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The concept of accountability through good practices in agricultural production farms †

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Abstract: This paper presents an analysis on the application of a new concept in agricultural production farms of responsibility in relation to the environment. The global demand for consumption and the dynamics of development have led to multiple debates on natural resources, these topics being a real concern in the case of agricultural production affected by climate change. The development of a more responsible conceptual framework in agricultural systems meant to mitigate the impact of undesirable results can be an element of responsibility as a stage in the evolution of a sustainable production farm. The relevance of this study lies in the interdependence of the application of good practice models in soil treatment to reduce greenhouse gas emissions alternatively with maintaining agricultural productivity in development regions at the national level. The analysis will represent a source of important information and data in compiling important statistical data at the level of development regions. Risk management in the case of soil treatment at the level of small and large farms should in our opinion confirm the same standard, the integration in the local rural environment presents the same risks of pollution or degradation. This study aims to further investigate the field of sustainable agricultural production models in developing regions, researching the integration of new concepts of responsibility in agricultural systems in terms of improving soil performance.

Keywords: sustainable; agricultural; soil; responsibility

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1. Introduction

Agriculture as a science has always been a basic branch in the development of any society in the economy. The beginnings of agronomic development date back to 1934 and were later found in the science of the practical application of the study of winterization. But given the magnitude of the impact and related complex effects of agriculture we can say that the implications have a rebound effect being in close interdependence falls for example low hay production, leads to lack of animal feed, improper application of sowing leads to high costs and reduced production . Besides these causes, meteorological phenomena, drought or the abundance of river discharges in the conditions of dam loss due to soil erosion, can also contribute to the decrease of agricultural productivity in general. Today, in support of farmers under the New Common Agricultural Policy, the application of agricultural subsidies is an important stimulus impact index.

In these conditions, during the research we analyzed the current state and the impact of agricultural subsidies as part of the development of agriculture under the conditions imposed by the New Common Agricultural Policy related to the concern to achieve the reduction of greenhouse gases in agriculture. [1]

Knowledge of plant development science finds its wide applicability, being far from being exhausted plant development studies by controlling the choice of resistant varieties, discovery and compliance with segregation laws, after the vegetative period as a technique to eliminate breeding processes, or considering development in the stage, the choice of the sowing season.

According to Drawin's theory in the realization of agricultural productions discounted with cost control, it is vital to take into account the selection of crops that makes possible the realization and conditions of individual plant development the response to various factors that are indispensable for development (CA Timiriazev, 1921) [2]

The primary development of plants in the stages is a source and starting point in reducing the efforts caused by climate change or the impact of plant aggression with unproductive fertilizers in various stages, the role of agricultural plants in the stages of development in stages as a perspective of agrobiological culture is in our opinion part of the progress of the improvement of the varieties in agriculture influenced by the external changes of the climate.

In the paper, the statistical research is exhaustive in that the information on plant production takes into account Eurostat statistical reports, as well as research in rural households.

2. Radiography of the agricultural system iarovizarii

The duration of the vegetation period of the plants as a stage in following the growth process characterizes the differences between the varieties, the term of reaching maturity depending on the climate in which the interference develops with the effects directed by the interdependent factor of soil quality in 1929 in the middle of the year, after the "Ukrainian" autumn wheat sown in spring through a proper preparation of agricultural work and sowing material, gave amazing results in agricultural production for the first time (DN Lasenco, 1950), resulting in a complete inspection. Thus, the method of appropriate treatment of autumn cereal seeds for spring sowing is called watering.

According to (Lasenco 1950) plants, the external environment in which the plant develops and the conditions necessary for the plant to go through both the entire development cycle and the different stages are not identical, the external environmental conditions being indispensable for going through the stage of vegetation plant.[3]

Starting from these data and information, it is revealed that the soil texture must be studied in depth, the soil properties qualify and the culture, soil processing or improvement being also important, such as light, humidity, temperature, soil aeration and climate specific to the geographical area.

Because the change in climate over time has inevitably led to a change in soil texture and hence the conditions of the plant's external environment and climate has produced changes in the rethinking of production techniques that give results. The need for different outdoor conditions for plants to go through isolated stages of development requires advertising, temperatures for wheat varieties strictly interdependent with the region, soil, outdoor climate and even light being an extremely important factor, so with the environment in which it grows.

Therefore, it would seem unfair to try to speed up its growth through plant protection products from a methodological point of view. They can only be harmful if they do not take into account any other ways that support growth and do not force the plant to go through different stages of development the conditions necessary for the plant with any other conditions for example for the first stage (for watering) the replacement of the temperature by light, or other artifices.

The existence of natural selection consists in the fact that organisms adapted to life in a given external environment survive while the unadapted ones do not survive or give offspring. This theory of Darwinism has long encompassed the arousals of scientists who have agreed or challenged it but in practice what we use from it is that there is a struggle for adaptability to climatic conditions (Engels, Dialectics of Nature, 1936) [4] this being the consequence of the evolution of nature and development, of progress in general, but

forcing the growth of a plant with the enrichment of nutrients in the soil would not be exactly a forcing but a facilitation.

3. EU regulations

According to Regulation (EU) no. 1,306 / 2013 of the EEC[5] is treated with great importance financing, in order to increase the efficiency of the use of budgetary funds allocated by managing and monitoring the common agricultural policy, monitoring and analysis of forms on cross-management (SMR) on the other hand good agricultural conditions of The rules of the EC Decision of 10 June 2010 on guidelines for the calculation of soil carbon stocks within the meaning of Annex V to Directive 2009/28 / EC are also revealed. In this regard, we recall the provisions of Annex V to Directive 2009/28 / EC [6] which describes the method of calculating the impact on greenhouse gas formation and contains rules for calculating annualized emissions related to changes in the amount of carbon caused by land use change. The decision guidelines set out some rules for calculating soil carbon stocks. The data were correlated with the rules established by Regulation (EU) no. 639/2014 supplementing Regulation (EU) no. 1,307 / 2013 on direct payments. In the context of a spectrum of climate change for various reasons in calculating the impact of land conversion on greenhouse gases, farmers are facing a challenge through land use, but for the carbon stocks associated with the reference land use and the use of land after conversion, is the response of the environment to reality.

3.1. Agricultural farms practices

3.1.1. Increasing the demand for nature

The growth of a plant and its development are often assimilated as synonyms being terms that designate the same phenomenon so the aspects that form the plants lead us to the idea that both the growth and development of plants can not be identical phenomena, these sides being different in value. Consequently, at the end of the plant's development, their height, size and vigor as well as the size and quality of the crop can be varied. The speed of development, as well as the speed of plant growth, is inextricably linked to the conditions of the external environment. Therefore, the set of external conditions, useful for the development of both the plants as a whole and of each element often, does not coincide with those necessary for the growth of plants, ie for their growth by developing the different component parts of the plant. Thus, the lower the temperature at which the sowing of the sowing material of a certain variety takes place, the higher the percentage of moisture of the seeds must be.

Analyzing the growth stages of the seed plant reveals that we do not refer to the formation of elements or parts of the plant but those quantifiable stages well defined and characterized by a conditionality, given by the interaction generated by the needs of the plant in the form of development related to the environment externally, so that the plant behaves similarly in the newly started germs and in the 5-8 month plants of the autumn wheat the same external environmental conditions and the same duration are necessary.

The passage of the light stage in the development of wheat plants can take place only after the complete closure of the stage prior to development, namely watering and only in long day conditions (permanent light.) After T.D. Lasenco. (1950)

Under these conditions in the methodical analysis we introduced a particular gender factor as a result of research by deductive logic defined S_{por} as being closely related to the environmental factor, namely the atmospheric pressure determined during the growing period, so above ground.

Thus, if we introduce and define an external factor to increase the expected predictability, of storage C in the soil at z ha, we can create a predictable variability compared to C carbon in the soil during the growth period excluding the germination period so between 5-8 months compared to variable Fm as being influenced by atmospheric pressure in different periods of plant growth in the outdoor environment.

Regarding the number of agricultural holdings, as well as the agricultural area used in Romania, the following aspects are revealed from the data presented in Figure 1:

- a concentration in the North-East (26.3%), North-West (17.1%) and Center (16.9%) development regions;

- in, the development regions West (19.5%), South-East (17.7%) and South Muntenia (17.6%) were highlighted;

- were predominant in the development regions Center (21.0%),

From the data presented in the graphs Figures 1 and Figure 2 it appears that both the number of agricultural holdings and the agricultural area used are distributed according to the specifics of the area. In the second macro-region are the most agricultural holdings from those existing in the whole country (32.6%), they have a used agricultural area (OR) of 30.3% of the total used agricultural area in the country.[7]

From the analyzed farms we identified an increased source of eligibility for agricultural subsidies presented in Table 1 and Table 2, being evident the main agricultural production crops.

Table 1. Expenditure in commitments for direct payments Size-class of aid.

Size-class of aid (all direct payments)[1]	Beneficiaries y_t		Payments in EUR x_{1t}	
t	x 1 000	% of total	x 1 000	% of total
< 0 €	6	0.1%	-2 509	0.0%
≥ 0 and < 500 €	1 421	22.8%	463 333	1.2%
≥ 500 and < 1 250 €	1 607	25.8%	1 291 447	3.4%
≥ 1 250 and < 2 000 €	666	10.7%	1 058 155	2.8%
≥ 2 000 and < 5 000 €	1 054	16.9%	3 371 059	8.8%
≥ 5 000 and < 10 000 €	596	9.6%	4 219 063	11.0%
≥ 10 000 and < 20 000 €	433	6.9%	6 141 968	16.0%
≥ 20 000 and < 50 000 €	343	5.5%	10 487 596	27.3%
≥ 50 000 and < 100 000 €	80	1.3%	5 321 349	13.9%
≥ 100 000 and < 150 000 €	14	0.2%	1 713 887	4.5%
≥ 150 000 and < 200 000 €	5	0.1%	937 539	2.4%
≥ 200 000 and < 250 000 €	3	0.0%	671 851	1.8%
≥ 250 000 and < 300 000 €	2	0.0%	512 591	1.3%
≥ 300 000 and < 500 000 €	3	0.0%	1 053 192	2.7%
≥ 500 000 €	1	0.0%	1 128 115	2.9%
Total	6 235	100%	38 368 636	100%

Sources: Eurostat iunie 2020.

Table 2. Expenditure in commitments for direct payments and market measures; ceilings of support for rural development.

Measures	**2019**	**2019**	**% of heading**
	1 000 EUR	**% of total**	
Decoupled direct aids	32 232 776	59.2%	84.5%
Other direct aids	5 517 268	10.1%	14.5%
Reinbursemenet of direct aids in relation to financial discipline	399 403	0.7%	1.0%
Direct payment	38 149 447	70.0%	100.0%
Cererals	1	0.0%	0.0%
Olive oils	36 659	0.1%	1.5%
Fruit vegetables	828 351	1.5%	34.0%
Wine sector	987 504	1.8%	40.6%
Promotion	177 615	0.3%	7.3%
Other plant products/measures	230 285	0.4%	9.5%

Milk and milk products	- 57 341	-0.1%	-2.4%
Beef and veal	1 056	0.0%	0.0%
Pigment;eggs, poultry and other	41 428	0.1%	1.7%
School schemes	187 915	0.3%	7.7%
Market measures	2 433 469	4.5%	100%
Rural development	13 901 018	25.5%	100%
Total	54 483 934	100.0%	

Sources: European Commission, Eurostat and Directorate General for Agriculture and Rural Development.

The statistical probability of increasing the absorption of these subsidies in the future without indicating the errors produced by evasion with funds from subsidies, we analyzed independently of some factors using the Durbin and Watson test. [8] On the general linear model of regression we tried to determine the existence of an interdependence given by several eligible factors eligible for subsidies, the degree allocated in the Gross Domestic Product on agriculture and the absorption factor % of the beneficiaries of subsidies; The autocorrelation [9] of errors is

$$y_t = a_1 x_{1t} + a_2 x_{2y} + ... + a_p x_{pt} + e_t$$

or transformed into

$$y_t = ax_t + e_t$$

Regarding the distribution by development regions, as shown in Figures 1 and Figure 2 and Figure 3, they are summarized in Table 2

The study shows that both imports and exports decreased, but exports decreased to a greater extent, so agricultural production was declining to real value.

I resorted to an analysis of evolution. In continuation are given, for::

- volume Beneficiaries all direct payments in agriculture, y_t;
- Payments in EUR, x_{1t};
- income index for agriculture, x_{2t}

The study of the connection between the mentioned economic variables can be performed with the multiple regression model, after calculating the estimated residues, t, according to Durbin-Watson if the variables are positive, will lead to the conclusion that the errors are positively correlated, so there is no interdependence in the analyzed factors. , the variables having a vertical independence. However, the subsidy factor tends to decrease with the reduction or cancellation of this benefit, so it would have the effect of the lack of fieldwork for which these funds would be allocated from the budget.

In recent decades, agricultural practices have had a growing trend, this due to agricultural processes in our opinion standardized in part. The limits of the subsidy constraint channeled the interest of the farmers to impose that in fulfilling the conditions to obtain the subsidies they have to respect some standards. But if tomorrow we no longer have these subsidies, if tomorrow the subsidies take on other non-uniform forms that cannot be standardized, as a kind of formula but which through multiple possibilities is applied personalized, so not depending on the size of the farm or production its, organic or not. Here we need that in any future situation the continuity model of the cross-compliance standards does not stop or at least has a linear course towards the error increase $S_{por} \geq 2\%$.

We analyzed atmospheric pressure (mb) - in the Bucharest-Ilfov area. Latitude: 44.43, Lon: 26.1, forecast for altitude: 75m resulting in Afumati 12 ° C, humidity of 29%., Atmospheric pressure is 1028.8 millibars (771.60 mmHg) while at temperatures of 8 ° C humidity of 46%. The atmospheric pressure is 1028.9 millibars (771.68 mmHg). In addition to these data, we highlighted the atmospheric pressure as being exerted by the air in the atmosphere on the earth's crust. In terms of volume, the air contains 78,084% Nitrogen (N2), 20,947% Oxygen (O2), 0.934% and others.

The introduction of an error from the initial calculations is necessary precisely as a verification of the evolution of the fulfillment by 2050 of the environmental standards. [10]Agriculture is only a part of the quantifiable values in this continuous but constant process. We should introduce as many constants as possible in the calculation of variables to determine the errors, we have thus introduced to the average component, the atmospheric pressure which has a strategic importance. So not only humidity is part of the variables of vulnerability but also atmospheric pressure. We observed during December 2020 March 2021 a constant of 771.68 mm Hg mm mercury column) by convention it was established that 760 mmHg = 1 atm (physical atmosphere) = 101325 Pa[11]. Relative humidity depends on temperature and pressure Under these conditions the atmosphere presses on 1 cm^2 of the earth's surface with a mass weight of about 1 kg, more precisely 1,033 g.

But with the passing of the spring season, the atmospheric pressure contributes to maintaining the humidity at the ground level, so that the fruit production during the spring is more. In detail at the end of September we will see if the actual production is affected or not by the index introduced as Spor that we linked to atmospheric pressure. In agricultural sciences we do not limit ourselves in the study of knowledge only on the forecasts made by the increase of production without forgetting the environmental index, C level, agricultural subsidies and the forms of landslides and erosions produced as an effect of earthquakes and not due to global warming.[12]

The focus of the analysis focused on two major physical phenomena that impact the storage and loss of airborne elements of Ng on the one hand and on the other hand nitric nitrogen in the soil produced as an effect of mineralization of soil organic matter. So we are talking about the effects from the ground as well as those above the ground, both having various obstacles. If the nitrogen found in the form of gases in the atmosphere (Ng) losses are caused by the volatilization of ammonia in alkaline soils, denitrification being the cause, on the other hand we find ourselves in the paradoxical situation as for example in soil exploitation by applying the element urine nitrogen in the form soluble taking place the phenomenon of hydrolysis forming the premises of a high pH, however a large percentage of nitrogen is dissipated by the volatilization of ammonia.

Why in both cases it is necessary to establish a neutral correspondent, such as the volume Spor, and what is the connection between soil moisture and atmospheric humidity how these two phenomena work these variables we will seek to analyze them because here the weather is a cause of precipitation that causes the washing of urea, nitrates resulting from ammonia nitrification, while volatilization is high in high atmospheric conditions with low humidity to zero.

In many cases, some experts have estimated that if fertilizers with ammoniacal nitrogen and urea are applied incorrectly to the soil, volatilization can lead to over 49% losses in adverse weather conditions such as wind or higher temperature rises.

Traditional agricultural practices in our country include, among others, the use of agrochemicals but also composts for plant production and pest and disease management, so the attention to bring to light the most used practices since ancient times returns because then there were no various incentives and subsidies to facilitate farmers to develop high-level production on their land after the reconstitution of property rights to the farm had the opportunity to manage their own benefits and production costs the trend was to develop and improve. [13].

Thus, as the field works, the farmers could find that some crops are more exposed to weeds or other causes, so they had to respond to each crop continuously in the face of these threats by applying personalized treatments to crops combined with previous soil plowing. But now the aggression is much greater due to its scale, the climate is constantly changing, causing real disasters, and here the farmer no longer thinks alone but needs a global assessment.

3.2. Figures, Tables and Schemes

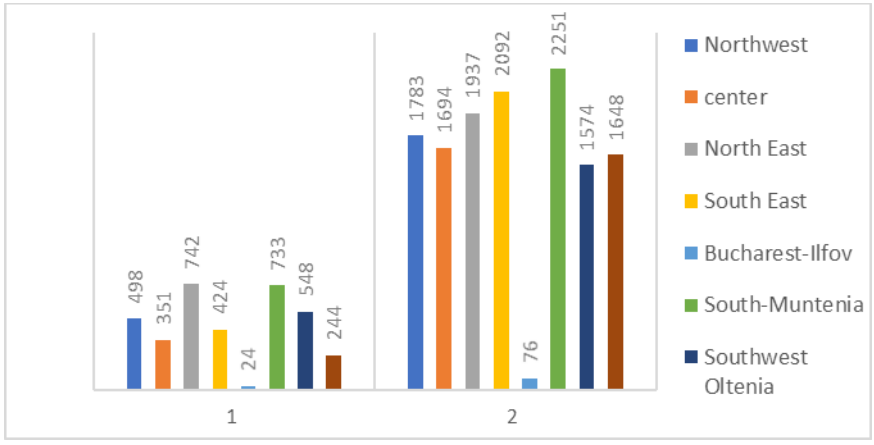

Figure 1. Agricultural area used, by development regions. Sources: European Commission, Eurostat and Directorate General for Agriculture and Rural Development).

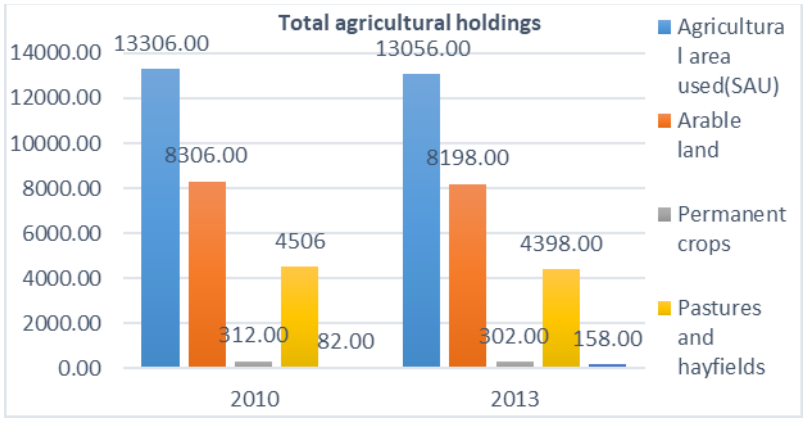

Figure 2. Agricultural holdings with the utilized agricultural area. Sources: European Commission, Eurostat and Directorate General for Agriculture and Rural Development [14]

Note: Expenditure in commitments for direct payments and market measures; ceilings of support for rural development.

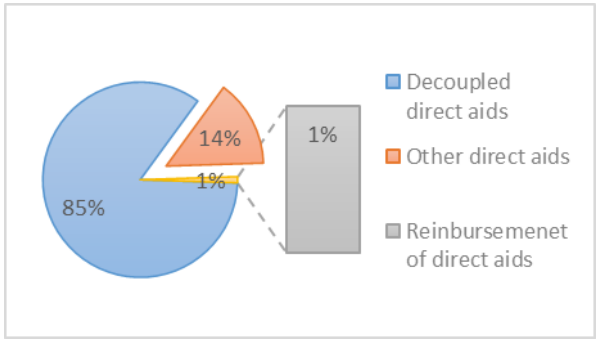

Figure 3. Decoupled direct aids. Source Insse.

3.3. Formatting of Mathematical Components

In the methodology for determining carbon stocks, taking into account the study of subsidies and the impact of agricultural activities on agricultural holdings compared to production as shown above, we also considered the analysis of stocks by climate, soil type, degree of agricultural activities per ha, soil works. In the case of the IPCC methodology [15] we used the calculation rule of the soil carbon stocks, for the reference use of the CS_R land, as well as the real use of the CS_A land from the activity of the vegetation on the ground (cultivated per ha) as well as above the ground. (realized production)

$$CS_i = SOC + C_{VEG} \times A$$

where

CS_i = amount of carbon per unit area associated with land use

SOC = amount of organic carbon in the soil) measured as mass of carbon per hectare

C_{VEG} = soil organic carbon stock (measured as mass of carbon per hectare)

A = coefficient of the area in question (measured as number of hectares per unit area

$$SOC = SOC_{ST} \times F_{LU} \times F_{MG} \times F_I \quad (1)$$

unde:

SOC_{ST} = the standard amount of organic carbon in the soil in the 0-30 cm layer at the surface of the land (measured as mass of carbon per hectare);

F_{LU} = land use factor reflecting the difference between the amount of organic carbon in the soil associated with the type of land use, compared to the standard amount of organic carbon in the soil;

F_{MG} = the management factor that reflects the difference between the amount of organic carbon in the soil associated with the management practices in principle, compared to the standard amount of organic carbon in the soil;

F_I = input factor reflecting the difference between the amount of organic carbon in the soil associated with different levels of carbon inputs to the soil compared to the standard amount of organic carbon in the soil

Factors is in Table 7.1 Annex V to Directive 2009/28 for agricultural land clay soils with low activity, land use, full / low / medium / high plowing with fertilizer / without fertilizer, we will have

SOC_{1a}= 63×0,8×1 × 0,95=47,88

SOC_{2a}= 63×0,8×1 × 1=50,4

SOC_{3a}= 63×0,8×1 × 1,37=69,04

SOC_{4a}= 63×0,8×1 × 1,04=52,42

then $C_{VEG} = C_{BM} + C_{DOM}$

with C_{DOM} the value 0 may be used, except in wooded areas with a crown of more than 30% - excluding forest plantations

$C_{BM} = C_{AGB} + C_{BGB}$; $C_{AGB} = B_{AGB} \times CF_B$; $C_{BGB} = B_{BGB} \times CF_B$

for agricultural land, perennial crops and forest plantations, the value for B_{AGB} = weight of live biomass above ground (measured as mass of dry matter per hectare); B_{BGB} represents the average weight of living biomass in the soil during the production cycle. For CF_B the value of 0.47 is used, it results

$$CS_1 = 47,88 + 0,47(B_{AGB} + B_{BGB}) \times A$$

In the second stage of the study, on the basis of which this research was built, there are some consequences with practical application. First of all, agriculture has been provoked by the prolonged attraction of subsidy funds and tends to depend on the financing given as an incentive without at least progressively introducing an index for calculating the increase. For 1: 1 scale evaluations, the methodology used was a real challenge in addition to the eloquent studies from the Recommendations for calculating the C stock of soil, we had to introduce a correlation indicator to estimate the increase in application of environmental requirements, at the humidity index we introduced the atmospheric pressure which has the influence of favoring the soil moisture in the conditions of climatic vulnerabilities on the storage and storage of CSAU at ground level. Therefore, depending on the E element independent of the works in the soil in time, we revealed a stagnation of 5-8 months per year in which the storage C at ground level does not stagnate, following the Spor index to be an average compared to 4 - 6 months preferably: 4 months when it is presumed to be a long day, so during the summer the dynamics-humidity variable being low. This results in the following formula

$$S_{\text{phor}} = \mathrm{P}^1 + \mathrm{CSAU} + \sum_{k^1}^{n} \frac{E^1}{t} \quad (2)$$

n = number of periods for which data was collected in a given t,

k_1 = extension coeficient to a number of measurements

C_{SAU} = effective density C at the value SAU(per ha) in Kg/m3 C_{SAU}

P = soil nutrient power measured as a coefficient of weight C in mass, qualified as an index measured progressively at A surface area at depth, a_1=0-10 cm^3, a_2=0-30 cm^3,a_3= 0-40 cm^3

E^1= item independent of the atmospheric pressure variable that determines the humidity

S_{phor1}= Increased absorption of C in the soil at variable atmospheric pressure

The nutritional power of the soil must be measured at the given area by conversion to the volume of a sphere, r being the relative correspondence to a, being calculated at the slope coordinate 0˚-5˚, 5˚-10˚, 10˚-15˚ and over 15 . Thus the tolerance r at 1 ha is 0.72 / 0.90 / 1.08 / 1.14. These determinations take into account Topometric Tables by ing. I.G. Niculescu (1929)[16] The elements of probability have in view the atmospheric pressure exerted at the level of the atmosphere that favors the humidity coefficient in air other than the humidity at ground level, so not as a linearly determined coefficient. Result

$$P = A \times \sqrt{\frac{4}{3}\pi r^3}$$

Table 3. Forms of agricultural land management(own documentation)

Land area cut per hecta	Degree of land ocuupation
Surface 1ha the plot 0,3ha *	70%
Surface 1ha the plot 0,03ha *	63%
Surface between 10-30ha	75%
Surface 30ha 2 different cultures	75%
Surface >30%, 3 different cultures	71%
Proportion SAU Total area ≥5%	≥ 5%

4. Patents

Many pawns of the debate would believe that agricultural producers could create imbalances by actually giving up agricultural work and, on the one hand, there are such ideas, but we must take advantage of the advantages of agricultural ammunition, this stage and the cyclicality of agricultural production increase the capacity for development and innovation in the field, so that giving up is never the first solution, local support having a standard role depending on the environment in which the plants are grown, the need for light, soil properties, etc. the need for standardization and accountability of agriculture as a fundamental economic system is under pressure from meeting environmental standards, converging knowing that about 40% of the CAP budget is considered to be a contribution to climate action. Therefore, the ambitious reforms allow a wide range of producer subjects access to subsidies, there will be incentives to reduce the long-term effects of greenhouse gases and a significant increase in organic production is expected due to the double environmental benefits and animal welfare. The ability to efficiently manage the ratio of environmentally beneficial conditions during periods of absorption of new production technologies can be difficult, but to reach the C storage threshold in soil at a rate of 4%, a framework is needed to allows this stimulus to encourage and support innovation so that we can expect a significant increase in the relativity of this standard. These impact assessments of agricultural subsidies can also allow us to highlight the high level of concern in environmental investments, with effects on production and the longevity / increase of production obtained, which are under increasing pressure to meet the needs of a growing population. [17] The balance of imports and exports in agriculture is worrying, while the movement of production costs does not seem to be around the perfect balance. In recent years there has been an increase in the area of agricultural land, while there is an upward trend in increasing productivity gains. The supply and access to fertilizers are well developed in the market, and the properties of the soil are improved in critical periods for agricultural production. And because soils are highly variable, they lead farmers to apply local methods adapted to current production requirements for crop management and forecasting. The big concern is the responsibility of farmers towards soil, envi-

ronment, water, the three components adding health, soil health means the health of harvested fruits, fodder and animal welfare, the synthesis of increasing yields creates new steps for the period after incentives from subsidies.

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Acknowledgments: S_{por} represent the increase of C absorption in the soil at the variable atmospheric pressure is an experiment of the authors.

Conflicts of Interest: "The authors declare no conflict of interest."

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