Review Article

Analyses of the agriculture and environmental goals

ABSTRACT

The purpose of this article is to make a systemic analysis of the convergence of the agricultural economy in relation to the displacement of vectors to achieve environmental conditions. As the demand for healthy agricultural products increases, the technical performance of agriculture has led to the restoration of paradigms in agriculture through increased conditionality of consumption, with variable atmospheric disturbances posing serious dangers in the future. As a result, long-term monitoring of natural resources has a symbiotic relationship with carbon sequestration in the soil, which is important from a climatic point of view. An essential precondition for the application of the analysis was the acceleration of the acquisition by agricultural systems of the policies adopted under the resilience program. Addressing the issues of cross-compliance and legal requirements for management in the best conditions of agricultural land creates premises for sustainability and decarbonization in agriculture.

Keywords: environmental; agricultural; natural resources, sustainable, goals.

1. INTRODUCTION

Recognizing the magnitude of the implicit effects, EC reports have made several calls at the international level to investigate multiple causes of pesticide and fertilizer pollution but what are the parameters and costs they face.

The challenge of bringing about changes in agricultural systems is both local and global. However, agricultural productivity is closely linked to possible disasters caused by climate change. Thus, efforts to adapt producers to the impact of adopting the new vision of agricultural policy are becoming more frequent and intense. The first part of the paper brings light on the effects of climate change and the need to adapt agricultural practices responsible for climate and the environment in agricultural structures in order to reduce greenhouse gas emissions. In order to limit these effects between the main technological options to reduce CO2 emissions and implicitly CO2 from the atmosphere, the appropriate use of agricultural land to provide sustainable products. [1] Political decisions such as the Council of Agriculture Ministers (2021) have also been followed by measures to increase the amounts restricted to ecosystems, compared to the general approach of the Council (progressive growth, starting at 22% in 2023 and reaching 25 % in 2025.

2. MATERIAL AND METHODS

The environmental risk associated with pesticide use varies significantly from one pesticide to the next, based on the inherent properties of their active ingredients (toxicity, persistence, and so on) as well as usage trends (applied volumes, period and method of application, soil culture and type, etc.). Measuring real pesticide use would allow for a more accurate assessment of risks for different environmental compartments or people's health based on crops and areas..

The sun's heat is naturally captured by the greenhouse effect before being released back into space. The Earth's surface remains warm and habitable as a result of this. Increased greenhouse gas levels exacerbate the natural greenhouse

effect, trapping even more of the sun's heat and causing global warming. Nature and improved greenhouse effects are depicted in Figure 1. (Pew Center on Global Climate Change, 2008). Carbon dioxide (CO2), methane (CH4), and nitrogen oxide (NOx) are the principal greenhouse gases connected with agriculture (N20). Despite the fact that carbon dioxide is the most common greenhouse gas in the atmosphere, nitrogen oxide and methane have a longer lifetime in the atmosphere and absorb more long-wave radiation.

As a result, even little volumes of methane and nitrogen oxide can have a big impact on global warming. pollution abatement The article begins with a description of the reasons of biodiversity loss as a result of pesticide and fertilizer overuse. In terms of economics, nitrogen pollution in the European Union is predicted to cost between € 70 billion and € 320 billion each year. (Source: OECD 2020). Long-wave radiation is absorbed more by nitrogen oxide and methane in the atmosphere. As a result, even little volumes of methane and nitrogen oxide can have a big impact on global warming. pollution abatement The article begins with a description of the reasons of biodiversity loss as a result of pesticide and fertilizer overuse.

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The European Economic and Social Committee (EESC) acknowledges that food supply chains throughout the supply chain (including European farmers and fishermen, cooperatives, agri-food companies, retailers and wholesalers and other types of companies) are already working to make progress on sustainability and provide consumers with healthy and sustainable products in line with the European Green Pact, however, in order to achieve the goals of the Sustainable Development Goals (SDGs), coherent action must be taken to mediate the interests of the environment and beneficiaries.

In this study we highlighted the method of simulation of the diversity of fertilization methods was analyzed by areas of development at the territory level compared to the forecasted productions, taking as a barometer the rainy climatic environment and soil characteristics.

2.1 Agricultural context

In the European legislative context on combating climate change and the energy transition, the aim is to increase the level of ambition to reduce emissions, increase the share of renewable energy sources, energy efficiency measures and the level of interconnection of electricity networks. The Integrated National Plan in the field of Energy and Climate Change, approved by Government Decision no. 1,076 / 2021, represents Romania's commitment to the joint effort to meet the European objectives in the field of energy and climate set for 2030, being an obligation of each Member State, according to the Regulation on Governance of the Energy Union, through which they develop energy policy strategies climate for 10 years, starting with the period 2021-2030.

The Fund for Modernization (FM) is a new financing instrument that was established by art. 10d of Directive 2003/87 / EC of the European Parliament and of the Council of 13 October 2003 to make it more profitable to reduce carbon emissions and increase investment in this field and Decision (EU) 2015/1814 (ETS Directive), its implementation being 2021-2030.

The Modernization Fund encourages investment in modernizing energy systems and increasing energy efficiency, including small-scale investment projects, in keeping with the Union's 2030 climate and energy policy framework and the Paris Agreement's long-term targets. It supports a socially just transition to a green economy, which helps to achieve the European Environment Pact's goals. Beneficiaries of the Modernization Fund are Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, and Slovakia, whose GDP per capita at market prices (in euro) was less than 60% of the Union average in 2013.

Thus, the Modernization Fund consists of the revenues obtained by bidding on the market 2% of the total certificates allocated to Member States through the EU-ETS scheme for the period 2021-2030. Romania has allocated 11.98% of the total of 2% of the total amount of certificates allocated to Member States under the EU-ETS scheme for the period 2021-2030, which it can use to finance investments, as set out in Annex II b to the revised EU-ETS Directive.

Scientists attribute the rising temperature to rising carbon dioxide and other greenhouse gases released from burning fossil fuels, deforestation, agriculture and other industrial processes. Scientists refer to this phenomenon as an improved greenhouse effect.

2.1.1 Radiography of the agricultural system

The decrease in agricultural emissions at the EU-28 level is primarily due to a decrease in the number of animals, improvements in the level of good agricultural practices, a reduction in the use of nitrogen-based fertilizers, improved management of natural soil fertilizers, and the importance of the zootechnical sector and agricultural practices in terms of biomass. The worldwide average CO2 concentration in the atmosphere is steadily rising. Pesticide residues in food and feed are monitored by member states against European maximum residual limits (MRLs), and 95.5 percent of the 91,000 samples evaluated in 2018 fell under the permissible limits. Overruns are more frequently identified in foods imported from outside the EU during annual monitoring procedures (8.3 percent of samples from third countries in 2018 contained residues exceeding permitted concentrations), but some residue problems can also be attributed to European agriculture (3.1% of samples in 2018).

Pesticide use information is not available on a European scale. However, in accordance with Regulation (EC) No 1493/1999, the Commission shall, beginning in 2015, provide data on agricultural usage by crop every five years in accordance with Regulation (EC) No 1185/2009 on pesticide statistics.

But there is a question of the mechanisms by which pollution can be controlled by improving the use of agricultural resources and pesticide consumption in agriculture.

Several Member States have also introduced regulations on pesticides for environmental purposes. best practices in the application of pesticides, standards of raw materials to be used for the production of fertilizers.

Ecoconditionality assessing the effectiveness of environmental protection efforts in increasing competitiveness in agriculture, the intensity of traditional practices are tools for the analysis of more resilient and sustainable production systems. On the other hand, the link between cross-compliance and agricultural production is reflected in the level of storage at ground level, which highlighted the importance of determining soil quality and interdependence with the climate ecosystem, but how do we correlate the link between reducing emissions in agriculture and adapting to sustainable systems time is a challenge for both small farmers and holding companies.(Figure 1)

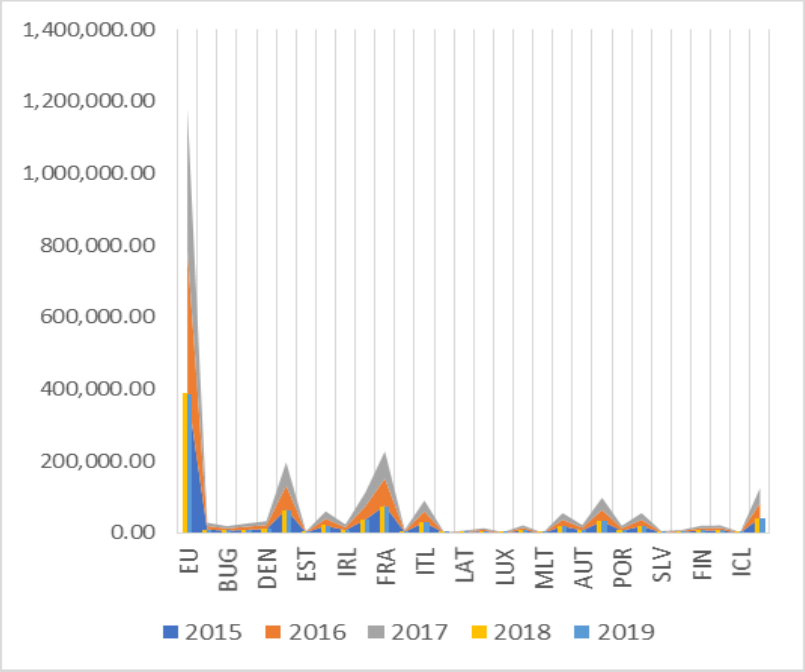

Figure 1. The value of the production of the agricultural branch

Because of the unique behavior of nitrogen in the soil, strategic options assume that fertilization with this nutrient, as well as the cultivation techniques that influence its dynamics in the soil, should be done in such a way that percolating water

losses are minimized, reducing the risk of nitrate contamination of groundwater and surface water. A number of countries have also made attempts to limit pollution caused by fertilizer use. There have been new rules enacted, as well as changes to current nitrogen leakage programs. The exchange of gases between agricultural production systems and the atmosphere, on the one hand, and the atmosphere, on the other, is a hot topic of research.

Obiouvsly, in order to develop GHG mitigation measures, it is critical to analyze and quantify the functions of indicators that may reveal why not largely a simulation of the mitigation vision of GHG sources through a better understanding of the processes underlying GHG emissions or removals in agricultural systems.(Figure 2)

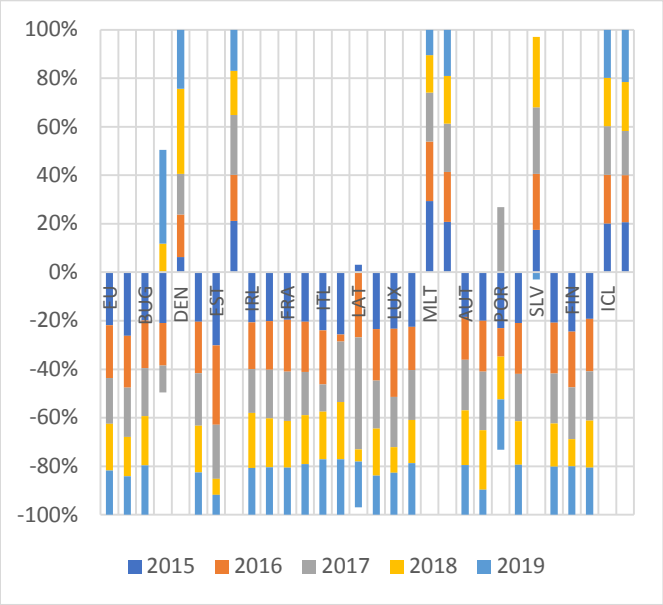

Figure 2. CO2 emissions Greenhouse gases 2015-2019
Source owner recherché from Agridata-Eurostat

That is why, given that Romania is divided into development regions, we highlighted arable land as a priority source of agricultural production in this paper, as well as the influences of agricultural production on the development of rural areas, in order to track which of Romania's development areas will achieve the proposed objective the most

It is known that agriculture is a primary consumer of natural resources, a major user of the world land area, directly dedicated to its use, a net consumer of water and accounts for most of the ammonia emissions (OECD, 2013)

3. RESULTS AND DISCUSSION

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Table 1 The value of the production of the agricultural.

Item	Northwest	Center	Northeast	South East	South-Muntenia	Bucharest-Ilfov	Southwest	West
The agricultural branch	10,561	8930	13,652	15,256	16,336	1196	10,656	9762
Crop production	7015	5348	9092	11,724	12,428	606	8141	6862
Animal production	3523	3509	4475	3239	3775	110	2453	2819

Source: Eurostat data

The statistical agricultural research inserted in the paper comes to evaluate the decarbonization potential of agriculture from another angle.

Several strategies, including: - crop rotation; - the adoption of appropriate cultivation techniques, and, why not, an agricultural discipline connected to production efficiency, should be used to prevent the occurrence and, at the same time, eliminate hazardous organisms. This could entail the use of a variety of pesticides with various mechanisms of action. Our research's risk methodology reveals the prevalence of acts that have an impact on biodiversity and natural capital resilience. What we wanted to accomplish was produce a visual representation of the risks to an agricultural sector posed by the absorption of sustainability in the context of climate change demands, as well as the global consequences of these demands, such as continuous natural resource depletion.

From this vantage point, we've discussed why it's critical to prioritize the risks in the agricultural system when it comes to fertilizers. As a result, several factors, such as climate change effects, low yields associated with low selling prices, and agricultural commerce, are not factors that determine fertilizer consumption, as asserted by Nicholson, F et al. [5]

On the other hand, the sustainability of agricultural ecosystems can be applied separately, depending on the ecosystem, to provide efficiency, with the process being cyclical, as revealed by Aznar -Sánchez, J., in conditions of climate risk and the agricultural system suffering from the natural ecosystem (2019). [6]

Applied research is needed in a number of areas, including the development of new technologies for climate change mitigation and adaptation, as well as enhancing agriculture quality for large-scale biosphere symbiosis success.

Highlighting agricultural practices is not necessarily a cliché, but rather a form of biodiversity management and environmental protection.

Reducing pollution, soil degradation, greenhouse gas emissions, biodiversity, and balance through enhancing soil fertility raises questions about how much we rely on fertilizers and how we may minimize use while keeping the same yield. Swinnen (Swinnen, 2015). [7]

Agricultural intensification practices have contributed to improved yields in recent decades. This has led to wide-ranging implications for shaping the ecological behavior of agricultural producers and achieving a more environmentally responsible agri-food model in the context of the CAP's greening policy. [8]

Quantity of plant protection products, expressed as active substance, by group, category and classes (Table 2), in 2018 compared to 2017 was 3.8% lower. Most a large share of plant protection products was produced in the herbicide group (46.7%) followed by those in the fungicide group (40.9%), insecticides (9.1%) and other protection products plants (3.3%).

Table 2. Plant protection products placed on the market (2017-2018) by development regions

Macroregions / development region	Number of products (2017	Number of products (2018)
Total	692	854
MACROREGION ONE	586	709
NORTHWEST	507	603
CENTER	507	572
MACROREGION TWO	596	696
NORTH - EAST	500	570
SOUTH EAST	549	624
THREE MACROREGION	612	725
SOUTH - MUNTENIA	590	679
BUCHAREST - ILFOV	472	525
MACROREGION FOUR	594	653
SOUTH - WEST OLTENIA	473	488
WEST	515	563

Source:INSSE time 2019)

In 2018, 854 plant protection products were marketed grouped as follows: fungicides, insecticides, herbicides and other plant protection products. The number of plant protection products marketed in 2018 increased by 23.4% compared to 2017.

Market environment: an important aspect of the profitability of organic farms is \sthe op-portunity to receive higher farm gate prices for organically produced goods than for \sthose conventionally produced. Prices change depending on the marketing channels used and the quantity sold through them (Figure 3).

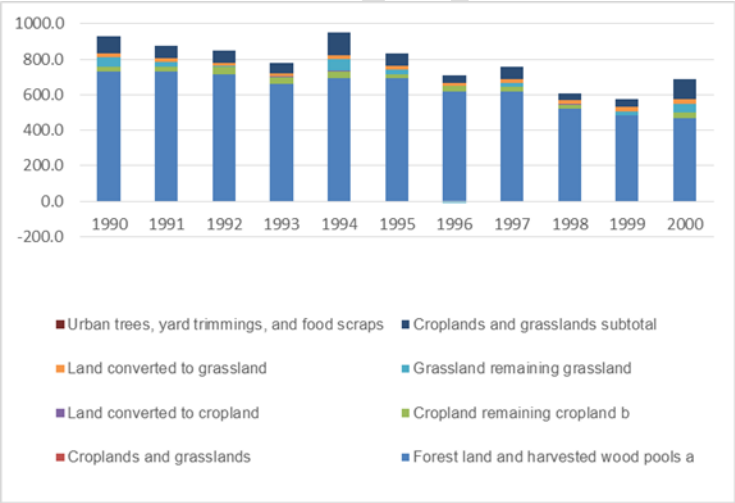

Figure 3 Carbon Dioxide Sequestration from Land Use
Source: European Commission, Eurostat data

However, the new varieties also required large amounts of chemical fertilizers and pesticides to produce their high yields, raising concerns about costs and potentially harmful effects on the environment.
The fact that the aim is to reduce GHG emissions from the agricultural sector clearly shows that environmental sustainability is mainly through the transfer of knowledge and advisory services, as well as investment support for farm modernization, maintaining the biodiversity of agricultural land, with increases in areas subject to environmental commitments and organic farming
Regarding the key investment sectors and the framework conditions for the effective implementation in Romania of the Fund's investments for a fair transition from 2021 to 2027. These priority investment regions are the result of a larger review of places in Romania that are suffering serious socio-economic issues as a result of the Union's transition to a climate-neutral economy by 2050.

Weather and climate disasters are becoming more frequent and severe as a result of climate change (IPCC, 2012 [4]).]). Due to the climate sensitivity of agriculture, the sector is already adversely affected by the deterioration and destruction of agricultural infrastructure, as well as losses in crop, animal, forestry, fisheries and aquaculture production (FAO, 2016). Pests and plant and animal diseases are also expected to increase due to climate change, extreme weather events and seasonal variability and already have an impact on the sector, food security and livelihoods, economic system of sustainability creates the perception of a more environmentally beneficial future, with agricultural producers having to comply with environmental requirements.
But what are the costs of sustainability and if this is the key, between economic and financial sustainability are part of the problems of farmers and their profit.
Regulation (EC) No 1.107 / 2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing on the market of plant protection products and repealing Council Directives 79/11 and 91/414 / EEC to reduce dependence on pesticides, protect human health and the potential risks associated with pesticide use, and achieve the sustainable use of pesticides are among the objectives of Regulation (EC) No 1.107 / 2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing on the market Integrated pest control using non-chemical technological alternatives to pesticides is encouraged in order to reduce hazards and their impacts on human health and the environment.
Agricultural production methods total fully converted and under conversion to organic farming Utilized agricultural area excluding kitchen gardens, Percentage of total utilized agricultural area.
Pesticides are used to control crop pests and weeds, increasing yields and protecting product availability, quality, reliability, and price for the benefit of farmers and customers.
However, we must keep in mind that pesticide use is influenced by a variety of factors, including the economy (the most profitable crops are the most economically viable to treat), as well as local soil and climate characteristics that contribute to insect infestation sensitivity. Very important as a causal factor is the type of agriculture (conventional or organic). (Figure 4)

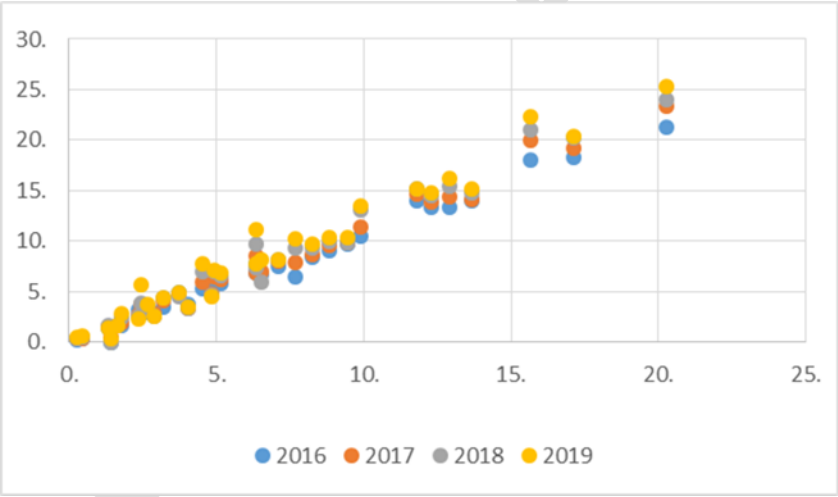

Figure 4 Organic farms
Source: European Commission, Eurostat data
Although organic farming is a decarbonization target of agriculture through the efficient use of natural resources, it has been on an upward trend between 2015 and 2019, with countries such as Austria increasing its organic production from 20.00 percent to 25.33 percent for four years in a row, Lithuania and Sweden having over 20 percent production, Italy's Sestoni occupying 15 percent of production in 2019, and Romania having 2.86 percent of organic production in 2019.

4. CONCLUSION

Reducing greenhouse gas and ammonia emissions and adapting to climate change in the mountain area. The forest funds has helped reduce greenhouse gas emissions in mountain areas by increasing the areas covered by the commitments under the measures which encourage traditional agricultural practices.

Thus an inevitable consequence is the need for an innovation-friendly framework to support producers through those levers and tailored solutions in their transition to more sustainable business practices is once again emphasized.

Barriers to innovation must include the whole economic chain from sustainable, resource-efficient supply, as well as depollution solutions as efficient entry points to greater sustainability. The European Commission (EC) should also introduce measures to support the accessibility of healthy and sustainable food products. Because it is emphasized that sustainability is based on three main pillars: economic, environmental and social, we believe that the interference between them must be shaped as a living interdependence between the poles and not at the level of a generic strategy.

Our analysis suggests that, as pollution levels could be controlled by measures to reduce pesticides and replace chemical fertilizers by switching to sustainable products and productions, why not reduce these costs by the environmental benefits of such allocations as indicated and de Popescu et al (2021) will reduce even from the initial costs.

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