ECOLOGIC AGRICULTURE – ROMANIA'S EFFORTS FOR THE FUTURE'S AGRICULTURE

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Key sectors of modern society development, agriculture could not stay out of the debates taking place today on issues of sustainable development, one of the biggest challenges of the contemporary economy. The concept already established in the decision, thinking and everyday speech, sustainable economic growth comes to replace the traditional type of economic growth whose shortcomings have been analyzed by many prestigious economists. Large-scale development of the new agricultural technologies has led to significant changes in the allocation of resources in sustainable agriculture practice. Starting from the premise that the compatibility with modern society is based on changing fundamentals in resource allocation, it is appropriate to present a new approach to industrial agriculture, especially those concerning both the limitations of using chemicals and the relationship between agriculture and the environment.

Key words: agriculture, ecologic agriculture, EU agriculture, common agricultural policy

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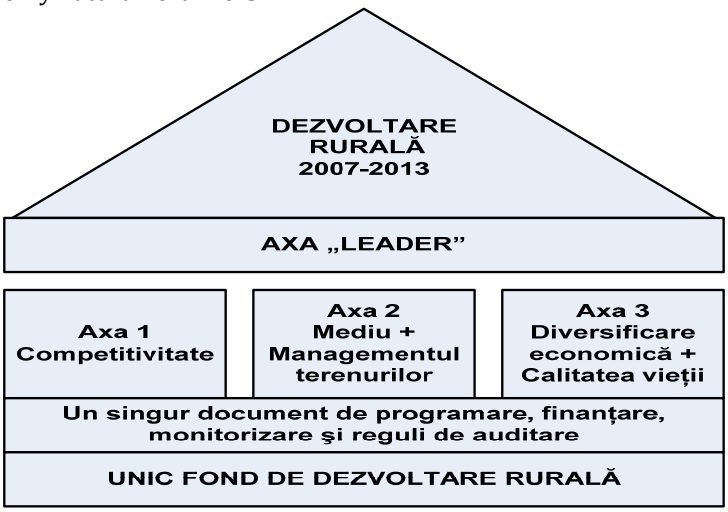
1 – Industrial agriculture – concept, practices, challenges

Getting agricultural products is the result of various combinations of resources within certain and precise conditions. However, it is well known the fact that production resources in their various combinations may give different results, either in terms of physically or costs and profits evaluated production. The balance between the different resources categories affects their yield and in a higher or lower degree, allows expression of their synergistic effect.

Industrial agriculture means the wide use of specific agricultural machinery (tractors, combines, etc.), chemical treatment at over 250 kg active substances per hectare and it is consistently achieved for land improvement works and rotation.

Agricultural development in industrial system entails extensive use of chemical fertilizers of nitrogen and phosphorus in particular. But the former approach of farming has several drawbacks which were identified and ranked in a very comprehensive literature not only economical.

Among its major shortcomings, one should bear in mind that it proved to be a huge resources consumer, reducing or even ignoring the importance of the social issues in the context of the current global dynamics. On the other hand, there is already a growing trend in promoting the organic farming, which involves using only natural fertilizers.



Source: authors' elaboration according to the official data

For Romania, it is virtually impossible to stop abruptly to industrial agriculture based on chemical fertilizers, as long as the production per hectare or live meat is three to four times lower than the achievements of Western countries. That does not mean that the organic farming is to be given up.

Moreover, the National Rural Development Programme 2007-2013 schematically presented in the diagram above, there are four priority development axes, including Axis 2 which represents the important measures meant to improve the environment and the countryside.

Without ignoring the importance of Axis 1 and Axis 3, the main concern of this study is directed to Axis 2, Environment and Land Management, and in the following table, financial resources are scheduled revealing the government measures taken by the policy makers in Romania's agriculture.

Allocated funds to support the Axis 2 measures
(UM = ROL)

Measure	Public Expenditures	Private/Farms' Expenditures	Total Cost
211 Support to farmers in the mountain less favoured areas,	607.754.544	-	607.754.544
212 Support to farmers in other less favoured areas than mountain,	493.083.875	-	493.083.875
214 Payments for Agro–environment	936.233.617	-	936.233.617
221 First forest on the agriculture land	229.341.338	34.269.395	263.610.733
TOTAL	**2.266.413.374**	**34.269.395**	**2.300.682.769**

Source: authors' elaboration according to the official data

Considered high priority at present and also for a significant period ahead, specific and operational objectives and eligibility criteria for each measure under *Axis 2 - improving the environment and the rural zones* concern:

- *Support to farmers in the mountain less favoured areas,* meaning, among other things, the continued use of 2,520,000 ha agricultural land, thereby maintaining the viability of the rural areas and also maintaining the sustainable farming;
- *Support to farmers in other less favoured areas than mountain*, thereby understanding financial support for those land users in areas where agricultural production is quantitatively and/or qualitatively reduced, due to natural conditions and where the balanced environment is very important to maintain as established between agricultural practices and natural conditions;
- *Payments for Agro–environment* which support the sustainable development of rural areas because:
- Meet the increasingly higher demand for the environmental services company;
- Encourage farmers and other land managers to serve the community as a whole, by introducing or continuing to apply agricultural production methods compatible with the protection and improvement of the environment, the landscape and its features, natural resources, the soil and genetic diversity.

To ensure eligibility, the beneficiary must comply with several requirements, among which the most relevant are:

- marking plot boundaries used when cultivated with the same crop with neighbouring parcels by farmer- made born;
- providing all the information requested by the Agency for Payments and Intervention for Agriculture, within the deadlines;
- allowing the monitoring of the Agency for Payments and Intervention in Agriculture or other bodies entitled there to;
- exploiting the agricultural land with an area of at least 1 ha and agricultural parcel area should be at least 0.3 ha;
- Declaring all the agricultural parcels.

Under penalty of criminal prosecution, signing the application in a real, complete and perfectly valid form of the direct payment for the area, including its attachments and the list of areas. A multitude of inputs are trained in the agricultural production of a good or service. Earth and every land resource, seeds, fertilizers, agricultural machinery, fuel and lubricants or labour resources are some of the most

important inputs. In agriculture, the processes of transforming inputs into outputs is through specific work processes, as a specific field of business which is conducted under the impact of natural conditions in an organic blend with the natural process of growing and developing the biological material (live body plants and farm animals). These transforming processes have the meanings of a valuation process of production factors and, on this basis, signify the creation of added value, the source for the recovery of the advanced fixed capital (depreciation of capital goods) and the remuneration of the production factors (the classic triad: land, labour, capital) or, in other words, these actions are the source of the income of those directly and indirectly involved in the economic activity of the holding (entrepreneur or trader, for the income as an entrepreneur and owner of the property, employees who are human resources, by income labour, the state for the taxes and so forth.)

Both nature and technical and economic characteristics of the transforming inputs into goods and/or agricultural services are essentially determined by the involved managers' economic behaviour and options and also by the natural conditions in which the farm operates, undoubtedly.

These are all derived general objectives of level one ranked which should determine both the selection of the practiced business lines and the intensity at which they will take place.

As a result of a long series of options available for the farm, there is a certain variant of action (business lines, allocation of resources, conditions more or less favourable for the manifestation of the productive potential of the biological material, etc.) out of a set of possibilities. Each variant implies a characteristic of its own processes of transforming the inputs into outputs and of its economic efficiency.

As the second element that determines the processes of transforming the inputs into products and/or agricultural services, *the technology* depends on many other factors such as technical progress and the possibilities for its adoption, available resources, the climatic conditions, economic environmental characteristics and, in this case, the development and functioning of the specific markets (inputs and products/agricultural services).

A particular technology determines both features of the labour processes and the sequence and their combination. Technology also influences the allocation of resources and, ultimately, the effectiveness of the transformation of the inputs into specific outputs from production.

But the agriculture is found lately not only an economic sector producing agricultural commodity profits. First of all, farming is a way of life. Similarly, the rural area is not just a production space, but a social and cultural one, having complex implications on the lives of an entire nation, region or union of states. The phenomenon of the global warming increase leads to excessive desertification of the agricultural lands, which requires new technology, leading to increasingly larger production on ever smaller areas.

A special accelerated phenomenon is the changing eating habits, especially for the people of China and India, where about 35 per cent of the world population is concentrated.

It also has led to new challenges for the agriculture which must ensure two to three times more higher a production of meat and fish than at the beginning of the century.

2 – Development of the Sustainable Agriculture

In addition to a great wealth of knowledge, the growth and the diversification of the production goods, the development of the human society – in general, and of the activities on the soil – in particular, led to the emergence and the rapid increase of many pollutants with negative impact on the ecological balance of nature, degrading the essential factors of life: water, air and soil.

This state is downright paradoxical, especially evident in the recent decades and shows that man has become an important pollutant factor of the environment. To meet the increasing demand of the growing population in terms of satisfying different needs, people are exploit their environment more and more intensively. This fact has extremely dangerous consequences on the state of the natural resources and on the environmental quality.

The concept of *sustainability*, as shown by the literature relates to the use of resources, given their limited volume. Indeed, the management of resources is defined as sustainable if its ability to restore was known, and its exploitation was not exaggerated over a certain threshold.

In general, the topic of sustainability is approached related to the renewable natural resources, i. e. those who have the ability to reproduce or regenerate: soil, forest, flora and fauna, etc.

Resources that have not this feature are defined as exhaustible resources. Their optimal exploitation or the substitution of one resource with another should rather matter concerning these resources.

At this stage, the concept of sustainable development enlarges its way more and more evidently.

It was adopted by the UN Conference Rio de Janeiro in 1992, where it was defined as the development able to satisfy the needs of the present without compromising the ability of future generations to meet

their needs. The concept of sustainable development was formed as a necessity of reconciliation between economic development and environment.

The economic development can not be separated from the consequences of human activity on the natural environment. Establishing a boundary between the natural environment and the economy is very difficult. There is a very keen relationship between the economic development and the environmental quality.

On the one hand, long-term growth is limited by the need to preserve the environment, and on the other hand, the economic development and the environment improvement can not be done without resources, which require sustained economic growth.

Developed countries have framed national strategies for the sustainable development which was declared a strategic goal by itself and in this respect there were specific laws corresponding to modernizing technologies and growing the economic efficiency. Policies pursued by the countries of the world, as well as the environmental restrictions imposed on national, regional and global levels can have a major role in the sustainable economic development as a whole.

Sustainable development in an economic approach involves ensuring a certain stream of incomes and a population's decent consumption level and living standards for an indefinite period of time.

But maintaining a certain high level of income requires also a high level of wealth (stock of capital and natural resources), which should be spent very carefully and wisely.

Rationality is to allocate a portion of revenues in a given period to rebuild wealth, at least at the level existing at the beginning of that period. In this context, sustainable development requires compliance with several regulations such as:

- ♣ Natural resource has multiple functions: economic, biological, recreational but technical progress can not be applied uniformly to all these functions. A critical natural capital is necessary to define as to be subject to minimum standards of salvation, thus results a threshold of utilizing this capital, in order to preserve a certain natural stock;
- ♣ The utilization of the renewable natural resources should not be higher than the usual renewal rate of those resources;
- ♣ The exhaustible resources should be treated at all times in terms of their potential replacement by the renewable resources;
- ♣ The emission of waste should be less than their capacity to be assimilated by the environment.

The reason of this precautionary approach is primary and appears when adopting some of the most conservative options meant to enable the future generations to preserve their potential choice; this principle is even more justified, as the scale of potential hazards to which the natural capital is exposed is expanding more and more.

The general theory of sustainable development approaches the agriculture due to its utmost importance, as it fulfils the essential functions of human existence and nature.

Sustainable development provides the restoration of the connections between agriculture and nature, maintaining clean the environment and ensuring the human's and animals' safe health.

Promoting production systems that reflect the respect for nature and life, sustainable agriculture is a viable alternative to intensive industrial agriculture as it emphasizes the use of the inexhaustible natural resources and the local economic and social resources.

Thus, sustainable development of agriculture provides the recovery and efficient use of all the agricultural resources contributing to broadening the economic base of the rural areas and also ensures a balanced habitat by combining alternative agricultural income with other income resulting from the complex and multifunctional development.

Also the negative effects are eliminated, as the agriculture is a strongly risky business.

Sustainable agriculture ensures a full use of the renewable resources in the ecosystems, but in limited circumstances, it also rationally uses a wide range of the industrial inputs such as modern machinery, plant substances, fertilizers, etc.

Therefore, sustainable agriculture can operate economically profitable and fully compatible with the ecological constraints. A major coordinate of the European and worldwide agricultural policy in Europe, the harmonization of the agricultural development and environmental protection would increase the general positive contribution of the agriculture to the environment and also could minimize the pollution caused by agricultural activities.

A coordinated system of national and international rules and regulations should limit the negative effects of the modern intensified agriculture, thus allowing their monitoring, since the *"polluter pays"* principle extends its application area. The supply organic soil, climate conditions and the need of different crops are all essential for the sustainable development.

Mitigating the adverse natural elements of a particular culture in the current agricultural practice alone, such as more or less aggressive artificially created varieties or favourable conditions for their development, is not sufficient.

New solutions should be further considered with a view to obtaining high yields of agricultural crops and sound protection and conservation of the land fund and the environment.

Knowing closely the intimate mechanisms of the sustainable agriculture, which are perfectly integrated into the overall harmony of the nature, may constitute an outstanding advantage in the fight for food security of the population, according to the requirements of a healthy food and quality.

3 – Organic farming, a new formula of sustainable development

The new organic conception of agriculture is considerably increasing its way lately. While benefiting from a recent international recognition, organic farming presents undeniable potential for development, representing an increasingly convincing alternative for the (industrial) conventional agriculture. Developed countries have become more aware of the modern technologies' potential, the fragility of the environment and of the human capacity to damage it. More and more governments are concerned and deeply involved in this matter and significant financial funds are allocated for the promotion of the organic farming. According to the purposes of the EU rules, the organic would be defined as a system of farm management, implying significantly restricting the fertilizers and thorough control of the pest chemicals, ensured at all stages of production and marketing. The terminology used to define the concept varies in different languages as follows: *biologic farming* (French, Italian, Portuguese, Greek, Dutch), *ecological* (German, Spanish, Danish), *organic* (English).

Whatever names it wears, organic farming differs from the conventional agriculture by some distinctive features which offer a number of certain advantages, namely:

- the absence of soil and groundwater pollution due to chemicals;
- increased biological diversity of plants and animals;
- sustainable preservation and enhancing of the soil fertility;
- natural methods of crop protection;
- maximum use of local natural resources;
- Reduces the fossil energy consumption;
- Produces food of high nutritional value and quality;
- Preserves the rural ecological development and non-agricultural habitats.

Organic farming can provide solutions to overcome the problems faced by the conventional agriculture, while ensuring the growth and maintenance of soil fertility, eliminating the different forms of pollution as a result of the applied technologies, in fully compliance with the uniform regulation for the environment protection and reducing the fossil energy consumption.

Organic farming involves limiting, diminishing or excluding the chemical inputs, waste recycling and minimal intervention on the ground, without cancelling to keep the pace with the modernization. It also represents an ever more relevant criterion for assessing the agricultural technologies to minimize the environmental pollution and for estimating the long term viability of the agricultural system.
Therefore, the effect produced by the organic farming is a multiple one meaning a low pollutant impact and ensuring the premises for a healthy diet and living.

4 – Trend of economic and environment harmonization

The European Member States all the more emphasis on the ecological design coupled with the economic vision. The economic and ecological approach to the agriculture problems aims at maintaining and increasing the production capacity of the agro - eco - systems, preventing pollution in its various forms and also making profits. Economic and ecological vision is looking to the optimization of the territorial division of the crop area, so that the land should maintain and increase its fertility.

In this regard, a special role has crop rotation and also plant rotation and cultivation technologies in order to obtain increased quantities of agricultural highly efficient products while maintaining and amplifying the soil fertility and at the same time reducing and even annihilating the risk of pollution.

The environmental benefits are part of series of long-term economic advantages which limits however the short-term economic benefits. Usually, they are positively correlated with the economic benefits, but they do rarely work vice versa. In the European Union, a pronounced shift towards applying organic methods of production is effectively in force to ensure sustainable development of the agriculture. But most of the studies which compare the farming methods estimate a reduction of 10 to 30 % of the average income in the organic farming against the conventional one. The organic farming systems determine indeed lower average yields due to the production ex-tensification, but the

agricultural and rural development policies promoted in the developed countries provides a compensation system for the income losses.

In addition, the organic products could win very remunerative prices and this element has a considerable importance. Organic farming can play a significant role especially in the regions and areas where agriculture is under the negative impact of the natural factors (such as mountain ribs, desert or low natural fertility land etc.). On the other hand, nowadays, there is a growing consumers' interest for high quality products. The intensive use of the synthetic products such as fertilizers and treatments targeted consumer's demand towards more natural agricultural products.

Despite the undeniable advantages and due to which it continues to gain more supporters, the organic farming is often criticised because of the low yields compared to the conventional production systems. Apparently, this type of agriculture has increased costs. They are largely explained by the dispersion of production, the small size of the units, specific difficulties in processing, conditioning and organizing the distribution and sale of the products and most of all, using more costly culture techniques are required as well. To ensure the necessary economic optimum operation of such structures, full attention should be focused on minimizing the costs and maximizing the use of the resource and incomes generated from organic products whose demand is continuously increasing while prices are more appreciated. Therefore, the costs related to the organic production systems represent an important element in the competition on the agricultural market.

5 – Romanian policy makers' approaches

In the recent years, Romania has started to pay increasingly larger attention to the organic farming. National Programme for the adoption of the convergence criteria includes short and medium term measures that favour it.

Also, SAPARD National Rural Development Plan provided funds from the European Commission in collaboration with the Romanian government in order to financing micro - projects to adopt organic farming methods and natural landscape preservation.

The National Authority for the Organic Products was established in every county and is represented by a specialized responsible for this sector.

Also the National Federation for the Organic Agriculture was constituted and accredited to Romania specialized inspection and certification bodies abroad.

Development of organic production is supported by state subsidy allocation.

Thus, for example, subsidies in the crops (wheat and pulses), or those allocated for the production of meat and organic eggs exceeded ROL 30 billions.

A special place is directly located to support the farmers in the state vegetable, as a subsidy to certified organic crops and organic vegetable fields, solariums and cooler conservatories. Also, a threshold of 250,000 Euros loans are granted by the Farmers' Program, as investment for the processing organic products. A very important fact is farmers' non-refundable financial support for the conversion to the organic farming methods. According to the official statistics, while the areas cultivated through the organic methods were 17,500 ha in 2000, by the end of 2011 they were already more than 1,000,000 ha, which demonstrates highly accelerated dynamic in allocation the acreage in organic farming.

However, even if there are more and more organic farms that sell their products on the domestic market and currently export significant amounts, the to diagnosis of a predominant concern to the organic farming in the country still remains excessive. Studies have shown that taking into account the natural soil and climate conditions, and also related to the current economic situation, the organic farming system could be extended to more than 10% of the cultivated area.

Organic farming is an interesting economic alternative for Romania, even if, after so many years of joining the European Union, our country still poses major structural and technological handicaps in rural holdings compared to the developed countries that have modernized the industrial technologies and management.

Lack of funds for purchasing the farms' inputs, the high share of employment in the agriculture out of the total employed labour force, are clearly disadvantages for the local farms, but they also could be considered as arguments to advocating the practices of organic farming.

In addition, Romanian farmer would be encouraged to achieve a higher profit practicing this type of farming since, even making an average lower production compared to the intensive activity it would become more profitable because of the price difference for these products.

It is increasingly widespread the belief that naturalness gives high quality to the agricultural products and livestock obtained by such special methods in a clean feeding environment and these are also the arguments of a decisive contribution to the Romania's beneficial integration in the European farming land.

One of the main prerequisites is the promotion of the organic farming concept through consumers' awareness of the benefits of eating organic foods, so they could understand and adapt their behaviour in compliance to offering a higher price for clean and high quality-assured products accorded by a specialized accredited inspection body.

Producers' information and training rely on promoting the concept of organic farming, which also requires sustained actions involving numerous public and non-governmental professional organizations. The education in the spirit of the application of the organic agriculture and the specialists' training in this field is a growing concerns in the activity of al the institutions of higher education. As part of the promotion campaign of the organic farming in the European Union, by the initiative of the General Directorate of the European Commission for Agriculture and Rural Development, the site *www.ec.europa.eu/ agriculture / organic / home.ro* was created and its main objective is to inform the public about the organic farming system and is also a starting point in the promotional campaigns in different Member States.

To the same end, the European Commission provides support for up to 50 per cent of information and promotion Programme submitted by and inter-professional sector, which is participating with at least 20 per cent of the real costs while the state budget provides the co-financing.

The new EU production regulations on the control and labelling of the organic products based on the launch and operation of a new Council Regulation are to be distinctively mentioned, as they contains clearly defined objectives and principles and general rules referring to the organic production.

The objective of this new legal framework is a new map for the continued development of organic agriculture. The principal aim is sustainable cultivation systems and a wide range of high quality products. In this process, greater environmental and bio- diversity protection and also high standards of animal breeding require to focus in the future.

However, synthetic chemicals and resources are allowed, only in exceptional cases. If adequate alternatives are missing, one could use these materials on the condition that they were authorized and included in the approved list of the Annex to Commission Regulation, which is thoroughly reviewed in detail by the Commission and the Member States.

6 – Requirements for the European community logo

Food can be labelled as "*organic"* if at least 95 % of their agricultural ingredients are organic.

Organic ingredients in the non-organic foods could be listed as accepted organic ingredients in the list provided that these foods were produced according to organic law.

In order to ensure greater transparency the code number of the control body must be given.

By law, beginning with July 1, 2010, packaged organic food manufacturers must use the EU organic farming logo. However, the use of the logo on the organic food which was produced in the third-party countries is optional. With effect from 1 July 2010, the location of the agricultural ingredients production must be included when using EU organic farming logo. The distribution of the organic products from third-party countries is enabled on the common market if only they are produced and controlled under the same or equivalent conditions. The new regulation favoured the extension of the scheme to imports. Previously, the organic food from the recognized by the EU third-party countries and goods whose production was controlled and authorized by the Member States could be imported exclusively. The procedure for the import licenses will be replaced in the future with a new import regime. Inspection bodies operating in the third-party countries shall be authorized and monitored directly by the European Commission and the Member States. This new procedure allows the EU Commission to supervise and effectively monitor and control the imports and the guarantees of the organic products.

Additionally, the acceptance of the EU rules on organic aquaculture and seaweed production founded the new legislation. The uses of genetically modified organisms (GMOs) in organic production and also of products containing such organisms are strictly forbidden. Moreover, they can not be labelled as organic unless the proportion of the ingredients is below 0.9 per cent and if in those outputs they come accidentally or unintentionally.

At the time in question, the European regulation on organic farming and labelling of agricultural products and foodstuffs made part of the primary EU's Common Agricultural Policy reform and represented the conclusion of a long process by which organic farming has received official recognition from the 15 countries that were EU members.

Initially, only crop was approached in the Regulation on organic farming. Subsequently, additional provisions have been introduced for the production of animal products as well. These rules were referring to the animal feeding, disease prevention, veterinary treatment, animal protection, livestock breeding in general and the use of the manure.

The use of the genetically modified organisms and of the products they generated was completely excluded from the organic production. The import of organic products was also approved from those third-party countries whose production criteria and control systems may be recognized as equivalent to EU ones. Commission Regulation contains numerous annexes. Within these, it lists the following:

- Products which are allowed in organic farming such as fertilizers, soil conditioners and pesticides;
- Minimum-size requirements for holding and movement areas, including pasture for the organic livestock, depending on animal species and stage of development;
- Non-organic animal fodder, feed additives and aids in the production and feed processing which are allowed in organic farming;
- Non-organic ingredients, additives and processing aids (including yeast production) which are permitted in the organic food production;

Commission may supplement these Annexes and also the other parts of the Commission's Rules, so that they should be kept up to date regarding the ongoing technological and scientific developments and also the organic market evolution. To facilitate the implementation of the new rules and to integrate the expiring derogations in the past Regulation transitional measures concerning organic farming were established.

In addition to EU legislation on organic farming and organic production, farmers and processors who work organically must adhere to the rules generally applicable to the organic agricultural production and processing. This means that the general rules for the organic production, processing, promotion, labelling and control of the agricultural products should be also applied to the organic products.

Conclusions

Organic production must respect the natural systems and cycles. Sustainable production must be made possible using biological and mechanical production processes through the earthbound production without using the genetically modified organisms. In organic farming, closed cycles using internal resources are preferred instead of the open cycles that rely on the external resources. The external resources must be ideally limited to the ecological resources from the other organic farms, natural materials or naturally obtained products based on low solubility fertilizers. As a result of the continuous expansion, completion and updating process, the EU Regulation provisions have become very complex and detailed, ensuring common minimum standards across the EU. In this way, farmers' best practices expanded and consumers' confidence consolidated.

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