

STUDIES ON THE IMPACT OF AGRO-ENVIRONMENTAL AND CLIMATE MEASURES IN MEHEDINTI COUNTY

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Abstract

Agro-environment represents an important point on the agenda of the European Union, with significant funds being allocated to support activities that involve environmental protection. The main pawns in carrying out the environmental policies are the farmers, in their capacity as beneficiaries of these aids, which is why all the levers that can be used to guide them, to motivate them so that there is a satisfaction and a mutual balance between ensuring sufficient compensations to make them access the measures aimed at protecting the environment and the effects of their actions, in this case, a better management of natural resources.

This article aims to highlight the impact of agri-environment and climate measures, in Mehedinti county, by using quantitative and qualitative research methods: questionnaire and interview, aimed at showing the degree of information of farmers, the motivation of applying these measures, as well as whether the purpose of these measures was touched. Of the 43 farmers surveyed, 60.5% were motivated by the financial compensation, 75.4% saw these measures as an opportunity to bring more value to the farm, and 67.4% considered that the purpose of these measures is to help to preserve the environment and the transition to a sustainable agriculture.

Key words: *climate change, agro-environment, sustainable agriculture, questionnaire, interview*

INTRODUCTION

Agri-environment and climate payments represent a key element necessary for the integration of environmental protection issues into the Common Agricultural Policy. In Romania, this measure aims to encourage farmers (users of agricultural land) to adopt, on a voluntary basis, agricultural practices that ensure the maintenance of the environmental value of rural areas, the maintenance of specific habitats of agricultural land important for priority wild species, the sustainable use of natural resources and the preservation of traditional landscapes (Lungu, Uliu, and Vladu, 2022b). Many practices used in

organic agriculture (for example, incorporation of plant residues into the soil, use of green crops and crop rotation, the ability of vegetables and legumes to fix nitrogen in the soil), increase the return of carbon to the soil, increase productivity and promote carbon storage. Organic agriculture is a dynamic sector in Romania that has seen an upward evolution in recent years. Through the study carried out, we aimed to highlight the evolution of agriculture in an ecological system with the help of compensatory payments granted by the European Union, in the South - West Oltenia Region of Romania, in the period 2019 - 2021. It was found that the surface

of 18,420 hectares in 2019 increased to 36,241 hectares in 2021, and until 2024 it is expected that the trend of the area cultivated in the ecological system also to grow (Lungu, Uliu, and Vladu, 2022a). Organic agriculture is considered an important component of sustainable development because it promotes environmental sustainability and social responsibility, involving the use of practices that minimize the negative impact of agriculture on the environment and human health (Pânzaru et al., 2023). Farmers' awareness and involvement is essential in the environment protection activity and the contribution that this activity can bring in the fight against climate change (Tom, a 2015). Agro-environmental measures promoted by the European Union focus mainly on environmental protection by maintaining sustainable levels of productivity that are adequate to the agro-ecological conditions of each region on different Member States (Nunes et al., 2017). The agrarian policy of the European Union tends to support sustainable agriculture, subsidising only cropping systems that are implemented with specific agro-environmental measures. These actions require a precise follow-up of the crops and of the agricultural practices over a large surface (Peña-Barragán et al., 2008), (Stoicea et al., 2023).

The main pawns in carrying out the environmental policies are the farmers, in their capacity as beneficiaries of these aids, which is why all the levers that can be used to guide them, to motivate them so that there is a satisfaction and a mutual balance between ensuring sufficient compensations to make them access the measures aimed at protecting the environment and the effects of their actions, in this case, a better management of natural resources (Popescu and Pop, 2013).

The payments granted to farmers who voluntarily access the agri-environmental measures are aimed at compensating the income losses resulting

from the application of extensive management measures on agricultural land, aimed at achieving environmental conservation objectives (Micu et al., 2022), (POPESCU et al., 2023).

MATERIALS AND METHODS

The purpose of this work is to evaluate the degree of impact of agri-environment and climate measures, asking questions with multiple answers through a questionnaire using the Google Forms method, to a number of 43 farmers from Mehedinti county, in the interval 21.07.2022 - 25.07.2022 . The questions were about the size and profile of the farms, the degree of information regarding environmental and climate measures, the motivation for applying these measures, and whether these measures have achieved their goal.

Also, all payment requests were analyzed regarding the number of beneficiaries, the related areas, as well as their payment value. A detailed analysis was carried out on the specific measures M10 – Agro-environment and Climate, M11 – Ecological Agriculture and M13 – Payments for areas facing natural constraints or other specific constraints, and the data were processed according to methods specific to the research theme.

RESULTS AND DISCUSSIONS

Agri-environment payments are necessary to support the sustainable development of rural areas and to meet society's increasing demand for environmental services. The payments granted by this measure must encourage farmers to serve society as a whole by introducing or continuing the application of agricultural methods compatible with the protection and improvement of the environment, the landscape and its characteristics, natural resources, the soil, as well as with the maintenance of genetic diversity.

Table 1. Interview questions addressed to farmers

Crt. No.	Content question	Possible answers
1	You own a farm classified according to Law 37/2015 in the category?	For subsistence
		Semi-subsistence
		Classified
		Medium
		Big
2	What is the profile of your farm?	Plant
		Animal
		Mixed
3	What is the measure of environment and climate about which you have the most information?	M10- Agro-environment and climate
		M11- Ecological agriculture
		M13- Payments for areas facing natural constraints or other specific constraints
4	Specify which of the measures you voluntarily opted for?	M10- Agro-environment and climate
		M11- Ecological agriculture
		M13- Payments for areas facing natural constraints or other specific constraints
5	What was the motivation for which you applied for the Agro-Environmental measures?	Financial compensation
		Additional points in the case of projects financed from EAFRD
		Recommendation of other farmers
6	Are the financial compensations received sufficient compared to the commitments assumed?	Largely
		The ratio is almost equal
		To a small extent
7	You perceive the application to the "Environmental and climate measures financed from PNDR 2014-2020" as:	Opportunity to add value to the farm
		Coercion for the fulfillment of assumed commitments
		I did not notice any influence
8	Consider that the "Environmental and climate measures from PNDR 2014-2020" contribute to:	Environmental conservation and the transition to a sustainable agriculture
		Reducing climate change
		Maintaining biodiversity
		Avoiding land isolation and abandonment

To question number 1 (Table 1 and Figure 1) the answers of the farmers regarding the category of farms, the answers were in the highest weight, with a percentage of 39.5% of those with a small size (8000 - 11999 SO), on in second place with a percentage of 23.3% are medium-sized farms (12,000 - 25,000 SO), and in third place are large-sized farms (over 2,500,000 SO) with 16.3%, and the rest of the percentages belongs to subsistence and semi-subsistence farms.

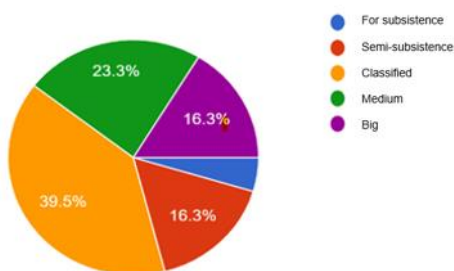


Figure 1. Question 1: You own a farm classified according to Law 37/2015 in the category?

Regarding the answers to question number 2 (Table 1 and Figure 2), regarding the profile of the farm, 76.7% were farms with a vegetable profile, and livestock farms had a representation of 18.6%.

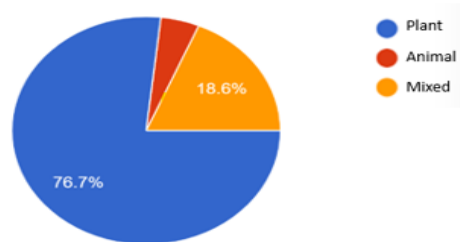


Figure 2. Question 2: What is the profile of your farm?

Question 3 (Table 1 and Figure 3) regarding the degree of information on these environmental and climate measures, the most information was for M10 – Agroenvironment and Climate (61.9%), in second place was for M13 – Payments for areas facing natural or other specific constraints (26.2%), and in last place is M11 – Ecological Agriculture (11.9%).

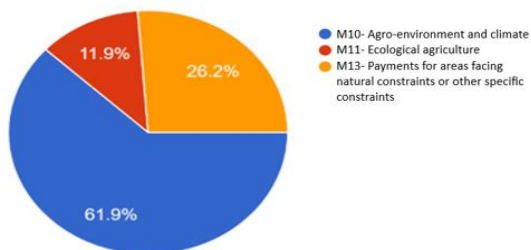


Figure 3. Question 3: What is the measure of environment and climate about which you have the most information?

The answers to question 4, regarding the participants' interest in joining voluntarily, it was found that 51.2% of the farmers opted for M10 - Agroenvironment and Climate, 37.2% of the farmers opted for M13 - Payments for areas that face natural constraints or other specific constraints, and only 11.6% opted for M11 – Ecological Agriculture (Table 1 and Figure 4).

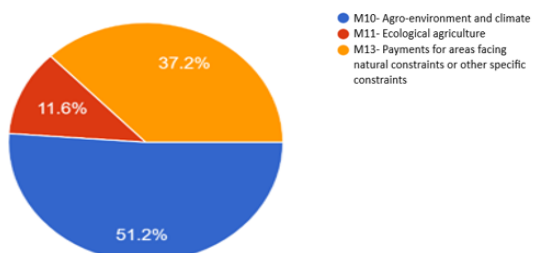


Figure 4. Question 4: Specify which of the measures you voluntarily opted for?

The results of question 5 regarding the motivation for applying Agro-Environmental measures (Table 1 and Figure 5), were 60.5% for financial compensation, 23.3% for the recommendation of other farmers, and 16.3% of the surveyed farmers have were motivated for the additional scores financed by FEADR.



Figure 5. Question 5: What was the motivation for which you applied for the Agro-Environmental measures?

The degree of satisfaction from the financial point of view of the applicants

with these measures was questioned in question 6 (Table 1 and Figure 6), where 50% consider that the effort made to comply with the specific conditions imposed in the sheet of measures accessed is proportional to the sums of money collected as compensation. A percentage of 35.7% consider themselves unsatisfied with the amounts received, and 14.3% are largely satisfied.

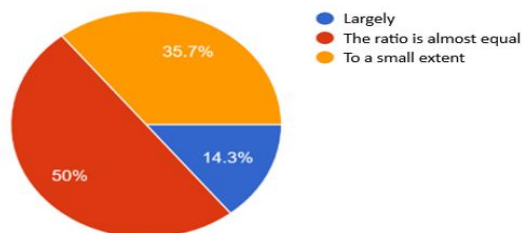


Figure 6. Question 6: Are the financial compensations received sufficient compared to the commitments assumed?

The general perception resulting from the participants' answers to question 7, is that they viewed accessing these measures as an opportunity to help them increase the efficiency and value of the farm they own, 74.4% of those questioned felt this opportunity, but there were also farmers for whom the support received had no influence on the development of the farm, the difference up to the percentage of 100%, respectively 4.7% is represented by those who felt constrained by the commitments assumed (Table 1 and Figure 7).

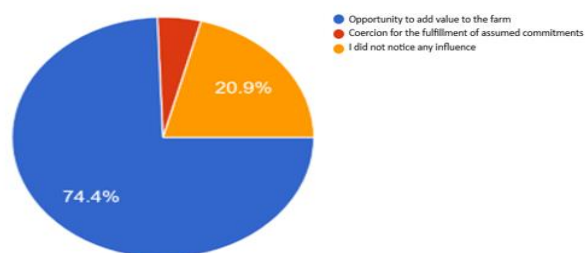


Figure 7. Question 7: You perceive the application to the "Environmental and climate measures financed from PNDR 2014-2020" as? The last question regarding the final goal for agro-environmental measures, the answers demonstrate the farmers' interest in environmental conservation and long-term care regarding land exploitation. Thus, 67.4% of the respondents consider that their actions

help to preserve the environment and ensure a sustainable agriculture. A percentage of 14% want to ensure the avoidance of the abandonment of agricultural lands and consider that accessing these measures contributes to maintaining the interest of farmers to work the lands, to harvest them so that the benefits are felt, 11.6% of those who responded to this questionnaire say that they considered that their actions in the works they carry out help to reduce climate change, and for maintaining

biodiversity they opted for a percentage of 7% (Table 1 and Figure 8).

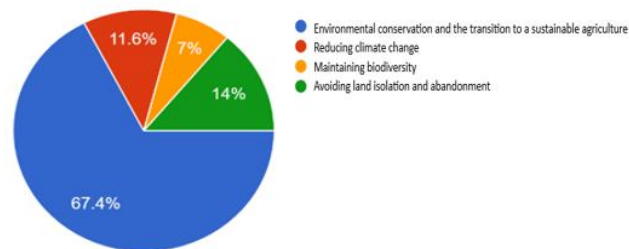


Figure 8. Question 8: Consider that the "Environmental and climate measures from PNDR 2014-2020" contribute to?

Table 2. Cultivated area related to Measure M10 – Agroenvironment and Climate

Year	County (ha)					Total Oltenia (ha)	No. beneficiary	Value (euro)
	Dolj	Gorj	Mehedinți	Olt	Vâlcea			
2019	2,666.28	21,678.43	3,754.08	2,394.84	8,832.85	39,311.29	2428	4,773,344.68
2020	2,053.64	21,166.69	3,936.2	2,989.06	9,347.63	39,490.44	2489	4,803,983.25
2021	1,537.34	22,713.61	4,030.94	3,677.26	10,682.51	42,639.66	2707	5,213,767.69
2022	2,087.84	23,180.72	4,739.12	4,156.43	11,499.58	45,663.69	2721	5,885,750.31
TOTAL								20,676,845.9

Table 3. Cultivated area related to Measure M11 – Organic Agriculture

Year	County (ha)					Total Oltenia (ha)	No. beneficiary	Value (euro)
	Dolj	Gorj	Mehedinți	Olt	Vâlcea			
2019	2,670.64	10,369.97	1,697.83	2,164.06	1,517.74	18,420	306	1,948,706
2020	4,564.05	11,759.05	2,281.96	3,837.75	3,263.11	25,706	455	3,100,914
2021	7,186.96	14,301.74	2,542.96	6,731.75	5,477.93	36,241	634	4,740,233
2022	8,831.48	15,043.90	2,503.68	9,148.45	6,119.67	41,646	712	6,141,032
TOTAL								15,930,885

Table 4. Cultivated area related to Measure M13 – Payments for areas facing natural or other specific constraints

Year	County (ha)					Total Oltenia (ha)	No. beneficiary	Value (euro)
	Dolj	Gorj	Mehedinți	Olt	Vâlcea			
2019	308,488.31	33,268.35	69,150.15	231,240.12	23,482.31	665,629	74,658	26,992,168
2020	309,131.47	32,307.11	70,464.59	234,680.86	23,553.46	670,137	73,454	25,762,823
2021	310,685.33	32,191.06	72,512.42	238,413.50	23,570.92	677,373	73,578	26,815,869
2022	313,030.73	32,348.78	74,561.68	241,308.68	23,874.87	685,124.74	64,459	27,123,522
TOTAL								106,694,382

Table 2 shows that the area declared with Measure 10 Agro-environment and Climate, increased from 39,311.29 ha (4,773,344.68 euros) in 2019, to the area of 45,663.69 ha (5,885,750.31 euros) in 2022. The number of applicants also increased from 2,428 in 2019 to 2,721 in 2022, with a total of 20,676,845.9 euros being paid between 2019 and 2022.

Table 3 shows that in the South - West Oltenia Region, during the analyzed period, 2019 - 2022, the declared area under Measure 11 - Ecological Agriculture increased, in 2019 the declared area was 18,420 hectares (1,948,706 euros), in 2020 the declared area increased to 25,706 hectares (3,100,914 euros), in 2021

36,241 hectares (4,740,233 euros) were declared, so that in 2022 41,646.18 hectares (6,141,032.17 euros) were registered. The number of beneficiaries increased starting from 306 in 2019 and reaching 712 in 2022, being paid a total amount of 15,930,885 euros.

Table 4 shows the cultivated area related to Measure M13 - Payments for areas facing natural constraints or other specific constraints, in the South - West Oltenia Region, in the analyzed interval 2019 - 2022, which increased. In 2019 the area was 665,629 ha (26,992,168 euros), in 2020 the area increased to 670,137 ha (25,762,823 euros), in 2021 the value of 677,373 ha (26,815,869 euros) is reached, so that in 2022 continue the upward trend and register a

requested area of 685,124.74 ha (27,123,522.24 euros). We note the fact that, compared to 2019 when there were a number of 74,658 applicants, in 2022 a smaller number of beneficiaries are

CONCLUSIONS

We realize that there is an increasing interest of farmers to move from traditional agricultural practices to an agriculture that must respect the environment, because the farmer is considered the manager of agriculture and must take into account not only the obtaining of production but also the use environmental conservation practices in order to be able to enjoy the fruits of the earth in the long term.

Of the 43 farmers surveyed, 60.5% were motivated by the financial compensation, 75.4% saw these measures as an opportunity to bring more value to the farm, and 67.4% considered that the purpose of these measures is to help to preserve the environment and the transition to a sustainable agriculture.

The area declared with Measure 10 Agro-environment and Climate, increased from 39,311.29 ha (4,773,344.68 euros) in 2019, to the area of 45,663.69 ha (5,885,750.31 euros) in 2022, also the number of applicants increased from 2428 applicants in 2019 to 2 721 applicants in 2022, being paid, in the period 2019 - 2022, the sum of 20,676,845.9 euros.

The area declared with Measure 11 - Ecological Agriculture, increased from 18,420 hectares (1,948,706 euros and 306 beneficiaries) in 2019, to 41,646.18 hectares (6,141,032.17 euros and 712 beneficiaries) in 2022, and in this interval an amount of total of 15,930,885 euros.

The cultivated area related to Measure M13 - Payments for areas facing natural constraints or other specific constraints, was in 2019, 665,629 ha (26,992,168 euros and 74,658 beneficiaries), and in 2022 it decreased to the requested area of 685,124.74 ha

registered in the APIA records, namely 64,459, which leads us to think of a merger of the lands, and the total payment made of was a total of 106,694,382 euros.

(27,123,522.24 euros and 64,459 applicants), and the total payment made in this interval had a total of 106,694,382 euros.

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