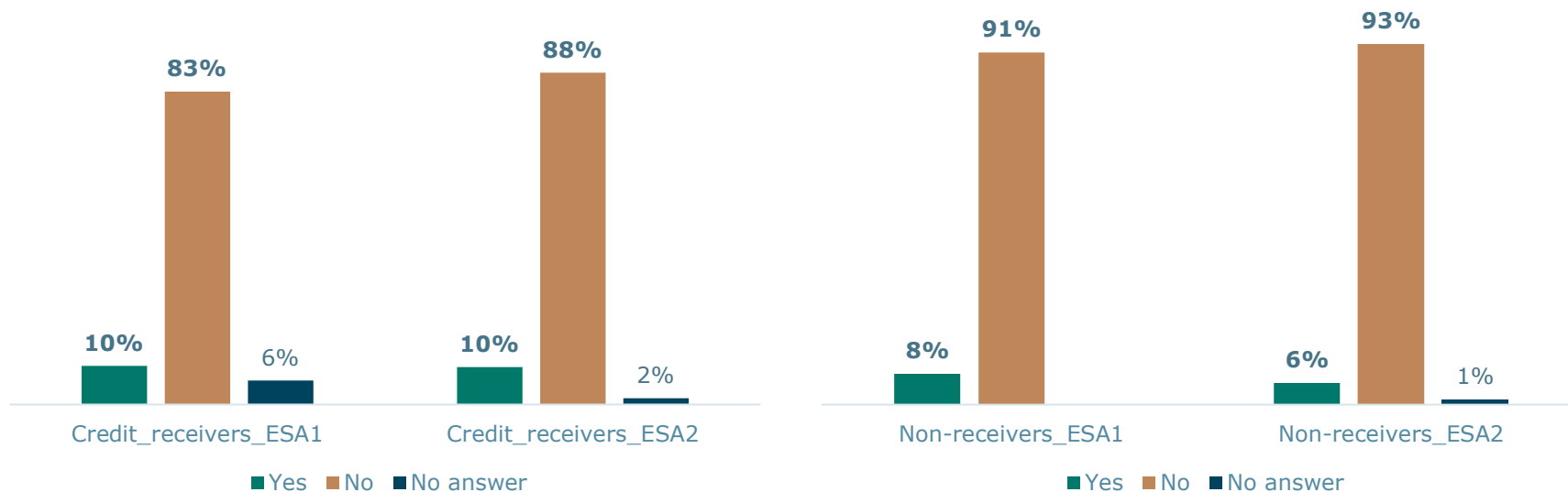


Figure 39. Have you calculated the carbon footprint from your production?

Agricultural Producers Open to changes to enter the EU Markets

Most agricultural producers of each of the groups answered “Yes” to the question about the possibility of entering the EU sales markets under the condition of changes to the cultivation of crops. Specifically, **82%** of ESA1 receivers and **85%** of ESA2 receivers, along with **77%** of ESA1 non-recipients and **90%** of ESA2 non-recipients, responded positively.

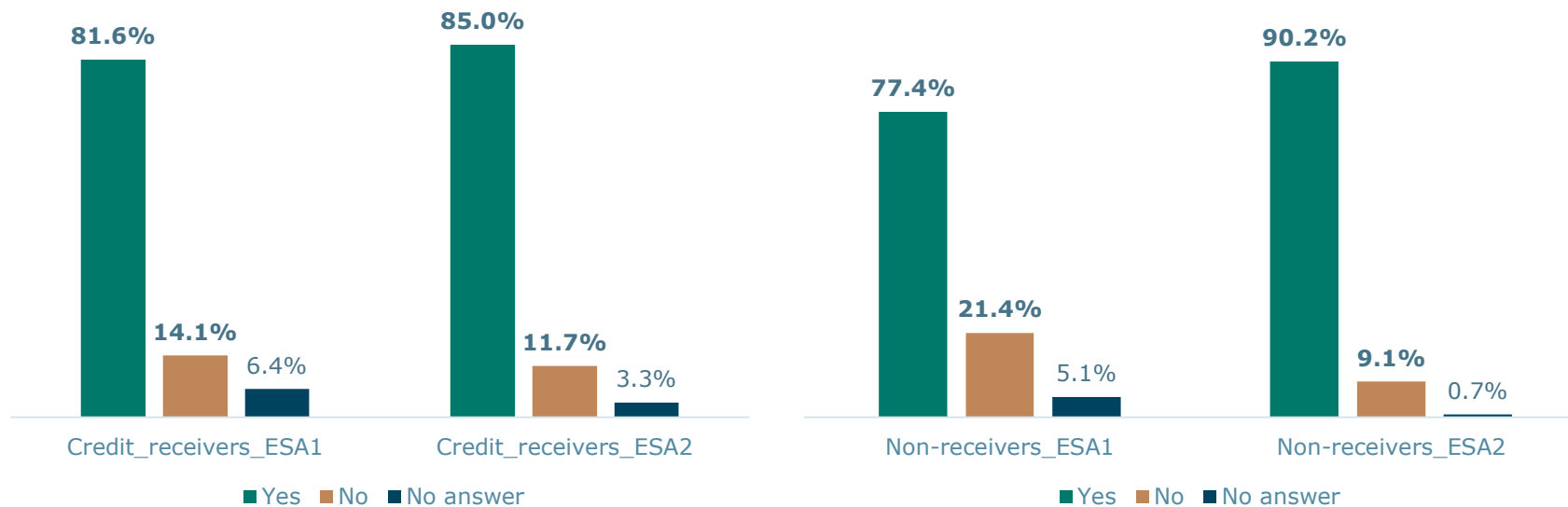


Figure 40. If there was an opportunity to enter the EU market by using more advanced crop growing methods, would you be willing to do so?

Agricultural producers who received the loan are more concerned about employees, namely **96%** of ESA1 loan receivers and **91%** of ESA2 receivers, conduct training and labor protection measures for them, against **67%** of ESA1 non-receivers and **81%** of ESA2 non-receivers.

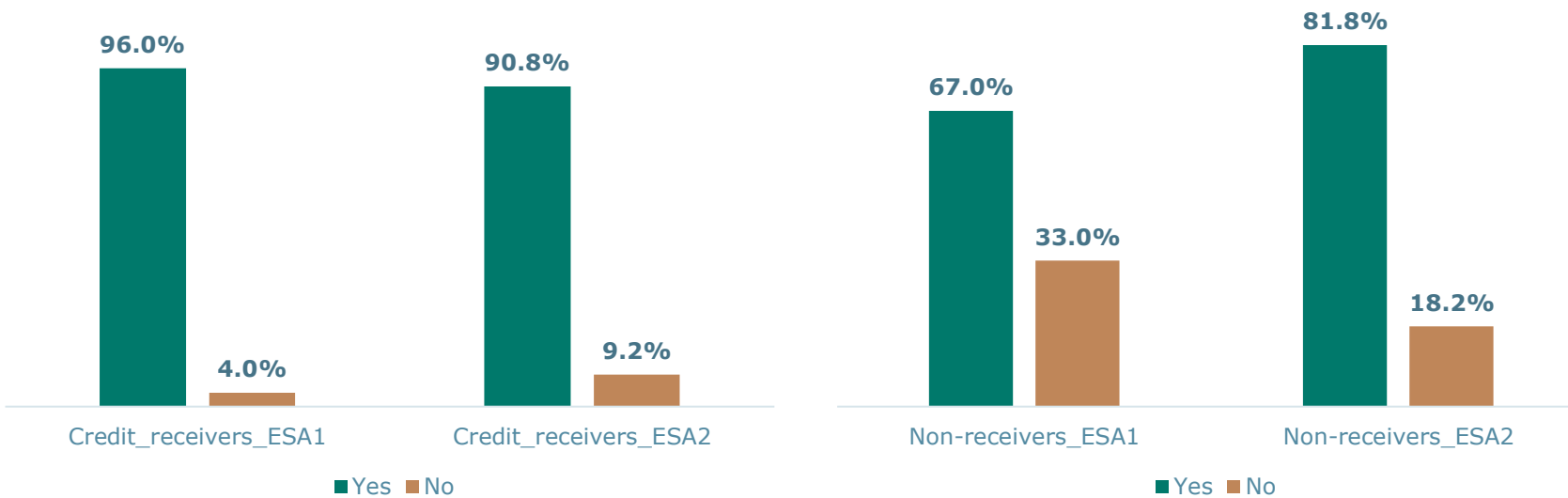


Figure 41. Do you implement OHS measures?

4.3 Summary

Given the results described above, there are differences between farmers who received bank loans under the 5-7-9 credit program and those who did not. Despite the difficult times for all Ukrainian agriculture, it is worth noting that certain improvements are taking place from the point of view of environmental and social protection in the agricultural production. Overall, the majority of respondents are aware of various risks and hazards related to the use of fertilizers and chemicals and they minimize these risks and report to comply with the national legislation. Moreover, the sharply reduced application rates of inputs during the war have further lowered the overall ES risks associated with agricultural production.

Soil erosion and disputes over land rights are not common problems for either those who received loan or those who did not. Farms that received the support through the 5-7-9 credit program in both iterations of the ESA1 and ESA2 surveys are more stringent in terms of technical requirements when working with hazardous substances and have a higher level of use of process maps and soil analysis for the production process.

The interviewed producers are not very concerned about the calculation of the carbon footprint. However, most respondents from both groups expressed their willingness to improve production technology in accordance with the EU acquis when it will be required.

Agricultural producers of both categories are changing the structure of crop planting compared to 2022, due to "low local prices" and "poor demand for certain crops". This could be in an effort to maximize their income with limited resources by cultivating alternative crops like soybeans or peas, or due to reducing the area under cultivation. Most of the ESA2 loan receivers have an agrochemical field passport. The majority of both categories of receivers and non-receivers from ESA2, converting post-harvest residues into fertilizer through plowing, discing as a tillage method, and decomposition is a commonly used practice. This may be a sign that farmers are aware of the correct and ecological disposal of residues, or that the lack of landfills near the fields may be a factor that forces farmers to look for disposal options.

Farmers who have received a loan are more careful in their use of agrochemicals and fertilizers, keep better records, comply better with storage and disposal requirements, and better implement OHS measures. As a result, they are more responsible for the environment and labor standards. Despite this, some loan receivers demonstrate hazardous waste disposal practices that

are not safe. To promote environmentally safe disposal and raise awareness, borrowers can receive brochures containing relevant information via e-mail. Additionally, information about the nearest container disposal sites can be provided.

Agricultural producers, who are aware of the 5-7-9 credit program, know little about the mechanisms for considering complaints and proposals. This is probably due to the simplicity of the state support program, which finances the partially interest rate compensation but is not responsible for issuing principle agricultural loans where some farmers may face problems. The survey revealed that, on average, fewer than **15%** of agricultural producers possess knowledge of certain processes for examining and lodging grievances. Notably, the most well-known mechanism was "the option to apply for assistance/submission of complaints to the BDF," which is known by **30%** of respondents, with 23% being aware of such an opportunity. The majority of agricultural producers acquire information on credit programs, including the 5-7-9 loan program, by receiving a call from a bank representative, which is considered the most effective method. This is the case for **52%** of loan receivers and nearly **70%** of non-receivers. Given the efficacy of this information mechanism, it may be necessary to highlight that, for any concerns regarding the acquisition of a 5-7-9 loan or for further information, relevant managers can be contacted, or the banks' hotline can be reached.

Based on the analysis and conclusions above, recommendations for improving 5-7-9 ES performance could be:

- Credit receivers are stricter to the technical requirements when dealing with dangerous substances including storage and disposal;
- Develop educational programs to inform farmers of the benefits of complying with national legislation and following best practices in the use of fertilizers and chemicals. Provide guidance on proper and environmental disposal of post-harvest residue, hazard residuals. All of these educational programs/guidelines can be mailed to 5-7-9 loan recipients by the World Bank (contact information for recipients can be obtained from all banks offering 5-7-9 loans);
- Develop and provide information to agricultural producers on the importance of biodiversity monitoring and how to support biodiversity using best practices in modern agriculture;
- The survey reveals instances where the use of chemical treatments on fields has adversely impacted the health and safety of the public and

laborers. To address this issue, it is necessary to provide guidance on the standards and regulations that must be followed when applying fertilizers. Such guidelines can be found on the website of the Ministry of Agrarian Policy and Food of Ukraine. Additionally, it is recommended to collaborate with communities and conduct online training sessions to keep them informed;

- Improve awareness among agricultural producers of the mechanisms for considering complaints and suggestions;
- Promote proactive communication from program managers to farmers, providing information about the 5-7-9 Credit Program and addressing any concerns or questions;
- Work with banks on the package of documents they require from an agricultural producer applying for the 5-7-9 Affordable Loans Program. The service provider bank will need to indicate which list of documents relates to the requirements of the 5-7-9 loan program and which documents it needs based on its own requirements for a clearer understanding of credit history, financial capacity, etc. **This is intended to improve communication between agricultural producers and banking institutions and reduce confusion about non-compliance with the "package of documents" required by different banks.**

Farm survey questionnaire for the ESA

In Ukrainian (survey language)

1 блок. Загальна характеристика

- 1) Яку кількість землі Ви маєте в своєму розпорядженні, га? (написати приблизне значення)
- 2) В якому регіоні вирощуються культури? (вказати, наприклад Полтавська область)
- 3) Чи є Ви виробником органічної продукції*? (так - ні - не хочу відповідати)

*Органічна продукція - продукція вирощена без використання синтетичних хімікатів, таких як штучні пестициди та добрива, і не містить генетично модифікованих організмів (ГМО).

- 4) Вкажіть основні культури, які Ви вирощуєте за середньою часткою в сівозміні. Перерахуйте лише ті культури, які складають хоча б 5% від загального об'єму (в порядку зниження, скільки %)

- пшениця озима

відсоток %: _____

- ячмінь ярий

відсоток %: _____

- ячмінь озимий

відсоток %: _____

- кукурудза

відсоток %: _____

- соняшник

відсоток %: _____

- ріпак озимий

відсоток %: _____

- соя

відсоток %: _____

- горох

відсоток %: _____

- цукровий буряк

відсоток %: _____

- інше (вказати)

відсоток %: _____

- 5) Як структура сівозміни 2023 року змінилась відносно традиційної структури минулих літ. Чому? (свій варіант або “не хочу відповідати”)
- 6) Яку частину з виробництва культур Ви експортуєте, а яку реалізуєте на внутрішньому ринку? (% на експорт, % всередині країни)
- 7) Чи є у Вас землі, які були переведені в 2022 році в сільськогосподарські землі з інших категорій? (так - ні - не хочу відповідати)
- 8) Якщо “так”, то скільки таких земель? (свій варіант в га, “не знаю” або “не хочу відповідати”)
- 9) Яке цільове призначення ці землі мали до передачі в сільськогосподарське використання? (свій варіант, “не знаю” або “не хочу відповідати”)
- 10) Чи проводяться у Вашій організації заходи з охорони праці? (так - ні)
- 11) Якщо “так”, які саме? (свій варіант, “не знаю” або “не хочу відповідати”)
- 12) Чи доводилось Вам брати участь у судових спорах щодо прав користування землею? (так - ні - “не хочу відповідати”)
- 13) Якщо “так”, як на Вашу думку можна покращити систему щоб подібних спорів не виникало? (свій варіант або “не хочу відповідати”)
- 14) Як би Ви вчинили, якби знайшли знахідку культурної спадщини на своїй землі? (свій варіант або “не хочу відповідати”)
- 15) Якщо визначити біорізноманіття поля як “різноманітність усіх видів живих організмів”, як на Вашу думку впливає вирощування сільськогосподарських культур на біорізноманіття цього поля? (свій варіант, “не знаю” або “не хочу відповідати”)
- 16) Чи намагаєтесь Ви якимось чином підтримувати біорізноманіття? (так - ні - “не знаю” або “не хочу відповідати”)
- 17) Якщо “так”, як саме? (свій варіант, “не хочу відповідати”)
- 18) Чи відомі Вам випадки розорення боліт в Вашому регіоні внаслідок людської діяльності (осушення боліт, видобуток торфу, неякісної меліорації)? (так - ні - “не хочу відповідати”)
- 19) Чи відомі Вам випадки несанкціоновані землекористування (наприклад, самовільне використання санітарно-захисної зони навколо колодязів, повітряних ліній тощо)? (так - ні - “не знаю” - “не хочу відповідати”)

2 блок. Агрохімікати і добрива

- 20) Перед початком посівної, чи проводиться аналіз ґрунту? (так - ні)
- 21) Чи є агрохімічний паспорт полів? (так - ні - “не знаю” - “не хочу відповідати”)
- 22) Чи користуєтесь Ви технологічними картами, де розраховуєте потрібну кількість та строки внесення добрив та ЗЗР? (так - ні)
- 23) Хто їх розробляє?
- директор
 - агроном
 - технолог-консультант
 - свій варіант
- 24) Як часто ці технологічні карти змінюються або оновлюються?
- протягом року, в залежності від погодних та інших умов
 - раз в рік, в залежності від сівозміни
 - раз в декілька років
 - не змінюється взагалі
- 25) Під час обробки полів хімікатами та/або пестицидами, чи відомі Вам випадки з порушенням здоров'я і безпеки представників громадськості і робітників? (так - ні - “не хочу відповідати”)
- 26) Якщо “так”, що це були за випадки, при яких обставинах? (свій варіант - “не хочу відповідати”)
- 27) Чи існує процедура розгляду скарг, у випадку виникнення порушення здоров'я і безпеки (для робітників і місцевих жителів)? (так - ні - “не знаю” - “не хочу відповідати”)
- 28) Чи були зафіксовані випадки перевищення хімічних речовин у вирощеній продукції (перевищення значення лабораторних тестів)? (так - ні - “не хочу відповідати”)
- 29) Якщо “так”, якими органами ці перевищення хімічних речовин були зафіксовані?
- споживачі
 - органи влади
 - свій варіант
- 30) Чи були зафіксовані проблеми стосовно якості вирощеної продукції? (під час аналізу товару перед експортом або аналіз овочів) (так - ні - “не хочу відповідати”)
- 31) Якщо “так”, якими органами це було зафіксовано?
- споживачі
 - органи влади
 - свій варіант

- 32) З чим це було пов'язано? (свій варіант або “не хочу відповідати”)
- 33) Яким чином це було вирішено? (свій варіант або перелік)
- завершенні або поточні юридичні розгляди
 - частина врожаю або весь врожай було викинуто
 - було зерно продовольче/на експорт, а стало фуражне
 - свій варіант
- 34) Чи спостерігались проблеми з ерозією ґрунтів? (так - ні-”не хочу відповідати”)
- *Ерозія ґрунтів, це процес руйнування найродючішого шару ґрунту через природні чи антропогенні впливи.*
- 35) Якщо “так”, вкажіть приблизний відсоток еродованих земель? (вказати % від загальної кількості або “не знаю”)
- 36) Який з наступних методів боротьби з ерозією ґрунтів Ви застосовуєте? (вибрати один або декілька варіантів із запропонованих)
- Використання крапельного зрошення, як одного з методів поливу;
 - Будівництво та обслуговування дренажних систем на полях;
 - Насадження дерев або кущів вздовж поля;
 - Використання спеціальної техніки (сівалки для сівби без руйнування покриву);
 - Робота з рослинними рештками (вкривання верхнього шару ґрунту рослинними рештками);
 - Буферні смуги;
 - Інше (вказіть свій варіант) _____;
 - Нічого з вищеперерахованого.
- 37) Які водні джерела доступні Вам в регіоні? (свердловина, річка, ставок, болото, трубопровід/локальна мережа)
- 38) Яким чином Ви обираєте постачальників міңдобрив та пестицидів, Ви звертаєте увагу на ціну та об'єм передплати чи на безпечність міңдобрив та хімікатів? (свій варіант відповіді, або “ціна” або “безпечність при використанні”)
- 39) Які мінеральні добрива та пестициди Ви використовуєте (перелічити назви хімікатів які використовують, або назви фірм, або клас небезпеки зазначений на упаковці, або варіант “не хочу відповідати”)
- 40) Які з нижче наведених правил Ви використовуєте під час внесення агрохімікатів? (може бути декілька варіантів)
- дотримання санітарно-захисної зони;

- завчасне інформування місцевих жителів, не менше ніж за 2 доби до обробітку, встановлення табличок з орієнтовним часом закінчення обробітку;
 - оповіщення пасічників про необхідність вивезення пасік до іншого місця медозбору, на безпечну відстань від місця проведення обробки;
 - попередити про заборону проведення сільськогосподарських робіт та випасання худоби на відстані ближче 1 км від місця обробки;
 - проводити обробіток в ранкові (до 10) і вечірні (18-22) години при мінімальних висхідних повітряних потоках.
- 41) Яким чином відбувається зберігання хімікатів, агрохімікатів та добрив? (свій варіант або “не хочу відповідати”)
- 42) Яким чином відбувається утилізація тари та застарілих залишків агрохімікатів та пестицидів? (пояснити або “не хочу відповідати”)
- 43) Чи вважаєте Ви що процедура доступу до екологічно чистої утилізації тари та застарілих агрохімікатів має бути спрощена або покращена? (так - ні - “не хочу відповідати”)
- 44) Якщо “так”, вкажіть Вашу пропозицію? (свій варіант)
- 45) Яким чином відбувається утилізація залишків після збирання врожаю? (свій варіант або “не хочу відповідати”)
- 46) Якби була можливість виходу на ринки збуту ЄС, але для цього потрібно було б запровадити зміни до порядку вирощування культур (використання більш безпечних добрив та агрохімікатів, проведення аудиту ґрунтів і тд), чи були б Ви зацікавлені в такій зміні? (так - ні - “не хочу відповідати”)
- 47) Чи обраховували Ви карбоновий слід при вирощенні своєї продукції? (так - ні - “не хочу відповідати”)
- 48) Чи ведеться у Вашій організації документальний облік використання води, теплової та електричної електроенергії в господарстві? (так - ні - “не хочу відповідати”)

3 блок. Кредитна програма 5-7-9

- 49) Чи знаєте Ви про програму кредитування “5-7-9”? (так - ні)
- 50) Якщо так, звідки Ви дізналися про програму? Можливо декілька відповідей.
- а) знайомі/близькі/партнери по бізнесу
 - б) через голову сільради/ОТГ?

- в) ЗМІ (телебачення, газети, радіо тощо)
- г) через соціальні мережі (Вкажіть які _____)
- д) сповіщення на електронну адресу
- е) дзвінок представника Банку
- є) через групові зустрічі в моєму населеному пункті
- ж) Інше (Вкажіть свій

варіант _____)

- 51) Як би було зручніше особисто для Вас отримувати інформацію пов'язану із кредитними програмами? (Свій варіант)
- 52) Чи подавались Ви на таку програму? (так - ні)
- 53) Чи отримували Ви кредит за програмою 5-7-9 в 2023 році? (так - ні)
- 54) Якщо "так" на які цілі Ви витрачали кредитні кошти? (перелічити)
 - а) обігові кошти (міндобрива, насіння, паливо, заробітна платня)
 - б) розмінування
 - в) основні засоби
 - г) купівля землі
 - д) інше (вказати свій варіант)
- 55) З якими проблемами Ви стикались під час подачі заявки на участь в програмі (перелічити)
 - а) не приймали заявку
 - б) консультанти банку не знали про цей кредит
 - с) пропонували кредитну ставку як при звичайному кредиті
 - д) відмовлялись приймати як заставу землю/майбутній врожай/техніку
 - е) свій варіант
- 56) В разі виникнення проблем із отриманням кредиту по програмі 5-7-9%, куди Ви звертались по допомогу? (свій варіант)
- 57) Чи відомо Вам про можливість та механізм подання скарг щодо процесу отримання кредиту по програмі 5-7-9%? (так - ні - не знаю)
- 58) Чи відомо Вам про можливість отримати консультацію щодо умов кредитної програми, а також залишити скаргу чи побажання за телефоном 15-45 call-центру Уряду? (так - ні - не знаю)
- 59) Чи відомо Вам про можливість подати скаргу на гарячу лінію, або електронну адресу Мінекономіки/Мінфіну? (так - ні)
- 60) Чи відомо Вам про Фонд розвитку підприємства? (так - ні)

- 61) Якщо так, чи відомо Вам про можливість громадянам/бізнесу звернутись за допомогою до Фонду розвитку підприємства? (так - ні - не знаю)
- 62) Чи подавали Ви скаргу щодо процесу отримання кредиту по програмі 5-7-9%? (зазначте будь ласка через який канал була подана скарга)_____ -ні - "не хочу відповідати")
- 63) Якщо так, яким був результат та реакція на подану Вами скаргу? (свій варіант)
- 64) Чи є у Вас пропозиція щодо вдосконалення програми "5-7-9"? (свій варіант)

In English (translation for this report)

1 block. General characteristics

- 1) How much land do you have at your disposal, ha? (write approximate value)
- 2) In which region are the crops grown? (specify, for example, Poltava region)
- 3) Are you a producer of organic products*? (yes - no – “refuse to answer”)

*Organic produce - produce grown without the use of synthetic chemicals, such as artificial pesticides and fertilizers, and does not contain genetically modified organisms (GMOs).

- 4) Specify the main crops that you grow according to the average share in the crop structure. List only those crops that make up at least 5% of the total acreage (in descending order, how much %)

winter wheat

:%:_____

spring barley

:%:_____

winter barley

:%:_____

corn

:%:_____

sunflower

:%:_____

winter rapeseed

:%:_____

soy

:%:_____

peas

:%:_____

sugar beet

:%:_____

other (specify)

?:_____

- 5) How did the crop rotation structure in 2023 change relative to the traditional structure of previous years. Why? (own answer or "I don't want to answer")
- 6) What part of crop production do you export, and what part do you sell on the domestic market? (% for export, % within the country)
- 7) Do you have land that was transferred to agricultural land from other categories in 2022? (yes - no – “refuse to answer”)
- 8) If yes, what is the acreage? (in ha, "I don't know" or "refuse to answer")
- 9) What purpose did these lands have before they were transferred to agricultural use? (your option, "I don't know" or "refuse to answer")
- 10) Does your organization carry out occupational health and safety measures? (yes – no)
- 11) If yes, which ones? (your option, "I don't know" or "refuse to answer")
- 12) Did you ever participate in legal disputes regarding your land use rights? (yes - no - "refuse to answer ")
- 13) If yes, how do you think the system can be improved so that such disputes do not arise? (your option or "refuse to answer ")
- 14) What would you do if you found a cultural heritage on your land? (your option or "refuse to answer ")
- 15) If we define the biodiversity of a field as "the diversity of all types of living organisms", how do you think the cultivation of agricultural crops affects the biodiversity of this field? (own answer, "I don't know" or "refuse to answer ")
- 16) Do you try to support biodiversity in any way? (yes - no - "I don't know" or "refuse to answer ")
- 17) If “yes”, how exactly? (own answer, "refuse to answer ")
- 18) Are you aware of cases of swamp destruction in your region as a result of human activity (drainage of swamps, peat extraction, low-quality land reclamation)? (yes - no - "refuse to answer ")
- 19) Are you aware of cases of unauthorized land use (for example, arbitrary use of the sanitary protection zone around wells, air lines, etc.)? (yes - no - "I don't know" - "refuse to answer ")

2 block. Agrochemicals and fertilizers

- 20) Before sowing, is the soil analyzed? (yes - no)
- 21) Do you have an agrochemical passport of the fields? (yes - no - "I don't know" - "refuse to answer")
- 22) Do you use technological maps, where you calculate the required amount and terms of application of fertilizers and pesticides? (yes - no)

- 23) Who develops them?
- director
 - agronomist
 - technologist-consultant
 - your own option
- 24) How often are these technology maps changed or updated?
- throughout the year, depending on weather and other conditions
 - once a year, depending on crop rotation
 - once every few years
 - does not change at all
- 25) During the treatment of fields with chemicals and/or pesticides, do you know of any cases of violation of the health and safety of members of the public and workers? (yes - no - "I don't want to answer")
- 26) If "yes", what were the cases and under what circumstances? (own option or "I don't want to answer")
- 27) Is there a grievance procedure in the case of health and safety violations (for workers and local residents)? (yes - no - "I don't know" - "refuse to answer")
- 28) Were there any cases of excess of chemical substances in the grown products (exceeding the value of laboratory tests)? (yes - no - "refuse to answer")
- 29) If "yes", by whom were these excesses of chemical substances recorded?
- consumers
 - authorities
 - your own option
- 30) Were there any problems with the quality of the grown products? (during product analysis before export) (yes - no - "refuse to answer")
- 31) If "yes", by which authorities it was recorded?
- consumers
 - authorities
 - your own option
- 32) What was it connected with? (your option or "refuse to answer")
- 33) How was this resolved? (own option or one of the list)
- completed or ongoing legal proceedings
 - part or all of the crop was thrown away
 - your own option

- 34) Were there any problems with soil erosion? (yes - no - "refuse to answer ")
- *Soil erosion is the process of destruction of the most fertile soil layer due to natural or anthropogenic influences.
- 35) If yes, indicate the approximate percentage of eroded land? (indicate % of the total amount or "don't know")
- 36) Which of the following methods of combating soil erosion do you use? (choose one or more options from the options offered)
- a. Use of drip irrigation as one of the irrigation methods;
 - b. Construction and maintenance of drainage systems in the fields;
 - c. Planting of trees or bushes along the field;
 - d. Use of special equipment (planters for sowing without destroying the cover);
 - e. Work with plant remains (covering the top layer of the soil with plant remains);
 - f. Buffer strips;
 - g. Other (indicate your option) _____;
 - h. None of the above.
- 37) What water sources are available to you in the region? (For example, well, river, pond, swamp, pipeline/local network)
- 38) How do you choose suppliers of fertilizers and pesticides? Do you pay attention to the price and volume of prepayment or the safety of fertilizers and chemicals? (your answer or, either "price" or "safety during use")
- 39) What mineral fertilizers and pesticides do you use? (list the names of the chemicals that are used, or the names of the companies, or the hazard class indicated on the package, or the option "refuse to answer")
- 40) Which of the following rules do you use when applying agrochemicals? (choose among options, there may be several options):
- a. compliance with the sanitary protection zone;
 - b. informing local residents in advance, at least 2 days before processing, installing signs with the estimated time of the end of processing;
 - c. notification of beekeepers about the need to take beehives to another place of honey collection, at a safe distance from the place of processing;
 - d. to warn about the ban on carrying out agricultural work and livestock grazing at a distance closer than 1 km from the place of processing;

- e. carry out processing in the morning (before 10) and evening (18-22) hours with minimal upward air currents.
- 41) How are chemicals, agrochemicals and fertilizers stored? (own answer or "I don't want to answer")
- 42) How are containers and obsolete residues of agrochemicals and pesticides disposed? (explain or "don't want to answer")
- 43) Do you think that the procedure for access to environmentally friendly disposal of containers and obsolete agrochemicals should be simplified or improved? (yes - no - "refuse to answer")
- 44) If "yes", indicate how? (own answer)
- 45) How are residues disposed of after harvesting? (own answer or "refuse to answer")
- 46) If it were possible to enter the EU sales markets, but for this it would be necessary to introduce changes to the approach in cultivation of crops (use of safer fertilizers and agrochemicals, soil audit, etc.), would you be interested in such a change? (yes - no - "I don't want to answer")
- 47) Do you calculate the carbon footprint when growing your products? (yes - no - "I don't want to answer")
- 48) Does your organization keep documentary records of the use of water, heating and electric power in the household? (yes - no - "I don't want to answer")

3 block. Loan program 5-7-9

- 49) Do you know about the "5-7-9" lending program? (yes - no)
- 50) If so, how did you learn about the program? (Several answers are possible)
 - a. acquaintances/relatives/business partners
 - b. through the head of the village council/OTG?
 - c. mass media (television, newspapers, radio, etc.)
 - d. through social networks (Specify which _____)
 - e. notification to an e-mail address
 - f. a call from a Bank representative
 - g. through group meetings in my locality
 - h. other (Indicate your option _____)
- 51) How would it be more convenient for you personally to receive information related to credit programs? (own answer)
- 52) Have you applied for such a program? (yes - no)

- 53) Did you receive a loan under the 5-7-9 program in 2022? (yes - no)
- 54) If "yes", for what purposes did you spend loan funds? (choose one or several answers among the list)
- working capital (fertilizers, seeds, fuel, wages)
 - demining
 - fixed assets
 - purchase of land
 - other (indicate your option)
- 55) What problems did you encounter when applying for participation in the program (list)
- did not accept the application
 - bank consultants did not know about this loan
 - offered a loan rate as for a regular loan refused to accept land/future harvest/equipment as collateral
 - your option
- 56) In case of problems with obtaining a loan under the 5-7-9% program, where did you turn for help? (own answer)
- 57) Do you know the possibility and mechanism of filing complaints regarding obtaining a loan under the 5-7-9% program? (yes - no – "I don't know")
- 58) Do you know about the possibility of getting advice on the conditions of the credit program and leaving a complaint or wish by phone at 15-45 of the government's call center? (yes - no – "I don't know")
- 59) Do you know about the possibility of submitting a complaint to the hotline or e-mail address of the Ministry of Economy/Ministry of Finance? (yes – no)
- 60) Do you know about the Business Development Fund? (yes - no)
- 61) If so, do you know about the possibility for citizens/businesses to seek help/file a complaint with the Business Development Fund? (yes - no – "I don't know")
- 62) Have you filed a complaint regarding obtaining a loan under the 5-7-9% program? (please indicate through which channel the complaint was submitted)_____ - no - "refuse to answer")
- 63) If so, what was the outcome and response to your complaint? (own answer)

64) Do you have a suggestion for improving the "5-7-9" program?
(own answer)