



**LISBOA
SCHOOL OF
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MESTRADO

**ECONOMIA INTERNACIONAL E ESTUDOS
EUROPEUS**

**TRABALHO FINAL DE MESTRADO
DISSERTAÇÃO**

**YOUNG FARMERS AS INNOVATION ENABLERS IN
RURAL AREAS: THE ROLE OF EU'S SUPPORT IN
A PORTUGUESE PERIPHERIC REGION, TRÁS-OS-
MONTES**

ANA ISABEL NOGUEIRO GUERRA

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ORIENTAÇÃO:

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Resumo

A União Europeia tem sugerido várias abordagens e soluções para a diminuição de assimetrias regionais e para o desenvolvimento das zonas rurais dos seus Estados Membros. O objetivo principal deste Trabalho Final de Mestrado é estudar uma dessas medidas, o Programa Jovens Agricultores, numa zona rural e periférica de Portugal, Trás-os-Montes. Esta região necessita de iniciativas como a do Programa Jovens Agricultores para reverter os fenómenos de envelhecimento e despovoamento e para tornar o estilo de vida rural atrativo para as gerações mais novas, incentivando-as a fixarem-se a longo prazo. Mas serão, de facto, estes jovens agricultores um vetor de inovação e modernização para Trás-os-Montes? Terão uma consciencialização ambiental e sustentável sólida? O uso digital será já uma realidade? Estarão os principais dirigentes associativos a encorajar um desenvolvimento sustentável na região? Conhecerá esta nova geração o modelo de economia circular? E tencionará adotar as suas práticas? A tentativa de resposta a estas questões é feita através dos resultados de um inquérito por questionário distribuído a uma amostra representativa de jovens agricultores e através de entrevistas aos seus principais dirigentes associativos.

Abstract

The European Union has come forward with many suggestions and approaches to decrease regional asymmetries and develop rural areas around member states. The main purpose of this dissertation is to study one of these measures, the Young Farmers Program, in a rural and peripheric region of Portugal, Trás-os-Montes. Since the ageing and depopulation phenomenon is one of this region's biggest threats, initiatives like the Young Farmers Program might represent a gradual reversion and it might contribute to the attractiveness of the rural lifestyle for the younger generations, which is perhaps the region's most crucial necessity. But do these farmers truly bring innovation and modernization to Trás-os-Montes? Do they have a significant environmental and sustainability awareness? Is the digital usage already a reality? Are the associative leaders encouraging the sustainable development of the region? Is this new generation aware of the meaning and potentialities of the circular economy? Does it intend to adopt its innovative and modern practices? A tentative answer to these questions is searched by means of a detailed survey by questionnaire to a representative sample of young farmers in the region and by directly interviewing their main associative leaders.

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I would also like to thank the field experts who were interviewed and who helped in the distribution of the survey for this research project. Without their valuable participation and input, the research could not have been successfully conducted.

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Abbreviations

CAP- Common Agricultural Policy

EAFRD- European Agricultural Fund for Rural Development

EAGF- European Agricultural Guarantee Fund

EU- European Union

IFAP- Instituto de Financiamento da Agricultura e Pescas, I.P.

PDR 2020- Programa de Desenvolvimento Rural 2020

PRODER- Programa de Desenvolvimento Rural

TFEU- Treaty on the Functioning of the European Union

TM- Terras de Trás-os-Montes

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1. Introduction

The continuous escalation of a borderless global economy in the last few decades has paved the way to increasing regional asymmetries felt world-wide, regardless of the development level of each country. These asymmetries are characterized by an imbalance between overpopulated urban centers and depopulated rural areas, to which the EU is no exception. This dissertation focuses on the efforts carried on by the EU in order to reverse its rural areas' declining path, which are portrayed by worrying levels of ageing and depopulation. Although each member state has their own local and specific challenges, there is still a considerable common ground on the rural problematic. The EU keeps working towards joint solutions by designing common goals for the member states that are highly dependent on national cooperation from each member state, so they can be adjusted to specific local needs.

The European Agriculture and Rural Development Fund (EARDF) develops several initiatives which are meant to deal with these rural regions under common threats. The Young Farmers Program was chosen for this study due to its potential of representing a gradual reversion of these threats, although on a very slow pace. Young people who wish to set up as farmers for the first time are given a grant to start developing their project as well as farming training. It is an initiative that could bring renovation and improvement to the EU's agriculture, it could contribute to the attractiveness of the rural lifestyle for the younger generations and it could help slow down the ageing of the agrarian population and start a farmers' generational renewal.

The area chosen to study the Young Farmers initiative is the northeast peripheral region of Portugal, NUT 3 of Terras de Trás-os-Montes (TM), which has been severely affected by the phenomenon mentioned above and has always been a region traditionally lagging behind.

This dissertation is organized in six different chapters. The second chapter gathers the theoretical framework and is divided in two different parts: the first one is the literature review where the most relevant studies that approach this topic are mentioned, and the second one is a brief conceptualization of the Common Agricultural Policy (CAP), its role in the design of rural development programs and a description of the Young Farmer initiative.

Chapter three describes the Methods adopted in the empirical research in order to obtain the results that will later on be displayed. But before moving on to the interpretation of these results, a Territorial characterization of TM was needed, which forms chapter four.

To understand the role that these potential new farmers play in the agrarian sector of TM and if they truly represent the much-needed change for innovation and modernization of the region, an answer was searched by means of a detailed survey by questionnaire to a representative sample of young farmers in the region and by directly interviewing their main associative leaders. These results are explained throughout chapter five. The survey by questionnaire studied these young farmers' profile by analyzing the age and gender distribution and the main reason that lead them to start up a farming business under the EU's wing; the educational background in terms of length, field of study and most important skills considered for a successful performance in their projects; the main difficulties felt in the sector as a young holder; and, lastly, to evaluate their part in the innovation process, how up to date they are with modern trends regarding digital use and sustainable practices. Finally, by interviewing these young farmers' main associative leaders from Agriculture and Farmers Associations, it was possible to corroborate some of the main conclusions that were drawn from the bibliographic research presented in the following section and to confirm or better comprehend some of the survey's most unpredictable results. It also allowed to understand what the biggest constraints for farmer associations in TM are and what they perceive of the EU's initiative for young farmers.

An appendix gathering the survey by questionnaire and the interview script accompanies the dissertation.

2. Theoretical framework

2.1 Literature Review

Rural exodus has become an ongoing trend felt world-wide. It demands an intense and urgent international focus which must be met by regional and local cooperation. This

phenomenon will likely create an unbearable pressure in the biggest urban centers and will perpetuate the shrinkage of rural population.

The European Union has focused much of its attention in finding solutions to this problem since many of its Member States have also been highly affected by it. The lagging regions report (European Commission, 2017) highlights the urgent need of national strategies for local and regional development, focusing mainly in reforms of the labor market and business environment. This could lead to significant gains for the lagging regions which are, unsurprisingly, mainly rural. Yet, these rural areas have usually one or more urban centers where around 50% to 60% of the region's population resides (p. 28), like the case of Porto in the Norte region of Portugal.

A relevant contribution to the study of this issue is the work of Iammarino, Rodríguez-Pose and Storper (Iammarino, Rodríguez-Pose & Storper, 2017) who consider that the future of Europe lies on the future of its regions. They describe the EU's economic, political and social challenge of having to foster economic progress and prosperity while, at the same time, caring and finding solutions to the less dynamic regions. The study develops different economic clubs where it allocates several European regions, depending on their development level. The regions of Eastern and Southern Europe are located in the "L club", the countries that register a low per capita personal income. Some of the common issues that characterizes this group are low employment rates, relative lack of accessibility, lack of attractiveness for investment, weak quality of government and youth and talent loss. There is an urgent need for the countries included in the least developed economic group to turn this backwardness into an advantage which is not an automatic or easy process and not all regions will be able to do so. They are not attractive regions for investment and the firms located there have little external networks and are not likely to be included in specialized clusters or industrial districts. There is a clear lack of place-sensitive development policies which discourages the fixation of talent and firms from the outside world. Many local production structures, often represented by low-tech production, inefficiency and poor management, can't deal with external competition and end up collapsing (Stiglitz, 2002).

The great changes that have occurred in the economic sector in the last decades, namely those brought by globalization, have been a huge driver of change to these regions and have expose them, even the most remote ones, to a global intense competition (Pike, Rodríguez-Pose & Tomaney, 2006). Some have seen this new paradigm as an opportunity and were able to benefit from it, while others proved to have no capacity of competing in

such a globalized environment. What often happens is that only a few regions are truly able to compete in this new context and end up concentrating within themselves the economic activity and wealth, which increases economic divergence and imbalances in high, low or middle-income countries. When the productive specialization of a region stops being competitive, there should be institutional and human capacity to rehabilitate the economic system of these regions (Dentinho and Rodrigues, 2007).

Studies on regional development have highlighted the urgent need for development policies that are better adapted to the different aspects of each region. Many economic development policy-makers world-wide have designed similar strategies to be implemented in contrasting regions, having no real consideration for the specific needs of each (Chien, 2008). A place-based approach would be beneficial and more suitable for regional development since it involves local and external actors and enables the creation of embedded local knowledge and the forming of a sense of community (Barca, et al., 2012). Space-neutral approaches tend to adopt more simplistic measures that aren't always very efficient.

The expansion of global markets intensifies certain global risks which bring along a range of insecurities and uncertainties to the local and regional territories. The greatest challenge for the EU will be to conciliate its efforts for diversity and unity and for decentralization and integration (Covas and Covas, 2015).

The World Bank's working paper on EU regional and rural policy (WB, 2008) emphasizes the need of a self-sustaining endogenous development for these areas in which the Member States' central government, although playing a role of paramount importance, must enable a certain degree of emancipation to the regions for the development of their own strategies which should be, in this way, better tuned to their own specific needs. Fostering the inclusion of regional entities in the decision-making progress is also a way to avoid increasing regional disparities and instead promoting its convergence. This bottom-up approach to local and regional development is more proactive and tends to have more positive results.

It's clear that globalization enabled the socioeconomic weakening of certain EU regions which were already fragile, like the case of the Portuguese NUT 2 region of Norte (Madeira, 2014). There are many pessimistic expectations for the future of rural areas, where the decreasing economic development and infeasibility could lead to rural abandonment by the working population and the few companies operating there to such level that this drastic depopulation phenomenon would leave behind nothing but inhabited

land (Costa et al., 2002). It is vital to create opportunities for development of the rural economy in a sustainable and endogenous way aiming at the development of local autonomy and at some retention of the generated added value.

Other researchers weigh on what to do to the territories that have been forgotten and abandoned, where the inhabitants live in a state of territorial reclusion since there are very little expectations for the territory's future. The interior of Portugal, which represents 60% of the total country, is a perfect example of this situation. In fact, these territories have had long-term structural vulnerabilities and have not been able to endure the aggressive dynamics of the global markets (Covas & Covas, 2013). There is a common agreement amongst Portuguese people that rural areas face a declining path (Soares da Silva et al., 2016). The lay representation of rurality is characterized as being disadvantaged, backward and deprived and basically a pre-modernity space - although some consider this pre-modernity signs to end up portraying an idyllic place.

The work of Frazão (2000) shows that rural development and agriculture are inseparable terms and that rural areas are condemned to be underdeveloped if the focus on agriculture remains insipid. Agriculture is able to ensure the conservation of historical and cultural heritage and the landscape preservation. It is also the key-solution to stop rural exodus. Therefore, it must be faced as a focal point of national political action. National agriculture can no longer be merely kept alive without the true acceptance of the challenges of modernization and competition in the open markets.

The Common Agricultural Policy (CAP), EU's biggest tool for rural development, hasn't been enough to stop, on a national scale, the depopulation of the interior of the country and the overpopulation of the sea-coast. The CAP was designed to be the unifying thread of the EU's foundation (Cordovil et al., 2004) but it has been met throughout its existence with several new challenges. Its future and the future of EU's agriculture in general depends now on the competitiveness and potential of diversification and modernization in farming. It depends also on the dedication of each member state to their own rural development initiative (Avillez, 2004). Some of the policy's main goals are the economically efficient use of available resources, the set of ecologically sustainable and environmentally friendly production processes and the strengthening and diversification of the economic and social dimensions of rural areas. According to Varela (1988) however, the CAP should mainly be a complementary policy to the national rural development approach. If Portugal does not have a suitable structural policy, the

application of the CAP will be fruitless. The author also draws attention to the traditional apathy with which Portugal sees its own agriculture.

The decrease of agrarian population has been felt around Southern Europe (Camarero, 2017) and amongst this reduced population there is a wide demographic imbalance that shows a high number of elder farmers in opposition to a low number of young ones (Carbone and Subioli, 2008). The current social consideration of the agricultural sector, the entry and exit barriers and the low productivity in agriculture are some of the reasons for this aggravating asymmetric age structure.

For instance, Zagata and Sutherland (2015), who explore the young farmers problem in Europe, state that more than 50% of farms in Europe are managed by farmers over 55 years old. But those levels have different representation throughout the Member States: in Germany, 5% of farmers are 65 years old or older while in Portugal that representation is of 46%. The authors also present a correlation between farmers' age and farm size, where small-size farms are more likely to be managed by older farmers. Portugal is used as a frequent example of this. Bigger size farms tend to have a greater efficiency and be more prone to innovation which leads to higher levels of production and rural business development, being, therefore, more attractive to young holders (Simeone, 2006). It has also been verified that small-scale farms aren't usually able to establish viable farm businesses, so they become less attractive to younger population, slowing down the revitalization of the countryside. In addition, the number of farmers entering the sector was expected to decrease more and more due to the industrialization of agriculture.

But there's also another issue hardening the demographic imbalance amongst farmers which is the old farmer's unwillingness to pass on their farms to the younger generation or this type of transition being made at a very slow pace. Succession is a key-point to a successful modernization of farms and to an easy adjustment to the EU's constant new demands. New entrants are more willing to diversify their farm and to develop new markets and since many times they don't have an agricultural background, they are also more likely to build links between new sectors (Zagata and Sutherland, 2015). In Portugal, a farmer with a certain or likely successor is more willing to try new farm activities and to intensify farm production. On the other hand, farmers that don't have a successor show a higher tendency to abandon their lands or leave it idle (Sottomayor et al., 2011).

When succession happens, there is also a transfer of knowledge and skills that are passed on from the older farmer to the younger one. This type of knowledge is undeniably valuable specially nowadays when agricultural knowledge has become quite standardized (Šūmane et al., 2018). The complementarity of scientific knowledge with farmers and local knowledge can better guide agriculture towards a more sustainable future.

It is also important to acknowledge the likelihood of younger farmers being more receptive to sustainable and environmentally friendly practices in their farms. There has been a significant transition of agriculture towards environmentalism which shows a change in people's and stakeholders' perceptions on the environment leading to intangible changes of mindsets (Wilson, 2007) and it's the younger farmers who more frequently pursue these new behaviors. A research regarding the role of organic farming in rural development (Lobley et al., 2009) classifies organic farmers from an English sample as being young and highly educated, which is probably a borderless characterization. This type of farmer is likely to develop alternative food businesses with environmental and nutritional benefits. It can also help developing rural areas on an up-to-date way. This trend is evidenced again by the noteworthy lack of interest from traditional farmers regarding organic farming, as exemplified by a project developed in San Sebastián, located in the north of Spain's Basque Autonomous Community (Cruz and Collantes, 2017). It shows that the relationship between a traditional farmer and an ecological production is practically nonexistent.

But sustainable farming is expected to become more and more common which is why it is so important to understand which efforts are being made individually, by the farmers, and broadly, by the EU and the Member States. The EU is already making efforts towards the implementation of a circular economy, which maintains in the economy for as long as possible the value of the products, materials and resources, diminishing the generation of waste (European Commission, 2018). Waste generation is still growing in many Member States and the quantity of waste shows some correlation with each member state's GDP per capita. Food waste is also still observed all along the value chain from the moment it is produced to the time it leaves the household. Therefore, the continuous effort towards a more sustainable future is imperative. When it comes to recycling, for example, the EU's rate keeps increasing and many countries are approaching the target of 65% of recycling proposed by the European Commission.

Still many of these efforts remain merely good intentions and the results aren't always manifested. In the 5th annual report from the European Court of Auditors (2018)

the efforts towards the increase of renewable energies is considered to have been mostly unrealized, even though there were significant potential synergies when it comes, for example, to a sustainable rural development. The report also states that the EU's renewable energy program should be more explicit and have a more pro-active approach, being fully integrated in the many efforts for rural development. There is only limited information on what has been achieved and it is noted that most member states have not prioritized their renewable energy projects. The European Parliament Draft Report on the future of food and farming (2018) considers that some of the efforts from the Court of Auditors have generated greater complexity and bureaucracy, are difficult to understand and do not contribute significantly to the improvement of the environmental and climate performance of the CAP.

2.2 CAP, rural development and Young Farmers program

The EU's many efforts towards the development of rural areas, like the initiative of the Young Farmers program chosen for this research, come under the umbrella of the CAP, EU's first integrated policy, introduced in 1962. Its legal basis is set on the Treaty on the Functioning of the European Union (TFEU), from article 38 to 44. Article 39 describes CAP's objectives which consist on increasing agricultural productivity through technical innovation, guaranteeing a fair living standard for farmers, stabilizing markets and ensuring enough supplies at a reasonable cost for consumers. It also states that these goals must be met considering the particular nature of the agricultural sector in regard to structural and natural disparities amongst regions, which means that there must be an adjustment to each of their specific needs (European Union, 2007).

CAP is currently financed by two Funds, the European Agricultural Guarantee Fund (EAGF) and the European Agricultural Fund for Rural Development (EAFRD). EAGF finances, above all, the common organization of the market's expenditure and the direct support to farmers. EAFRD co-finances agricultural competitiveness measures, agro-environmental measures, the improvement of rural quality of life and the diversification of the rural economy.

The same way it is financed by two funds, CAP is also organized in two different pillars. The first pillar is divided in two categories and it's financed by EAGF, therefore the aims are essentially the same: the common organization of the markets in agricultural products (Reg. (EU) No. 1308/2013) and the direct payments to farmers [Reg. (EU) No. 1306/2013 and Reg. (EU) No. 1307/2013]. The second pillar consists on the Rural Development Policy [Reg. (EU) No 1303/2013, Reg. (EU) No 1305/2013, Reg. (EU) No 1306/2013 and Reg. (EU) 2017/2393] and it is co-financed by EAFRD and regional or national funds from each Member State.

The Portuguese entity which ensures the fulfillment of payments from EAGF and EAFRD is named IFAP (*Instituto de Financiamento da Agricultura e Pescas, I.P.*), (Decree-Law n° 195/2012).

The European rural development policy is implemented through each Member State's rural development program. The European Commission has established three main priorities for rural development, which are the promotion of agricultural competitiveness, the sustainable management of natural resources and climate action and the balanced development of rural regions by fostering employment (European Parliament, 2018). These three objectives branch out into six different priorities for rural development policy¹ and, out of these six, each member states' rural development program must include or be related to at least four. So, each of these programs apply a personalized strategy for the countries' specific needs yet this strategy must be designed according to the EU's rural development guidance.

The rural development programs of Portugal that were included in this research are PRODER, which ran from 2007 to 2013, and PDR 2020 which started in 2014 and is still on-going. So, all the data collected with and from the case study dates back to one of these two editions. Both programs were organized in four subcategories: competitiveness, innovation and knowledge, sustainable development and local development. The Young Farmer program is included in the competitiveness subcategory for both programs.

The EU established payment schemes for European farmers since the beginning of the CAP. However, if the farmer obeys certain criteria to be considered as a young

¹“Fostering knowledge transfer in agriculture, forestry and rural areas; Enhancing the competitiveness of all types of agriculture and enhancing farm viability; Promoting food chain organisation and risk management in agriculture; Restoring, preserving and enhancing ecosystems dependent on agriculture and forestry; Promoting resource efficiency and supporting the shift toward a low-carbon and climate-resilient economy in the agriculture, food and forestry sectors; Promoting social inclusion, poverty reduction and economic development in rural areas” (European Parliament, 2018).

farmer, it becomes eligible for further financing. A young farmer must be between 18 and 40 years old by the time he/she submits a project up for financing. This must be the first installment as a farmer and it can be either a full-time or a part-time activity. The young applicant must also be the holder of the farm and it must present a business plan of the project for a five years period with a description of the farm, the pre-determined agricultural activity and a detailed description of the desired investment. These requirements seek to promote the fixation of young people in rural regions and to invigorate the regional economy by innovating the agricultural sector (PDR2020, 2014).

The funding of Portuguese young farmers is done by IFAP, as it was mentioned above, and is currently of 20.000€. To this initial amount, extra funding can be added. For example, if the farmer does not exercise any other gainful employment, that can mean an added 5.000€. The extra funding possibilities vary with each edition of rural development programs. In PDR2020 this extra subsidy can be received in case the young farmer's investment surpasses a total of 80.000€ or if this project is the only professional activity. The payment of the subsidy happens in two moments: the first 80% of the designated amount are paid in the beginning of the project while the remaining 20% are paid after verification of the successful execution of the project, at the latest within 5 years from its beginning (Reg. n. 203/2018).

Since the edition from PDR2020 is still ongoing, it is not possible to know yet how many young farmers' projects have been proposed and how many have been selected. It is, however, possible to know that data from the PRODER's edition. The total number of approved and subsidized projects during PRODER in the 9 counties that currently build TM was 390: 263 projects from Nordeste Transmontano plus 37 projects from Vila-Flor and 90 from Mirandela (PRODER, 2014).

3. Methods

The selected methods for this research were a survey by questionnaire to a valid sample of young farmers (see Annex I) and an interview to some leaders of local farming associations (see Annex II), who provide counseling in the elaboration of projects and in the submission of applications for the young farmers program funding. The survey, which was made through an online platform and through *in loco* distribution, allowed reaching

out to a higher number of young farmers around the region. Interviewing the main associative leaders, who have the closest contact with these farmers, allowed to corroborate the survey's conclusions and to add the perspective of the interviewees.

A study about Young Farmers needs in the EU from the year 2015 was considered in the design of the survey and in the set of a representative sample for this research. The "Pilot Project: Exchange programmes for young farmers" was a project assigned by the European Commission that examined some of the young farmers' most important needs, skills, information sources, etc. (Zondag et al., 2015). It also created a survey by questionnaire that was distributed amongst every EU member state with a goal of 75 respondents per each. That goal was surpassed in some countries, mainly in the northern ones, and it felt slightly short in others, like the case of Portugal which obtained only 73 responses. These 73 responses come from young farmers of the entire country and there's no specific information about which region they belong to.

So, given that 75 young farmers on a national scale were considered a valid sample for this European Commission project and that 39 answers would represent 10% of the total projects in the Terras de Trás-os-Montes during PRODER, the goal for this research was set for between 50-60 answers. In the end, 52 answers were obtained.

The first contacts were made to the farmers associations, since they had direct access to young farmers and could provide contacts. This was the first step to make a pre-evaluation on the viability of the research project: reaching out to a few associations to explain the project, propose an interview and make an estimation on the number of young farmers willing to answer the survey. Once there was certainty that the project was viable, the survey and interview script were created simultaneously.

The survey was organized in five different categories: the first category is called "Profile" and inquires about the young farmer's age, gender, location, main activity and personal motivation to start a farming project. The second category, "Education", determines the education level of the sample, the most common education fields and the most relevant skills according to the young farmers to assure a successful project. The third category, "Important needs", was based on the European Commission's study mentioned above and explores the most crucial needs for a young farmer in the region, drawing a parallel from the national results obtained with the study. The fourth category, "Digital use", analyses how up-to-date these young farmers are with technological innovation, how important they consider IT skills for their projects and which are their biggest challenges regarding the digital world. Finally, the fifth category, "Sustainable

practices”, searches for an environmental-friendly mindset by asking which sustainable measures have been adopted or are intended to be adopted by this new generation of farmers. A total of 15 questions allowed to draw many relevant conclusions and the results, which will be explored in the next section, were essentially positive.

The interview was drafted in a similar way, following several qualitative interviewing examples and instructions from Josselson (2013), Brinkmann (2013) and Skinner (2012). Firstly, it asked for a perception on the farmers’ associations’ dynamic in TM. Then, there was a set of queries regarding some basic characteristics of the young farmers like age, gender, main farming activities in the region and most common reasons for young people to become young farmers. Afterwards it was requested a general overview on the educational background of these new farmers in Terras de Trás-os-Montes and, always through the eyes of the main associative leaders, which skills were mostly needed and which skills did these young farmers lacked the most. Like in the survey, the third part of the interview focused on the main difficulties and needs for young farmers and for farmers’ associations. Lastly, there were a few questions regarding sustainability, which were inspired after reading relevant information on the EU’s mostly unrealized efforts when it comes to sustainability and renewable energies.

Before the analysis of the case-study’s results, a regional characterization of the chosen territory is imperative for the understanding of some essential conclusions, points of view and noteworthy difficulties.

4. Territorial Characterization

4.1 Population

Terras de Trás-os-Montes is a northeast region of Portugal chosen for this study. It falls under the NUT 3 category of the Territorial Units for Statistics, EU’s subdivision of member states, and it’s a part of the NUT 2 Norte. The region was divided in 15 counties from 2008 to 2013 and it was officially named Alto Trás-os-Montes. After the 2013 NUT reform², it is currently divided in 9 counties and renamed Terras de Trás-os-

² Since the selected period of time for this analyzes goes from 2007 till the present, this change had to be taken into account, although it did not represent significant differences in the statistical data collected for the characterization of the region, which is done in the next section.

Montes (INE, 2015). It is considered a Predominantly Rural region, which means that more than 50% of its population resides in a rural area (Eurostat, 2015).

Map I



Source: (Comunidade Intermunicipal, 2018)

This NUT 3 region has been severely affected over the past decades by the ageing and depopulation phenomenon. Therefore, the need to fixate young people in the area is crucial. Giving its significant amount of arable land, there should be an inherent appeal for young people to remain in the region and develop a farming project. Nevertheless, the several difficulties that the region faces haven't allowed the young farmers program to be the natural enabler that it was set out to be.

As shown in PORDATA (2018), the amount of resident population over the last years has registered a decreasing pattern, with a loss of more than 10 000 residents over the last eight years, which means that TM has lost around 1 000 people per year, either to Portugal's urban centers or to emigration.

Table 4.1.a: Population per year

Year	Population
2009	119 109
2010	117 796
2011	116 713
2012	115 115
2013	113 578
2014	112 179
2015	110 759
2016	109 409
2017	108 547

Source: PORDATA (2018)

Portugal Statistics (INE, 2017) shows a comparison between TM's population and other NUTS 3 of the NUT 2 region Norte. The data goes back to 2016 and it gives a clear idea of the rural exodus, considering that the region with the biggest population density is the Metropolitan Area of Porto, Portugal's second biggest urban center.

Table 4.1.b: Population Density per region

Region	Population Density No./Km²
NORTE	168.4
A. M. Porto	842.1
Cávado	324.8
Ave	286.4
Tâmega e Sousa	229.8
Alto Minho	105.4
Douro	47.9
Alto Tâmega	30.1
Terras de Trás-os-Montes	19.7

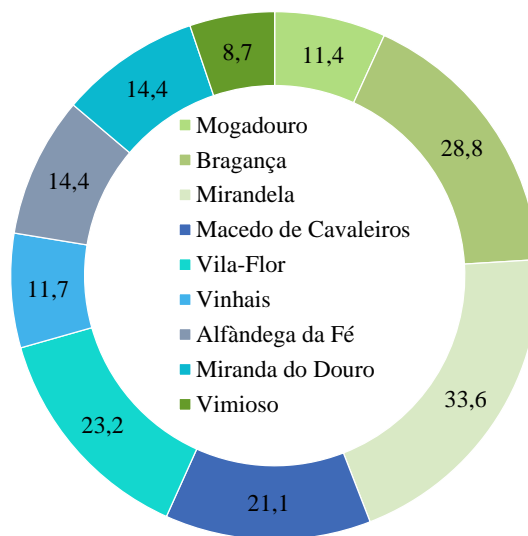
Source: INE (2017)

Terras de Trás-os-Montes, Alto Tâmega and Douro have a considerably lower population density compared to the other NUTS 3. These three regions are all located in

the interior of the country, confirming yet again the bipolar dynamic of an increasingly empty countryside versus an increasingly overpopulated coastline.

The population distribution in TM is shown in the graphic below. There is a considerable concentration of the population in the districts of Bragança and Mirandela. The districts with the lowest population density are Vimioso and Alfândega da Fé.

Figure 4.1.c: Population Density in TM (no./ Km²)



Source: INE, 2017

4.2 Farmer Population

Another highly relevant document that contributes to further understanding TM's role on a national perspective is the Agricultural Census (INE, 2011). This study is done every ten years and the most recent one dates back to 2009 and it compares all of its results to the previous analyzed period of 1999. Table 4.2.a quantifies the farming population on a national and regional scale. It's interesting to note how the number of farmers in NUT 3 represents around half of the total population. On a national scale this representation is much lower. Still, both areas show a decreasing variation during the 10 years period. Regarding the female representation on the farming sector, it must be noted that TM registered an increase of 29% in this same period.

Table 4.2.a: Total Population and Farmer Population, 2009

Regions	Total Population	Total Farmers	% variation 1999-2009	Female (% of total)	Female %variation 1999-2009
Portugal	10 637 700	296 381	-27%	31%	-2%
NUT 3: TM	119 109	60 979	-12%	34%	29%

Source:INE, 2011

The third table shows the age range of farmers, again on a national and regional scale. The amount of farmer population below 35 years old has decreased significantly, 60% on a national scale and in on a regional scale. The farmer population between 35 and 45 years old has also suffered a serious decrease. The age range that has suffered the least is the one representing farmers with 65 years old or older. It has suffered a slight decrease on a national scale and it has increased by 10% in TM, which illustrates the ageing phenomenon spread around the region.

Table 4.2.b: Age Range of Farmers

Regions	<35		35 to <45		45 to <65		≥ 65	
	Total %	%variation 1999-2009	Total %	%variation 1999-2009	Total %	%variation 1999-2009	Total %	%variation 1999-2009
Portugal	2	-60	8	-51	42	-34	48	-8
NUT 3: TM	2	-52	8	-44	43	-18	47	10

Source: INE, (2011)

In fact, the average farmer's age has risen from 59 years old in 1999 both on a national and regional scale, to 63 and 62 years old in 2009 on the national and regional scale respectively (INE, 2011).

Understanding the educational background of the new farmer generation was one of this study's most important goals. It is important to state that a farmer's education level has gone through significant changes over the last decades. Not so long ago, illiteracy was common among the agrarian sector which is no longer the current reality. With the national policies of mandatory education for all, the data shows a significant evolution from 1999 to 2009.

Table 4.2.c: Education level of Farmers, 2009

Education level	Portugal %	% variation 1999-2009	TM %	% variation 1999-2009
None	22	-53	22	-44
Primary School	52	-25	51	-9
Middle School	17	23	17	46
High School	4	44	4	95
University (agri. related)	1	6	1	31
University (non-agri. related)	4	31	5	57

Source: INE (2011)

There is a remarkable diminution of the people who had no education, of 53% in Portugal and 44% in TM in the 10 years period. One of the most notorious values is the 95% rise of people in TM that graduated high school, a value undeniably connected to the mandatory education policy. So, in 2009 farmers were already becoming more and more educated with some of them graduating University. The data gathered through the case study's survey confirms this reality, leaving a positive expectation for the data that will be presented in the next Agricultural Census, in 2019.

5. Empirical results

5.1 Survey by questionnaire

The surveys were distributed during a period of three months. There was a total of 52 answers received, 31 from young farmers that initiated projects during PRODER and 21 that did so already during PDR2020. Out of these answers, the majority came from the subregions of Mogadouro (23.1%) and Bragança (21.1%). Mirandela also had a significant representation in the sample (13.5%) followed by Macedo de Cavaleiros (9.6%). Vila-Flor, Vinhais and Alfândega da Fé had smaller yet valid representations (all of 7.7%). The regions that had the least expressive number of answers were Miranda do Douro (5.8%) and Vimioso (3.8%).

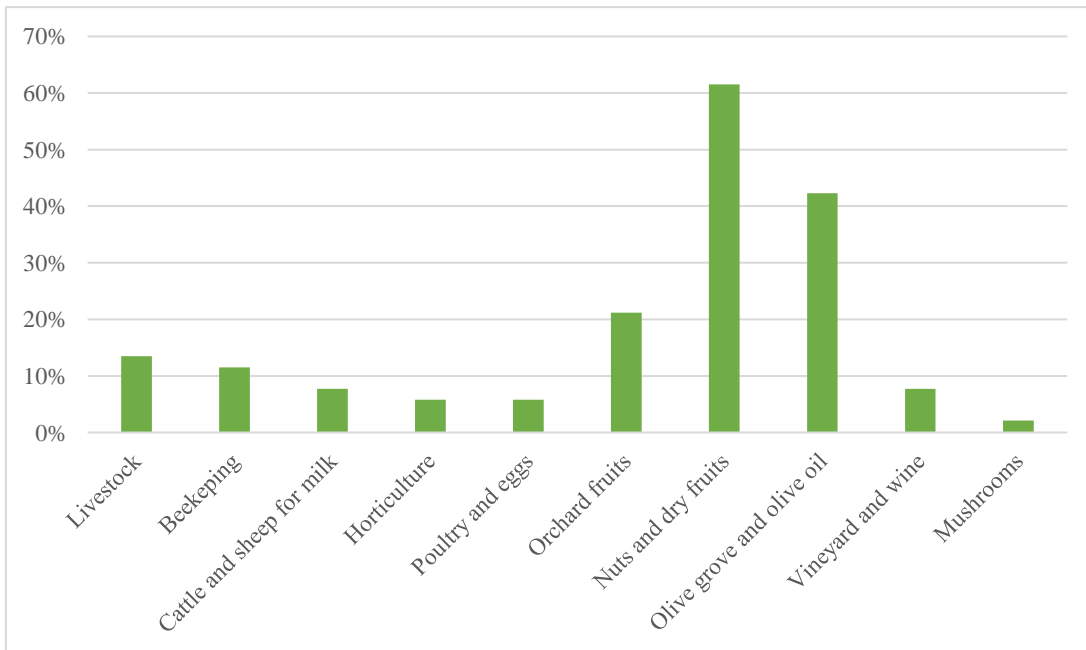
5.1.1 Profile

Following the regional distribution of the sample, there were four essential questions that allowed to draw a general profile of the sample: average age, gender distribution, personal motivation behind the decision to become a young farmer and main agricultural activity. The average age of this sample was of 31 years old which shows that, according to the allowed age range of 18 to 40 years old, most young farmers will initiate their projects on a later stage. The gender distribution was 33% female and 67% male, quite similar to the national distribution which is of 40% female and 60% male (PRODER, 2014).

It was imperative to understand the most common reasons that drove the survey's respondents to become young farmers. This allowed to weigh in on the region's and sector's attractiveness for a young person. The survey gave two possible answers to this question and, in case that none of these two were applicable, there was still the option of an open answer. The majority answered within the first two given options: "it was a career option" (38%) or "I was unemployed" (30%) which evidences two very different realities and motivations of a professional ambition versus a professional escape. Regarding the open answer possibility, there were three main reasons mentioned: "it is a part-time activity" (12%), "it is a way of increasing family income" (10%) and "it is a way of modernizing the family's farm" (10%). These results essentially show that although many respondents became young farmers to fulfill a professional ambition, agriculture continues to be, to many others, a refuge activity to the lack of professional offer that is felt on a national-scale. The open answers also showed that farming can be seen just as a complementary activity or a way of making the most out of available resources.

To determine the most usual farming activities in the sample, the survey had a question where the respondents could select as many options as they wished, since many farmers aren't focus on simply one activity. As seen in Figure 5.1.1.a, the most common activity was undoubtedly "nuts and dry fruits" with 61.5% of respondents developing such farms. "Olive grove and olive oil" was also a frequent preference for 42.3% of the sample. For 21.2% of these young farmers, "orchard fruits" was also a viable choice, followed by 13.5% of "livestock" and 11.5% of "beekeeping". Only 7.7% selected "cattle and sheep for milk" and "vineyard and wine". Less took a chance on "horticulture" and "poultry and eggs" (both 5.8%) and only 2.1% invested in "mushrooms".

Figure 5.1.1.a: Farming activity

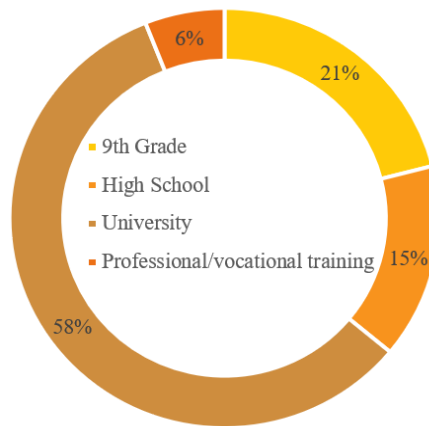


5.1.2 Education

Considering the progress on farmers' education highlighted in the 2009 Agricultural Census, it was important to confirm if this evolution was continuous and still felt in the new generation of farmers. So, the "Education" category aimed at evaluating the instruction level of the sample, the most common fields of study of those who had higher levels of schooling and the complementary skills that young farmers considered essential for a successful project.

Figure 5.1.2.a represents the education level of the sample. As it can be seen by the 58% rate of University graduates, there is a significant portion of respondents who have a higher level of education. There is 21% of the sample who has a lower level of education having solely completed 9th grade. This portion can be associated to the oldest percentage of Young farmers since recent national education reforms shifted the mandatory graduation requirements from 9th to 12th grade.

Figure 5.1.2.a: Education level

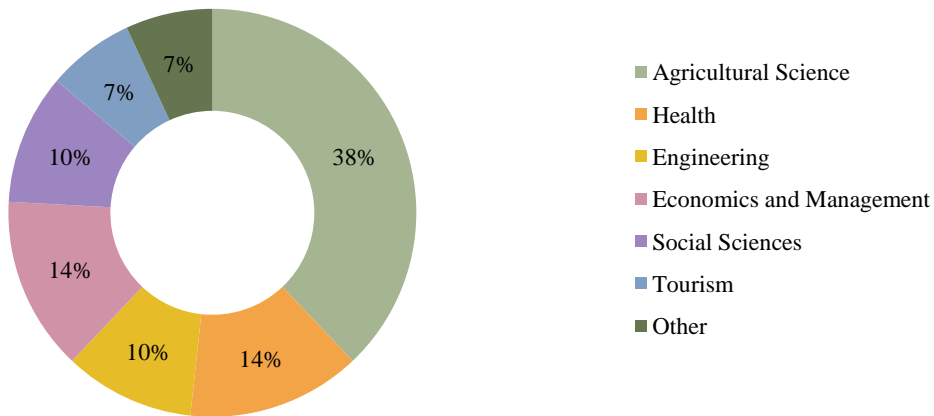


For the respondents who claimed being University attendees, there was a second question which inquired about the type of degree that was obtained. Most of them had obtained a Bachelor's degree (67.7%), while less had obtained a Master's degree (16.1%) and a few had completed a Post-Graduation (12.9%).

However, there is a likely possibility of these results not being completely representative of the young farmers' reality in TM. There is a known correlation between level of education and predisposition to answer academic inquiries, which could mean that this data is slightly biased. Facing these odds, there was a need to verify the results with the interviewees from the farmers associations. They confirmed this possibility and considered the actual percentage of young farmers' graduates in the region to be around 30%-40%.

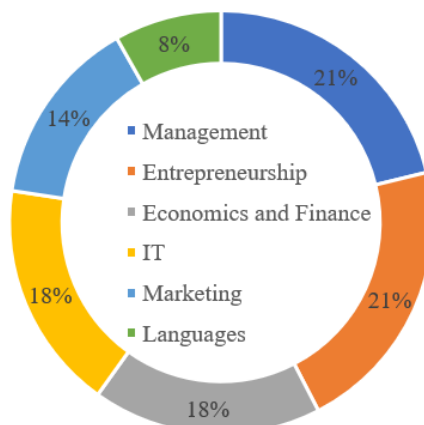
Since this study reached a very qualified share of young farmers, the results regarding the different education fields shown in Figure 5.1.2.b were varied and truly interesting. While the most common background was accurately Agricultural Science, many others were represented in the survey's results. A significant part also studied in the fields of Economics and Management, Health, Engineering and Social Sciences. The results show that amongst this new generation of farmers in TM, there is a vast scope of different skills and knowledge. The fact that many of them don't hold a background in Agricultural Sciences doesn't really represent a handicap. In fact, it is common agreement that a farmer who masters different competences is more likely to have a profitable farm. Once their projects have been approved for financing, they are given between 12 to 24 months to obtain this knowledge and training, so they can officially begin.

Figure 5.1.2.b: Education field



Besides the training in Agricultural Sciences, there are many other skills considered to be important for a successful execution of these projects. Hence, the last question in this section focused on the most important complementary skills to Agricultural Sciences that young farmers perceive as advantageous to their projects. The options given were Marketing, Economics and Finance, Management, Languages, IT and Entrepreneurship. The respondents could evaluate them as “not relevant”, “relevant” and “very relevant”. To obtain the results, the “not relevant” option was subtracted from the sum of the “relevant” and “very relevant” options and the result was converted to a percentage value. The answers showed that Management and Entrepreneurship skills were the most valued skills (each 21%) followed by Economics and Finance and IT (each 18%). Marketing skills were not so significant for the sample (14%) and Languages was the least valued one (8%).

Figure 5.1.2.c Important skills



5.1.3 Needs

The next category measured the most relevant needs of the sample. The question was entirely based on the European Commission study “Pilot Project: exchange programmes for young farmers” (EC, 2015) and the variables are the same to allow the comparison of the needs of young farmers around the EU, the country and the region. All the variables presented in the next table had to be classified between “easy”, “neutral”, “difficult” and “non-applicable”. The question was “How easy or difficult was it for you to obtain these resources for the development of your project?”.

The results from the study showed which had been the biggest needs for young farmers around the EU, whether they were easy or hard to obtain³. The cells are colored in green if the percentage of respondents who consider the need is significantly lower than the EU28’s average. On the opposite, the cells are colored in orange if that percentage is significantly higher.

Table 5.1.3a: Needs

Needs	EU 28 %	Portugal %	Trás-os-Montes %
Availability to buy land	60.8	61.6	23.1
Availability of land to rent	56.8	60.3	9.6
Access to credit	33.4	41.1	11.5
Subsidies	38.4	21.9	28.9
Machinery	27.0	26.0	46.2
Qualified labour	33.0	49.3	42.3
Seasonal workers	20.6	49.3	38.5
Advice of extension services	18.3	20.5	25
Advice of private consultants	11.1	12.3	21.2
Access to new and useful knowledge	21.3	21.9	25
Access to insurance	14.7	31.5	38.5
National inheritance law	22.3	30.1	15.4
Other legal issues	23.0	31.5	13.5
Access to trainings	18.8	26.0	26.9

³ Since this study does not explain how the results were obtained, the following analysis derives from the interpretation that was made of the data.

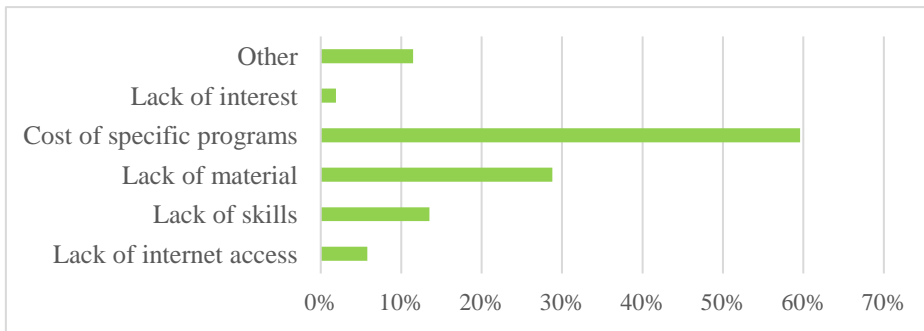
As it can be seen in Table 5.1.3a, the resources that represent a significant need for young farmers on a national and regional scale are “qualified labour” and “seasonal workers”. The need of “Machinery” is also considerable in TM. The other aspect that young farmers from Portugal and from TM considered more necessary than the EU28’ average is “Access to insurance”.

On the opposite, there were three variables that seem not to represent a problem on a regional scale, which are “availability to buy land”, “availability of land to rent” and “access to credit”. The three categories showed much lower values compared to the other two dimensions. These are related to certain specificities of the agriculture in TM. Certainly, the first two variables are related to the succession phenomenon with the young farmers frequently inheriting land, which has been already mentioned throughout the study.

5.1.4 Digital use

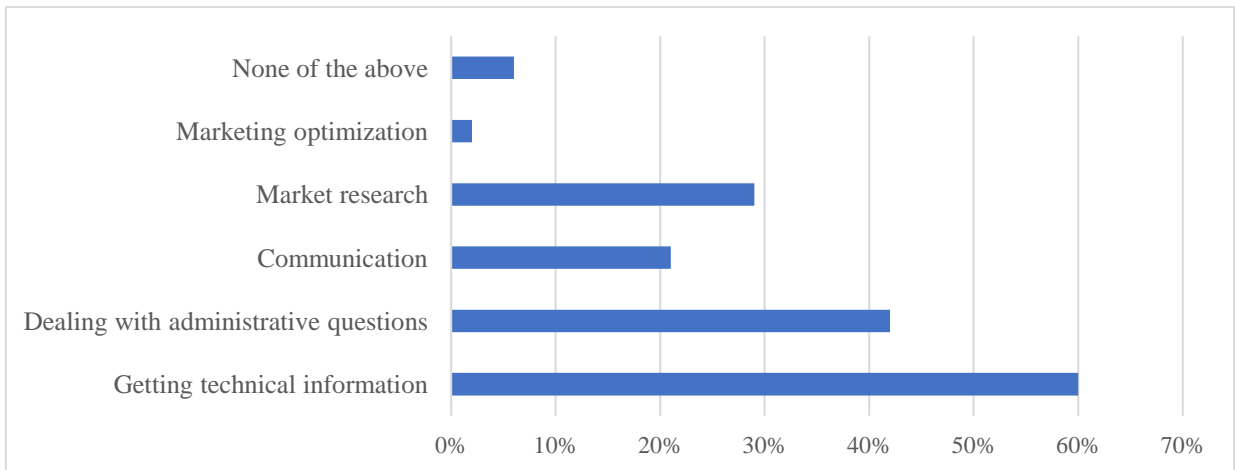
Given that TM has always been a region lagging behind, the efforts for innovation might be felt at a slow pace. Dynamic young farmers who intend to modernize their productions might face local challenges that are hard to overcome. For that reason, it was necessary to understand how they cope with the regional setback. The digital world plays an undeniable part in successful businesses therefore having digital access is crucial for these young farmers as well. The “Digital use” category intended to measure the biggest challenges when it comes to digitization. However, contrary to common perception, the respondents did not consider “lack of internet access” as a relevant challenge. So that might have been a traditional challenge that has been overcome in recent years. The biggest challenges are actually cost and material-shortage related. The fact that the “lack of skill” option was not a frequent answer also points out to the very qualified forthcoming generation of farmers.

Figure 5.1.4.a: Digital challenges



Since most young farmers do not seem to have internet access problems, the computer might be a common tool to get information and to many other tasks. This sample stated that the most frequent usage of a computer in relation to their project was to get technical information (60%). Dealing with administrative issues was also a frequent reason (42%). The computer is also used for Market research (28%) and for Communication (21%).

Figure 5.1.4.b Most common use of a computer



To understand if most farmers use it regularly for those purposes, a question was also included about the most frequently used methods to obtain knowledge. This was also a question made by the European Commission study (EC, 2015) and the variables included were the same, therefore all the data related to Portugal belongs to the study. But, although the question was essentially the same, the possibility of answers was structured differently. While in the European Commission study the young farmers were asked to classify each method between “disagree”, “neutral”, “agree” or “don’t know”, to

whether they liked the following variables as a form of obtaining knowledge, in this research's survey the answer option was simpler, asking only to name the three preferred ways of obtaining this knowledge. Since in the first column all the variables obtained an answer and in the second column only the top 3 did, the percental values end up not totally proportional. Still, a comparison was made by identifying the top 3 methods to obtain knowledge on a national scale and on a regional scale as well as the bottom choice.

The cells that represent the most popular methods are colored in green and the least popular ones are colored in orange.

Figure 5.1.4.c Methods to obtain knowledge between Portugal and TM

Methods	Portugal %	TM %
Individual adviser	68.5	46.2
Farmer jornal/magazine	79.5	13.5
Internet	87.7	59.6
Training or course	95.9	38.5
Agriculture fairs	94.5	1.9
Online training/e-learning	78.1	0
Social media	56.2	5.8
Farmer association	87.7	65.4
Local government	43.8	3.8
Other farmers	98.6	17.3
Other farmers (family)	-	21.2

The only variable that was added in the Survey was the last one, “other farmers (family)”. In the conversations with the farmers’ associations that preceded the study, it was mentioned quite often how the succession phenomenon and the passage of knowledge within families from one generation to the other truly has a historical meaning for farmers in TM. So, even if that was not measured on a national level, it was imperative to be approached here, even if only on a regional scale.

In this analysis there were some differences between the national feedback and the regional one. For young farmers of the entire country, the most common way to obtain knowledge is through other farmers. Once again, it would have been interesting to know if in these farmers, family members who belong in the sector are also included since in the regional scale they are a more frequent knowledge source to the young farmers than just an average farmer. Getting knowledge through training or courses and through

agricultural fairs is also extremely popular in the national results. The least common ways of obtaining knowledge for Portuguese farmers is through social media and through the local government. In the regional picture, farmers' associations are the most important method of obtaining knowledge followed by the Internet and Individual advisers. Online training/e-learning was not used by any of the respondents to get knowledge despite the very high percentage on a national level. Agricultural fairs also played a much less important role in TM. The tendencies seem to agree when it comes to Local government, which ended up being an unpopular method to obtain knowledge on both levels.

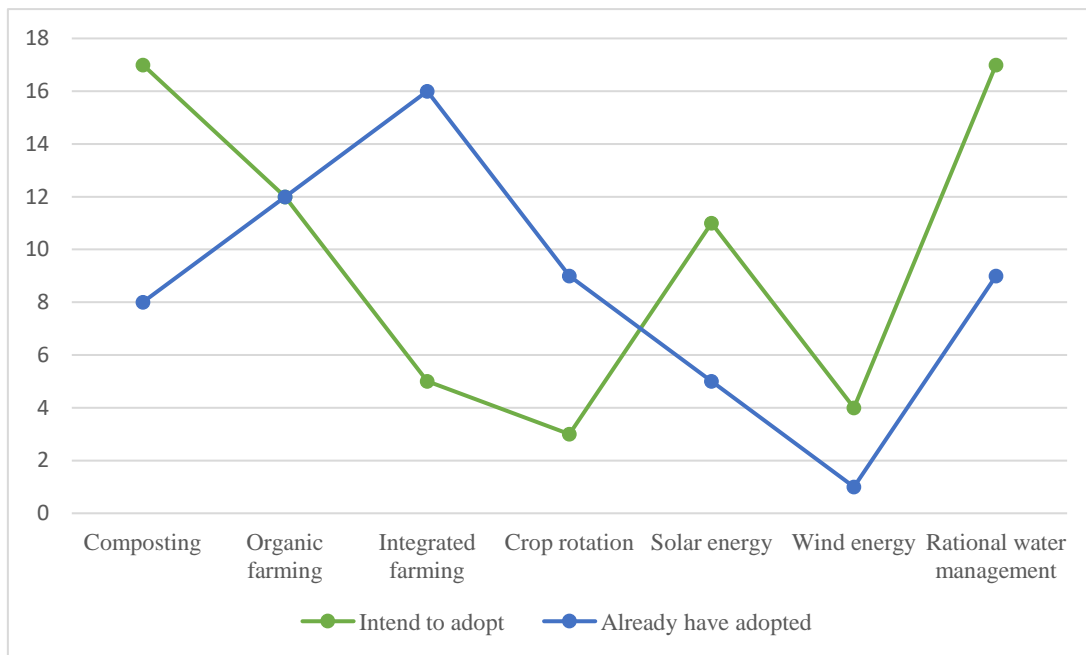
5.1.5 Sustainable practices

The final section is related to sustainable practices and it was meant to test if young farmers have a clearer sustainability awareness than the older generations and if they are developing their projects on an eco-friendly mindset. The results were quite optimistic.

First, it seemed pertinent to ask if the young farmers were familiar with the Circular Economy model which aims at minimizing the use of resources by decreasing waste and maintaining resources for as long as possible in the productive chain. This could be accomplished easily in the farming sector, providing there would be the appropriate support, since it still entails higher costs than normal production. But since it is quite a recent concept, it was not expectable that a high number of young farmers would be familiar with it. It turned out that 46.2% of the sample was familiar with the Circular Economy model. Out of this 46.2%, a total of 52% were University graduates and 48% held lower qualifications. Initially, it was assumed that the balanced distribution between young farmers familiar and not familiar with the circular economy model would be correlated to the level of education, supposing that the percentage aware of the model belonged to the higher qualified portion of the sample. In the end, that was not confirmed.

The last question of this section and of the survey was an optional one and the figure below represents the number of answers obtained for each given option. It asked about the sustainable measures that these young farmers have already adopted or that intend to adopt. The options were between Composting, Organic farming, Integrated farming, Crop rotation, Solar energy, Wind energy and Rational water management.

Figure 5.1.5.a: Sustainable practices



Some respondents opted to leave this question unanswered. However, by the amount of answers received, it was possible to understand that there is a significant environmental awareness in this new generation of farmers and that many of them work towards a sustainable farming production. As seen in figure 5.1.5.a, the most common practices that are already being used are Integrated farming and Organic farming. Crop rotation and Rational water management are also common measures already adopted. But even if they haven't been able to develop their project through as many sustainable measures as they wished, they expressed the desire to adopt many other ones, mostly Composting and Rational water management and also Organic farming and Solar energy. The least popular measure for both options was Wind energy, perhaps for being costlier and less easily adoptable through own will.

Finishing the survey on this category allowed to conclude this major part of the study on a positive note. It confirmed the enthusiastic idea that there is indeed a representative new generation entering the farming sector who brings along an innovative mindset, who is aware of new dynamic tools and how to use them for the profit of the project and who is more and more qualified through a range of very different and relevant fields of study.

5.2 Interviews

The interviews were conducted during a period of two months and each interview session lasted between thirty minutes to two hours. The interviewees were selected based on location, to make sure that every subregion was represented which would guarantee a fair representation of the territory. Out of seven interviews, five were done to farmer's associations, one to Alfândega da Fé's town hall which is responsible for the biggest farmer's cooperative in the subregion and the last to the Agriculture and Fishery Regional Representation of the Norte region, to get a more general overview on the significance of young farmers and on the role of farmer's associations as counselors. This diversified spectrum of testimonies led to a more rigorous characterization and understanding of the young farmers' dynamic in the region.

Table 5.2.a: Interviewees

Interviewee	Entity	Sub-region
Eng.º Armando Pacheco	<i>Farmers' Association:</i> Federação de Agricultores de Trás-os-Montes	Bragança, Macedo de Cavaleiros, Vimioso, Mirandela, Mogadouro, Miranda do Douro, Vila-Flor, Vinhais, Alfândega da Fé
Eng.º Armando Bento	<i>Farmers' Association:</i> Monteval- Associação para o Desenvolvimento Agrícola e Rural da Terra Fria	Bragança, Vinhais, Miranda do Douro, Vimioso, Mogadouro
Eng.º Eduardo Tavares	Vice-President of Alfândega da Fé	Alfândega da Fé
Eng.ª Beatriz Pilão	<i>Farmers' Association:</i> Centro de Gestão do Vale do Tua	Mirandela, Vila-Flor
Eng.º Fernando Brás	<i>Farmers' Association:</i> Associação dos Beneficiários do Perímetro de Rega da Vilarica	Alfândega da Fé
Eng.º Francisco Ribeiro	Direção Regional de Agricultura e Pescas do Norte	Norte Region
Eng.º Carlos Silva	<i>Farmers' Association:</i> PRORURIS Vinhais	Vinhais

5.2.1 Young farmers' profile and education

Like in the survey, the first set of questions were related to the profile of young farmers. Questions regarding age, gender distribution and main activities initiated the interviews and the feedbacks were similar to the results obtained in the surveys. So, all interviewees confirmed that young farmers in Terras de Trás-os-Montes are mostly in their early thirties which means that they start submitting their farming projects already

quite late, taking into consideration the age range allowed by the program. There is also a manifest tendency towards a balanced gender distribution compared to previous decades. Many more young women are starting to develop farming projects and it is believed by the interviewees that not long from now there will be an equal amount of male and female farmers, which they consider to be a key-aspect to a fair and progressive development in rural areas.

Regarding the most frequent activities for young farmer, they believed nuts and dry fruits and orchard fruits to be the most common activities in the region. However, there is a gradual increase of young farmers who opt to develop pioneer projects with types of crop productions that are not typical for the region. During this research, it was frequent to come across highly successful young farmers whose farms cultivated berries, mushrooms, spices, honey, etc. However, most of this sort of production ends up being exported, which is a situation that will be addressed later on.

Given that the results of the surveys displayed optimistic results about the pursuit of education by young farmers, the second part of the interview focused on the points-of-view of the associative leaders, which was necessary to either corroborate these results or to clarify any inaccuracy. The young farmers' sample had a total of 68% of University graduates. This was a tendency observed since the beginning of the survey's distribution, which meant that the interviewees were being questioned about it while the surveys were still circulating, since it was already clear that the results could end up being slightly biased. So, when asked about their perception of graduated young farmers, most of the interviewees believed that instead of 68%, the real percentage should be around 30% to 40%. They justified this large representation of graduates in the survey by the regular disinterest of less educated farmers to participate in this sort of studies. But despite this reality, they confirmed that amongst the University attendees, there is a very interesting variety of study fields besides agricultural science. They demonstrated that by consulting recent application forms where the applicants had equally random Education backgrounds. When asked if this might represent a constraint to the applicants for not having the appropriate knowledge, most interviewees did not agree and consider it to be an asset and a path to dynamize the sector and the region. Plus, with the mandatory farming training that successful candidates with no agricultural background must go through, the situation can be quickly surpassed. This outbreak of highly qualified young farmers might represent the turning point for the region.

5.2.2 Succession

But what they actually considered to be one of the most relevant aspect for the farmers' success is not so much if they have the certain education background but rather if they come from families of farmers. That was considered by all interviewees to be the most valuable source of information and one of the most distinguishing features of a successful project. Although there have been cases of successful young farmers who begin their projects from scratch not even being from the region, it is undeniable that the majority of profitable projects benefit from succession. The perks of being “children of the land” go from the succession of land to succession of machinery or of specific skills that end up being, many times, the true key to their success.

The most important conclusion for this part of the interview was the belief that a new generation of qualified and motivated farmers is growing. This is also a generation that lives in a highly globalized era and has easy access to information and training. So, with the right ambition and encouragement, they can build a substantial vehicle for rural innovation.

5.2.3 Challenges

Regarding the biggest challenges for young farmers, it was clear for the interviewees that the common young farmer masters the digital world and is able to research, communicate and further obtain project-related knowledge through the Internet, so that was not a problem.

What they considered to be a significant hindrance on the progress aimed by these young farmers is the sustainable development situation. As seen in the survey, most young farmers are aware and willing to improve their farms according to sustainable practices. Many of them have already adopted several measures while others showed interest in adopting them in the future. What seems to be the problem, in the eyes of the farmers' associative leaders, is that the eco and sustainability efforts, on an EU and on a national scale, have not been drawn in the most efficient way which holds back the expansion of these practices. Contributing to this underdevelopment is also the fact that the consumption of products produced in an organic and environmental-friendly way is not yet massified in the region. It is a more expensive production that ends up not being

valued in the TM's markets. The local consumers are still too cost-oriented and not paying attention to the origin of the product or the way it was produced. Besides, even if there was the intention of buying local and biological products, the consumption capacity in the region still doesn't allow to make that choice.

The organic markets are mainly concentrated in the north of Europe. According to the farmers' associations, many young farmers who adopt sustainable practices in TM, export the totality of their production to the northern countries. These are the most successful cases and are mainly concentrated in the south of the region. There is a likely possibility of these markets developing in the south of Europe but it's not predictable that it will happen in the near future. However, some market niches are starting to arise in the biggest urban centers, like Lisbon and Porto. If there would be an effective subsidy that would meet the extra costs that an organic production entails, it would be possible for these farmers to compete in the local market with an even cost compared to the costs of very large, non-organic, productions. Once these challenges are overcome, this type of production might finally be valued and massified in rural areas.

5.2.4 Limitations of the program

There are also some notable flaws that are intrinsic to the young farmers program and that demand an urgent intervention. Some of these flaws are specific from the region, which were expressed in all the interviews, with no exception. Agreeing that it is a region with a lot of potential to develop such a program, the interviewees couldn't ignore and couldn't understand the grave lack of *in loco* supervision from national authorities. They claimed that barely any national figure related to the program ever comes to the region, leaving a burden to the associations that are left in complete charge of supervision. They also considered that the endless bureaucratic process in the beginning of the project is not met throughout its development given that there is only an *in loco* check-up made in its beginning and end. For the five years in-between, the control is completely made through paperwork and receipts with very little physical presence and professional supervision. Which leads to a concerning situation: if the project begins already with some unnoticed structural complications, there is a huge likelihood that it will not have a successful outcome. On the contrary, it might end up being a tremendous failure and a waste of time, resources and subsidies.

But this lack of supervision is related to another problem of the program itself: the very dense amount of bureaucracy demanded in all steps of the processes. This change occurred in the last two rural development programs and it was expected to fight some dishonest behavior that came from the lack of control. However, according to the interviewees, there still isn't a balanced middle-term between total lack of supervision and excess of bureaucracy. This change in control led to an overload of paperwork to agricultural related professionals, taking them out of the field and into an office desk. This includes all the professionals from farmers' associations that spend their working hours interpreting new directives, guiding the farmers processes and organizing new training sessions. There is barely any *in loco* supervision because there simply is no time. So, the solution to this issue relies on easing the bureaucracy while maintaining its efficiency, making the processes more agile to allow support and supervision outside of the offices. By fixing this problem, other solutions will be more easily reached.

5.2.5 TM's limitations

The region also has its own difficulties which have been hard to correct. For instance, the land structure is distinctly small compared, for example, to Alentejo, a southern region of Portugal. In Alentejo the landowners possess much larger farms. In TM, the land is hard to obtain and the typical farm size, many times, doesn't allow for very ambitious productions. The other mentioned difficulty that characterizes the region is the lack of associativism between farmers. It is beneficial for a region to have few farming associations so that the price harmonization and the cooperation between productions are more easily achieved. However, the incapacity of cooperation between farmers in the region is truly noteworthy, which was specially pointed out by the interviewee from the Agricultural and Fishery Regional representation of the Norte region. It is a characteristic from the agricultural sector in TM and it deserves a more sociological interpretation. Some of the associative leaders believe that it is a particular fault observed in mountainous areas, like this one. They suggested that farmers from the mountains historically had a more developed sense of survival from farming in difficult conditions and that this mindset has probably been present in the upbringing of new generations, which makes it hard to overcome. These incompatibilities lead to

ramifications within the farmers' associations and the unnecessary multiplication of them when only a few are truly necessary and productive.

These seven interviews gathered some crucial common ground on the program, the region, the farmers and the farmers' associations that lead to the conclusions described above. Overall, there are regional challenges that must be faced to guarantee that the program will bring the expected results to the development of the region. But the efforts must also come from national policies of rural development, mostly making the processes clearer to allow the much-needed professional supervision throughout the young farmers' projects. Despite these requirements, there is an optimistic prospect for the farming sector which is related to the contributions from this new generation of farmers, progressively better qualified, motivated and a natural enabler of innovation. But certainly, the possibility of fighting depopulation and ageing on the region cannot only be achieved through this program alone and it must be a highly focused and premeditated effort from all parts. This starts with more practical bureaucracy met by motivated and qualified young farmers and associations with a balanced work load between office and land.

6. Conclusion

Throughout this research it became clearer that young farmers truly have the potential to bring change to a region under threat by rural exodus and ageing of the remaining population. This sample showed to be quite diverse regarding educational background, mindset, motivation and goals. The farmer associations keep on dealing with long-term setbacks that haven't been easy to overcome. Nevertheless, there hasn't been such a qualified pool of farmers in the region and if this increasing pattern is maintained, innovation might spread naturally through the sector.

After carefully revising the literature on these topics and studying the CAP and its branches, that lead all the way to the young farmers program, it was imperative to create the means for the research. Following a characterization of TM and its farmer population, the survey's interpretation allowed to portray a youth that is newly devoted to agriculture. It also showed that they are innovation enablers and contribute to a rejuvenation of the region and the farming activity. Concluding this research with the major outcomes of the

interviews allowed to corroborate the survey's result and readjust some ideas. It also pointed out to some issues of the program and inherent obstacles of the region that must be dealt with to assure an efficient future of all parts involved.

Some of the biggest difficulties of the research relied on the case study and on the struggle to obtain certain collaborations. It would have been relevant to get the feedback from the *Associação Portuguesa de Jovens Agricultores* (AJAP), the national association for young farmers. But the difficulties in establishing contact with an AJAP representative didn't make the interview possible in the end. That was one of this research's biggest limitations. It would have also been desirable to distribute the survey by questionnaire to a larger number of young farmers, in order to obtain a broader and more varied sample. But not all of them maintain a frequent contact with a farmer association or consult their mail and/or email on a regular basis. Nevertheless, these limitations were surpassed and a representative sample of farmers and interviewees ended up being guaranteed.

This research could perhaps be replicated in a future investigation to another area, as well. Knowing the young farmers program's reality in another EU member state could help drawing an interesting comparison and further understand the length of the program's results. An ideal comparison would be between TM and a similar region, both rural and peripheral, belonging to a northern Member State, like Denmark. This research could attempt to explain the reasons behind the disparities on the efficiency of the program, the farming sector and the young farmers between Portugal and another country.

Lastly, this research may contribute to further understand the reality of the Portuguese northeast area, its threats and needs and to how modernization is achievable through the efforts of motivated young farmers, pro-active associative leaders and attentive rural development policies.

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Annex

Annex I: Survey by Questionnaire to young farmers in Trás-os-Montes

Profile

1) In which Edition of the Young Farmer program did you participate?

2007-2013

2014-2020

2) County: _____

3) Age when you applied: _____

4) Gender: Female Male

Education

5) Please select your qualification:

9th grade 12th grade Professional/vocational training

University

6) *If you selected "University" please answer the two following questions:*

6.1) Which degree did you pursue?

Bachelor's degree Master's degree PhD Other

6.2) What is your field of study?

Agriculture Sciences Zootechnical Engineering

Veterinary Forestry Other : _____

7) What was the reason that drove you to start a young farmer project?

It was a career option I was unemployed

Other : _____

Farming Activity

8) Please select your farming activity(ies):

Livestock	
Beekeeping	
Cattle and sheep for milk	
Horticulture	
Poultry and eggs	
Orchard	
Nuts and dry fruits	
Olive grove and olive oil	
Vineyard and wine	
Other	

8.1) If you selected “other”, please specify: _____

Skills

9) How do you consider these skills for your project?

	Not relevant	Relevant	Very relevant	N.A.
Marketing				
Economics and Finance				
IT				
Management				
Languages				
Entrepreneurship				

10) How easy or difficult was it for you to obtain these resources for the development of your project?

	Difficult	Neutral	Easy	N.A.
Availability to buy land				
Availability of land to rent				
Access to credit				
Subsidies				
Machinery				
Qualified labour				
Seasonal workers				
Advice of extension services				
Advice of private consultants				
Access to new and useful knowledge				
Access to insurance				
National inheritance law				
Other legal issues				
Access to trainings				

Digital use

11) Which are your biggest challenges when it comes to digital use?

Lack of internet access	
Lack of knowledge	
Lack of material	
Cost of specific programs	
Other	

12) What do you usually use the computer for?

Getting technical knowledge	
Dealing with administrative questions	
Communication	
Market research	
Marketing optimization	
None of the above	

13) Through which methods do you obtain knowledge? Please, select a maximum of three options.

Individual adviser	
Farmer jornal/magazine	
Internet	
Training or course	
Agricultural fairs	
Online training/e-learning	
Social media	
Farmer association	
Local government	
Other farmers	
Other farmers (family)	

Sustainable practices

14) Are you familiar with the Circular Economy model?

Yes No

15) Which sustainable practices have you adopted already or want to adopt?

	Already have adopted	Intend to adopt
Composting		
Organic farming		
Crop rotation		
Solar energy		
Wind energy		
Rational water management		
Integrated farming		

Annex II: Interview Script

Farmer Association: _____

Interviewee: _____

Pool of young farmers that consult this association: _____

Working with the young farmer program since: _____

Profile and Education:

What is the average age of the young farmers from TM?

What is the gender distribution from your pool of young farmers?

And which is its most common farming activity?

What is the most common educational background?

What are some key-aspects to a successful project?

And what are the most important skills a young farmer must have and/or obtain?

How important is it to have a family with a farming background?

Region:

What are the biggest challenges when it comes to the region of TM?

Program:

And what are the main limitations or difficulties of the program?

Is the current legislation appropriate or excessive?