

THE APPLICABILITY OF FARMS IN ROMANIA REGARDING THE ECO-SCHEME “PD-04 ENVIRONMENTALLY BENEFICIAL PRACTICES APPLICABLE IN ARABLE LAND”

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Abstract

"European Green Architecture" refers to the implementation of sustainable agriculture that provides sufficient food and ecosystem services for both present and future generations. The conditions contained in eco-scheme PD-04 "Environmentally friendly practices for arable land" refer to the introduction of agricultural practices that have a positive impact on the environment and are aimed at farms with an area of more than 10.01 ha. The data was provided by the Agency for Payments and Interventions in Agriculture in Romania. The method of analysis was the comparative method, as well as the analysis of the structure of the cultivated and non-cultivated areas, the average for each county of Romania, the situation of the structure of the crops and the presence of nitrogen-fixing crops and protein crops, relevant indicators for the farms that applied for the PD-0 eco-scheme. The results of the analysis show that in 2023, the number of farms in Romania that have applied for the PD-04 eco-scheme is 46,608, with a total area of 5,789,746.35 ha, of which 2,934 were declared as uncultivated land, corresponding to 26,829.82 ha. According to the general agronomic rules, the crop rotation for field crops aims at an optimal crop structure as follows: 25% cereal straw, 25% maize, 25% legumes (soybeans, peas, beans, etc.) and sunflowers, 25% forage crops (alfalfa, clover, peas, etc.) necessary to increase soil fertilization. The paper presents the culture preferences of Romanian farmers in the year 2023, regarding the implementation of the eco-scheme PD-04 "Environmentally beneficial practices applicable to arable land".

Key words: eco-scheme, Romanian farms, crops, beneficial agricultural practices

INTRODUCTION

The environmental objectives proposed by the current “European green architecture” [4] under the CAP are based on different instruments, such as payments for disadvantaged areas which had a compensatory function and were intended to limit the abandonment of agricultural land [5]; agri-environment and climate measures (AECS). In the last programming period [11], there were cross-compliance measures as well as direct payments from the first pillar and rural development projects from the second pillar “in line with the EU's wider environmental and climate objectives” [3] because climate change has a negative impact on our planet [6].

As far as eco-schemes are concerned, their number varies from 3 to 21, depending on how each country chooses and the

implementation systems differ considerably: there may be several eco-schemes or mutually exclusive eco-schemes, or there may be a single measure with multiple requirements [13]. Eco-schemes can refer to permanent crops (which can be seen in Spain), afforestation (which can be seen in Ireland), pasture (which can be seen in Spain), livestock (which can be seen in Bulgaria or the Netherlands [8]) and more. The specifics of eco-schemes vary widely according to their primary objectives, such as conserving unproductive arable land, maintaining vegetation cover, or implementing water-saving irrigation systems [18]. However, the level of farmer enrolment in voluntary schemes and full adoption of organic practices “when compensation for such schemes does not fully compensate for lost income and costs incurred” is low [2]. However, the studies carried out in Romania highlighted that the

farmers, regardless of the size of their farms, cannot survive without subsidies, especially in years with difficult conditions [12,16,17], and the increase in profitability at the farm level is supported by optimal employment [14], especially in conditions of imbalances on the market of agricultural products [12].

The conditions outlined in the PD-04 eco-scheme “Environmentally Beneficial Practices Applicable to Arable Land” pertain to introducing agricultural practices that positively impact the environment on farms receiving this subsidy. These conditions encompass both general and mandatory requirements, as well as specific and optional ones [15].

The first mandatory condition involves setting aside uncultivated areas within farms, expressed as a percentage of the total arable land. Starting in 2024, non-productive elements (uncultivated land) must constitute 5% of the operational area. Non-productive elements (uncultivated land) will have to be allocated 5% of the existing area in operation, a measure that will be applied starting in 2024. Another measure within the eco-scheme concerns the introduction of protein crops at a rate of 10% of the area in 2023 and 5% in 2024. The protein crops that can be cultivated include soybeans, pea for consumption or forage pea, vetch, sainfoin, clover, phacelia, beans, cowpea, birdsfoot trefoil, chickpea, lupine, lentil, field beans, alfalfa, peanuts, the mixture of grain legumes and perennial grasses. Another mandatory condition is to maintain soil cover throughout the agricultural year, including the period from June 15 to October 15. This requires covering 85% of the surface with either crops, stubble left after harvesting, secondary crops, green cover crops, or newly established autumn crops after harvesting the main crop.

The eco-scheme “Environmentally Beneficial Practices Applicable to Arable Land” is intended for farms larger than 10.01 hectares, which can receive an annual payment for their arable land, provided they meet certain specific conditions in addition to the general ones mentioned above. One specific condition is crop diversification. Farms with areas between 10.01 and 30 hectares must cultivate

at least 2 different crops, with the main crop not exceeding 75% of the total area (the diversification period is from May to September). Farms larger than 30 hectares must diversify with at least 3 crops, with the main crop not exceeding 70% of the area and the other two combined not exceeding 85% of the area [8]. Among the specific conditions outlined, crops from various genera as defined in botanical classifications, along with crops from the *Brassicaceae*, *Solanaceae*, and *Cucurbitaceae* families, as well as fallow land or land cultivated with grasses or other herbaceous fodder, are considered main crops. Additionally, conservation agriculture practices must be applied to 50% of the arable surface. These practices include no-tillage, strip-tillage, or minimum tillage (no-minimum-strip tillage). No-tillage involves sowing without prior soil preparation, strip tillage entails sowing in prepared strips without intervening in the space between rows, and minimum tillage refers to sowing after superficial soil preparation without turning the furrow.

Furthermore, farms eligible for this subsidy have the option to plant 2 trees per hectare from a selection of species, including apple, peach, plum, cherry plum, apricot, cherry, sour cherry, quince, walnut, oak, elm, linden, hazel, acacia, honey locust, sycamore maple, maple, field maple, pine, little willow, chestnut, and others.

In this context, the purpose of the paper is to analyze the crop preferences of Romanian farmers in 2023, regarding the implementation of the PD-04 eco-scheme “Environmentally beneficial practices applicable to arable land”.

MATERIALS AND METHODS

The paper presents, based on the APIA payment requests for 2023, the situation of the farms that applied for this measure and the conditions selected by these to fulfill its legislative requirements.

The research includes a vast bibliographic and legislative base that completes the analysis carried out.

RESULTS AND DISCUSSIONS

The PD-04 eco-scheme “Environmentally beneficial practices applicable to arable land” has been implemented in Romania since 2023, as set out in the Regulation (EU) 2115/2021 [9].

This scheme covers an eligible area of 5,750,000 hectares of arable land in Romania, owned by farms of specified sizes engaged in semi-intensive or intensive conventional agriculture [1]. The main aim of the annual payment proposed under this eco-scheme is to partially compensate for the loss of income due to the additional costs associated with

meeting the general, mandatory, and specific conditions. Additionally, farmers seeking eligibility for the eco-scheme must fully adhere to the standards concerning good agricultural and environmental practices outlined in the Basic Income Support for Sustainability (BISS), respectively in the conditionality rules [10].

In 2023, according to the Payment Requests received by APIA, there were 46,608 farms [1] throughout the country that opted for the PD-04 eco-scheme “Environmentally beneficial practices applicable to arable land”. The number of farms that applied for the eco-scheme PD-4 is shown in Figure 1.

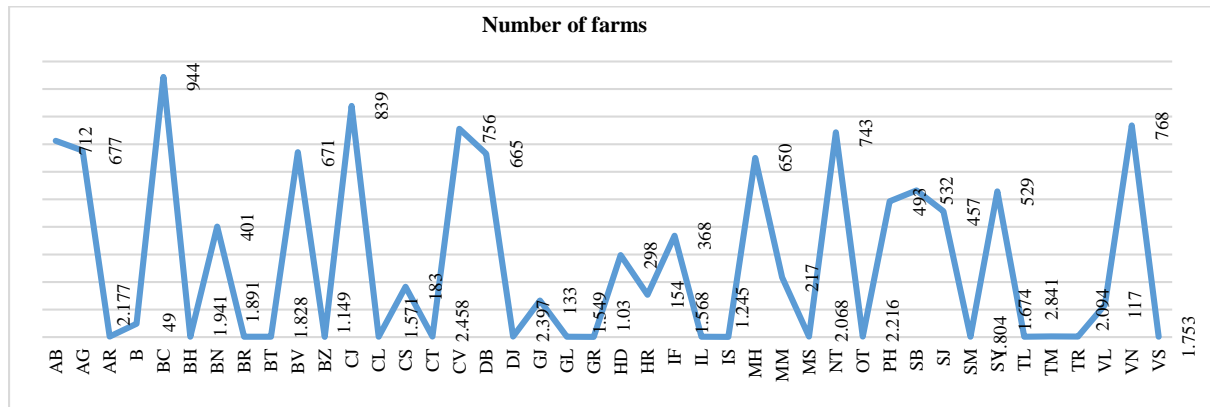


Fig. 1. Number of farms that applied for the eco-scheme PD-04 in the counties of Romania, Source: [1].

The country that requested support for the implementation of the aforementioned eco-scheme amounted had an area of 5,789,746.35 hectares. The specific arable land area for

which the granting of the subsidy was taken into account, for each county, is presented in Figure 2.

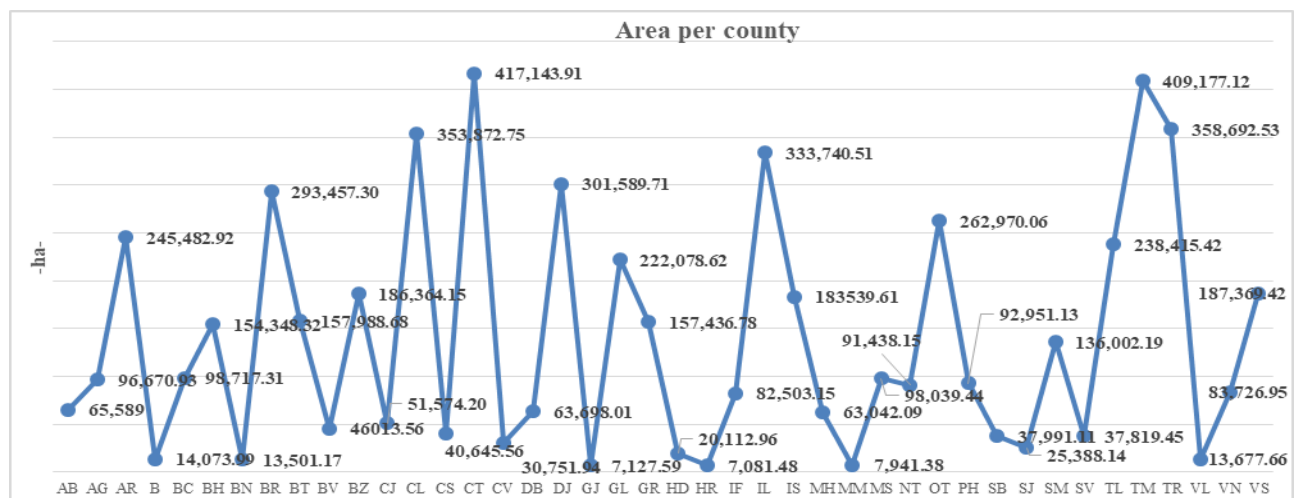


Fig. 2. Area per county under the eco-scheme, PD-04, Source: [1].

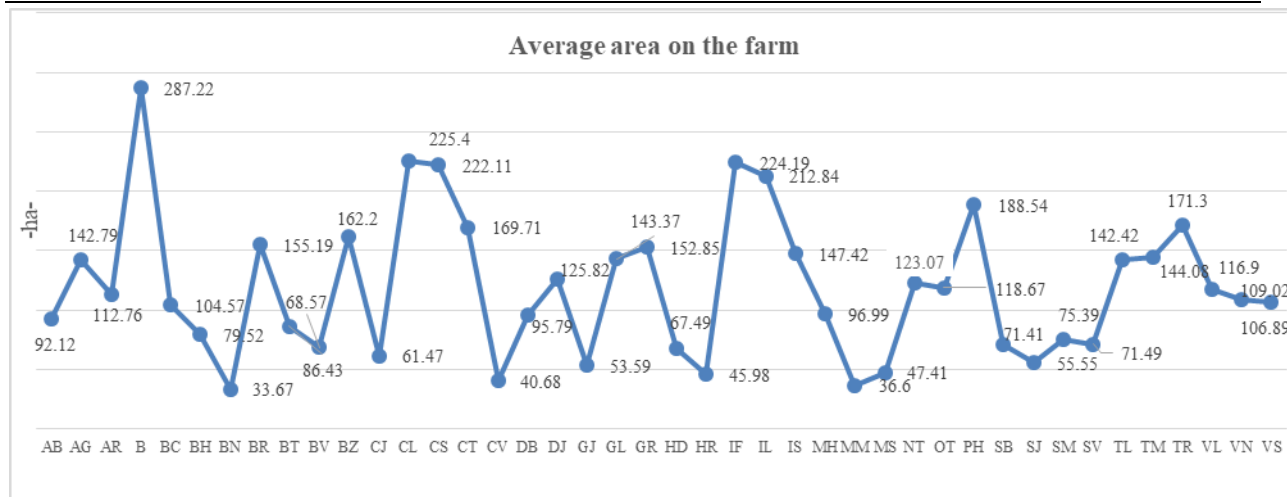


Fig. 3. Average area on the farm by county, Source: [1].

The analysis of the average area per farm in each county showed that it ranged between 33.67 ha and 287.22 ha.

The average area per farm under the eco-scheme PD-04 is presented in Fig. 3.

Under the derogation provided for in the Commission Implementing Regulation (EU) 2023/1317, farmers are required, in the application year 2023, to declare the areas of arable land allocated to non-productive elements, including areas of land left uncultivated. Areas of land left uncultivated can be used for crops intended for food production, such as cereals, legumes, oilseeds, and protein crops, except for maize and soybean crops for grains [1]. In Romania, 2,934 farms were declared uncultivated areas, representing 26,829.82 ha throughout Romania.

Farmers who access this eco-scheme are required to keep the arable land covered between 15 June and 15 October on at least 85% of the farm's arable area, with crops or stubble left after harvesting, secondary crops, green cover crops or newly established autumn crops, the time required for the preparation of the land and the establishment of the new crop is no more than two weeks, a period that will be entered in the records of agricultural works at the farm level [1].

In Figure 4, it is presented the number of farms with uncultivated area.

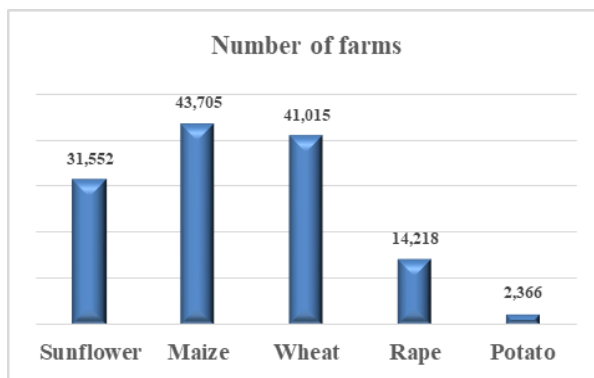


Fig. 4. Number of farms with uncultivated area declared by county, Source: [1].

Cereals are essential for human nutrition [7]. **Regarding the wheat crop**, the farmers chose: winter common wheat, spring common wheat, spelt, winter durum wheat, and spring durum wheat. There were 41,015 farms that had wheat in the crop plan, with a cultivated area of 1,558,146.06 ha (Fig. 5).

Maize was found in APIA payment requests from 43,707 farms, in the form of maize, silage maize, sweet maize, hybrid maize, semi-late variety, feed maize, hybrid maize, early variety, hybrid maize, semi-early variety. The total area with maize, which was mentioned by farmers countrywide was 1,266,096.33 ha (Fig. 5).

Rapeseed crops were included in the APIA payment requests submitted by 14,218 farms participating in the PD-04 eco-scheme. These requests encompassed autumn rapeseed, spring rapeseed, as well as rapeseed with

mustard, with farmers specifying a total area of 742,454.50 hectares for this crop (Fig. 5).

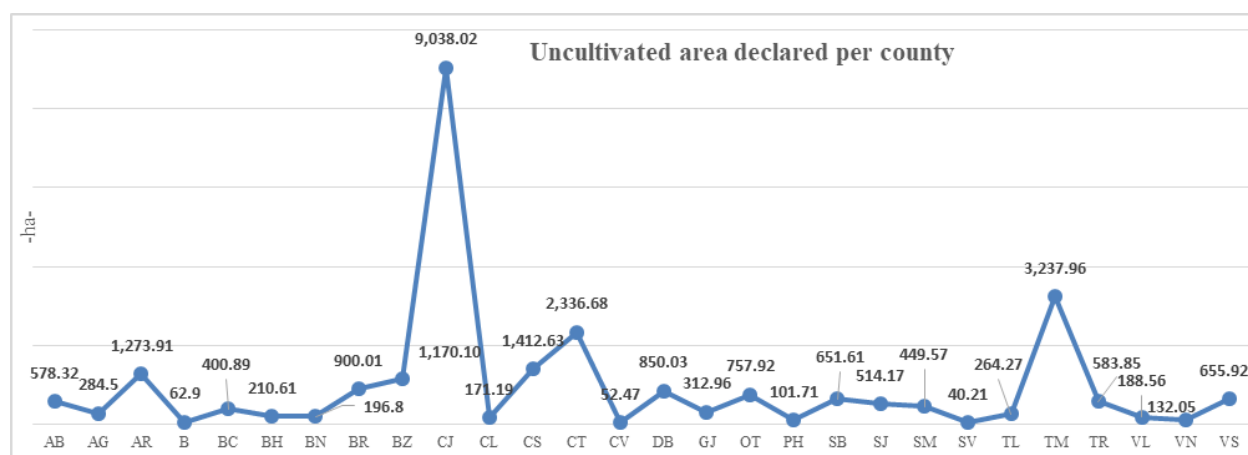


Fig. 5. The number of farms cultivating wheat, maize, rapeseed crop, sunflower, potato
 Source: [1].

Sunflower cultivation was reported in APIA payment requests submitted by 31,552 farmers participating in the PD-04 eco-scheme encompassing the following crops: sunflower, sunflower hybrid-semi-early variety, sunflower hybrid-early variety, hybrid sunflower-late variety, hybrid sunflower-semi-late variety.

The mentioned area for this crop in Romania was 833,119.45 ha (Fig. 5).

As far as potato is concerned, 2,366 farmers that requested support based on the PD-04 eco-scheme opted for this crop, in the form of early potato crops (including semi-early and summer potatoes), late season potatoes, seed potatoes as well as other potato crops. The mentioned area for this crop, countrywide, was 19,870.39 ha (Fig. 5).

Under the derogation provided for in the Commission Implementing Regulation (EU) 2023/1.317, in the year of application 2023, farmers were required to grow on at least 10% of the total arable land declared as the main and/or secondary crop, leguminous crops, nitrogen fixers, mixtures of legumes and perennial grasses, provided for in the annex no. 12 to the MADR Order no. 80/2023, with subsequent amendments and additions, without restrictions on the use of plant protection products, except for substances declared to meet option b) of GAEC 8 [7].

Protein crops mentioned to be grown within the PD-04 eco-scheme “Environmentally beneficial practices applicable to arable land”

were: soybean, pea for consumption or forage pea, vetch, sainfoin, clover, phacelia, beans, cowpea, birdsfoot trefoil, chickpea, lupine, lentil, field beans, alfalfa, peanuts, the mixture of grain legumes and perennial grasses.

Regarding soybean, this crop was specified by 6,126 farmers who mentioned the following soybean varieties: soybean, semi-late variety, soybean, late variety, soybean, semi-early variety, soybean, early variety, soybean for seed (soybean seed lot), soybean (certified seed) or soybean (mixed with perennial grasses). The mentioned area for this crop, countrywide, was 131,638.75 ha.

Peas can be grown, according to the mentioned eco-scheme, in the form of monocultures or a mixture with perennial grasses or peas and oats or peas and triticale, or grain peas or garden peas but also autumn fodder peas. This crop was specified by 10,585 farmers in the payment requests, for an area of 107,142.45 ha countrywide.

Vetch can be grown according to the eco-scheme in monoculture or mixed peas with perennial grasses, peas and oats, peas and rye, peas and triticale, and autumn peas.

This crop was specified by 111 farmers in the payment requests, for an area of 747.72 ha countrywide.

A number of 527 farmers proposed including sainfoin on a total area of 2,138.29 hectares and 1,749 farmers proposed including clover on total area of 8,688.87 hectares for the 2023 cropping plan.

Beans were an option within the PD-04 eco-scheme for 372 farms that cumulatively cultivated an area of 3,392.42 ha countrywide. Phacelia can be found in the crop options of 72 farmers in Romania on an area of 526.63 ha.

Cowpeas were an option within the PD-04 eco-scheme for 7 farms and a cumulative area of 136.78 ha countrywide.

Birdsfoot trefoil was an option within the PD-04 eco-scheme for 932 farms and an area of 3,103.44 ha countrywide.

Chickpea stood out within the PD-04 eco-scheme in the crop plan of 148 farms on an area of 3,263.9 ha countrywide.

Lupine was highlighted in the PD-04 eco-scheme within the crop plans across 27 farms covering an area of 159.59 hectares.

Field beans were referenced in the PD-04 eco-scheme within the crop plans, either in monocultures or alongside oats, across 10 farms covering an area of 144.18 hectares.

Lentils were included in the PD-04 eco-scheme within the crop plans across 2 farms covering an area of 32.53 ha.

Alfalfa was mentioned to be introduced in the crop plan in monocultures or mixtures with perennial grasses or in the form of certified seeds or energetic alfalfa. 38,466 farms and an area of 312,085.24 ha countrywide opted for this crop.

Average area per farm with protein crops is presented in Figure 7.

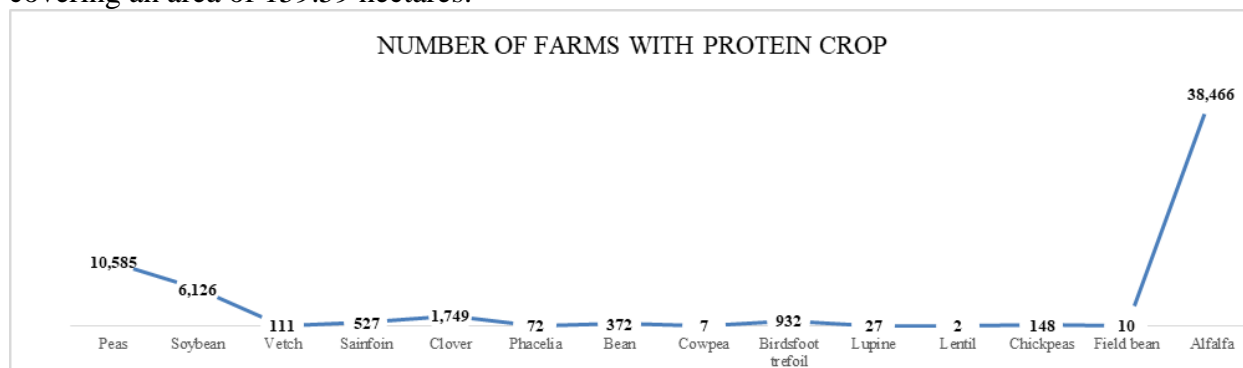


Fig. 6. Number of farms with protein crops
 Source: [1].

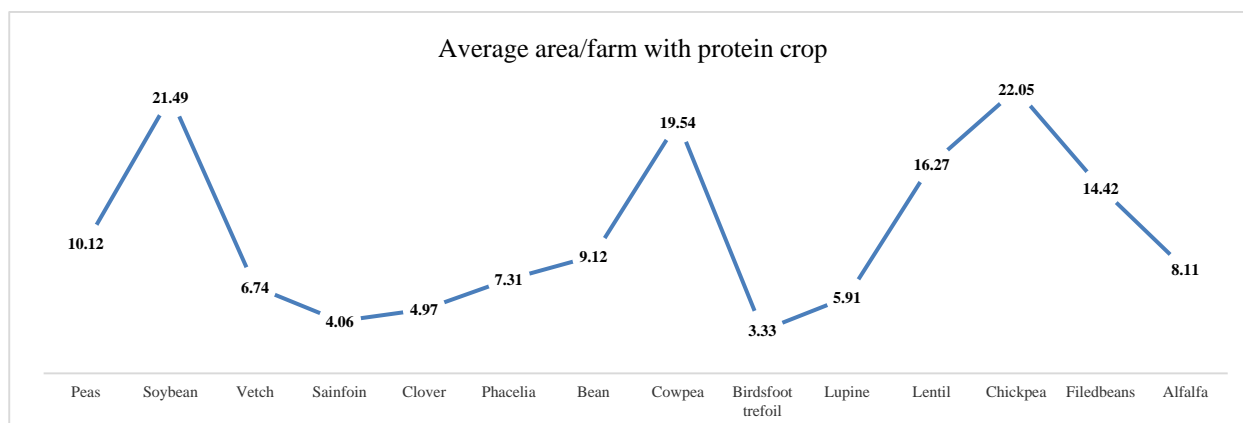


Fig. 7. Average area per farm with protein crops
 Source: [1].

In the given context, farmers who sought support under the eco-scheme in 2023 were required, starting from 2024, to adhere to the mandatory stipulations outlined by the scheme. These conditions included reserving a minimum of 5% of arable land for non-

productive elements, such as uncultivated land. For farms utilizing over 75% of arable land for grass production, leguminous crops, crops submerged in water for a significant part of the cycle, or a combination thereof, the proportion of non-productive elements,

including fallow land, must be greater than 3%. Additionally, farmers must allocate at least 5% of the total declared arable land for leguminous crops, nitrogen fixers, and mixtures of leguminous and perennial grasses, provided for in the annex no. 17 to MADR Order no. 80/2023, as their main crop.

These mandatory conditions will be combined with one of the specific requirements, at the farmer's choice: practice crop diversification, depending on the area, practice a conservative type of agriculture (no/minimum/strip tillage) on at least 50% of the cultivated area or plant at least 2 fruit trees and/or trees per hectare each year throughout the farm.

CONCLUSIONS

Farmers in Romania complied with the requirements of the PD 04 eco-scheme, given the number of farms that applied and the arable land areas involved, although the requirement for uncultivated areas at the farm level was considered irrelevant and could lead to weed infestation of agricultural lands and production losses. This subsidy (73 euros/ha for the year 2023) introduced in the Romanian National Strategic Plan for the period 2023-2027 aimed to support the farm incomes, which should be reliable and contribute to mitigating climate change through better adaptation of agricultural activity, promotion of sustainable development of natural resources and their efficient management. However, the need for subsidies in agriculture is essential, primarily to ensure the continuous economic activity of farms, which are directly involved in ensuring food security, without medium and long-term damage to the environment. This involves using sustainable, yet expensive technologies, and without funding, it would be impossible to implement. The subsidy introduced through the PD-04 eco-scheme and paid to all areas of arable land on which an agricultural activity is carried out in the vegetable sector and which meet the above-mentioned conditions triggered the awareness of farmers on these urgent needs in terms of the environmental impact of agricultural activities environment and on the fact that the EU and Romanian

legislative bodies support, from an economic and financial point of view, the environmentally beneficial practices through training and investment.

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