



# *Resilient Society*

*Multidisciplinary Contributions from Economic, Law, Policy, Engineering,  
Agriculture and Life Sciences Fields*

**Editors:**

**Alexandru Ozunu, Ioan Alin Nistor, Dacina Crina Petrescu,  
Philippe Burny, Ruxandra-Mălina Petrescu-Mag**

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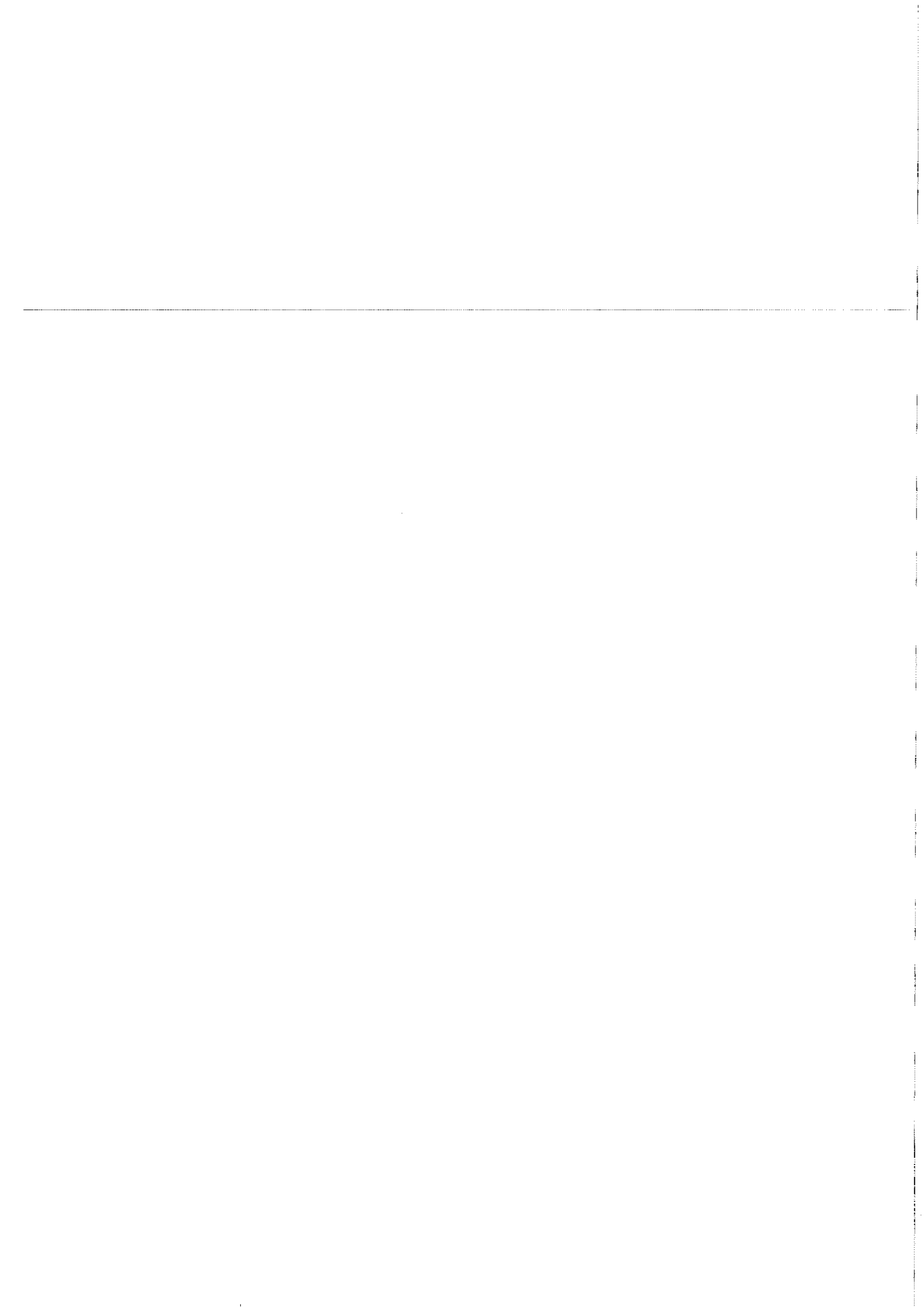
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# Resilience to Environmental Pressure: The Role of Agriculture in Wallonia (South of Belgium)

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## Abstract

Agriculture is under environmental pressure since its modernization, mainly after the Second World War, which generated the use of large quantities of chemical products as pesticides and fertilizers. However, during the three last decades, the preservation of the quality of the environment progressively became a priority of the Common Agricultural Policy (CAP) and different measures were successively implemented, some of them being compulsory and other ones not, or not yet. This paper focuses on the implementation of agricultural policy measures at the regional level of Wallonia, the Southern part of Belgium, a founder State of the European Union. Three aspects are presented and analyzed: (1) the greening of the CAP, through the so-called “green payment” and its consequences (permanent pasture maintenance, crop diversification, and the establishment of ecological focus areas); (2) the development of organic farming; and (3) the increasing number of specific quality labels. The paper argues that, supported by the CAP and the Walloon regional government through financial, research, education, extension, and advertising measures, the Walloon agriculture is farmed on the direction toward a more sustainable model, a more resilient one to environmental pressure.

**Keywords:** Wallonia; green payment; organic farming; specific quality products; ecological focus area.

## 1. Introduction

During the “golden period” 1950-1980, European agriculture registered tremendous progress in term of yields, leading not only to self-sufficiency, but even to structural overproduction. However, the negative side comprised economic and environmental problems which unavoidably appeared and deepened throughout this period. Since the 80's, specific measures were defined in order to take the environment more into account. Therefore, the present paper takes these pro-environmental measures under scrutiny, with respect to Walloon agriculture (South of Belgium) during the year of 2015.



After more than three years of difficult negotiations (Bureau, 2012), the European Parliament, the Commission and the Council of Ministers reached an agreement in June, 2013. New regulations were published in December 2013, defining a new Common Agricultural Policy (CAP). One of its characteristics is to go further in favor of the environment (Matthews, 2013; Petrescu-Mag and Burny, 2015), especially by creating the so-called “green payment” which must represent 30% of the total amount for direct payments for the farmers in each Member State/region. In order to obtain this important support, farmers who are under given conditions (mainly the larger farmers), must respect three conditions in addition to cross-compliance: maintenance of permanent pastures, crop diversification on arable land and presence of ecological focus areas on arable land. Due to late decisions, the implementation of the new CAP began only in 2015, and not in 2014, as it was previously planned. The following lines show the first results of the implementation of the green payment in Wallonia, trying to answer questions such as: “How most of farms are concerned?”; “What are the main ecological focus areas?”; “How most of farms deal with the new rules?”; and “What would happen if the rate of ecological focus areas increased after 2017? “

In addition, the emphasis is put (in the second part of the paper), on organic farming which is now strongly supported by the European Union (EU) and the Walloon government. Organic agriculture is an important piece of the puzzle that delivers solutions for a more sustainable world (Petrescu et al., 2015). Therefore organic agriculture should be considered in a broader context, relating it to rural development, environment, and society (Daugbjerg & Sønderskov, 2012), transforming the environment-agriculture binom into a priority axis of EU and international environmental policies (Brezuleanu et al., 2013; Gázquez-Abad et al., 2011). Next, the recent evolution of the supply-side is pointed out, the public support is examined, and the consumption of organic products is analyzed. Last but not least, the topic of specific quality products is taken under analysis (in the third part of the study). Some of them include characteristics which are favorable to the environment.

## **2. Implementation of the new common agricultural policy in Wallonia in 2015: a more sustainable model**

### **2.1. The green payment in Wallonia**

The political agreement which was finally reached in June, 2013 led to four legal texts including the Regulation (EU) No 1307/2013 of December 17, 2013, dealing more specifically with direct payments to farmers. Consequently, a new architecture for direct payments was defined, leaving

important decisions to the Member States or even the regions within them (some measures are optional and the relative importance of each of them can vary) (Hart, 2015). There is however one exception: the green payment, which has to account for 30% of the national/regional envelope for direct payments in each Member State/region. There is no choice about it. Indeed, the green payment is considered as very important in favor of the environment and to fight against climatic change.

In Wallonia, the new structure of the direct payments (Walloon Government, 2015; \*\*\*, 2015), after notification to the Commission and its approval, especially about coupled payments (which percentage of the total amount for direct payments is higher than the normally authorized proportion and needs a special approval by the Commission, however respecting the new regulation), is presented in Figure 1.

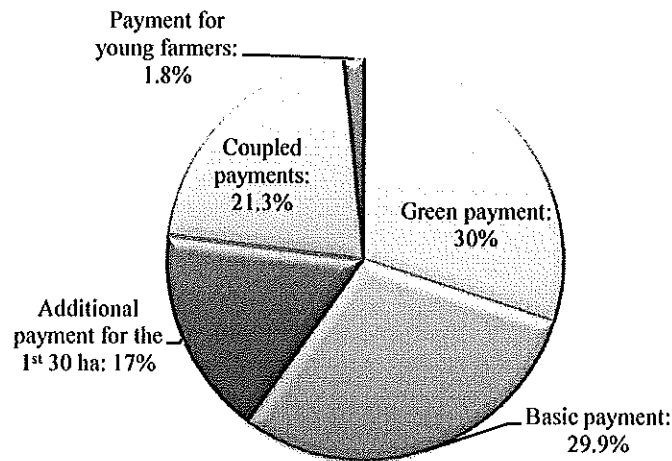


Figure 1. New architecture of direct payments in Wallonia (2015-2020)  
Source: Burny & Terrones Gavira, 2015

The way to grant the green payment had to be decided by the Member States/regions: either proportionally to the basic payment, or the same amount for each eligible hectare. The Walloon government chose the first option, in order to avoid too big losses for some farmers compared to the previous period of 2007-2013. In addition, every year, before August 1<sup>st</sup>, for the implementation during the following year, each Member State/region has to inform the Commission if it chooses to change the implementation ways of the greening.

More specifically, the green payment is linked to three conditions (article 43 of Regulation (EU) No 1307/2013):

- (i) Maintenance of permanent pastures;

- (ii) Crop diversification;
- (iii) Presence of an ecological focus area.

It is important to note that organic farmers automatically get the green payment without any additional constraints and therefore, they do not have to respect the three above-mentioned conditions.

## 2.2. Maintenance of permanent pastures

Permanent pastures are grassland since at least five years. The year of reference being 2015, each Member State/region establishes the reference ratio as the area of permanent pastures divided by the total agricultural area, at the national/regional or farmer's level. In Wallonia, the regional level was chosen. In the future, the reference ratio cannot decrease by more than 5%.

The Member State/region must also define the permanent pastures which are considered as environmentally fragile. These areas cannot be ploughed or transformed for another purpose (according to article 45 of EU Regulation No 1307/2013). In Wallonia, these permanent pastures are all situated in the NATURA 2000 area.

## 2.3. Crop diversification

In order to get the green payment, farmers have to practice crop diversification if:

- (a) They have between 10 and 30 ha of arable land: in such a case, they must have at least two crops and the most important must not exceed 75% of the arable land area;
- (b) They have more than 30 ha of arable land. For this case, they must have at least three crops, the one most important covering no more than 75% of the arable land area, and the two most important no more than 95%.

Land lying fallow, temporary pastures, one gender considered in the botanical classification (e.g., *Triticum*, *Hordeum*, and *Beta*) or one species for Brassicaceae, Solanaceae, and Cucurbitaceae can be considered as "crops".

In the following cases no diversification is requested:

- (a) The farmer has less than 10 ha of arable land;
- (b) More than 75% of the arable land are devoted to the production of grass (temporary pastures) or fallow and, at the same time, the remaining arable land area does not exceed 30 ha;
- (c) More than 75% of the total agricultural area of the farm is devoted to permanent pastures or the production of grass and, at the same time, the remaining arable land area does not exceed 30 ha.

According to the area declaration of farmers for 2015, in Wallonia, 50% of farmers were not submitted to crop diversification, while 16% were obliged to have at least two crops on their arable land, and 33% had the severe obligation to have at least three crops on their arable land. Around 100 farms (less than 1%) failed to meet the criteria (Table 1).

Table 1. Number of farms concerned with crop diversification in Wallonia in 2015

	Number of farms	%
No obligation	6.323	50
At least two crops	2.040	16
At least three crops	4.221	33
Do not meet the obligations	105	1

Source: Terrones Gavira et al., 2016.

#### 2.4. The ecological focus area

According to the article 46 of Regulation (EU) No 1307/2013, farmers must devote at least 5% of their arable land to ecological focus areas when they have more than 15 ha of arable land.

The Member States/regions can choose which are the ecological focus areas among the following (\*\*\*, 2014): land lying fallow; terraces; landscape features, including such features adjacent to the arable land of the holding; buffer strips; hectares of agro-forestry; strips of eligible hectares along forest edges; afforested areas; areas with catch crops, or green cover (subject to the application of weighting factors); and areas with nitrogen-fixing crops.

In Wallonia, all the above-mentioned items are considered as ecological focus areas, with the exception of terraces and afforested areas. Some elements are directly converted into ecological focus areas, but others, like isolated trees for example, need a conversion coefficient to be considered as an ecological focus area (Table 2).

Table 2. Conversion coefficients and weighting factors to transform some areas and landscape features into ecological focus areas

Element	Particularity	Description	Conversion coefficient	Weighting factors	Ecological focus area (m <sup>2</sup> )
Surface elements (ha)	Plot	Land lying fallow	Per 1 m <sup>2</sup>	n/a	1
		Areas with short rotation coppice	Per 1 m <sup>2</sup>	n/a	0.3
		Areas with nitrogen-fixing	Per 1 m <sup>2</sup>	n/a	0.7

Element	Particularity	Description	Conversion coefficient	Weighting factors	Ecological focus area (m <sup>2</sup> )
		crops			
		Buffer strips	Per 1 m <sup>2</sup>	n/a	1.5
		Strings of eligible hectares along forest edges – without production	Per 1 m <sup>2</sup>	n/a	1.5
	Intercrop plot	Areas with catch crops or green cover	Per 1 m <sup>2</sup>	n/a	0.3
	Topographic elements	Ponds	Per 1 m <sup>2</sup>	n/a	1.5
		Group of trees/Field copses	Per 1 m <sup>2</sup>	n/a	1.5
Linear elements (m)		Field margin	Per 1 m	6	1.5
		Ditches	Per 1 m	3	2
		Hedges/wooded strips	Per 1 m	5	2
Punctual (nb)		Isolated tree	Per tree	20	1.5

Source: Terrones Gavira et al., 2016

According to Table 2, it means, for example, that an isolated tree covers an area of 20 m<sup>2</sup> as a mean and has an influence on  $20 \times 1.5 = 30$  m<sup>2</sup> (protection against winds, shadow, etc.).

In Wallonia, in 2015, 54% of the farmers were not obliged to have ecological focus areas (they had less than 15 ha of arable land, or were organic farmers, etc.). Among the remaining 5,828 farmers, 47% devoted between 5 and 6% of their arable land to ecological focus areas, 21% had between 6 and 7% and 29% had more than 7%. A small number of farmers (2.4%) did not reach the minimal level of 5%.

The mean percentage of ecological focus areas reaches 6.9, and the median is 6. So, if the percentage of ecological focus areas would increase to 6, 50% of the farmers who are obliged to respect this constraint in order to get the green payment would be obliged to increase their efforts. If the compulsory percentage of ecological focus area in arable land would be fixed to 7 (a report of the Commission is awaited not later than March 31, 2017 on this topic), 70% of these farmers would be obliged to make additional efforts which could lead to some difficulties.

When farmers have at least 5% of ecological focus areas, it is observed that 79% of them declare only one element, mainly catch crops or green cover (95% of the cases), and 15% have only two elements (Table 3).

Table 3. Number of types of ecological focus areas in Wallonia in 2015

Number of types	Number of farms	% of farms
1	4,487	79
2	850	15
3	230	4
4	76	1
5	30	1
6	13	0
7	2	0
8	0	0
Total	5,688	100

Source: Terrones Gavira et al., 2016

As far as the area is concerned (Table 4), catch crops or green cover represent an overwhelming share: 88.8% of the total ecological focus area in Wallonia. Land lying fallow (4.1%) and nitrogen-fixing crops (3.7%) are far behind. The landscape features are marginal and represent only 2.1%

Table 4. Area of different types of ecological focus areas in Wallonia in 2015

	Area (ha)	%
Land lying fallow	983.7	4.1
Areas with short rotation coppice	9.3	0.0
Areas with nitrogen-fixing crops	898.5	3.7
Buffer strips	206.5	0.9
Strings of eligible hectares along forest edges – without production	99.8	0.4
Areas with catch crops or green cover	21,432.8	88.8
Ponds	1.3	0.0
Group of trees/Field copses	111.1	0.5
Field margin	138.3	0.6
Ditches	42.8	0.2
Hedges/wooded strips	200.8	0.8
Isolated tree	1.6	0.0
Total	24,126.6	100.0

Source: Terrones Gavira et al., 2016.

### 3. The development of organic farming in Wallonia

#### 3.1. Organic production

In 2015, 4.6% of Belgian farms were producing organic agricultural raw material, and the agricultural area devoted to organic farming reached 5.1% of the Belgian total agricultural area. Within Belgium, there is a big contrast between Flanders, where organic farming is very marginal, and

Wallonia, where it has now a significant share of production and is still increasing.

The evolution of the number of organic farms in Wallonia during the 21<sup>st</sup> century is illustrated in Figure 2.

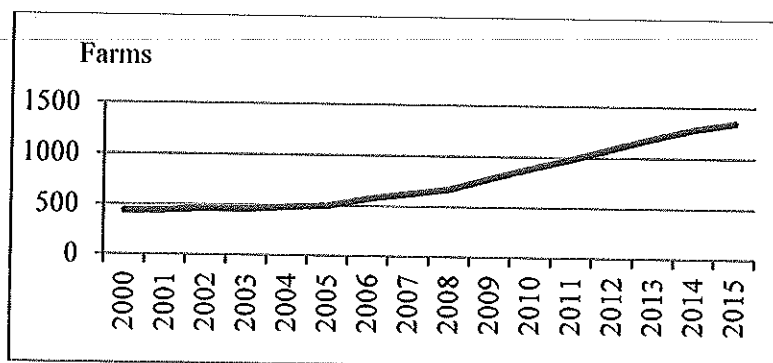


Figure 2. Evolution of the number of organic farms in Wallonia from 2000 to 2015

Source of the basic data: BIOWALLONIE, 2016

Since 2005, the increase rate is remarkable and the number of farms exceeded 1,300 in 2015, which represented 10.5% of the total number of farms in Wallonia. The agricultural area devoted to organic farming followed the same trend (Figure 3) and exceeded 63,000 ha in 2015, which represented 8.7% of the total regional agricultural area. The mean organic farm is a little bit smaller than the mean regional farm (47.1 ha versus 56.9 ha), as organic farming brings some opportunities for small scale farmers (Zeynab Jouzi et al., 2017).

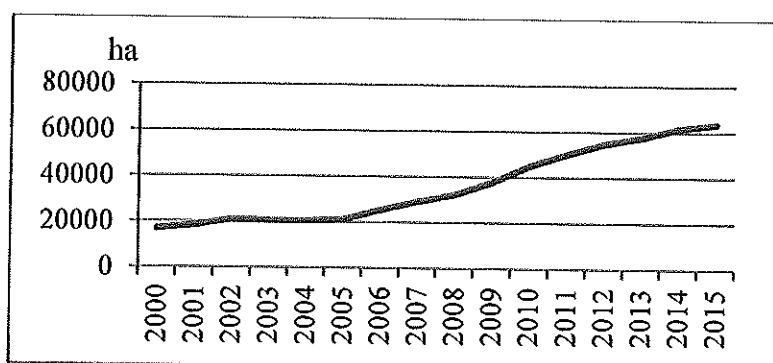


Figure 3. Evolution of the organic farming area in Wallonia from 2000 to 2015

Source of the basic data: BIOWALLONIE, 2016

However, more and more big farms over 100 ha become organic farms, proving the economic opportunities of this way of production. In

Wallonia, 80% of the area concerned with organic farming is covered by pastures (50% of the regional agricultural area), on which cattle for meat and dairy cows are raised. In 2015, the number of organic cattle heads in Wallonia exceeded 77,000 (see Figure 4).

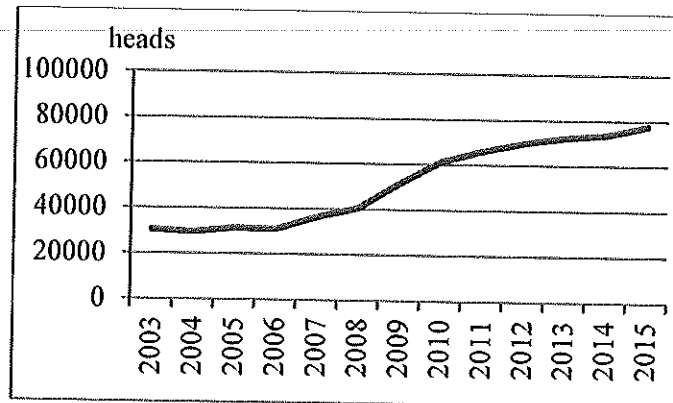


Figure 4. Evolution of the number of organic cattle heads in Wallonia (2003-2015)

Source of the basic data: BIOWALLONIE, 2016

General crops have a share of 18%, the area of organic cereals increases as the demand becomes stronger. Vegetables are produced on 1% of the organic agricultural area. Concerning animal production, the poultry sector is growing rapidly: the number of poultry heads increased by 10% between 2014 and 2015, while the number of laying hen grew by 37%. Between 2007 and 2015, the number of poultry heads doubled, reaching 1.7 million, and the number of laying hen was multiplied by six, reaching nearly 200,000. Organic pigs, sheep, and goats are also raised, but in limited quantities.

### 3.2. Public support

In Wallonia, organic farming is strongly supported by the public authorities, notably through the rural development program of the CAP (Burny et al., 2016) (Table 5).



Table 5. Financial support (€/ha) for organic farming in Wallonia (2015-2020)

Crop	Area of organic farming		
	0 to 60 ha	Over 60 ha	
Meadows and forage crops	200	120	
Other annual crops	400	240	
	0 to 3 ha	3 to 14 ha	Over 14 ha
Fruit trees, horticulture and seed production	900	750	400

Source of the basic data: Service Public de Wallonie

In order to help farmers to change from conventional agriculture to organic farming, the support during the two compulsory conversion years is even higher (350 €/ha from 0 to 60 ha for meadows, 550 €/ha from 0 to 60 ha for cereals, 1,050 €/ha from 0 to 3 ha for horticulture, for example). This support is co-financed by the Walloon Region and the EU and it is added to the direct payments of the CAP. Organic farmers are automatically eligible to the green payment (Hart, 2015) and so to the other direct payments. In 2013, the Walloon government elaborated a strategic plan for the development of organic farming in Wallonia towards 2020. This plan defines several targets for 2020: to reach 1,750 organic farms, 14% of the regional agricultural area, 500 processing enterprises with a total turnover of 500 million € and a market share of 3% for organic products in the total food market. This plan does not only deal with direct financial support to farmers, processors, cooperatives and retailers, but also with research, teaching, extension services and advertising campaigns. In 2016, the Walloon Minister for Agriculture went even further: for 2020 horizon, the new targets are to reach 2,000 organic farmers and 18% of the regional agricultural area. An additional financial support is also foreseen before the conversion process to organic farming.

In 2016, after a consultation open to all citizens, the Walloon government defined its second “Strategy for sustainable development” which presents targets, measures, and indicators. Of course, organic farming has its role to play in this global strategy.

### 3.3. Organic consumption

The total food and non-food organic market in Belgium reached 514 million € in 2015, an increase of 18% compared to 2014. More than 9,000 products are available and, as a mean, the Belgian household bought more than 15 times organic products compared to 2013. There are more and more products proposed to consumers, including packaged and prepared food products. Concerning food products, the market share of organic products reached 2.8% in 2015 against 2.3% in 2014, and 1.3% in 2008. More

remarkably, the total Belgian expenses for organic food products increased by 18% in 2015 compared to 2014, while the total expenses for food products increased by 1.1% only. The organic products which are concerned with the main expenses per capita are presented in Figure 5.

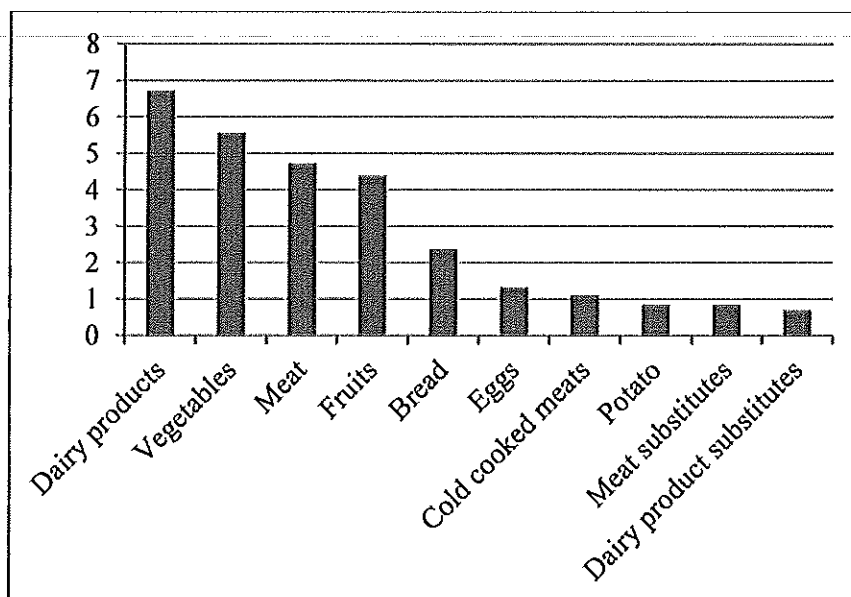


Figure 5. Expenses per capita for organic food products in Belgium in 2015 (€)

Source of the basic data: BIOWALLONIE, 2016

Dairy products are the leaders of the market with 6.72 € per capita, before vegetables (5.57 €) and meat (including poultry, 4.73 €). Fruits are on the fourth position with 4.40 € per capita. So, it clearly appears that fresh products are the most successful organic products. The market share of organic products considerably varies according to the category of food (Figure 6).

It appears that the market share of organic products is by far the highest for meat substitutes (23.5%). However, the market is not large. Behind are eggs (10.5%), vegetables (6.0%), fruits (3.9%), and bread (2.8%) of which the market is much more important. For dairy products, for which the expenses per capita are the most important, the market share of organic products reaches 2.7%.

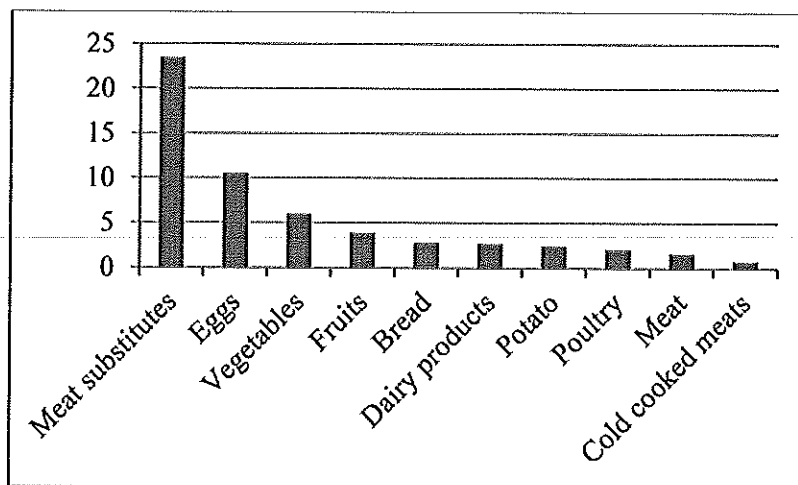


Figure 6. Market share of some organic food products in Belgium in 2015 (%)

Source of the basic data: BIOWALLONIE, 2016

In 2015, 88% of Belgian households bought organic products at least once, and 9% bought at least once per week. The last ones represent 60% of all the expenses. The percentage of buying households (at least once in 2015) varies, of course, according to the products (Figure 7).

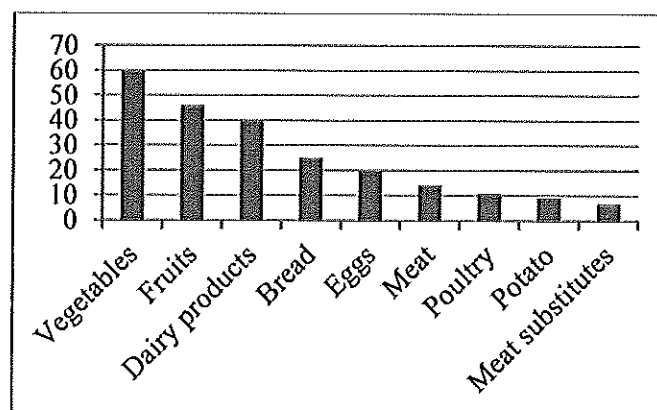


Figure 7. Percentage of Belgian buying households of organic food products at least once per year in 2015

Source of the basic data: BIOWALLONIE, 2016

The highest percentage of Belgian buying households of organic food products is observed for vegetables (60%), fruits (46%) and dairy products (40%). Bread (25%) and eggs (20%) come after. Concerning consumers' profile, high income households with children together with high income retired households represent 50% of the total expenses for organic food products. However, the market share of organic food in the total food

expenses is the highest among the groups of single persons aged over 40, and those aged below 40, with 4.1% and 3.9%, respectively (Figure 8).

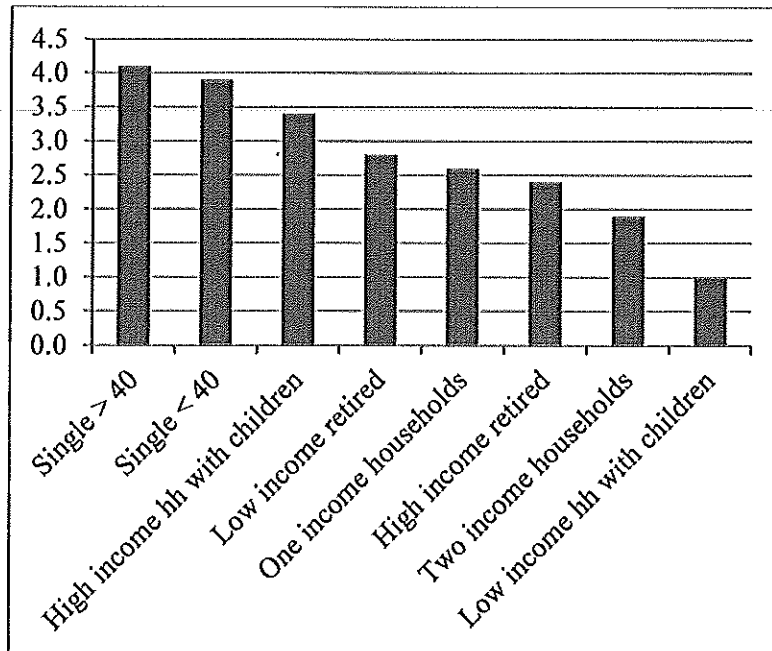


Figure 8. Market share of organic food according to the population group in 2015 (%)

Source of the basic data: BIOWALLONIE, 2016

The high income households with children (3.4%), low income retired persons (2.8%), one income households (2.6%), high income retired persons (2.4%), and two income households (1.9%) follow after that. The share of organic products is the lowest among low income households with children (1.0). Indeed, the prices of organic food products are generally one third higher than the prices of conventional products. The difference is particularly high for eggs. For those who choose to consume organic food, price barrier is often compensated by the trust in the power of organic food to protect human health and the environment (Petrescu and Petrescu-Mag, 2015) or by better sensory attributes (Bryła, 2016; Tobler et al., 2011). In Belgium, organic food products are mainly bought in supermarkets (42%) and shops specialized in organic products (33%). Local shops have a share of 11% (Figure 9). Direct sales are increasing in the food market during the last years. However, the on farm sales of organic products represent only 4%, and open markets 4% of the total organic food market.

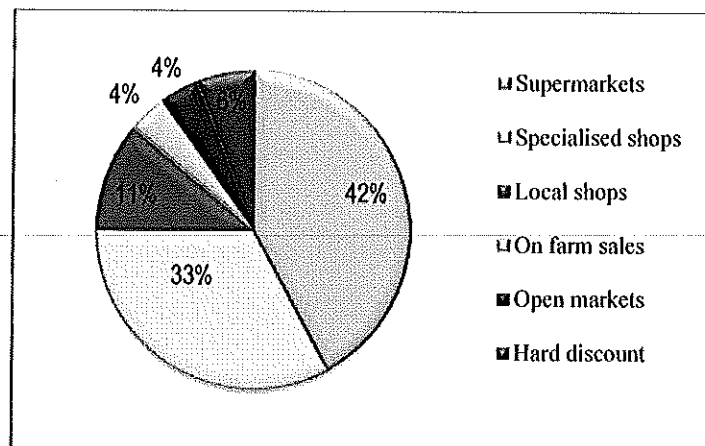


Figure 9. Market share of organic food providers in Belgium in 2015  
Source of the basic data: BIOWALLONIE, 2016

#### 4. Specific quality products

Quality labels are intended to protect the environment, human health and/or traditional products and processes by signaling these features to consumers. Their success largely depends on the level of trust consumers have on them (Petrescu-Mag et al., 2016) and on how important the promoted attributes are to consumers. In Belgium, before the regionalization of the country, the first specific quality product to be officially recognized was the “jambon d’Ardenne” (ham prepared in the forest area of Belgium called “Ardenne”).

Three years before the EU regulation dealing with origin-labelled products, the Walloon government defined its first regulation dealing with specific quality products (1989). Later on, it registered a regional label, called “EQWALIS” at the EU level (2003), and aimed to cover a large set of specific quality products, like the “Label rouge” in France.

More recently, in a legal code gathering all the regulations dealing with agriculture (Government Walloon, 2015), chapter II precisely specifies the regional system for specific products. On July 14, 2016, a new regulation simplified the rules for the registration of a new product. To be registered as specific quality products, the compulsory criteria are the following:

- The producing farm must be family farm;
- The sharing of the added value among the partners of the channel must be equitable, a significant added value being left to the farmers;
- The preservation of a balanced relation between the development of agriculture and the expectations of the society must be achieved.

An additional difference compared with standard products must be recognized. Among the possibilities there are: “the impact on the environment” and “the use of local inputs at different points of the food chain”.

In Wallonia, in 2016, 11 products were registered under the EU regulation (origin-labelled products and traditional specialties). The objective of the government is now to reach as many as 20 products registered by the EU regulation in 2018, in addition to 10 new specific quality products registered at the regional level.

## 5. Conclusions

For the period 2015-2020, the new Common Agricultural Policy focuses mainly on more equitable access to agricultural food and on a better environment. The so-called “green payment” was defined to support farmers’ income while depending on additional constraints in favor of the environment. In Wallonia, in 2015, it appears that 50% of the farmers are not obliged to practice crop diversification and 54% do not have to include ecological focus areas in their arable land. This reality resides in the fact that there are many small-size farms and grassland is relatively important. In addition, crop diversification was already practiced before the implementation of the new regulation and the most common way to ensure ecological focus areas is to use catch crops and green cover (which is not a new practice either). Though few farmers do not meet the criteria to get the green payment, the impact of the new CAP does not seem very important on Walloon agricultural practices. However, if the share of ecological focus areas goes up to 7% after 2017, it will have a more significant impact in favor of the environment.

Another important factor favorable to the environment is the recent development of organic farming. In Belgium, the production and the consumption of organic food products significantly increased during the last years. This is due partly to the increase of the demand and partly to the strong support of the public authorities to organic farming and processing. However, there is a problem of inadequation between production and consumption. Organic bovine meat, for example, is often sold as conventional meat, while the production of organic fruits is too small. Thus, it appears that the farmers are more guided by direct financial support than by the higher prices got on the market. Another question is that it was not sure that the financial support granted to farmers did change their previous practices, as some of them already respected organic rules without recognition. However, it is clear that organic farming represents today a significant share of Belgian agriculture and a serious alternative to

conventional agriculture, though the threshold of 20% cited by Dufumier (2012) is not reached yet.

The third positive point is the increasing number of specific quality products, which are linked to local production and actors and, in some cases, refer to environmental aspects. The development of these products is also encouraged by the regional authorities.

By adding measures linked to the green payment, organic farming and specific quality products, it appears clearly that Walloon agriculture is farmed on the direction toward a more sustainable development model and, therefore it will be more resilient to environmental pressure.

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### Conflict of interest

The author declares he has no conflict of interest in relation to this paper.

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