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Master Thesis

# Connections between ecologization of production practices and the structuring of regional food systems

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<b>Title of thesis:</b> <b>Connections between ecologization of production practices and the structuring of regional food systems</b>	
<b>Abstract:</b> <p>In agroecological territories, the development of regional food systems is a crucial element for improving access to locally grown produce for more and more consumers who express a demand for it.</p> <p>But, rather than looking at very short food supply chain where a face to face link exists between the consumers and the producers, this paper is approaching food systems using the concept of “agriculture of the middle” in the articles of Brives et al., (2017). Food systems of the middle can remain local but integrate intermediaries such as processors, distributors, or middle man.</p> <p>However, this raises the question of the values that hold those initiatives when scaling-up. Are they staying sustainable ? Are they going through an industrial process ?</p> <p>Yet, to remain sustainable, the agro-food related projects should not forget to involved agroecological production practices and agroecological socioeconomic principles in the same time. But, as witnessed in our case studies, this is not always the case.</p> <p>This present paper, studied 11 initiatives with in order to see where are the levers and locks that can be observed to keep the link between the ecologization of production practices and the structuring of regional food systems. The methodology used is trajectory based study inspired by Brochier et al. (2010).</p>	
<b>Keywords:</b> agroecological territories, agroecology, food systems, transition, ecologization,	

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## 1. Introduction

The present paper has been inspired and drawn from a participatory action-research program called TERRAE which means AgroEcological TERRitories. Based on the past results and field observations made on the agroecological territories of TERRAE, and in other places in the Auvergne-Rhône-Alpes region, researchers noticed that in the agroecological territories, the link between the ecologization of production practices and the structuring of regional food system is rarely done. However, a “holistic food system” is the cornerstone of a sustainable food system where all the aspect of sustainability is tackled (Mendez et al., 2013 and Louah et al., 2015 in Hatt et al., 2016).

These observations go in lines with Wezel and Soldat (2009), Wezel and Jauneau (2011) cited in Wezel and David (2012), who said “although agroecology as a scientific discipline (the study of agronomy and ecology) exists since many decades, the food system approach in agroecology has been developed only recently”. And in fact, according to Wezel and David (2012) “very few papers are given in the literature where agroecology concepts and theory are applied on the food system”.

As mentioned above, the initial consideration of this work came from a double-entry observation.

In one hand, we observed producers willing to start working towards the ecologization of their production practices, for example by reducing the chemicals inputs or the ploughing time of their soils, by introducing leguminous plant in their rotations, or by improving the fodder autonomy in their raising systems. All those initiatives leaders, struggle with market expectations. Indeed, it is difficult for them to find new outlets that would accept, market and valorize their new products, resulting from the ecologization processes of their farming system.

On the other hand, new selling channels which promote the respect of proximity between the production and the consumption sides are emerging. In France, a lot of research and development projects have been done on the “short food supply chain”<sup>1</sup>, or “local/regional food systems”<sup>2</sup>, they all have an approach of proximity (geographical and relational) and a circular economy that interests us (Praly et al., 2013). But, in this paper we will not only look at the short food supply chain, but we will allow other project with more than one intermediary to be studies as well. Indeed, in regional food systems, intermediaries from the transformation to the distribution can be included, as opposite to the approach of “circuit courts”<sup>3</sup>.

For example, in the territory of the ex-Rhône-Alpes region (See Box 1 below), there are the example of a flour mill sourcing only cereals from the region has been created; or the creation from scratch of a local meat sector, from production to consumption. Yet, amongst those initiatives, very few consumers or selling channels manager are bringing to the forefront the question about production practices when they buy or sell a product in these alternative

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<sup>1</sup> “Short food supply chain” can approximately refers to the word “*circuits courts*” or “Système alimentaire localisé” (Muchnik et al., 2007) in French

<sup>2</sup> “Local/regional food systems” refers to “*circuits de proximité*” in French

<sup>3</sup> The term “circuit courts” has come to be used only when not more than one intermediary is included in the food chain, according to its official governmental definition

(<http://agriculture.gouv.fr/consommation-manger-local-partout-en-france>, [accessed 29 August 2017])

sectors. Indeed, consumers are buying a product which claim to be local but whose production practices are not always sustainable and good for the environment and their health. Plus, alternative selling channels manager are not always aware of the production practices used in his pool of products.

*Auvergne-Rhône-Alpes, is an administrative region in France. Situated in the central east part of France. It has been created after the territorial reform in 2015, and was effective after the regional elections which took place in December 2015. It now gathers 12 departments represented on the Appendix 1*  
*Due the practical reason that I sometimes do not have information for the new borders of the region, and because this administrative change is still well established yet on the territories, some data are only concerning the previously called Rhône-Alpes region. Therefore, in this paper, the work “ex-Rhône-Alpes region” will be used when talking about the boundaries of the region before the administrative amalgamation.*

*Box 1 Taxonomy usage of the Auvergne Rhône Alpes region*

However, one environmental benefits of short food supply chain, that is cited in Mundler and Laughrea (2015) is that short food supply chain would lead to an improvement in production practices as a result of the constant interactions with consumers (Gilg and Battershill, 2000 ; Berger, 2013).

Yet, we would like to investigate if this is also applicable when more than one intermediary are entering the short food supply chain. Therefore, we are talking about food chains that go beyond very short supply chain, where consumers and producers are not in direct contact.

This blended type of agriculture and food distribution (at the crossroad between short and long supply chain) fall into the category of a neo-concept of agriculture which is called agriculture of the middle, (Brives et al, 2017 and Lev L. & Stevenson G.W., 2011) and is a central point of interest in the TERRAE project. The term ‘agriculture of the middle’ is drawn from a work done by researchers of the University of Wisconsin-Madison, in the United States. In the TERRAE program (and in other project carried out by ISARA-Lyon), the researchers, thought this approach applicable also to qualify and analyze food systems that are between long supply chain and short supply chain, the Auvergne-Rhône-Alpes region.

Within the TERRAE framework, the interest in agriculture of the middle came from the observation that short food supply chain could not attain as much as market shares as the conventional agro-industrial system. There is a lack of product diversity, of collective organization and the territorial coordination need to be developed further, the logistics is not efficient enough and several stakeholders and operators are excluded in those systems. Yet, they are trying to bring back a part of their activity on the territorial scene. Food systems of the middle hold the potential to have blended, not perfect form of food system that can justify its place on the highly concurrently markets.

Those food systems of the middle are characterized by four aspects. The first one is that they are in between short food supply chain and long food supply chain. Indeed, they aim at reach volume targets. Secondly, they are not necessarily and thoroughly defined as alternative or in opposite to the dominant food system. Nonetheless, while facing problems related to the limitations of the industrial and productivity agriculture standard, some stakeholders who are driven by deep-seated values bring to the front pragmatic solutions and new models based on heretic values –that can be seen as alternative. Those problems observed and experienced by the stakeholders on their territories, can be from different origins such as economic, social or ecological. For example, when farmers face the economic squeeze from the market prices which render impossible to have remunerative incomes from their produce, they decided to establish their own price based on their production costs. But this is not their main drive to be an activist against the dominant model. Thirdly, food systems of the middle create a strong proximity relation between producers and other operators and with consumers. And fourthly, they are better organized to optimize their productions and logistics costs and are capable to hold well-established values that differentiate them in the market, such as local development, fair relationship, ethic, territorial anchorage, respect of the environment, etc. (Clement et al., 2015).

In this paper, and during the whole TERRAE program, the concept of regional food system is defined using the term agroecological territories, where the production practices tend to be more sustainable. Indeed, as mentioned in Wezel et al. (2016) agroecological territories are “place where transition process towards sustainable agriculture and food systems is engaged” (p. 132). We can also refer to the definition of agroecology by Francis et al., which acknowledges agroecology as “the integrative study of the ecology of the entire food systems, encompassing ecological, economic and social dimensions, or more simply the ecology of food systems” (Francis et al., 2003). We will apply this last definition on a territory.

The goal of this present report is therefore to understand why initiatives that have an approach of relocalized selling channels and ecologization of production practices have such difficulties to be assembled, to connect.

### 1.1 Literature review

A review of the literature has been done to assess the existing literature approaching agroecology and the food system, in order to know what the other authors were thinking about this particular question. Rather than a goal of contextualization, this work was meant to analyze how the authors were raising the question of how agroecological production practices are linked with the organization of food systems and for which reason this assumption are raised. For that purpose, the journal called Agroecology and Sustainable Food Systems has been looked at in depth because it has been deemed as an interested pool of information and topics.

Our primary objective was to investigate whether the connection between ecologization of production practices and the structuring of regional food systems is treated in a pragmatic and pluridisciplinary way; and which concept and method are raised to answer this question. We also hoped to see which stakes they were mentioning and which locks and levers they were advancing.

This exercise was carried out using one pertinent journal called Journal of Agroecology and Sustainable Food System, edited by Steven Gliessman. Primarily called Journal of



Sustainable Agriculture, it changed its name for Journal of Agroecology and Sustainable Food System in 2013. It is composed of 5 volumes since it changes its name – volume 37 to 41. The reason why we chose to do the review of the literature only in this particular journal is because we wanted to read papers where agronomy (ecologization of production practices) and social sciences (structuring of regional food system) were intermingly tackled. And in the journal's name, it is explicitly written that both topics were going to be studied, that authors will be probably making the link. We are aware that other authors may have also debate on that topic but we deemed interesting to look at this journal in details because it was potentially gathering a lot of information we needed to review in our limited amount of time. Indeed, after changing the journal's name and reading in the first editorial by Gliessman after that change, that stipulates that this journal *“must lead the way in transforming food systems to sustainability, from the seed and the soil, all the way to the table”* (volume 37, issue 1), we assumed that we would find adequate information for our work.

To achieve this task, I proceeded using a method that I applied for every article read. First, I went through all the articles' titles from the volume 37 to the volume 41. In total, it is 45 articles. Then I kept only the article which title's was containing one or more of the keyword that were referring to the transition to agroecology, sustainable local food system or the socio-economical side of agroecology.

This preliminary work has brought to light the fact that there is a broad range of definitions and understandings regarding alternative and sustainable food systems, and agroecological production practices in the literature. This assertion addressed well what Wezel et al., reported in 2009 in their article called *“Agroecology as a science, a movement and a practice. A review”*. Indeed we found extremely broad topics such as sustainability assessment, the way to transition, research advice, how to upscaling organic production that could refer to different domain in science, the movement of agroecology around the world, and the divulgation of sustainable agroecological production practices. This is also raised in the article of Stassart et al., in 2012, where he explains that : *“agroecology is a concept that gives us an orientation, but whose definition remain polysemous. Therefore, there is no single approach to define and work on agroecology”* (p. 27)

Then, I have gone through the 43 articles remaining, with a particular focus on their abstract, discussions and materials and methods parts. I dismissed all the articles that were talking about only one component of our topic of research. Indeed, some articles were only talking about either the food system or the production practices, but never both at the same time. For example, the article of Robert C. Salazar (2014) called *“Going organic in the Philippines, Social and Institutional Features which only referred to the social part of agroecology*. Were excluded also, the articles that had another scope of research in agroecology. For example, I didn't choose the article of Manuel Gonzalez de Molina (2013) called *“Agroecology and politics how to get sustainability about the necessity for a political agroecology that were talking about politics*.

After this selection work, remained only 11 articles which holding the potential to have adequate information related to our research question. Those 11 articles were analyzed more precisely, using an analytical framework (see annexe1) with the aim to firstly, looking at whether the articles had a transdisciplinary approach; secondly, to see what were the concepts, the data of analyses, and methods used; and thirdly to see what were the stakes, the difficulties, the locks and the levers referenced. This last point was very important for us as it

was the possible outcome we would had the chance to find in our own case studies analyses. The list of the 11 articles is summed up below:

#	Name of the articles	Keyword
1	Fernandez, M., Goodall, K., Olson, M. and Mendez, E. (2013). Agroecology and Alternative Agrifood Movements in the United States: Towards a Sustainable Agrifood System. <i>Agroecology and Sustainable Food System</i> , 37(1), pp. 115-126	Agroecology Alternative Agri Food Movements Sustainable Food System
2	Ernesto Méndez, V., Bacon, C. M. and Cohen, R. (2013). Agroecology as a Transdisciplinary, Participatory, and Action-Oriented Approach. <i>Agroecology and Sustainable Food Systems</i> , 37(1), pp. 3-18	Agroecology Transdisciplinary
3	Gliessman, S. (2013). Agroecology and Food System Transformation. <i>Agroecology and Sustainable Food Systems</i> , 37(1), pp. 1-2	Agroecology Food System
4	Levidow, L., Pimbert, M. and Vanloqueren, G. (2014). Agroecological Research: Conforming—or Transforming the Dominant Agro-Food Regime? <i>Agroecology and Sustainable Food Systems</i> , 38(10), pp. 1127-1155	Agroecological Agro Food Regime
5	Petit, C. and Aubry, C. (2014). Spatial Determinants of Organic Farming and Local Opportunities for Sales Outlets: The Cases of Alfalfa and Sugarbeet in the Ile-de-France Region. <i>Agroecology and Sustainable Food Systems</i> , 38(4), pp. 460-484	Organic Farming Local
6	Wezel, A., Brives, H., Casagrande, M., Clément, C., Dufour A. and Vandenbroucke P. (2016). Agroecology territories: places for sustainable agricultural and food systems and biodiversity conservation. <i>Agroecology and Sustainable Food Systems</i> , 40(2), pp. 132-144	Agroecology Sustainable Food systems
7	Dumont, A. M., Vanloqueren, G., Stassart P. M. and Baret P. V. (2016). Clarifying the socioeconomic dimensions of agroecology: between principles and practices. <i>Agroecology and Sustainable Food Systems</i> , 40(1), pp. 24-47	Agroecology Practices
8	Gliessman, S. (2016). How to leave industrial agriculture behind by shifting food systems toward agroecology. <i>Agroecology and Sustainable Food Systems</i> , 40(8), pp. 757-758	Food systems Practices
9	Gliessman, S. (2016). Transforming food systems with agroecology. <i>Agroecology and Sustainable Food Systems</i> , 40(3), pp. 187-189	Food systems Agroecology

10	Chaparro Africano A., and Calle Collado Á. (2017). Peasant economy sustainability in peasant markets, Colombia. <i>Agroecology and Sustainable Food Systems</i> , 41(2), pp. 204-225	Sustainability
11	Cuy Castellanos, D., Jones, J. C., Christaldi, J. and Liutkus K. A. (2017). Perspectives on the development of a local food system: the case of Dayton, Ohio. <i>Agroecology and Sustainable Food Systems</i> , 41(2), pp. 186-203	Local Food System

Table 1 Selection of 11 articles

Yet, only 4 of the 11 articles were referring to the way and the reasons that production practices are linked to the organization of food systems. Indeed, concerning the answers we were expecting to find, to the best of my knowledge, there are few results in the selected literature regarding our issues. The Table 2 below is listing the four articles:

#	Name of the articles
1	Fernandez, M., Goodall, K., Olson, M. and Mendez, E. (2013). Agroecology and Alternative Agrifood Movements in the United States: Towards a Sustainable Agrifood System. <i>Agroecology and Sustainable Food System</i> , 37(1), pp. 115-126
2	Petit, C. and Aubry, C. (2014). Spatial Determinants of Organic Farming and Local Opportunities for Sales Outlets: The Cases of Alfalfa and Sugarbeet in the Ile-de-France Region. <i>Agroecology and Sustainable Food Systems</i> , 38(4), pp. 460-484
3	Gliessman, S. (2016). Transforming food systems with agroecology. <i>Agroecology and Sustainable Food Systems</i> , 40(3), pp. 187-189
4	Wezel, A., Brives, H., Casagrande, M., Clément, C., Dufour A. and Vandenbroucke P. (2016). Agroecology territories: places for sustainable agricultural and food systems and biodiversity conservation. <i>Agroecology and Sustainable Food Systems</i> , 40(2), pp. 132-144

Table 2 Selection of the 4 articles

Those articles are answering parts of our questioning in different ways. Firstly, the article by Fernandez et al. (2013) confirms the importance of our research question while emphasizing on the importance to not separate two important entities during the transition of food systems by saying that “*Social, economic and political changes needed to address issues of food justice, food sovereignty, and food security cannot happen without social, economic, and political change (...). And likewise, ecological change cannot happen without social, economic and political change*” This quote justifies our premise that we should bring together the agronomic part and the social part of food systems together. Still, this is a global overview and, though it brings to the front some injunctions this article fails to reveal how it is possible to keep this link on real case studies.

In the same article, the authors cite another article by Reganold et al., 2011, which says that *“Federal policy that perpetuates the agro-industrial model, market concentration, and the orientation of research and extension toward these sectors, are central barriers to the scaling-up of sustainable agro-food systems.”* This quote highlights the fact that an impediment to the transformation of our food system can be the policy measures which are not adapted to change. This can be characterized as a major lock-in in linking production practices with food systems.

Secondly, in the article of Petit, C. and Aubry, C. (2014), the authors expose the problem that we observed on the TERRAE territories : *“the introduction of these agronomically advantageous crops on farms [in that case alfalfa], (...) can be confronted with the issue of local outlets”* and advice to first look at the market opportunities before changing to production practices. If not, the new end-products, result from a change in production practices, therefore harvest type, will not necessarily be adapted to the local outlets. They say that systems *“evolving towards organic agriculture also depends on the configurations of the supply chains”*. We can learn from this article that when the link is done, it is not easy.

Thirdly, in the third issue's editorial from the Volume forty (2016), Gliessman mentions levels of change to transform the entire global food system with agroecology where the fourth level stipulates that we should *“Re-establish a more direct connection between those who grow our food and those who consume it.”*

The difference between this editorial and this present paper is the fact that Gliessman considers this *“more direct link”* as a face to face link –the one we find in *“community supported agriculture”* for example. However, in the context of our work, we would like to see how it is possible to still have this connection when there are intermediaries.

Therefore, this editorial justifies our work's legitimacy in finding ways, when consumers don't see the farmers directly, to still make the link between production and consumption.

Nevertheless, the important input from this editorial we can highlight is the concept of *“food citizenship”* which Gliessman describes as a *“support”* that can be *“a force for food system change”*. This will probably appear in our findings as well.

And lastly and fourthly, in the article of Wezel et al., 2016 entitled *“Agroecology territories : places for sustainable agricultural and food systems ad biodiversity conservation”*, the authors call for the necessity to establish the link on a global scale, between production practices and structuring of food system. This is obvious as it's the article where the definition of agroecological territories, stems from; and where the TERRAE research program is inspired by. Indeed, as mentioned in the introduction, *“the aim is to introduce the concept of agroecology territories”* (p. 133). However, since this article was written during the first phase of the research program, it was still a global overview and an injunction rather than a clear array of how the link is done; hence, the relevance of this present thesis, as a continuum of this article.

As we can see, over the 11 articles that we selected, only four of them were more or less talking about our research topic in the sense of linking production practices to the structuring of regional food system. Nevertheless, although those four articles illustrate the need to associate more production practices with food system organization in the transition to agroecology, they remained unclear on the motives and the ways to make it. Indeed, it results from the four articles some general overview on the need to link production practices and the structuring of food systems and the indication of the difficulties to actually make that link. However, none of the four articles clearly analyzed the reasons why this link is done, why it is

not easy to do it, or studied the issue as a research focus, that could give us some explanations about this link.

## 1.2 Problematic

Therefore, this review of the literature led us to reinforce our questioning that we will aim at solving, too little authors have worked to respond to this. Thus, the present report will attempt to answers those questions:

**How** are the connections between ecologization of production practices and the structuring of regional food systems are made? Why the connections are made or not? And more specifically, what are the hindrances or the levers that can explains that the connections are done or not?

The terms 'ecologization of production practices' refer to the process in which the production practices used in a farming system tend to be more conscious to the protection of its environment. But it is important to clarify this approach first.

Altieri in 1983, described Agroecology as the application of ecological principles to agriculture. In this view, the protection of the environment is a natural consequence more than a main goal. This concept is later, reclaimed by Gliessman in 1998, when he exposed his definition of agroecology as : “*the application of ecology to the study, the conception and the management of sustainable agroecosystems*” (1998). Again, the protection of the environment is never a staple prerequisite in agroecology, but it is the result of the principle to work with the services and the functionality offered by the ecosystems, rather than against. In agroecology, there are habitats are not artificialized and standardized, therefore, they are sustained. And, as Wezel et al., said in 2013 : “*Indeed, agroecological practices contribute to improving the sustainability of agroecosystems while being based on various ecological processes and ecosystem services*” (p. 3).<sup>4</sup>

The terms 'regional food system' refer to a food system embedded in a territory. This concept goes beyond the simple short food supply chain that we can find in the Community-Supported Agriculture or with the direct selling systems since the regional food systems includes more than one intermediary, and it includes various sort of specialized work. Yet, this still remains a local, proximity farming system. Regional food systems, in view of “the agriculture of the middle”, are supposed to be more fair, equitable and local (Clement et al., 2015) than the conventional food systems that where the end-product had travelled seas and boundaries. When looking at regional food systems, we will look at all the process existing between the farm and the fork, from the production practices to the selling of the produce, from the farmer to the consumers

The aim of this work will consist of looking at the connections, the links, of these two topics, on concrete cases studies. In other words, I will look at the different linkages that exist between the development of agroecological production practices (the ecologization of production practices) and the structuring of regional food systems. And if that linkage is not made, what is complicated and difficult to make those connections (lock-ins)? And if that linkage is made, what favor them (lever) ?

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<sup>4</sup> More details on production practices in “*Production practices boundaries*” on page 15.

## 2 Materials and methods

### The use of case studies

To carry research with concrete initiatives that are happening on territories, “a participative and transdisciplinary action-oriented research methodology is particularly appropriate” (Méndez, Bacon, and Cohen 2013; in agroecology territories, Brives, etc...).

In order to respect the extent and diversity of the initiatives, and to reflect the reality of each territory; amongst all the methods of doing social research, the choice has been made to carry the research using **case studies**.

To confirm the appropriateness of the case studies when conducting research in our topic, the quote of Yin, in 2003 says : “In general, case studies are the preferred strategy when "how" or "why" questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context” And indeed, as mentioned in the introduction, our primary goal is to respond to a “why” question, and we have absolutely no control over the initiatives.

Also, according to Yin (2003), the case study method is a way of investigating an empirical topic by following a set of pre-specified procedures.

Following this method, our multiple entry analysis can refer to what Colletterte (2011) calls “the study of multiple cases” which consists of “identifying recurring phenomenon in a n number of situations”. The idea is to collect data from the initiatives' past events and experiences, which will help us to draw converging interpretations leading to shared conclusions. The idea is not to compare and rank the initiatives between them but rather, to use each of the study cases results to firstly, identify initiatives where the connection between ecologization of production practices and food system organization is made and secondly, to understand the reasons why the connection is done, unaccomplished or not done at all.

### A trajectory oriented approach

We will follow the methodology of **analysis of the trajectories** of in the study cases as recommended by Brochier et al. (2010), with a special emphasis on the **temporal bracketing** (Langley, 1999). This latest method appears as one of the methodologies which conserve the breadth of each case while assuring the possibility to make generalizations and transversal outcomes. Indeed, the temporal bracketing consists of breaking down the initiative's trajectory in fragments, which is described as **sequences**. The identification of trajectory fragments can be under the form of coherences, changes or brutal breaches, and is no longer associated with time as the main focus of study.

### Agroecological territories

As mentioned in the above, this work is done with the support of the existing research program called **TERRAE**, which means agroecological territories, which act as a “laboratory territory” (Clement et al., 2015). An agroecological territory is defined by sustainable agricultural and food systems where the production practices, the food systems and the natural resources of the territories meet; and where the stakeholders are the driving force.



### Production practices boundaries

We must shed light on the definition of agroecological production practices. Along this work, we will talk about the agroecological production practices of farming systems, where a special emphasize has been done on their ecologization process. We have referred to the definition of agroecological production practices reviewed in the articles of Wezel and al. (2013) called “*Agroecological practices for sustainable agriculture. A review*” and of Dumont et al. (2012) called “*Prospects from agroecological and industrial ecology for animal production in the 21<sup>st</sup> century*”.

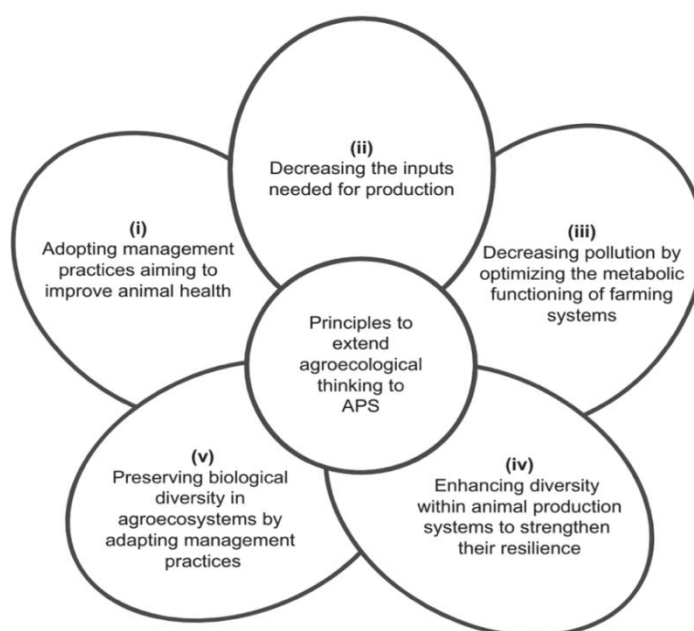
This article’s conclusion define two types of production practices : the one that have a low integration in today’s agriculture and the one that have a medium or high integration level in today’s agriculture.

This separation is summed up in the table below.

Low integration in today’s agriculture	biofertilisers; natural pesticides; crop choice and rotations; intercropping and relay intercropping; agroforestry with timber, fruit, or nut trees; allelopathic plants; direct seeding into living cover crops or mulch; and integration of semi-natural landscape elements at field or farm scale; or their management at landscape scale
Medium/High integration in today’s agriculture	organic fertilization; split fertilization; reduced tillage; drip irrigation; biological pest control; and cultivar choice

Table 3 Agroecological production practices according to Wezel et al., 2013

Moreover, and since the article by Wezel et al., (2013) explained before is only considering the production practices of arable crops, a work on the literature has been done to define the agroecological practices for animal production as well. The principles are drawn from the article of Dumont et al., in 2014 called : *Forty research issues for the redesign of animal production systems in the 21st century*. According to the author, there are 5 principles to the redesign of agroecological animal production systems (see Figure 1 below).



*Figure 1 Five ecological principles for the redesign of animal production*

But also, we believe that this is an ongoing process more than a red and green list. Indeed, there is standard definition on what agroecological production practices are, but no clear delimitation on the extent and context they are implemented in. Therefore, there are no Manicheism, no good or bad practices. Actually, some conventional farmers can make the use of agroecological production practices even though it does not cover the entire farming system or without being certified for it. To define agroecological practices, we will say that this is all the production practices that lead towards a greater use of ecological principles rather than chemical inputs, and the artificializing of the habitats for the production of food. During this report, we will define an agroecological production practice using the comprehensive principles drawn from the literature exposed above, but as a process with a dynamic approach as well.

Moreover, concerning the food system, in order to give this work boundaries concerning the socioeconomic principles of agroecology, we will use the article of Dumont A., Stassart P. M., Vanloqueren G. and Baret P. (2015) called “Clarifying the socioeconomic dimensions of agroecology: between principles and practices”. According to this article, there are 13 socioeconomic principles linked to agroecology, which are :

- i. Environmental equity
- ii. Financial independence
- iii. Market access and autonomy
- iv. Sustainability and adaptability
- v. Diversity and exchange of knowledge
- vi. Social equity
- vii. Partnership between producers and consumers
- viii. Geographic proximity



- ix. Rural development and preservation of the rural fabric
- x. Shared organization
- xi. Limited profit distribution
- xii. Democratic governance
- xiii. Joint implementation of the various principles in actual practice

During our observation and data collection on the territories, we put a special emphasis on the criteria which were related to the agriculture of the middle as well, exposed in Brives et al. (2017). In that perspective the criteria of “Diversity and exchange of knowledge” (v.) and “rural development and preservation of the rural fabric” (ix.) were not as much studied as the other criteria. We brought a special attention on criteria such as social equity (vi.), geographic proximity (viii.), shared organization (x.), limited profit distribution (xi.) and democratic governance (xii.).

### Where the study is going to happen?

TERRAE is a project which started in 2013, with the objective to study and support the agroecological transition of agricultural and food systems. There are 3 defined partner territories: Boucle du Rhône en Dauphiné (BRD), Roannais County and Pilat regional natural park area (RNP) which are situated in the Auvergne-Rhône-Alpes region (see Figure 3).

In the second phase of TERRAE that started in 2015, there are 4 actions (see Figure 2 below). Within the second action, there are two experiments. The first one, SOLS experiment, takes place in the territory of La Boucle du Rhône en Dauphiné where different productive methods are co-designed with stakeholders and researchers along and their effects on soil fertility are analyzed. The second one, SYAM experiment, takes place in the Roannais territory, where stakeholders’ dynamics in the creation of a new **territorial food system** is studied and facilitate by TERRAE.

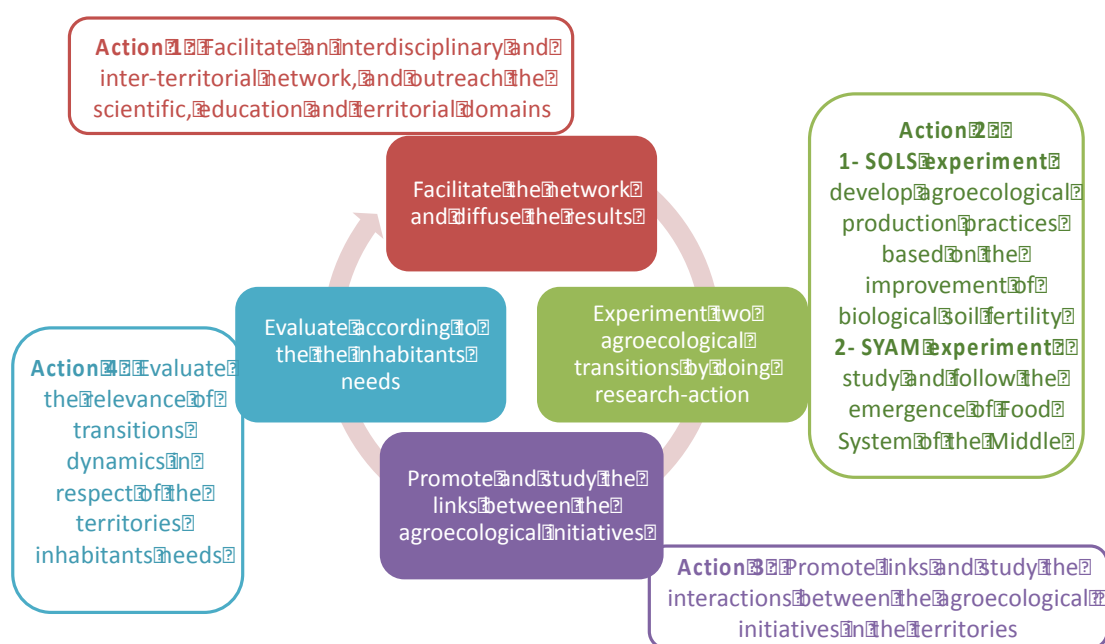


Figure 2 Explanation of the different actions of the TERRAE research program

This thesis work is comprised at the crossroads of the action one and two. This work is drawn from the knowledge of the two territories' experiments. We combine the approach of SOLS and SYAM experiments and create an overall question in order to know how production practices are linked to the structuring of food systems in other initiatives.

For that matter, I have worked only on the territory that were the most concerned and affected by our research questions. Indeed, only in the Roannais territory and the Boucle du Rhône en Dauphiné territory did our experts were the most sensible to the question of linking production practices with the structuration of the food system. Given that TERRAE is a research action program which is co-construct with the stakeholders and researchers, it was very important to have both parties conscious and aware about our research topics. Unfortunately, this was not the case for the Pilat RNP area. Moreover, some preliminary work resulted in the selection of interesting initiatives that were situated in the Roannais and BRD territories only. Indeed, some food systems of the middle were initiated in the Roannais territory and some farmers who were facing market expectation hindrances after changing their production practices were found in the BRD territory. At the opposite, in the Pilat RNP, there are more initiatives related to very short supply chains than what we were interested in, namely food systems of the middle with many intermediaries.

Figure 3 below showed the territories on the ex-Rhône-Alpes region<sup>5</sup>. This map is drawn from the TERRAE first phase summary document written by Clement et al. (2015).

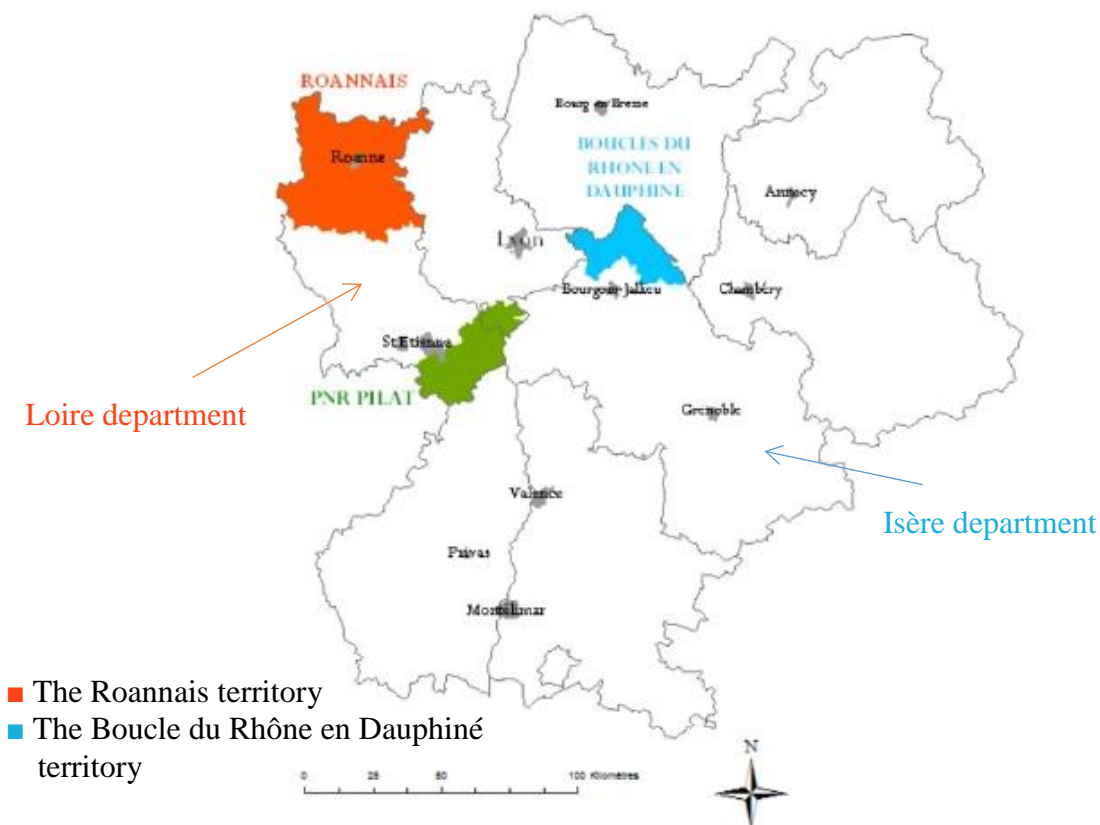


Figure 3 Map of the three territories of TERRAE in ex- Rhône-Alpes region

<sup>5</sup> See Box 1 in page 7 for more information on the regions merging

After the first diagnostic phase that took place between 2013 and 2015 which were dedicated to study and define agroecological territories, the second phase of TERRAE is more operational and participative.

Here, we will give a short presentation on the two territories studied:

- **Roannais**

All the information below are generously drawn from the thesis done by Quenard (2015) and from the document written by the Syndicat Mixte Roannais Pays de Rhône-Alpes (2014).



Figure 4 The Roannais territory divided in 6 entities<sup>6</sup>.

The first territory studied is called ‘The Roannais’ and is organized around the city of Roanne, settled in the middle of a plain, in the northern boundary of the Loire department in Central France (see related maps in Appendices on page 73). The Roannais can benefit from a strategic geographical position since it’s located only one hour away from big cities such as Lyon, Clermont-Ferrand or St Etienne. The Roannais area covers a territory of 184 757 km<sup>2</sup> for 119 municipalities and had close to 159 759 inhabitants in 2011.

The Roannais is composed of one conurbation (Roannais Agglomération) and 5 municipalities (Charlieu Belmont, CC des Vals d’Aix et d’Isable, CC du Pays entre Loire et Rhône (= COPLER), CC du Pays d’Urfé, CC de Balbigny). (See Figure 4 above). The city of Roanne concentrates half of the population of The Roannais on only 15 municipalities. The remaining 104 other rural municipalities gather 39% of the population from The Roannais.

Yet, there is a very strong bond between the city and the countryside and there is a strong

<sup>6</sup> Source : Syndicat Mixte Roannais Pays de Rhône-Alpes (2014)

tradition of direct selling (on the markets or directly at the farm), where almost 65% of the producers are at least selling their product at the market once per week (Syndicat mixte du Roannais, 2007).

The Roannais has a deep industrial industry. According to the INSEE (2012), the national statistics office, despite a growth of the services sector, the industrial sector remains, even today, important in the Roannais, and indeed 20% of its total employment capacity are linked to the 15 industrial sectors of the Roannais territory (compared to only 16% for the Auvergne Auvergne-Rhône-Alpes region, and 13% for the national scale).

Forest from The Roannais is an abundant natural resource since it covers 40% of the rural area, particularly in the West and Est part of the territory. The wood sector is an important business, which in terms of employment, equal the agrifood sector, also well established in the territory.

Indeed, the food industry is very present in the Loire department, nearly 140 companies employ around 5530 people, mostly in four sectors : meat, milk (first producer of Auvergne-Rhône-Alpes), chocolate (company like Cémoi, Révillon or Weiss are set up there) and the bottling of water (PAA Loire, 2015). Other small and artisanal food-related businesses are settled in the Roannais, and are ensuring the longevity of the local commerce.

The Roannais is also an agricultural territory with 4% of its employments capacity directly linked to agriculture (compared to 2,5% for the Auvergne Rhône Alpes region, and 2,8% at the national scale) (INSEE 2012).

The main agricultural activity is based on stock farming of cattle (Epures, Agri-food hub of Loire, 2012). The meat sector is well established with many complementary and specialized (for proximity supply chain or long supply chain, for all kind of animal or for one particular animal) slaughterhouse organizations, cutting and transforming companies and selling outlets.

The Roannais is a grassland territory (see *Figure 5* below) with a recognized know-how on cow-calf production. A historical and strong bound exists with Italy for the fattening of the calves, but it is more and more weakened by the uncertain market prices. Therefore, to assure the sustainability of their farm, a lot of stock farmers are on different markets (local and international).



*Figure 5 Landscape of the Roannais area (TERRAE short clip)*

But in the Roannais, like other territories in France, the number of farmers is reducing. The can be beneficial for neighbors farmers who can extend their land, but in turns, the rural economic tissue is devitalized. The expansion of some already big farmers restrict the access to the land of new-comers trying to work on a smaller scale.

In the Roannais, there are a lot of locally made food products offers which is somewhat diversified : cheeses, wine, honey, meat, vegetables. But this later is critically running behind in terms of volume produced. Therefore, the structuration of local market for vegetables is possible but will struggle to stay viable.

Driven by cooperative dynamics, food produced under quality labels are emerging with three PDO on wine, cheese and meat. Moreover, organic agriculture certification of farms is increasing in the territory but remains minor compared to the ex-Rhône-Alpes region improvement. This is due to the fact that there are a lot of stock farming in which the organic sector is lacking.

#### ○ The territory La Boucle du Rhône en Dauphiné



Figure 6 The BRD territory divided in 4 entities (Clement et al., 2015)

The second territory is situated in the north part of Isere department and is called Boucle du Rhône en Dauphiné (BRD), where it doesn't include any major city, although it is under the influence of the big urban surroundings of Lyon. This territory is adjacent to three other departments : Ain, Savoie and Rhône.

There is a wide diversity of landscape in this territory : urban areas in the West, with the concentration of a transportation facilities, business activities and highly populated municipalities. Indeed, there are only 11 urban municipalities (less than 20 000 inhabitants), which corresponds to 27% of the territory. The three main libing areas of the BRD are Crémieu, Montalieu-Vercieu and Morestel. On the Est side, it is more rural with traditional scenery of hamlets scattered in the vast natural landscape.



This territory extends over an area of 58 138 km<sup>2</sup> and had in 2010, more than 83 000 inhabitants for 47 municipalities<sup>7</sup>. The territory of the BRD shows an undeniable demographic dynamism and pressure due to its proximity and easy access to Lyon, and other urban, area such as Chambéry or Grenoble.<sup>8</sup> Since 1982, the annual demographic growth in the territory is almost two times higher than in the rest of the ex-Rhône-Alpes region. Therefore, on the economic front, there are a lot of people in the area who work outside of the territory.

There are still industries remaining, such as micro-enterprises, some commerce and a lot of industries in the sector of textile, metallurgy, plastics, chemical, industrial and agricultural machineries or building.

A quarter of the territory is deciduous forest, and agriculture corresponds to 45% of the territory. The potential of this forest is underestimated due to its fragmentation and the lack of dynamics with the other territories where forest is a resource as well. In that perspective, silvicultural practices can evolve to offer a better and more sustainable way to manage this forest, and improve the stocking of these trees in the respect of the environment.

Agriculture is part of the main composite of the territory's local economy as well. The arable land and wetlands on the territory is an attractive point for agriculture where irrigation is possible and the conditions are favorable for arable crops, therefore in the plain. Half of the easy to till land is used for cereals growing<sup>2</sup>. The hillier plots are left for pasture. Often, cereals and intensive stocking farming systems are completing each other to make the best use of the topography, in one farm.

L'agriculture locale présente également de l'élevage (lait et viande).

The long food supply chain predominates the market, especially due to the deep implantation of two cereal storage agency (Cholat and La Dauphinoise). Having said that, however, the territory shows as well some production for the short food supply chain in the West part of the territory, closer to the cities. This kind of market is mostly for milk and meat. Moreover, the territory concentrate 6% of the whole organic farms in the Isère department which offers a possible strategic and competitive position to focus in the future.



Figure 7 A farmer going to his field in La Boucle du Rhône en Dauphiné

<sup>7</sup> [http://www.territoires.rhonealpes.fr/rubrique.php3?id\\_rubrique=267](http://www.territoires.rhonealpes.fr/rubrique.php3?id_rubrique=267) [accessed 29 August 2017]

<sup>8</sup> <https://www.insee.fr/fr/statistiques/1291814> [accessed 29 August 2017]

### Experts' opinions inventory picturing a range of diversity

During the history of TERRAE, networks were created that allowed us today to have valuable experts on each territory that are aware of the reality and of what is happening on their territories, they are in the research program since the beginning.

Concerning the choice of initiatives, because they have a detailed knowledge of the territory, its stakeholders, and the short food supply chain initiatives that are present in the territories they work in, each initiative have been chosen by agreement with the local collaborator of TERRAE.

The collaborators were our **resource person** and part of the TERRAE program since the beginning. In the Roannais County, the resource person is called **Nils Maurice** and the resource person in the Boucle du Rhône is called **Veronique Rochedy**.



Nils Maurice (adjacent picture) is a facilitator of a structure called PETR, which means “Territorial balance centre<sup>9</sup>”.

He is the task-force manager for all the projects related to agriculture. This mission aim to reconnect agriculture with its territory and to elaborate project for the development of the territory in terms of tourism, economics, environment and agriculture together. On the territory, he has a strong network with a lot of stakeholders, has a clear understanding of the actors dynamics on the territory.

The PETR : Pôle d’Equilibre Territorial, still recently called the Roannais County, is an association which gathers inter-communal bodies of the Roannais area. In total, 7 persons works in the PETR. The goa of the PETR is to give the impulsion, to carry out and facilitate actions working in favor of the territorial development. It has three main objectives : the first one is to define a strategy for the territory and to facilitate it, the second is to find subsidizes and to manage the budget within a limited financial envelop and the third is to make the link between the different actors, to ease the connection between the stakeholders, networking.

At the creation of the PETR, they created a development charter in order to have a roadmap. It has two main goal : (i) Transform the Roannais, in a « high economic value added » area and (ii) Transform the Roannais the area of the “High Life Quality”

The PETR is embedded in a European rural development program called LEADER.



Figure 8 PETR Logo

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<sup>9</sup> In French : “Pôle d’Equilibre Territorial”



Veronique Rochedy (adjacent picture) works for the Chamber of Agriculture local committee since 2006. She has a rural development background and works at the CT BRD as a facilitator. Her job is to facilitate the committee and to promote the emergence of projects concerning the development of the territory that fall in the public interest.

The Territorial Comity of la Boucle du Rhône en Dauphiné (CT BRD) has been created in 2006 and is an association that is independent from the Chamber of Agriculture. The CT BRD has only one employee, which is Veronique. Within the CT BRD there are three committee who are members and deciders of the actions: farmers, elected people and consumers and civil society members.

The objective is to work towards the creation of agriculture-related projects on the territory of the BRD.

There are approximately 10 territorial committees in the department of Isère.

The CT BRD recently submitted an application for the European rural development program called LEADER that will start in September 2017.



Figure 9 CTBRD Logo

These two persons introduced me to the territory and presented me some initiatives that were possibly interesting to me regarding my problematic. That is the reason why I have an inventory **on the basis of experts' opinions**, who were my **privileged informers**. Moreover, during the inventory of the initiatives, we had a “territory approach” and not an “initiative approach”, which means that we looked at the territory and sought after any initiatives related to our topic that were happening, and we did not search for landless initiatives, which were not attached to a locality and a local community of stakeholders.

This method, as mentioned in Wezel and al, (2016) allowed us to reach many different stakeholders and as the authors says: *“links to territories bring opportunities to renew social and economic values and thus to change social and economic relations, but also to think about the ecological and social issues around food”* (p. 139)

After that Veronique and Nils gave the information about the ongoing initiatives that were happening on the territory, a first visit of the territories to make a work of selection has been done. We did not choose all the initiative that we were presented.

Out of 26 initiatives that were presented by Nils in the Roannais territory we chose only to study 5 of them. The sixth one was found thanks to a previous work made by the intern Aurélien Quenard who studied this initiative as well.

And out of the 5 initiatives that were suggested by Veronique, we decided to only chose 2 of them. The other 3 ones were found when talking with the informer Veronique and other stakeholders on the territory.



Thus, not all of the 31 initiatives presented by the informers were falling under the framework of the thesis problematic (ecologization of production practice and structuration of food system), and we could found more initiatives than the one presented. Besides, I wanted to have initiatives that were really diverse. Therefore, I did a **well-reasoned selection** depending of the thesis needs which were that the initiatives should be related to the food system structuration in a regional scale; the initiatives should address some processes of ecologization of production practices and on the overall, there should be diversity in the initiatives concerning (i) the stakeholders interdisciplinary (from production to selling, going through transportation, processing, marketing, selling : ewe exclude the farms doing very short supply chain), project promoters (public, private, ...), (ii) type of production (animal husbandry, arable crop, ...) and (iii) the state of progress (idea, ongoing, accomplished, ...). Concerning this last point, those initiatives were chosen regardless of their state of achievement. Indeed, projects that have been done but also projects that are in the state of an idea were both selected to be studied.

Several initiatives were chosen per territory in order to be able to draw generalities and territorial factors from the territories.

#### Analysis grid

After selection, and data collection, all the initiatives were analyzed through an analysis grid. The grid was created using the article “*The notion of “agriculture of the middle” can be used to analyze the agriculture in Rhône-Alpes ?*” Brives, H., Chazoule, C., Fleury, P., Vandenbroucke, P. (2017)”. In this article, the concept of **food system of the middle** is introduced using the 4 criteria of agriculture of the middle, and which were the cornerstone of my analysis grid. This article was chosen because our objective was to analyze the link between production practices and the structuring of food system, apart from very short food supply chain. Therefore, the definition of a food system of the middle was well-adapted to match our prerequisite for the study of our initiatives. Those criteria are the stakeholder’s regional cooperation, the products differentiation, the shared value and the stakeholder coordination and then the distribution of the added value. Then we added production practices and context as well, that was deemed worth it to study for my thesis. *Table 4* below sums up the five criteria with an explanation of what they mean.

Regional cooperation and stakeholders	With this category, we want to know the number of intermediaries, their types and their scales of application. We were also interested in the type of proximity interviewee were mentioning and how is was built. Also, we asked question concerning the power relations between the stakeholders of the initiatives. Also, we wanted to know how the consumers where embedded in the project. Because as mentioned in the article by Brives et al., 2016 : “None of these measures is based on a face to face interaction between consumers and producers” (p. 47). Hence, we wanted to know more about the kind of relations it existed between the consumers and the producers, and with all the intermediaries and their scales of implementation.
Products differentiation	With this category, we want to know more about the construction of

	<p>the quality and the description the stakeholders are giving about it. In terms of marketing, since it is a “<i>long-distance relationship</i>” (Brives et al., 2016), what are the messages given to the consumers, on the techniques and production practices ? What are the ethical, environmental, social or other types of values given underneath ? What kind of information are they giving to their consumers (on their website, on their label for example) ?</p>
Stakeholders shared values	<p>With this category, we want to know more about the coordination between the stakeholders. On which dominant food systems’ problems are they offering an alternative to ? How the transition happens ? And as Brives et al. mentioned it (2016) : “Along with farmers, each of the stakeholders of the initiatives, distributors and processors, is seen as a partner” (p. 49)</p>
Distribution of the added value	<p>In this category, we would like to know more about the cooperation definition. More precisely, we want to know more about the price formation, if it’s stable, accessible for consumers and based on market or production prices. But also, we are interested in to know by whom and how it is done, and if the farmers can negotiate the price. Like mentioned in Brives et al., (2016), the food system of the middle can also be described as “<i>Value Based Food Supply Chains</i>” and we want to know on what criteria is this value addition based and how stakeholders are characterized within the initiative (trustworthiness, partnership, supplier lambda or strategic supplier).</p>
Agricultural production practices	<p>This category is not mentioned in the article of Brives et al. (2016), but was judged crucial in our analysis grid since our problematic is looking at the ecologization of production practices in relation to the structuring of food system. Indeed, in this category we would like to know which principles of agroecology farmers or project managers are referring to. We would like to know what kinds of agriculture stakeholders define their farm.</p>
Context	<p>This category is important to understand the context of the territory in terms of past events, policies or geography for example. Those are elements that don’t fall into any criteria of agroecological socioeconomic or production practices but are very important for the understanding of the initiatives, having a trajectory approach.</p>

Table 4 Analysis grid framework and explanations

This grid aim to understand how the connection between all stakeholders that implement new or improve already existing agroecological practices on their farm, organization, business or

shop, is made. The initiatives assessment will help to study their success in the territory, their failure and their lock-ins. The thesis outcome will be used to identify and highlight the barriers and obstacles, as well as observations to keep in mind for future project coordinators of agroecological food systems.

It should be recalled that since we have a trajectory approach, for every sequence of the initiatives, information's were put in the analysis grid. This decomposition is useful in order to see how the items of the analyses grid evolve through time.

### *Data collection*

We will examine the study cases based on interviews but as mentioned in Yin (1994), there are other sources of data that can be included while studying case studies. According to Yin (1994) data for case studies can come from many sources of evidence derived from: documentation, archival records, direct observation, participant-observation, and physical artifacts.

Indeed, I used many sources of material to gather all the data needed. As mentioned in the books on how to conduct surveys by Weber, F. and Beaud, S. in 1992 and Gotman, A. and Alain Blanchet, A. in 1992; I conducted semi-structured interviews with stakeholders that were directly or indirectly linked to the initiatives studied. In the perspective to respect the story the interviewee was telling, I didn't use a questionnaire but rather, an interview guide as a tool, to make sure that all the elements from my analysis grid were mentioned, but without following a fixed list of questions. Therefore, I used an qualitative historical approach to conduct the 21 semi-structured interviews. Indeed, we didn't make any statistical analyses, but we followed a strategy of trajectory to relate our initiatives, and used the narratives of our interview as data.

I also used other source of material such as Master's Thesis of former student who have worked on the agroecological territories as well. Especially the thesis of Aurélien Quenard (2016) and Lucie Couillet (2015).

Another source of data that I used is the work of communication that some students from ISARA-Lyon did to present the TERRAE program and some of the initiatives, in the form of short videos.

Document written to communicate on the initiatives studied were used to collect data as well, but also document written on the initiatives, such as newspapers were used as well.

And then lastly, I based my data on terrain observation such as meetings I've been to, or visits to farms and initiatives holders we did at the beginning of the terrain data collection with Veronique Rochedy and Nils Maurice.

### *Three levels of analysis*

While collecting the data, due to the impossibility to contact all the relevant stakeholders and the limited amount of time to achieve this work, we did not have the same abundance of information for each initiative. Therefore, it has been deemed justified to delimit three level of analysis for the initiatives (see Tables 5 below). Therefore, in the initiatives labelled in blue, a maximum of information were collected, many stakeholders were interviewed and a real trajectory approach was possible to established. In the initiatives colored in orange, the data were collected using more than one source of information (interviews, observation, meeting)

but did not get into more detail. Finally, in the initiative labeled in green, only one source of information was used.

ROANNAIS TERRITORY		BRD TERRITORY	
Local minced beef	Blue	Local soya production	Blue
Etincelle Gourmande	Orange	Mobile sorter	Orange
Etamines	Orange	Local minced beef	Orange
Heavy Pork on Straw	Orange	La Brasserie des Ursulines	Green
Vivre bio in the Roannais (VBR)	Green	La Grange Boutique	Green
CoPLER	Green		

Majorly studies initiatives	Blue
Moderately studied initiative	Orange
Lightly studied initiative	Green

*Tables 5 The different levels of analysis for each initiative*

## 3 Results

### 3.1 Initiatives Roannais

#### 3.1.1 Local minced beef:

##### 3.1.1.1 The emergence of the idea

###### 3.1.1.1.1 A territory organized around the city of Roanne

Roanne is a city of 35 500 inhabitants<sup>10</sup> situated in the department of Loire, in France.

As mentioned in the presentation of the Roannais territory on page 19, the major agricultural activity of Roanne is based on cattle production –the livestock from the Loire department for that matter, is the biggest herd of the ex-Rhône-Alpes region (Epures, Agri-food hub of Loire, 2012). We observe a great dominance of grassland systems which can be explained by the fact that soils hydromorphies is not suitable for cereal production. Hence, pastures account for 75% of the Area Used for Agriculture (AUA) (Couillet, 2015) and 93% of the AUA is used for cattle feed production (Syndicats mixte du Roannais, 2007).

Concerning the outlets, cattle are then commercialized on the territory or exported through cooperatives slaughterhouse such as the SICAREV or by wholesale meat traders. Stock farmers, rarely do the fattening of their store cattle on the territory but rather, prefer to export them to Italy. Yet, there is a real and ancestral know-how of cow-calf producer skills, on the genetic and the finishing of animals.

Moreover, the combination of the authentic and historic birthplace of the Charolais cow breed, the gastronomic culture of Lyon and the well-known restaurants ‘*Troisgros*’ settled in Roanne allows to create a sense of food quality aspiration of the Roannais territory. Moreover, every year a Charolais Festival is held in Roanne and is a way to showcase and valorize the Charolais meat sectors. The Roannais area is a large consumer marketplace with approximately 100 000 consumers.<sup>11</sup>



*Picture of a Charolais in front of the plain of Roanne (Clement et al., 2015)*

###### 3.1.1.1.2 Roanne Conurbation, a political and engineering tool

Roanne Conurbation (the territory labelled ‘*Roannais Agglomeration*’ in light green on the Figure 4) is an urban area organized around the city of Roanne, which is composed of 40

<sup>10</sup> <https://www.aggloroanne.fr/> [accessed 29 August 2017]

<sup>11</sup> According to the interview of a stock farmer

municipalities integrating urban, suburban and rural areas and gathers 105 00 inhabitants. Established in 2012, from the merger of the urban area of Roanne and four other neighbor's municipalities. There are five permanent commissions themes that are working on the resources, the land use planning, the development of the territory and its attractiveness, the environment and civil engineering and on the social cohesiveness.

Its competences involve the planning of the territory while looking upon mobility, housing, the culture and tourism, water supply and sewerage, agriculture and rural areas, environment and waste, social cohesiveness, and sport.<sup>12</sup>

#### 3.1.1.1.3 A wish to support a beef sector

In the last few years, there is a growing interest for public actors to put food and nutrition issues at the heart of their agendas. Therefore, several initiatives are emerging, particularly around local and organic food production. Those public actors support alternative food systems in order to support their territories and to meet the increasing consumer demand in local, fresh and healthy product.

It's in that perspective, that in the agricultural and economic services of the Conurbation, a drive to support the meat sector of the area was at the agenda in during the month of November 2015.

Born from an idea of the elected person in charge of the agriculture, called **Dan**, and with an councilor in Agriculture of Roanne Conurbation, who is also a stock farmer. Their wishes were to find a solution to support the farmers in the area and to find an outlet that was economically and reasonably profitable for the local farmers. They wanted as well to promote the local know-how, to favor a premium-quality end-product, to promote short supply chain and to reinforce the agro-culinary image of Roanne. To start the project, Dan contacted all the stakeholders conceivably interested in the project to get a first impression of their motives.

#### 3.1.1.2 November 2015 : First meeting with the partners

##### 3.1.1.2.1 Goals

In order to have a local meat sector, the first step was to invite some persons who were related to the meat sector and were conceivably interested in the idea to talk about the possibilities to create a project supporting local stock farmers. In November 2015, Roanne Conurbation organized the meeting, and was really keen on having the stakeholders on board right at the beginning of the project. The idea to start a project on its own was of no interest for Roanne Conurbation, because it wouldn't have been sustainable. The goal of the first meeting was to brainstorm about the possibilities for each stakeholder, and to share their needs and prerequisites. For Roanne Conurbation, it is not sustainable to impose a project to stakeholders, therefore it needed to be something designed by everyone. The meat industry is a sector where a lot of stakeholders play a role in the value addition of the end-product, so if Roanne Conurbation wanted its project to last, it needed to bring on board all the intermediaries right at the beginning of the project.

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<sup>12</sup> <https://www.aggloroanne.fr/> [accessed 29 August 2017]

### 3.1.1.2.2 Attendants

#### 3.1.1.2.2.1 Roanne Conurbation

Its presence was represented by the economical and agricultural services of the Conurbation. There were the elected person Dan that we mentioned earlier, who was at the start of the idea. Dan is retired for the meat sector and knows well the functioning and role of the intermediaries. His father was a stock farmer too, he has an extended network in the sector. He is now elected in a municipality from Roanne Conurbation and he is in charge of Agriculture at Roanne Conurbation. Also, there was also another meat expert that was a councilor of the Conurbation, that we also mentioned earlier. And lastly, Roanne Conurbation was also represented by the representative person of the Agricultural department of Roanne Conurbation.

#### 3.1.1.2.2.2 Stock farmers

In total 900 invitations were sent to stock farmers in the Conurbation of Roanne. Only five of them came to join the working focus group of the project.

The agricultural context in crisis, they made the observation that they didn't earn their lives with what they were doing. They came at the meeting to see if it was possible to be part of a project where they could be better remunerated and be closer to consumers.

The common point between the stock farmers who came, was that they were all raising cattle from birth to slaughter, from veal to cow. In the territory, a real know-how on genetics is present. And in order to support the farmers of the territory, it was decided that no feeder animals were allowed in the project criteria.

The prerequisites of the stock farmers were that they shall fix the price, therefore reversing the context by starting from an ideal cost price for the farmers. When the farm gate price is fixed and calculated by the farmers, the latest are assured that they will be remunerated fairly. They also wanted to valorize their animals with type traits R+ or R with a fattening condition of 3, which was the staple type of animals they had on their farm (See Box 2 hereafter). They wanted as well to valorize their animal “*from nose to tail*”, as mention by an interviewed stock farmer.

*The type trait is a criterion that refers to the shape of cattle. It has five levels that are represented by the five letters of the word E.U.R.O.P. The more the animal has developed back muscle and back legs muscles, the more it has a high butchery value. Then it will be classified with the E or U letter. At the opposite, the less the back and the back legs are muscled, there will be a higher bones to muscles ration so the cattle will be classified O or P. This criterion is a shape assessment that corresponds to an idea of the carcass return. Type traits classification is not referring to the gustatory quality of the animal.*

*To improve the type traits of an animal, a rigorous work on genetics has to be done, but also on the feed that takes the animal as well as its living conditions.*

<https://www.lesviandesetoiles.com/concept/conformation-europ/> [accessed 29 August 2017]

Box 2 Explication of type traits



#### 3.1.1.2.2.3 The slaughterhouse Charlieu

The meat industry is well structured in Roanne area because there are two slaughtering structures, the first in the intercommunal slaughterhouse of Charlieu and the second is the slaughterhouse that belongs to Roanne city and which is managed by the SICAREV company (Syndicat mixte du roannais, 2007). The slaughterhouse SICAREV is specialized for cattle and aim for an industrial development. It has indeed a quantity of animal annually slaughtered of 25 000 tones (Couillet 2015). Since the goal of the project was to have a small scale products, the SICAREV was not invited to join the meeting.

The slaughterhouse Charlieu is oriented towards the short food supply chains, the proximity with its customers and is accepting all species of animals to slaughter. It has a quantity of animal annually slaughtered of 2 500 tones (L'Essor, 2014).

#### 3.1.1.2.2.4 Distributors

Four supermarkets: They are all situated in Roanne Conurbation and are in line with an approach of local sourcing of their products. They offer in their aisles numerous local produce, most of them directly bought from the producer him/herself. There are 2 supermarkets from the company Intermarché and one from the brand Super U, and another one from Carrefour. The two Intermarchés and Super U have in their stores a traditional butcheries section, but it is not the case for Carrefour.

As an indication, the supermarket Super U mentioned that it will not be able to sell the backs pieces of the animals in its traditional butchery section since it has a commitment to exclusivity with meat that are certified Label Rouge.

All the supermarket chosen are rather small supermarkets, their size is comprised between 400m<sup>2</sup> and 2500m<sup>2</sup>. They are all independent, that is why they didn't include any big supermarket, because the latest wouldn't be as free as the smaller one to source their product locally.

Coralys : Coralys is a company which supply produce for institutional catering in schools and companies. It is well established in the Auvergne-Rhône-Alpes region.

#### 3.1.1.2.2.5 Agro-food hub of Loire

Agro-food hub of Loire, was born from a demand coming from the agro-food companies in the Loire department, and aimed to work together with food sectors, to offer healthy food, tasty, convivial and sustainable, produced or transformed with respects to the territory and its inhabitants. It's a one of a kind organization in France. Its goal is therefore to facilitate links between the agricultural production, the transformation and the distribution sectors.

More specifically, the agro-food hub of Loire lead and supports the shareholders food sectors by monitoring individually the companies, and support them in their growth or their strengthening.

The agro-food hub also organizes networking events. In that view, that is why they organize some group work or colloquium on diverse hot topic, or support local projects (for example the heavy pigs on straw, the minced beef sector studies in this paper) and make the link between institution and professionals.

For the minced beef sector, the agro-food hub of Loire helped for the writing of the charter for all the stakeholders and the code of practice for the stock farmers (Quenard, 2016).



### 3.1.1.2.3 Things that were on the agenda to agree upon :

The meetings, as mentioned before, were organized by Roanne Conurbation and the agro-food hub of Loire, and were gathering the stakeholders interested to talk about the setting-up of the project. To avoid taking too much risks, they decided together to go first into a test period before officially launching an official partnership. The test phase is meant to do trial and errors to examine all the possibilities and ideas that were suggested by the stakeholders. Since they were novice in the experience of creating from scratch a minced beef sector, they need to co-construct the sector together step by step and test all the possibilities to decide which one to choose eventually.

In total, there was one year of preparation for this meat sector to be acceptable for all the stakeholders involved, with at least 15 meetings organized since. Those meetings took place as soon as the need arose, approximately once per month. Once the sectoral contract was signed, they were less frequent. The parts below are describing the outcome and decision of those meeting in terms of which stock farmer are in the sector, what is the product different from other product and where they want it to be sold, what is the cost and how is the communication around it.

#### 3.1.1.2.3.1 Which stock farmers ?

During the meetings, they agreed upon criteria that farmers will have to respect to be accepted to bring animals at the slaughterhouse to be transformed. Stock farmers should be situated inside the Conurbation of Roanne, they should be a member of the association “*Stock farmers of Charolais from the Loire*” and respect the charter of good stocking production practices (see Box 3 hereafter for more details), and agree to respect the code of practice that was going to be fixed by all the stock farmers later on. Farmers will take the right to exclude or don't accept any other stock farmers that will not respect these conditions. As one farmers said : “*We know each other very well between stock farmers, when someone wants to enter the sector but we know that he has bad hygiene or production practices, we just say no*”. Therefore, by having the possibility to choose which farmers is entering the sector, is a freedom for the initials farmers, to sustain the quality of the product.

*The charter of good stocking production practices is an approach to help stocking farmers progressing in their production practices and to meet the expectation of partners and citizens. It is on the will to each farmer to adhere to the charter. The Charter ask the farmers engaged to respect those 6 essentials principles: respect the traceability of the animals; ensuring their health; feed them a healthy, balanced and followed-up diet; for dairy cows : protect the milk quality by having a strict hygiene conditions; respect the animal welfare and the safety conditions of people working on the farm; contribute to the protection of the environment.*

*This Charter implies that stock farmers who signed it that they signed, respect those criteria. To monitor this, an audit system enables the good functioning of the program.*

<http://www.charte-elevage.fr/details> [accessed 29 August 2017]

Box 3The Charter of good stocking production practice

About the good stocking production practice, when we put things into perspective, we realize that it's the least stock farmers can have to define their production practices, because the principles stated are already predominant production practices implemented in France and sometimes even, compulsory to comply with the regulation. Indeed, as the charter stipulates in its website, *"77% of cattle raised in France are raised using the charter of good stocking production"*. This charter allows each and every stock farmer, to check if their production practices are good and to progress to do better. For each principles, an objective is set. The main target is not to perform in every principles but to have a minimum level in each principles. By committing to the charter, stock farmers must show a process and result of improvements to their objectives.

#### 3.1.1.2.3.2 What is the product differentiation and where it is distributed ?

##### Why a minced beef product ?

Concerning the consumption of meat in France, we need to highlight that 50% of the meat that is consumed is under the form of minced meat<sup>13</sup>. And in general, the consumption of meat is decreasing year after year, except for the minced beef.<sup>14</sup> It was therefore judged strategic and logical to go for minced beef based product.

They decided to sell the fronts of the animal in the frozen minced beef sector and the backs of the animal in another value chain sector, more traditional. The backs of the animals are kept in the slaughterhouse Charlieu to be aged before selling the high-end pieces to butchers or restaurants. The slaughterhouse Charlieu is already partnered with a company which will be able to transform the meat in a minced beef product (cutting, transformation, freezing). This company is called CARREL and is not settled in the Roannais, but in the Isère department, 140km away from the slaughterhouse. It is also taking care of the transportation to the supermarkets and to Coralys. Carrel did not participate in the discussion with the other stakeholders.

To protect this special product, Roanne Conurbation has the trademark registered on the 19<sup>th</sup> of April 2016 called **100% Charolais from the Roannais**. It's more a qualification than a certification because the stock farmers evaluate themselves and each other. It concerns the whole animals and it is not only specific to the minced beef product. Therefore, butchers or other users of the animal (for fresh minced beef sold at the butcher shop, or the backs) are able to use this label as well.

##### Why selling in the supermarkets and to Coralys

Farmers didn't want to be imprisoned in a particular sector where taxes and economical objective has to be paid and fulfilled. That is the reason why there are no platforms, nor warehouse or whatsoever. They "put" an animal in the sector while it is needed, but don't allocate all their animals to the sector. The coordination of the sector is organized by Roanne Conurbation which let the farmers know of which quantity is required and when. It was meant to be sold right at the beginning to supermarkets in order to reach the maximum of people and don't remain a niche market.

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<sup>13</sup> Based on the interview of the slaughter house manager

<sup>14</sup> Based on the interview of the manager of a partnered supermarket concerning his sales growth

They decided to invite Coralys to the meeting because it is also a strategy to invite a member of the institutional catering in the project. By inviting this company, they assure a certain demand in the volume because in schools or companies' restaurants, because when meat is presented on the menu, they don't really have choice, they have to eat. On the contrary, at the supermarket, the offer of the minced beef 100% Charolais from the Roannais is mixed with all the other products and there is less chance for the consumer to buy it. Having the institutional catering on board is a mean to reach more people.

They decided not to invite the butchers because they are not selling the same product as they do. Indeed, no butcher sells frozen minced beef in delimited boxes.

### 3.1.1.2.3.3 At what cost it is going to be sold ?

The definition of the price was built upon a strategy of "from the upstream to downstream" which mean that this is firstly the stock farmers who delimited their price before the other one did. The farm gate price has been delimited by farmers as a price they were willing to be remunerated. This ideal cost price has been calculated depending on : the minimum payment to make farmers' working days profitable, and the adding of all other taxes (slaughtering, transportation, analyses, distribution costs, taxes...). The basic price is 4.50€ per kg of carcass for animals with conformity traits U. Depending on the conformity, there will be a discount rate ((4.30€ for R+, 4.10€ for R= and 4€ for R-).

A calculation has been made to know the final price of the minced beef. According to trends and actual consumers' behaviors pattern, the final price of the minced beef should not exceed 12€/kg. The calculations were there given to the slaughterhouse manager, who added its taxes (slaughtering, transport, transformation, analyses, packaging). And lastly, the calculations have been made pas the distributors who modify their margin from 35 to 20% in order to stay under the price of 12€/kg.

The calculations of all those prices resulted in a final price of 9.715€/kg (without the value added taxes) for the supermarkets, and 7.915€/kg (without value-added taxes) for Coralys. It is less expensive for Coralys because there are less packaging and more quantity (6kg for Coralys and boxes of 1kg for the supermarkets). Then the supermarket sells then the frozen minced beef at a price of 11.90€/kg in their shelves. The backs of the animals, were sold in the tradition butchery department of some supermarkets at a price of 7.65€/kg (without value-added taxes). A sum-up of the prices can be found in the Figure 10 hereafter.

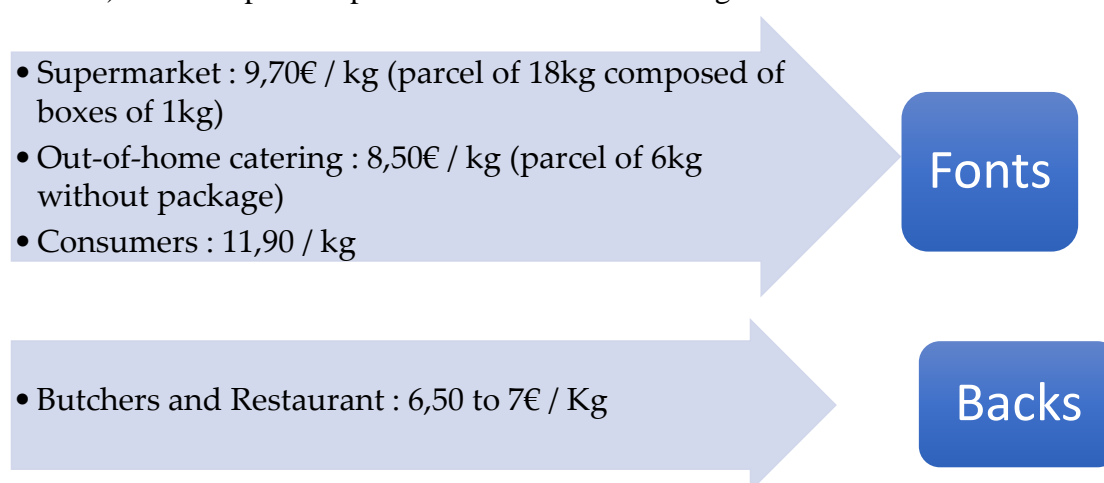


Figure 10 Summary of the prices depending on the pieces and its outlets

#### 3.1.1.2.3.4 Which animals are we going to use ?

As mentioned earlier, all the animals that were going to be used and transformed as minced beef are from the breed Charolais. As said by a stock farmer : *“This is the predominant breed of the area, we are in the birthplace of that particular breed. We are in a grazing system where the breed adapts well. There is a big work done on selection, from generations to generations, it was the work of my father and it was coming from my grand-father so we can’t change the breed.”*

The animals destined to the sector are born at stock farmers’ who are situated in Roanne Conurbation. They are raised respecting the charter of good stocking production practices. A couple of years after being born, the cattle of good conformity are eligible to be used in the minced beef sector. They are then fattening for several months before being delivered to the slaughterhouse Charlieu by the stock farmers.

The goal of this topic of discussion is to create a definitive code of practice that will gather all the prerequisite for the stock farmers to have before selling an animal to the slaughterhouse. After a first calculation between all the stakeholders, it was mentioned that for the stock farmers it would be between 3 and 6 animals per month that could be integrated in the sector.

All in all, the mandatories asked to be part of the group of stock farmers are not very strict. Since a lot of farmers in the area already use a grazing system to feed their animals and are already cow-calf producer one could say this is not very selective.

#### 3.1.1.2.3.5 How are we going to communicate about it ?

Roanne Conurbation had a crucial role in this operation. Indeed, within their communication service of the conurbation, they created the packaging and financed the printing of the first boxes. A big communication is made for consumers as we can find advertisement in the press, on the radio or on billboards.

Coralys also organized awareness days in 12 schools, when the minced beef product was on the menu, and they explained the story and goals of the sector’s creation.

Also, the stock farmers were also present during the communication campaign in the supermarkets and in schools’ canteens. During those operations, posters and banner assured a good visibility of the product. Farmers were discussing with the consumers about their work, the product and how it was created.

The packaging of the boxes (see Figure 11 below) contained a lot of information as well. The product is presented as a product containing solely meat from Charolais breed cow, which were born, raised and fattened in the Roannais area, slaughtered and transformed in the Auvergne-Rhône-Alpes region. The communication also emphasizes on the support this product brings to local stock farmers, using a diagram where we can see the share of the benefits when we buy the product. Consumers can also read on the packaging this quote : *“this minced beef was created from the collaborative efforts between Roanne Conurbation, stock farmers, transformers and distributors. Our wish is to offer to the Roannais inhabitants a traditional and tasty minced beef, by relying on the local know-how of our stock farmers and on the quality of our pastures. The price enables all of the sector’s intermediaries to be remunerated fairly.”*





Figure 11 Picture of the packaging

### Sum up of the first sequence's initiative in the analysis grid

Sequence 1 : Setting up of the product characteristics	
Regional cooperation and stakeholders	Roanne Conurbation (especially Dan and the agriculture councilor), Stock farmers (to the number of 5, member of the association Stock farmers of Charolais from the Loire and complying with the charter of good stocking production practices recommendations, <del>feeder animal</del> ), Slaughterhouse Charlieu (SICAREV, butchers, Carrel), Distributors (Coralys + supermarkets, <u>big supermarkets</u> ), Agro-food hub of Loire
Products differentiation	Supporting the local farmers, premium quality frozen minced beef, from nose to tail. Brand 100% Charolais from the Roannais.
Stakeholders shared values	Wish to support the local farmers (with a remunerative farmgate price), and valorize a Roannais-born product.
Distribution of the added value	Farmers fixed the price depending on their ideal farmgate price. Upstream to downstream philosophy. Everybody agreed on the prices. Distributors lowered their margin.
Agricultural production practices	Use what is already being done on the territory. Grazing system, cow-calf producer skills.
Context	

### 3.1.1.3 The launch of this innovative sector in May 2016

#### 3.1.1.3.1 Press conference

##### 3.1.1.3.1.1 Aim

The sector was launched in May 2016, at the agricultural school called Chervé, during a press conference, in attendance of the Mayor of Roanne, who was following from at distance the project since the beginning. All the information told during the press conference has been relayed in the local press, on the radio and television.

##### 3.1.1.3.1.2 Everybody agree on the code of practice

Even though, the test period is here to be an ongoing learning process, a code of practice is finally and officially signed during the press conference. The code of practice stipulates that :

- Animals are young cow or heifers, 100% from the breed Charolais, under the age of 6 and raised with a grazing system and of quality (fodder essentially produced on the farm),
- Animals are born, raised, fatten and slaughtered in the area of Roanne,
- Animals should eat *traditional feed* coming mostly from the farm itself or from farmers who joined the charter of good stocking production practices,
- Animals should weigh at least 400kg,
- Transportation to the slaughterhouse is at the expense of the stock farmer,
- The stock farmer must ensure an animation in the supermarkets or other demonstration once a year.

This code of practice is drawn from a document given by Dan, given during a presentation intended to stock farmers. Concerning the traditional feed, no deeper study have been made to analyze what a traditional feed can refer to. This is something that needs to be studies with more stock farmers, in order to make accurate generalization.

##### 3.1.1.3.1.3 The charter is signed

During the press conference, the duty of everyone was written between all the stakeholders, in a charter saying :

- The stock farmers must supply an animal that respect the code of practice (see part above).
- For the slaughterhouse, they will look at the quality of the end-product (with 15% of fat, 100% Charolais breed). The transformation company will look at the packaging (minced beef of 100g, boxes of 1kg, parcel of different weight depending on the different delivery).
- Distributors will adapt their margins, to be in a reasonable price under 12€/kg.
- Roanne Conurbation will supervise the operations (marketing and communication).

##### 3.1.1.3.2 First slaughter, kick off of the first test period

On the 22 Avril 2016, five animals were slaughtered for a total weight of 2 320kg of carcass and 850kg of frozen minced beef.

The animals were delivered by the stock farmers to the slaughterhouse on a Thursday or the Friday morning before 6a.m. Animals are slaughtered and pre-cut in the cutting plant of the slaughterhouse. During this process, the backs from the fronts and the tights from the loin are separated. The pieces from the loin are kept in Charlieu is a maturation chamber and the fronts and the rounds are delivered the same day at Carrel, the transformation unit. The next Monday morning, the fifth segment (what remains after cutting the carcass) are given to traditional butchers, butchers in the supermarket or given back to the stock farmers where it

was produced. The same day, the company Carrel transforms the meat into minced beef, and it will take ten days to do all the sanitary analyses before it can be sold in the frozen food aisles of the supermarkets or served in schools canteen. The minced beef, bagged and packaged in boxes are delivered to the supermarkets around two weeks after their transformation. The bags are also being printed by a company in Roanne Area. The frozen minced beef products are also delivered the same day, without packaging to Coralys.

Concerning the backs of the animals. Once it has been matured by Charlieu, it can be delivered to the supermarket Intermarché (since Super U cannot take, as explained earlier, they have a commitment to exclusivity with another type of meat – Label Rouge certified Charolais meat). The back-meat product can be delivered before or after the frozen minced beef product according to the demand and are cut directly in the butchery section of the supermarket.

### 3.1.1.3.3 Result from the first phase

During the awareness day of Coralys, people were really happy to be offered on the menu, a product that was locally elaborated and supporting the local farmers. As one stock farmers who was there to present the produce said : *“the plate came back clean”*, which mean that people liked it.

Concerning the supermarkets, there was a resounding success of the product since it was already out-of-stock after the first week of commercialization. As mentioned by Dan and by farmers that were there during this campaign, consumers were also extremely pleased to be able to talk to them and asked them many questions on their work and about the products.

Yet, a problem arose after this first test period. The backs of the animals that were aged in Charlieu are not sold at the same pace as the minced beef, which render the flowing unbalanced. The sale force of the slaughterhouse Charlieu do not allows the volume of meat from the back to be sold easily. The fact that there are two different value chains for the same animal, depending on the pieces of the animal renders the organization of the sector difficult. One of the solution would be to transform the entire animal into minced beef, which means that the conformity should be at a lower quality (R= or R-) to be economically profitable.

Also, stock farmers mentioned the fact that since they are selling their animals by themselves, to keep the traceability, the payment is slowed down by all the others intermediaries. This means that the stock farmers have to wait more than a month and a half to be paid, which is troublesome for several stock farmers. Those drawbacks have to be improved during the next test periods.

An observation done when talking with the Charlieu slaughterhouse and the department of Agriculture of Roanne Conurbation, is that there is room for improvement concerning the use of the brand by the butchers. Indeed, according to the responsible of the agricultural department of Roanne Conurbation, it is allowed for the butchers who buy the backs of an animal intended to the minced beef sector, to sell it with the brand 100% Charolais du Roannais. This is also the reason why they didn't put any of a product description in the brand registration. But, this detail is still not well-understood and used by butchers.

### Sum up of the second sequence's initiative in the analysis grid

<b>Sequence 2 : Launch</b>	
Regional cooperation and stakeholders	Roanne Connurbation, Stock farmers, Slaughterhouse Charlieu, Distributors, + <b>consumers</b>
Products	Supporting the local farmers, premium quality frozen minced beef,

differentiation	from nose to tail. Brand 100% Charolais from the Roannais. <b>BUT</b> some questioning arose to lower the quality in order to ease the flowing of the back pieces.
Stakeholders shared values	Wish to support the local farmers (with a remunerative farmgate price), and valorize a Roannais-born product. The official code of practice and charter is signed. Smooth coordination between the stakeholders.
Distribution of the added value	Farmers fixed the price depending on their ideal farmgate price. Upstream to downstream philosophy. Everybody agreed on the prices. Distributors lowered their margin. <b>BUT</b> problem of long delay of payment for the farmer.
Agricultural production practices	Grazing system, feed essentially coming from the farm <b>but</b> unclear on the notion of traditional feed.
Context	The problem with the back pieces need to be solved.

#### 3.1.1.4 The experimentations keep on going

The test period kept on going during the year 2016, with the goal to improve the organization of the sector, the composition of the minced beef and to optimize the profitability of the project.

##### 3.1.1.4.1 Second test period

Like the first test period, five animals were also killed during the second test period which took place on the 13th of May 2016. There were 2 175kg of carcass this time.

The conclusion of this test period is that consumers are still buying it very rapidly, but this time, the quality of the animals that were coming into the slaughterhouse were very heterogeneous according to the slaughterhouse manager. Since it is currently the stock farmers themselves that judge the type traits of the animals that they bring to the slaughterhouse, it can be inaccurate sometimes. A quality control of the conformity of the animals that enter the slaughterhouse is considered for the next test period.

During this period, the sector was starting to be famous and observed by the people of Roanne and surroundings. During a meeting concerning general food issues in Roanne, attended by stakeholders of the minced beef sector and other influential persons that act towards a better food quality and access in Roanne, some interactions and debate appeared. In fact, someone who was in charge of a lot of projects in organic farming asked the people representing Roanne Conurbation, if it was on the agenda to improve their production practices later on. According to her, even though she understood that it was not conceivable to certify all stocking farms organically, she delivered a message that this can be seen as a scam for the consumers since there are no real certification and verification on how they raise and feed their animals. She was intrigued by the fact that such a good project was being implemented, without actually looking at the production practices and its effect on people's health and on the environment.

To this statement, Roanne Conurbation replied that the goal of the project was to support the local stock farmers and not to make them change the way they worked. The way the stock farmers are raising their animals is already of quality compared to what can be found in stocking farms, although it is not certified.



#### 3.1.1.4.2 Third test period

During the third test period that took place on the 27th of May 2016, six young cows were killed and the round pieces (a part from the back) were added to the composition of the minced beef. In total, it was 2 763kg of carcass.

The aim of this test period was to test animals with worse type traits quality (going to a R- or R+) to transform a greater part of the animals into minced beef, and reduce the volumes of the backs of the animal which is difficult to sell, and which rendered the economic profitability challenging.

The pieces from the back are still matured at the slaughterhouse Charlieu in order to develop the organoleptic quality of the meat and get a better taste and tenderness.

#### 3.1.1.4.3 Evaluation after the third test period

After the first three test periods, a meeting was organized with all the stakeholders that were part of the project. Roanne Conurbation, with the presence of Dan, presented the outcomes of the test.

Concerning the product, the minced beef products are selling well due to the fact that they don't exceed the price of 12€/kg, and the demand keep on increasing. This local demand is showed by supermarkets and consumers but also from the catering companies. Consumers acknowledge the quality of the product and stock farmers value the link they have done with the consumers.

Yet, the drawbacks exposed by Dan was the difficulties to sell the backs parts of the animals; but also, the fact that they are no transformation unit available in Roanne Conurbation that hamper the product to be solely from the Roannais. So they are calling upon the service of Carrel, in the Isère department.

Concerning the economic profitability, Dan showed that it was reasonably attained and that the price of 11.90€, which is more expensive than the other similar meat products on the market, didn't restrain consumers from buying it.

However, this economic profitability is highly dependent on the quality and quantity of the carcass (type traits and volume) and for a great part on the flow of the backs pieces. This was already observed during the third phase where cows with type traits R- or R+ were brought to the slaughterhouse. Dan also exposed the difficulty to find value chain to sell the back pieces that are not in competition with the local butcher's offers. All in all, the economic profitability balance is also difficult due to the lack of a supporting structure that could manage all the processes, instead of each farmers doing it individually.

In an interview I conducted with Dan, he also confessed me the drawbacks related to the change it has done in the meat sector in general. Indeed, the creation of a new food sector changes the habits of the already existing sectors which can lead to problems. For example, the relationships are difficult with the other slaughterhouse of the territory, called SICAREV. Some of the stock farmers who bring to the slaughterhouse Charlieu some of their animals to make minced beef, also sell animal to SICAREV slaughterhouse for being sold in another value chain. SICAREV confessed to Dan that they would like to take back the frozen minced beef sector. But according to Dan, this is not conceivable if they want to keep a good quality product and a reasonable farm gate price for producers. Indeed, SICAREV is a more industrial slaughterhouse and will change the process of slaughter and the recipe of the minced beef that will in turn change the quality of the end-product. Plus, SICAREV don't agree on letting the farmers decide on their price and prefer fix the prices itself. Farmers bring animals to the minced beef sector because they know the farm gate price is higher than what the SICAREV can offer. But, since the SICAREV is a farmer cooperative, some stock farmers signed a

contract of exclusivity with them, so officially, they can't sell their animals elsewhere. Once SICAREV had known that, some fights and threat happened.

Another example is the relation with wholesale meat trader that also selling their backs pieces in the territory. With the minced beef sector, the demand will be rapidly attained, which is a loss of earnings for the wholesale meat traders.

The stock farmers didn't imagine that it would be such a path full of pitfalls to create a sector from scratch. "*The meat industry is a difficult place and really opaque*", confessed Dan.

Those problematic relations with the local actors convinced Dan to give another 6 months to a test period to try to find solutions for that.

#### 3.1.1.4.4 The fourth and last test period in 2017

The aim of this last period is to verify the capacity of the sector to develop while keeping its primary goal of ensuring the good quality and the proximity characteristics of the product. The further development of the sector will be possible by contacting new supermarkets (eight more are now in the sector) and the integration of new stock farmers (who are now to the number of 35). Also, this test period also aimed at finding an intermediary, or a legal structure that will be a link between the slaughterhouse Charlieu and the stock farmers.

The supermarkets that are now selling the minced beef product are from the same companies as the four first supermarkets that were at the beginning of the project, in order to maintain their competitive advantage.

The catering company Coralys also committed to buy 700kg of minced beef every three month (during summer), from September 2017 onwards. Its demand for back pieces will be increased as well, but has not been quantified yet.

To this say, three experiments were made during the fourth test period. The first one occurred in February 2017 where 3 cows were killed for a total amount of minced beef of 666g and 402kg of sirloin, and round.

Something to be highlighted is that the percentage of fat was very high which didn't allow the stock farmers to be remunerated highly. Indeed, the animals were all in type traits R= and with a fattening rate of 3. Therefore, the price of the carcass was comprised between 3.60 and 4.30€/kg depending on the animal return (the fat to meat ration).

The second slaughter took place in March 2017 where five cows were killed, for a total amount of 1210kg of minced beef and 600kg of sirloin and round.

For the next slaughter that took place in May 2017, a **local partner** has been found to bring its expertise on defining the animal type traits before going to the slaughterhouse. Some farmers already call upon its service and are pleased with the results. He is a wholesale meat trader that works for another company. He is checking the animals that the stock farmers judged good to bring to the slaughterhouse. As mentioned in an interview with the slaughterhouse Charlieu manager, some problems occurred sometime when the stock farmers didn't assess well their animals in terms of type traits. So this local partner has a crucial role.

The role of the local partner was also to transport the animals to the slaughterhouse and to ensure the administrative tasks related to the payments and the billings, to allow farmers to be paid in a reasonable delay. To this day, the stock farmers didn't assess the efficacy of this local partner because not every stock farmer called upon his services. Some other solutions might be tried out before stopping the test period.

### Sum up of the third sequence's initiative in the analysis grid

<b>Sequence 3 : The test periods continue</b>	
Regional cooperation and stakeholders	Roanne Conurbation, <b>MORE</b> stock farmers, Slaughterhouse Charlieu, Distributors (Coralys + <b>MORE</b> supermarkets), <b>local partner who play the role of the middle man</b>
Products differentiation	Supporting the local farmers, premium quality frozen minced beef, from nose to tail. Brand 100% Charolais from the Roannais. <b>Still</b> some questions about the animal type traits.
Stakeholders shared values	Wish to support the local farmers (with a remunerative farmgate price), and valorize a Roannais-born product.
Distribution of the added value	Farmers fixed the price depending on their ideal farmgate price. Upstream to downstream philosophy. Everybody agreed on the prices. Distributors lowered their margin.
Agricultural production practices	Grazing system, feed essentially coming from the farm.
Context	Some problem with other actors of the meat sector of the Roannais : organic sector, industrial sector

#### 3.1.1.5 The future of the sector

Roanne Conurbation is willing to slowly withdraw its role in the project to let the sector be independent. Some issues appeared when some project manager told Roanne Conurbation that it was unfair to give all this support and money to one project and not supporting other projet in the area.

The setting up of a two-track value chain is proposed. One sector can stay as it is, with its emphasize on proximity and quality; and another one can be more industrial to sell more products and where the farmer is not paid as much as in the first one and which will be hold by the SICAREV. But the SICAREV do not like the idea of having to different sectors and do not agree on all the aspect of the code of practice.

The future of the sector will definitely be possible if many distributors get on board. The aim of scaling up is not to only to produce more, but to be available in as much supermarkets as possible. Indeed, for the supermarkets, this product remains consumer appeal product because it's highly demanded but they do not make such a big profit out of it since they lowered they margin. This product has its place on the shelves because it attracts customers to come in the supermarkets to buy the frozen minced beef, and perhaps while they are in the supermarkets, shop other types of products. Therefore, the concerns of the scaling up is to remain limited in each supermarket, but to have many partnered supermarkets.

This raises a problem of increase of transport cost since the company Carrel delivered each supermarket and charges a delivery for each new supermarket. This can lead to having the cost of the delivery more expensive than the delivered products themselves. For that problem, Coralys, the catering company, which also have a fleet of trucks to deliver the schools canteens, propose its services as a transporter. Although, it would mean that a warehouse must be built in order to let Carrel brings all the minced beef in one safe and frozen place, where Carrel could start the delivery.

Also, another issue to be solved is the relationships with the new local partner, the middleman. Indeed, this person will have in the future, a very powerful status in the sector since he will decide which animals are allowed or not to bring to the slaughterhouse. A stock farmer confessed me that once, this middleman came to the farm but did not accept the animal that the farmers were presented as a good animal.

Concerning Coralys, they are more and more convinced and motivated to buy the minced beef products and to replicate the awareness campaigns in the canteens. But, an impediment to mention is the fact that they can only make orders every three months, which is not convenient for the stock farmers or the future middleman to manage the stock.

#### Sum up of the forth sequence's initiative in the analysis grid

<b>Sequence 4 : In the future ?</b>	
Regional cooperation and stakeholders	Roanne Connurbation ( <b>less and less</b> ), stock farmers, Slaughterhouse Charlieu, Distributors (Coralys + supermarkets), local partner
Products differentiation	Supporting the local farmers, premium quality frozen minced beef, from nose to tail. Brand 100% Charolais from the Roannais.
Stakeholders shared values	Wish to support the local farmers (with a remunerative farmgate price), and valorize a Roannais-born product. <b>Objective of scaling-up, while remain a locally and of quality product.</b>
Distribution of the added value	Farmers fixed the price depending on their ideal farmgate price. Upstream to downstream philosophy. Everybody agreed on the prices. Distributors lowered their margin.
Agricultural production practices	Grazing system, feed essentially coming from the farm.
Context	

#### 3.1.2 Etincelle gourmande:

The Etincelle Gourmande is an association which has an overall goal to support the agro-rural activities and initiatives in a perspective of economical, ecological and rural development.

The creation of the association, was elaborated by three women in 2013. The three persons met in a central buying agency in 2007. They realized they were a lack of organic products, and that farmers were more and more leaving their farms due to economic problems. So, they decided to walk their talk and started thinking about creating their own project. Due to some disagreements, the third person left the project shortly after the creation of the association.

The association have 3 main missions. The first one is to run a local shop (see Figure 12 below) which showcase the diversity and availability of products from the area. They want to be seen as a real actor in the local economy. During an interview, one of the co-founder said : “We support the local economy and we want to show that we have everything in our area”. They also have a place for people to meet around a bar area next to the shop. All the products are from farmers and small and medium size businesses of the territory that already sell locally their products. The shop opened in 2014. Their second objective is to mutualize the machineries and others means of production to allow the partners producers to develop better their business. In that perspective, they have a project to purchase a preservation tool. The third objective is to facilitate activities with consumers to favor the link between them and the producers, but activities with only producers to reflect on their production practices and to

exchange about techniques. Their initial wish was to create a platform of reflection for every farmer, including farmers selling their products in long supply chain.



Figure 12 Inside and logo of Etincelle Gourmande<sup>15</sup>

What gave them a tremendous help at the beginning was their winning of the competition of social and solidarity ideas. With that, they gained in confidence and they were helped by other organizations such as the CRES and the GRAP to settle and create the association. The CRES is the Regional Chamber of social and solidarity economic in Rhône-Alpes and the GRAP is a regional group for food and proximity which promote activities related to organic food sector.

At the beginning of the project, they were also supported by local municipalities in terms of facilities and financial support. The building where they are settled is for example, provided for free by the town hall. Nonetheless, the support is becoming less and less strong due the change in the last election of the people from the town hall. Indeed, they lost half of they promised subsidies after the new mayor settled.

The two persons running the association are not from the territory, but fell in love with it when they arrived to settle here; hence, their will to develop it. It is very necessary for them, a lot of inhabitants are selling their house, leaving the area empty. They fear that the forest will take over the territory very soon. That is why they decided to create a shop with a place to meet to allow inhabitants to consume locally and to support local farmers.

The first person, Charlotte, is employed by the association. It is a state-subsidized job, because her wage is subsidized up to 85%. Without this help, the association wouldn't be able to employ anybody.

The second person, Geraldine is the president of the association. She is on a parental leave from her job as a vet, so she has free time to help out for the association and she is the president. It was important for them that on them could stay as a board member and since Charlotte is an employer, she could not be part of it.

The members of the association are producers and consumers. To find sufficient producers, they visited the producers, in farmers markets of the area where they wanted their supply to come from. Then, Charlotte and Geraldine organized a meeting where 33 local producers were invited. To their great astonishment, 28 of them showed up, which cheered them up to pursue the project further, they saw the will of the producers to follow on that project of proximity agriculture too.

<sup>15</sup> Source : <https://letincellegourmande.wordpress.com/lepicerie/> [accessed 29 August 2017]

About the produce they sell at the shop, they don't take only organic products. For them, it's not possible if they want to have local products, to have solely organic products, the offer is not sufficient on the territory. So if they have the chance to find an organic local producer, it's good, but it is not compulsory. Both argued that farmers sometimes don't want to go for organic (for different reasons) and they have to respect that. They argue that even though farmers don't have the organic certification, a lot of farmers try to work in closed loops systems and try to produce their own animal feed, so they trust their effort to harm less the environment, but can't certify it. But, for all the products that are coming from further they ask for the organic certification, because they can't verify their production practices.

Therefore we can see that there are two supply origins rings, with two different criteria of selection. For the first ring, the locally sourced products, there are around 33 producers. There are bread, pastries, beer, eggs, cheese, cold aged meat, fruit, vegetables and meat. They have a charter that stipulated that no GMO is allowed and if it is a raising system, animals should be raised outside. For the second ring, they ask for the organic certification. On the overall, they have approximately 80% of their producers that come from the first ring and 20% from the second ring.

The products that are coming from the second ring are for diversifying the offer in the shop. It is a demand from the consumers to have everything like a real supermarket could offer. Therefore, Geraldine and Charlotte had to offer a wider assortment in their shops such as washing powder, rice, chocolate, finger foods or oranges; to please the consumer. But those products are not easy to find in the Roannais, therefore they buy it from further and ask in that context, the organic certification.

All their products coming from the first ring, are coming from producers that already sell locally. The shop is open two days per week to allow the production to be sold-out and to reduce food waste. Also, this allow producers of similar product to have at least one sale per week. Therefore the two vegetables producers and the baker are not the same delivery-day. The shop is only opened on the Tuesday and on Friday. People order their products on internet and can have also product directly available at the shop but in a limited quantity. With the ordering system, they buy from the producer the amount consumers ordered, plus a little bit more for the consumers that haven't got the chance to order but still want the product.

Concerning the price formation, since they didn't want to be a concurrent for the producers, they agreed on a technique with the farmers. When they buy a product, they ask the producers to reduce his cost by 10% from the price they usually sell during direct selling. Then the two women add 10%. Usually, this latest margin is set up differently by farmers so eventually, they do not sell the products at the same price. This technique allows Etincelle Gourmande to cover its taxes while remaining accessible for consumers. The farm gate price is fixed by producers, and sometimes, for the same product type, price can change. For example, since they have two chicken farmer, their production cost are not the same, so the end-product is not sold at the same price. They explained it to the consumers saying that every farmers were building their own prince

Concerning the future, Charlotte and Geraldine are worried about the future, when Geraldine will go back to work. Moreover, since the government is currently reassessing the fate of the state-subsidized contracts; it is unsure that Charlotte will be able to keep her job. This can harm the longevity of the association.



### Sum up of the initiative in the analysis grid

Regional cooperation and stakeholders	3 persons at the beginning, now only 2. 33 producers Consumers Help from the CRES and the GRAP
Products differentiation	All type product from the are + other convenient products. A system with two rings of selection : • Local product, asked for no GMO + raised outside (if animal production) • Product coming from further : organic certification
Stakeholders shared values	Coordination with local producers <b>BUT not possible</b> with farmers from the long supply chain. Social interaction is very important
Distribution of the added value	Based on trust from farmer that give their prices + addition of 10% margin
Agricultural production practices	No GMO + raised outside if animal (1 <sup>st</sup> ring) Organic certification (2 <sup>nd</sup> ring)
Context	Political burden, availability of an employee will be difficult in the future

#### 3.1.3 Etamines :

The Etamines association, created in 2016, is the result of a partnership of many stakeholders : Roannais Conurbation, PETR Roannais, the agricultural high school Chervé, ARDAB (the association of organic producers of the Rhône-Alpes and Loire department), Vivre Bio in the Roannais (consumer association for organic products in the Roannais territory) and the municipalities of Ouches.

The goal of Etamines is, through the project of an experiment farmland, to develop the local food sector of Roanne from the production to the consumption. The origins of the project came from three observations. The first one is that the local product offer was limited compared to the demand, secondly, there are some difficulties for new comers to access to land, and thirdly project holder that would like to settle their farm wish to be able to test their projects before their permanent installation.

In that context, the experiment farmland hold the potential to bring answer to those issues. It works as the same as businesses incubators, but for agriculture. Indeed, the experiment farmland aim at developing an agricultural activity in a responsible and autonomous way on a big scale and on a limited period of time and in an environment that limits risk taking. This approach will evaluate the feasibility of a project but also to give the project holder the opportunity the evaluate themselves and take decisions about the continuation, adjustment or the abandoning of the project.

Three prerequisite are to be fulfilled for the creation of the experiment farm land : the temporal provision of the land (for Etamines, it's the farm called *Ferme des Millets*), a legal structure (experiment farmers are producing and selling under the SIRET number of Etamines) and an personalized support approach.

At the Ferme des Millets, where a 13hectare site is available for the experiment farmland, project holders can stay from one to three year. It is certified organic and had a working



irrigation systems with greenhouses at a disposal. Experiment farmers, were four entrepreneurs at the beginning of the creation of Etamines, for 3 different mix-productions projects. There were a wide range of products such as vegetables, sheep cheeses and yoghurt, laying hens and chickens, lamb meat and pigs raised outside.

The experiment farmers sell their products at the local markets of Roanne. Their price is determined by the market price of the commodity sold. Their account is held with the help of an accountant.

During 2016, stakeholders in charge of the creation of Etamines, have worked on the steering of the association in terms of financial, administration and juridical structuration, the facilitation of one administration board meeting per month, the creation of partnership and marketing strategies. Nils Maurice (the territory expert of the Roannais) was the facilitator of the meeting since 25% of his workload at the PETR Roannais is dedicated for that purpose, until the end of the year 2017. And then lastly, the stakeholders made sure the site dedicated to welcome the future farmers was ready with the installation of a cold room, the monitoring of the work, the consideration of climate change vagaries (a bad storm happened in June 2016 which destroyed all the greenhouses), the drainage of the glasshouses, the set-up of a cheese factory, the compliance with regulations (organic code of practice, sanitary), the administration procedures (certification, subsidize application). And lastly, they welcomed and supported the first farmers of the test.

After seven month of activity, one of the project holder decided to quit the farm because according to him, he wasn't ready to have a business on his own. He is going to be employed in a vegetable grower in the Roannais territory.

The result of the year 2016, as mentioned by Nils Maurice in the General Assembly, was the good and strong implication from all the stakeholders in the creation of this association.

To their sides, the experiment farmers mentioned at the General Assembly that this approach of testing their systems before setting their own farm and to loan money, is a good way to test their idea of a perfect farming system and also to test themselves. Also, they were satisfied by about the low amount of administrative work they have to do while being under Etamines. It was mentioned by one of the farmer that it was also really convenient to have the legitimacy to ask for help to other farmers. But the drawback is that when the test period is over, they will have to leave and start again the work they've accomplished on the land.

For the future, the association Etamine would like to reinforce its partnership with its stakeholders and to promote this approach, by finding new sites where future experiment farmers could test their production practices. Also, they aim to improve the Ferme des Millets in terms of equipment, the creation of a farm market, and to ensure compliance of the chickens processing room.

With time, Etamines will try to fulfill its prior goal to improve accessibility to local products in the Roannais by increasing significantly the number of farmers beneficiating of the test period, and by implementing a local product platform where farmers would be able to sell their products and local people and businesses to find them.

Nevertheless, the future of Etamine remains rather insecure with the fact that their facilitator, Nils Maurice, won't be there at the end of the year anymore. The stakeholders will have to make their own way to still develop their associations.



Figure 13 From left to right : the Mayor of Ouches and Adrien et Julien, two 'experiment farmers' at the Ferme des Millets.

### Sum up of the initiative in the analysis grid

Regional cooperation and stakeholders	Roannais Conurbation, PETR Roannais, the agricultural high school Chervé, ARDAB , Vivre Bio en Roannais and the municipalities of Ouches. They also ask help to other farmers and to an accountant in case of problem. <b>Chamber of agriculture</b>
Products differentiation	Organic product. The farm is certified organic
Stakeholders shared values	Sound cooperation between the stakeholders.
Distribution of the added value	Prices defined according to the market price
Agricultural production practices	Organically certified mixed farm.
Context	A lot of support from the organic sector and farmers in the neighborhood.

#### 3.1.4 Heavy pork on straw :

This initiative was established from a wish in 2013 of the society Rocheblin et Blein, a traditional meat refiner which produces ham and dry sausages and settled in the municipality of Violay, to buy local pigs, raised on straw and without GMO feed, to produce a new type of product. Those high-end products were a traditional dry sausage, and a “slow maturation” ham which can be compared to the Italian Parma ham (See Figure 14 below). In order to have the good organoleptic quality of this new product, the meat refiner needed heavier pigs than the standard ones. The company was seeking for ham of a weight between 13.5 to 14kg, which is not very common on the standardized pig sector. The criteria of the straw and the GMO free were chosen by the conviction of Rocheblin et Blein.

After this demand created by Rocheblin et Blein, the agricultural school of Ressins heard of it and decided to change its production practice for its pig farm, to meet the need of the market. The farm at the Ressins agricultural school is a mixed farm that fatten 1700 pigs every year, on slatted floor, all fed by the animal feed company ATRIAL. This latest, sell animal feed at a

regional scale. After the demand created by this new sector, the Ressins farm dedicated some pigs to a longer finishing than in standard pig farm.

The goal of the Ressins farm is also related to the transmission of the message to the student that other systems exist, which are not conventional, but still efficient.

To build this sector, Rocheblin et Blein called other stakeholders : the Agro-food hub of Loire, Roanne Conurbation, the agricultural school of Chervé which produce pig, the slaughterhouse Charlieu, the animal feed company ATRIAL and the mayor of Violay. Altogether, they started the discussion with the Sub-Prefect of Roanne who was also motivated in the project, about the economical return and on the distribution of the added value. The goal was that *“every should find its own small economical return”* according to Rocheblin et Blein manager. All the stakeholders, came to the meeting knowing their cost of production and they built together the price of the pork with the reference of the production cost of the farmer. The company ATRIAL agreed to lower its margins for a period of time of 9 months.

By the end of 2014, the first test period was launched. It was renewed during the year to improve it. Every time, all the stakeholders were meeting to discuss about the issues and the possible solution about it. For the first test period, and in order to get a ham weighing between 13.5 and 14kg, pig carcass of 140kg slaughter at the age of 8 months were slaughtered. Usually, a standard pig get to the weight of 95kg of carcass in 126 days. Also, pigs came from the Loire department or neighbored area, and were fed by cereals from the Auvergne-Rhône-Alpes region without GMO. The products were sold in a supermarket but since it is a really high-end product, it was also sold in more specialized shops. The products are sold under the same of Rocheblin et Blein where the packaging indicated that the pig is local, and that straw is used as a bedding material instead of slatted floors. It is not mentioned any information about the distribution of the added value or the geographical proximity of all the stakeholders.

In January 2015, a contract was signed where the code of practice was clearly stipulated the price of the pig for a period of nine months.

But, during the year 2015, a problem of supply appears at Rocheblin et Blein, which obliged the agricultural school of Ressins to sell its pigs to another meat refiner called Les Salaisons du Mont Pilat, but without doing the same high-end product and communication about it.

The Sub-Prefect, insisted on continuing this initiative and Rocheblin et Blein came back in the sector in 2016, but still cannot take all the volume that the agricultural school Ressins is offering. That is why, Les Salaisons du Mont Pilat are staying in the sector as well. This is not pleasant for Rocheblin et Blein since, the product is differentiated as niche market and that having another refiner means having a concurrent for them.

The year 2017 is dedicated to find new refiner to manage well the quantity that the Ressins farm can offer.



Figure 14 The heavy pigs on straw and the product it is made of<sup>16</sup>

#### Sum up of the initiative in the analysis grid

Regional cooperation and stakeholders	Agricultural school Ressins, Slaughterhouse Charlieu, Atrial, Rocheblin et Blein refiner, Roanne Conurbation, Agro-food hub of Loire, <del>Supermarket</del>
Products differentiation	High-end ham and dry sausage from pigs raised locally and fed by locally sourced cereals. They are raised on straw and not on slatted floor.
Stakeholders shared values	Cooperation between all the stakeholders. They meet to take every decision
Distribution of the added value	The Ressins farm gave its price and all the other stakeholders defines theirs after. The company Atrial lowred its margins.
Agricultural production practices	Raised on straw bed material and using no GMO sourced feed.
Context	

#### 3.1.5 Vivre Bio in the Roannais (VBR) :

Vivre Bio in th Roannais is a consumer and producers association that is drawn from the ARDAB association. It was created in 2012. It is composed of one third of producers and 2/3 of consumers for about 150 persons.

They work altogether to the expansion of organic agriculture. During an interview with the vice-president of VBR, she told me that in 2012, there were only 1,8% of farmland under the organic certification. Nowadays they have approximately 4%.

The goal of the association is to promote organic agriculture and a healthy food access for the people in the Roannais. It is carrying out different project such as Etamines, or communication campaign in high school, etc...

#### Sum up of the initiative in the analysis grid

Regional cooperation and stakeholders	Vivre bio in the Roannais
Products differentiation	Organic products
Stakeholders shared values	Producers and consumers work together
Distribution of the added value	Ø
Agricultural production practices	Organic and a special
Context	

<sup>16</sup> Source : [http://www.rocheblin.com/categorie\\_25\\_fr.php#/la\\_boutique](http://www.rocheblin.com/categorie_25_fr.php#/la_boutique) [accessed 29 August 2017]

### 3.1.6 CoPLER :

The CoPLER which means “communauté de communes du pays entre Loire et Rhône” is a local council community that is supporting a lot of initiatives to allow its inhabitants to have access to local and fresh food.

#### Sum up of the initiative in the analysis grid

Regional cooperation and stakeholders	CoPLER + Chamber of agriculture +
Products differentiation	Fair access to food to every inhabitants, if possible organic
Stakeholders shared values	The CoPLER is facilitating a lot of project, it's the driving force
Distribution of the added value	Ø
Agricultural production practices	Organic is possible and proximity agriculture
Context	

## 3.2 Initiatives Boucle du Rhône en Dauphiné

### 3.2.1 Local soya production

#### 3.2.1.1 The protein issue on the territory

##### 3.2.1.1.1 A territory not self-sufficient in protein

In 2010, the Rhône-Alpes region gathered many stakeholders to talk about the protein issue of the area. This issue was raised from a concern that the area was not self-sufficient in protein and that a major part of these proteins was coming from abroad which raise a lot of sustainability issues. The Region was ready to give subsidies to projects that were working towards having a circular economy of protein production and distribution. Were invited in those meetings a lot of different representatives who were directly or indirectly concerned about this issue, and from different sectors ranging from cereal farmers, milk producers, cheese makers or animal feeder company.

##### 3.2.1.1.2 Soybean and cattle feed in a PGI region

In the region, were a lot of animal husbandry is done with dairy cow in the mountain area for cheese making and with stocking cow for meat production, soybean is used for cattle feed as a source of protein. In a cow diet, energy and protein should be balanced to produce good milk and good quality meat, otherwise some metabolic diseases can appear. Therefore, fodder cannot be sufficient and soybean is a good source of supplementary food. But, the soybean grain cannot be consumed as such by animals, due to its fat content. It needs to be crushed to separate the fatty content which will be used as soy oil, from the protein which will be under the form of seed oilcake.

Nowadays, in the Rhône-Alpes region, 50 000 tons of non-GMO soybean oilcakes are consumed each year<sup>17</sup>, mostly in the farms that required a specific code of practices for cheese production prohibiting the use of GMO sourced feed. There are about twenty cheeses following a code of practices under the PDO and PGI regulations in the area, such as Beaufort or Reblochon.

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<sup>17</sup> According to the breeding manager of the agricultural cooperative La Dauphinoise

Today, most of the non-GMO soybean oilcakes that enter the territory come from Brazil or India, leading to a lot of price fluctuations and that the durability of this supply chain can be questioned. For example, the cost of soybean in January 2012 was 300€/T and in July of the same year it rose up to 600€/T according to the breeding manager of La Dauphinoise.

<b>Sequence 1 : Protein questioning from the Region</b>	
Regional cooperation and stakeholders	The Rhône-Alpes region
Products differentiation	Wish to be more independent in terms of protein sourcing
Stakeholders shared values	Not defined yet
Distribution of the added value	Not defined yet
Agricultural production practices	Not defined yet
Context	

### 3.2.1.2 La Dauphinoise decides to take over the project

#### 3.2.1.2.1 A commercial strategy undertook by La Dauphinoise

Due to heterogeneity in the objectives of each of participants, the gatherings organized by Rhône-Alpes region didn't make the group of participants to start any fruitful projects,. Indeed, during those meeting, there were milk producer, cheese producer, soybean producer, storage agencies; so it was difficult to create a common project where everyone find a benefits. The cooperative called La Dauphinoise then, convinced that the subject was worth it and seeing the commercial strategy behind it, decided to keep working on this issue on its own in 2012, completely independently. The new-born soybean production will later be called Loc'Alp soybean.

#### 3.2.1.2.2 Who is La Dauphinoise

La Dauphinoise is an agricultural cooperative that work in different sectors ranging from grain industry, seed production (it has consequential storage agencies on the territories), animal feed, research and development, agro-furniture, logistics, egg industry and green leisure. It is composed of 5 000 members. It operated mostly in the south-east quarter of France.

#### 3.2.1.2.3 Is growing soybean on the territory possible ?

It wasn't such a big challenge to grow soybean on the territory since La Dauphinoise is a competitive actor in soybean seed production (one soybean dose out of 5 sold in France is produced by La Dauphinoise). Moreover, in the 90s, there were 19 000ha of soybean produced in the territory<sup>18</sup>. So farmers (or if not their parents) knew how to grow it, there were a real know-how and the crops was suitable for the area.

The reason why grain soybean production disappeared was due to the lack of sufficient market for it, over maize; and to the fact that soybean oilseed cakes became extremely cheap that is wasn't worth it anymore to produce it, instead of buying it. According to a farmer, it's also due to some subsidies which were implemented in compliance with Brazil to make sure that the Brazilian soybean had the propriety over the French soybean.

<sup>18</sup> According to the breeding manager of the agricultural cooperative La Dauphinoise



Even though La Dauphinoise knew soybean could grow in Rhône-Alpes region, they weren't sure it was adapted to the economic context anymore. Therefore, before the cooperative got into any project, its first accomplishment was to carry out some studies to assess the possibility of soybean production, the quality of soybean oilcake, and the potential outlets it could have in the actual economic context.

### 3.2.1.3 The experimentations periods mean to fill the gap of knowledge

#### 3.2.1.3.1 A fatty content to be controlled

Concerning the quality of soybean oilcake, La Dauphinoise wanted this oil cake to be of a good quality : they didn't want to use hexane, the chemical solvent commonly used to crush the grain. Instead, they decided to carry out tests to crush the soybean grain in a mechanic and thermic way. Once the hexane is not incorporated, the ratio oilcake/oils decreases but the quality of the end-product is better. The oil cake resulting of this process is called expeller.

In France, expeller seed oilcakes already exist for linseed but it is not so developed for soybean, resulting in a few industrial opportunities for La Dauphinoise to find a local expeller crusher. And in France, there are only 5 transformation units, but none were keeping the traceability of the grain, which was not interesting for La Dauphinoise. But at the end, they found a firm that agreed to try out the expeller process on soybean while keeping the traceability. This firm is situated in Lapalisse, in the neighbor region of Rhône Alpes, which is now all in the new region of Auvergne-Rhône-Alpes.

Even though La Dauphinoise owns two transformation unit through its animal feed sector situated at La Côte Saint-André (Isère department) called DNA, the equipment wasn't adapted to crush expeller soybean oilcakes. The idea beyond the tests was that they will build their own transformation unit later one, once the production will have attained reasonable volume.

#### 3.2.1.3.2 Is the oilcake adapted to dairy cow ?

Once La Dauphinoise acknowledged achievable to produce soybean in the local farms, and to have expeller soybean oilcake transformation unit partnered, some more studies were then carried out in 2012 to make sure the oil cakes were qualitative enough for the milking cows for whom it was intended for. The concern here was that this new type of oil cake shouldn't harm too much cows, and shouldn't change too much their milking productivity. This was an important issue considering the massive economy reliance on PGI cheeses making of the area. The studies were conducted in partnership with the agricultural school of Poisy in Haute-Savoie department where the experiment were held, and some 30 volunteers farmer who were agreed to try out to give the soybean oilcake to their cows, in many place of Auvergne-Rhône-Alpes.

#### 3.2.1.3.3 Result of the study : the potential is there

The studies revealed that the expeller soybean oilcake product was as good (if not better) as the soybean oilcake from across the Atlantic. Also, the studies showed that the foot print due to the decrease of transportation is considerably reduced : this soybean sector can reduce 2/3 times the emission of greenhouse gases, compared to the source of supply coming from abroad. The soybean from the Loc'Alp sector is emitting 340 kg eq CO<sub>2</sub>/T, compared to the soybean coming from Brazil which emits 930 kg eq CO<sub>2</sub>/T (taking into account only the logistic part, not the agronomic virtue of a leguminous plant).

Also, the soybean oilcake offers an increase of productivity of 2 liters on average per cow, offering exceptional performance for milk producers.

<b>Sequence 2 : Experimentation</b>	
Regional cooperation and stakeholders	La Dauphinoise, Poisy agricultural school
Products differentiation	The possibility to consumer local oilseed for PGI cheeses milk producers
Stakeholders shared values	Experimentation the PEP Bovin Lait (to do the experimentations). Result = it is possible
Distribution of the added value	Not defined yet
Agricultural production practices	Expeller oilcake
Context	A problem concerning the fat content of the oilcake

### 3.2.1.4 Presentation to other stakeholders to create a shared sector

From that point, La Dauphinoise had a strong argument to advocate to its members and others. So they started a communication plan within the cooperative, destined to the members of La Dauphinoise firstly.

Also, and since they don't have any cheese production sector in the cooperative, they decided, secondly, to call on experts on cheese production services, to make them aware of their new local sector, especially to the milk producers whose milk is destined to make PGI cheeses.

#### 3.2.1.4.1 The cheesemakers, a strategic contact

##### Who is AFT'ALP

Therefore, the AFT'ALP association was contacted. AFT'ALP is an association who was created at the end of the 90s to gather all the eight 'defense and management organizations' of PDO and PGI cheeses of Savoie and Haute-Savoie departments. This association is taking care of the cheeses communication campaigns, to find appropriate animal feed and milking hygiene products, and to create a place where one's can share its questions about legal matters (for example, the code of practice). In order to keep the control of its supplier, the AFT'ALP set up monitoring concerning the animal feed. There are 3 analyses : risk of GMO contamination (since all the PGI cheeses' code of practices stipulate the prohibition of GMO sourced animal feed), nutritional values and sanitary security.

That is also the reason why La Dauphinoise aimed at selling its soybean oilcakes to the PDO and PGI cheese makers. First because it was in their code of practices to have no-GMO oilcakes, and second because milk producers can valorize their milk at a higher price if they sell PDO or PGI cheeses after. Indeed, a milk producer in plain, have nowadays, more economic problems and couldn't possibly dedicate a larger margin rate to pay a bit more expensive their soybean oilcakes, than a milk producer situated in the Savoie and Haute-Savoie departments (where a significant quantity of PDO and PGI cheeses are produced).

##### An ambiguous code of practice

Something needs to be highlighted: nowadays, the PGI cheese makers only have restriction on the zoning of the fodder but can have supply coming from outside the zone for the other feed (if it is allowed in the code of practices). Therefore, 3 km or 8 000 km outside the zone makes no difference. The only restriction that milk producers have, is that they should choose the

source of protein they give to their cows between soybean, rapeseed, sunflower, linseed, pea, sesame. It is up to the milk producers to choose which protein he wants to give to their cows and from which supplier he wants to get it from.

As mentioned above, the AFT'ALP association is often conducting studies on their suppliers, specially about the GMO content. And according to them, a considerable amount of non-GMO oilseed cakes that enter the territory are contaminated. This detail, if fallen in the public eye, would be a disaster and a buzz that the milk producer will have to face.

#### 3.2.1.4.2 A clear message sold during the communication campaign

During the communication campaign of La Dauphinoise for the soybean oilcakes, the message was pretty straight forward : La Dauphinoise has a local, GMO-free and qualitative soybean oilcake to offer. Both soybean producers and milk producers have benefits :

For producers, having another crop in their rotation was a good way to have more diversity and a good spring crop compared to maize. Soybean is a leguminous crop that can fix nitrogen from the air in the soil. Cultivate soya is also a way to penetrate new markets, and being part of local and short food supply approach.

For milk producers, having a GMO-free local soybean oilcake was a good argument for their images as local producers and **terroir** cheeses makers. Moreover, since the price of soybean is always fluctuating, buying the soybean oilcake from the LOC'ALP sector was also a good way to avoid fluctuations in their treasury, since the soybean oilcake price was fixed (we'll come to that point later).

#### 3.2.1.4.3 The formation of the price

After having a lot of people aware about the approach, La Dauphinoise collected the information about the volume necessary for the milk producer in terms of soybean oilcake, to determine the superficies needed in terms of hectare for the soybean producer to grow. It's an approach described by La Dauphinoise of "selling before producing". This will determine a price that is fair for everybody.

##### 3.2.1.4.3.1 The implementation

In total, in 2016, a surface area of 583ha for 2000T of soybean grain were collected from around 60 soybean producers and for 97 milk producers.

The soybean producers are mostly situated in the departments of Isère, Northern part Drôme and Ain whereas the milk producers are mostly situated in the departments of Savoie and Haute-Savoie.

Of course, the soybean producers planted a small portion of their land since it was the first try out. To be sure that there were not too many risks to take at the beginning, they just allocated a small portion in their rotation. The other part of the production that is not into soybean production for LOCALP sector, were going to go at La Dauphinoise too, but with the long supply chain. In average, the size for each soybean producer was between 10 to 15 hectares.

##### 3.2.1.4.3.2 A price thought for to please everybody

The reason they were keen on knowing the volume prior to start selling, was to determine an appropriate price for everyone.

Those prices, reflected to avoid volatility and to secure farmers' wages, were going to be fixed for a period of two years. La Dauphinoise also determined the price in a tunnel, a fork. In a price situated in a tunnel, everybody can benefit from an acceptable price on average

compared to the market prices, but not at the same time (sometimes it might be for beneficial for milk producers, sometime for soybean producers). It is really a matter of farmer's engagement, they should not look anymore at the market prices every time they trade with La Dauphinoise and trust them that with their calculations, everybody can find what they are looking for at the end, on the long term.

#### 3.2.1.4.3.3 The calculation of the margins

For La Dauphinoise, they had a lot of criteria to respect:

On one side, the price should allow the soybean producer to reach a maize margin. because La Dauphinoise aimed at implementing soybean production in the area where another spring crop, namely maize, was implemented, otherwise it was not worth it to change for producer),

On the other side the price should not differ too much from soybean oilcake from Brazil for the milk producers (otherwise, since there are no obligations in the code of practices to have local oilcakes, it wouldn't be worth it as well to buy oilcake at a higher rate for something not compulsory).

To determine the price and make everybody satisfied, it was a compromise for both sides. For La Dauphinoise, it was not easy to determine this price for everyone as all farmers wanted to make the better margin for their products. Indeed, the soybean producers would want to sell their soybean grain at a higher rate to get a good margin per hectare, and the milk producers would want to buy its animal feed at the lower rate possible, and at a fixed price. La Dauphinoise made a 5 years study to find the best tunnel price.

Another thing that need to be highlighted : they are oleaginous subsidies given by the Rhône-Alpes region to producer growing soybean, through the FEADER budget. This is their practical translation of their willingness to have more reliance on the territory for protein 7 years ago, that we mentioned earlier.

But according to La Dauphinoise, politics measures should be made and implemented on the long term. If tomorrow subsidies were given to small producer of soybean that are supplying the soybean oilcake process, then La Dauphinoise could reduce its costs of the oilseed that some milk producer find too expensive.

#### 3.2.1.5 The implementation

##### 3.2.1.5.1 A tailor-made contract

There is a tripartite contract between the milk producers, the soybean producers and La Dauphinoise, where :

- ❖ Producers commit to grow soybean for a fixed period of time and are paid following the tunnel price conditions. The price for the soybean grain were determined according to three factors:
  - Imitating the margin of a maize production
  - The operating expenses (irrigation, inputs)
  - The fact that for the following crop, soybean was advantageous in terms of N-input saving

- ❖ La Dauphinoise commit to crush the grain not using chemical and to produce expeller soybean oilcake. They agree to take a fixed margin that was delimited earlier. It also takes an operating margin to sell their soybean oilcake.
- ❖ Milk producer commit to buy the soybean oilcakes on a fixed price basis, for limited period of time. For them, it was decisive to pay at a rate that was, on average, comparable of a soybean oilcake from Brazil or India.

#### 3.2.1.5.2 The feedback of the soybean producers

The soybean producer will have to source its seeds at La Dauphinoise to be assured of the traceability, because they are locally certified, therefore containing no-GMO. Therefore, farm saved seeds are prohibited in this LOC'ALP sector.

The growing of soybean requires relatively low amount of nitrogen, and once it is sown, there is not so much weeding to do. Also, up to now, not so many diseases and pest attacks have occurred in soybean production in the Rhône-Alpes region, so it is not so needed to use pesticides. To maximize the chance for the soybean seed to properly fix nitrogen from the air in the soil, prior to the sowing, a process of inoculation is done. This activity consists of applying a bacterium to the seed in order to form nodules on the soybean roots.

La Dauphinoise does not ask to respect any specific code of practice while growing soybean, for the production of soybean (no prohibited chemical substances for examples).

A soybean producer revealed that the best margins that was coming from his field was when he was growing soybean. When comparing a soybean cultivation to a maize cultivation, the expenses to grow it are not the same. Although, the seed are quite at a similar price, the amount of manure is much smaller.

For example, in a rotation of maize, soybean and wheat, it is a good crop as a head of rotation because after the soybean, there is no need to plough the soil and to weed the wheat. Therefore, less harm is done to the soil and less inputs is used.

Moreover, the structure of the soil is respected because the soybean plant is a very active plant, and especially with its roots. So with the soybean cultivation, the soil is lighten for the next cultivation (which explain the fact that ploughing is not necessary, only a shallow stubble ploughing is done).

Concerning the incentives for the producer in growing soybean, they are different from the ones that expected La Dauphinoise. Indeed, even if more and more soybean producers are at ease with the agronomic requirement of their crops, growing a leguminous crop that is good for the soil isn't the first drive for all soybean producers. Rather, they are motivated for the LOC'ALP sector because of the prices guarantee, the interested markets that was created for it, and the ability to leave mass production of maize or wheat and help instead the local farmers. Also, the fact that with soybean cultivation, producers are sure that they are in line with the environmental regulations is a major drive that convinces them to grow more soybeans.

#### 3.2.1.5.3 Soybean oilcake users feedback

Additionally, some soybean oilcake users, mostly the milk producers, find it difficult to feed their cows with proteins that come solely from expeller soybean oilcake. Because its fatty content is way higher than the fatty content found in soybean oilcake coming from Brazil that the animals are used to.

Some milk producers, with the help of La Dauphinoise, measure the animal need in terms of protein and energy, and create a tailor-made feed for their farm. But this tailor-made solution

is sometimes composed of soybean expeller oilcake **and** soybean oilcake coming from Brazil that is less fatty. Having too much fat in their diet can create diseases for the cow.

But, as one mix farmer is doing, it is also possible to give soybean oilcake to other animals such as poultry and pigs. This special farmer was particularly happy with the LOC'ALP sector because he is doing direct selling with his customers and they are really delighted to see that their farmer is giving locally sourced food to the animal they buy from this local producer.

<b>Sequence 3 : The implementation</b>	
Regional cooperation and stakeholders	La Dauphinoise, soybean producer, buyer of oilcake (=milk producer) AFT'ALP, Oilcake processor fabrication
Products differentiation	Code of practice using no GMO as a market segmentation
Stakeholders shared values	Tailor-made contract
Distribution of the added value	Starting to discuss about the price formation with the stakeholder. Notion of tunnel price. Calculation of the margins to be fair for everyone.
Agricultural production practices	Soybean is reducing tillage and irrigation, but still need the use of pesticides
Context	

### 3.2.1.6 The innovation made for reaching more farmers

Yet, even though we can sing the LOC'ALP sector's praises to be such an innovating and effective sector in terms of protein self-sufficiency, climate change and circular economy; it is still facing some market potential problems. Indeed, there isn't enough volume for now to develop the sector furthermore.

To overcome this situation of low volume, in 2016, La Dauphinoise launched another experiment : the outsourced work. This experiment is intended to have more farmers interested in the idea of buying the LOC'ALP, other than the PGI cheese makers. La Dauphinoise focused on mix-farmers that could potentially be soybean producer and that also have a dairy activity, using oilcakes. In that new type of contract, farmers grow their own soybean and sell it to La Dauphinoise, which takes care of the crushing or incorporating it to another animal feed type, before selling it back to the same farmer, at an interesting rate for him/her. This is what is called the outsourced work, where producers provide the supply and La Dauphinoise.

About 20 producers/breeders used those techniques this year to grow soybean and soybean oilcake. For them, this sector is interesting because they can use on the farm something they grow their own and of good quality.

### 3.2.1.7 Some hurdles are still hampering the sector to develop more

All the efforts to make this sector flourish furthermore demonstrate how implicated is La Dauphinoise in the creation of LOC'ALP. This can be explained by the strategy of this cooperative to have 30% of their grain production involved in a sector. And the LOC'ALP is quite interesting for La Dauphinoise since they can manage all the steps from the certified



local seed production, the production of soybean grain, to the selling of oilcakes and other composed feed. But also because of the potential to create a transformation expeller soybean oilcake unit, if the volume increase. Yet, this is now not happening due to the fact that having such a low amount of soybean producer and milk producer ready to commit to the sector render difficult for La Dauphinoise to create their own transformation of expeller oilcake unit, and therefore reduce even more the price of soybean oilcakes.

La Dauphinoise confessed that while they are implementing the LOCALP sector, they are not making a sufficient margin to make it economical balanced. But for them, it is the price to pay to implement such sector, so they decided to invest at the risk of losing hundreds of thousands of euros during four to seven years. They accept it and work to improve it years after years, until the sector will finally take off.

The relation within the stakeholders of the sector is not at its best to keep on working on improvements. Indeed, there is no such thing as a common effort to work towards the development of the sector. La Dauphinoise is the pilot of every progress and decision making in the sector.

Moreover, the AFTALP might not be the good interlocutor to find more milk producers interested in GMO-free soybean oilcakes. Indeed, this association is a professional organization and is here for producer to find supplier and not favor one in particular.

There are not enough links between soybean producer and oilcake user. This can be proved by the fact that for the milk producers, the sector is not developing due a lack of commitment from the soybean producers; but soybean producers say the same for milk producers...

Another thing to mention is the economic situation of some milk producers. Agronomic understandings, the image of sourcing local supply or the environment consciousness are elements that milk producers are aware of and are willing to take into consideration. Though, according to the breeding manager of La Dauphinoise, the soybean oilcake price in a cow ration is a small part of its entire cost, for farmers, the issue concerning the economy is still a problem. Farmers won't engage to pay a fixed price for two years when they know they can get it elsewhere, at a more interested rate. Indeed, they have difficulties to put things into perspective regarding the higher price, which is hampering the further development of the sector. Farmers can easily have a positive approach towards local supply, circular economy, GMO-free feed; nevertheless, they cannot walk their talk if their economic situations do not allow them to make any change.

<b>Sequence 4 : Market differentiation and future measure ?</b>	
Regional cooperation and stakeholders	La Dauphinoise, soybean producer + <b>outsourced work producers</b> , buyer of oilcake (=milk producer) AFT'ALP, Oilcake processor fabrication
Products differentiation	Circular economy for the outsources work soybean producers,
Stakeholders shared values	Tailor-made contract
Distribution of the added value	Starting to discuss about the price formation with the stakeholder. Notion of tunnel price. Calculation of the margins to be fair for everyone.
Agricultural production practices	Soybean is reducing tillage and irrigation, but still need the use of pesticides
Context	Problem of commitment

### 3.2.2 Mobile sorter :

The project holder of this initiative, names Jack, is a farmer who converted his farm to organic in 2010 after farming its land since 2007, in a conventional monoculture of maize. He is part of the collective called CT BRD that is gathering around the Chamber of Agriculture to create dynamics and projects in the territory of La Boucle du Rhône en Dauphiné. This collective is facilitated by Veronique Rochedy, as explained earlier.

Jack runs a farm of 175 ha, certified organically, but this label doesn't interest him as he says that *"it's just for the consumer"*. For him, his agriculture is more classified as conservation agriculture. The tillage of the soil is simplified to the most for his spring crop, his autumn crop are sown under cover and each year, he saves some seed that he does not transform to pasta or flour to be able to be autonomous in seed for the next year for example.

He also transforms part of its production into pasta and flour. He transforms all his durum wheat and almost all his bread wheat. production into pasta or flour. With her wife as associate, they really wish to diversify their production in terms of crops. For example, the next crop rotation will have einkorn wheat, millet, sorghum, corn for polenta, corn for popcorn and corn for corn bread.

Selling to the most in short food supply chain (regional scale). Theirs goal is to support to the maximum local supply chains, therefore Jack does not want to sell his production to supermarkets for ethical reasons, rather he is selling his production to farmer cooperative. But his products can travel a long way, and since it.

Due to a large volume of production, he is not able to sell all his production using a short supply chain channel, and sometimes he sells some production. But the goal is to remain independent. For example, last year they only sold 10% of their production to organisms such as La Dauphinoise.

But the problem is that La Dauphinoise is not able to market the plain meslin, since the farmer has extensive production practices for his cereals, because he uses crop mixture or companion plants, it automatically refers to having lots of weed that need to be sort. That is why he is really interested in buying a sorter.

Jack and the other farmers motivated can benefits from the FEADER subventions. Therefore the idea of the collective to buy in together the mobile sorter to be able to go to everyone's farm.

This is also really convenient for other farm with other aim : for example, they can rearrange the composition of their cover crops harvest in order to have a good mix for the new growing season, some other farmer would like a sorter for making their own seed, or some other is for saving a

All those different motives hamper the project to go further. But this is also refrained by :

- "Nobody do anything and everybody is waiting everybody without daring to get out the check book". Indeed, during the two meetings, in total 7 came, but it seems that onlt Veronique and the motivated farmer lead the project. But there are no definite collective as such, there are no group dynamics...
- A mobile sorter will mean that they'll have to get sufficient storage room to stock the grains that will be sorted, and historically farmers don't have storage silos since there are

a lot of silos from farmers cooperative. So they will have to buy silos as well and it's more expensive.

Hence, the problem is that they can't agree on anything because they have too broad needs and volume quantity and the project is still at the same point for two years now.

Jacques confessed that, if the other interested farmers will not do anything about it by the end of the year, he will buy the material by himself. But he will not be able to buy a premium quality sorter as the one he could have get if many farmers had gathered their economies.

#### Sum up of the initiative in the analysis grid

Regional cooperation and stakeholders	Jack and the CT BRD
Products differentiation	They want to be better remunerated for their meslin
Stakeholders shared values	No sharing and no coordination between the stakeholders
Distribution of the added value	Everybody will have their own business, there is nothing in common
Agricultural production practices	For Jack, conservation agriculture and organic agriculture (certified)
Context	

#### 3.2.3 Local minced beef :

In the same ways as the stock farmers from the Roannais region, some farmers from the BRD territory started to have a reflection on how to sell in a better way their meat. After searching for markets, they came into the reality also that French people tend to eat less and less meat, except under the minced beef form.

Since the Roannais and the BRD territory are both partnered territory of TERRAE, and since the stock farmers from the minced beef project did the same project as the stock farmers from the BRD territory want to do, it was deemed interesting to organize a meeting where farmers from both side could share their experience on building a new sector from scratch. During this meeting that took place on the 12<sup>th</sup> of June 2017, none of the farmers from BRD could find free time to be present on that day because it was the haymaking period and they couldn't have a whole day not at the farm. Nonetheless, two persons from the CT BRD could come from the BRD territory, and one stock farmer and a representative of Roanne Conurbation came.

The people from the BRD liked the fact that the stock farmers in the Roannais were free to chose when they would present an animal to the middle man.

And the stakeholders from the Roannais put an emphasize on the fact that they included all the stakeholders right from the beginning, which was a key to the success of this sector.

Also, they discover that CARREL, which is the main minced beef processor in the ex-Rhône-Alpes region was closer to the stock farmers from the BRD than the stock farmers from the Roannais. In that view, if the stock farmers from the BRD decide to make also a local minced beef sector, they will be able to really offer a local sector from the production, the transformation, to the distribution.

Also, they realized that the quality of the product would be very different in the Roannais than in the BRD. Indeed, in the BRD, they are no particular breed and there are not as much pasture as in the Roannais area. If the stock farmers from the BRD wanted to copy the case of

the Roannais minced beef, and offer a premium quality animal to be slaughter, they would have to change their production practices (genetics, breed, feed (no corn silage), put them outside...)

#### Sum up of the initiative in the analysis grid

Regional cooperation and stakeholders	A group of 8 farmers, Carrel, CT BRD
Products differentiation	A local minced beef product
Stakeholders shared values	Some meetings already happened to create a cooperative coordination between the stock farmers
Distribution of the added value	Not defined yet
Agricultural production practices	Not defined yet
Context	Economic situation difficult for stock farmers that are seeking solution before closing down their farms.

#### 3.2.4 The Ursulines Brewery

Ursuline Brewery is a brewery settled in Crémieu, 38km from Lyon. It is settled amongst the former Ursuline monastery, hence its name. To produce the beer, the malted barley is sources organically (and certified), and due to their special recipe, they used 2 to 3 times less barley than usual.

As the brewer mention it in his website : « to make good beers, I favor good raw material and proximity »

The malted barley is produced in certified organic agriculture, which gives a better quality to the beer while respecting more the soil and consumers. The hops comes from France, Germany, Belgium, Czech Republic and England.

Concerning their social sustainability they partnered with the association ACABRED which means which kind of a local money that inhabitant of the BRD territory can used in local shops.

#### Sum up in the analysis grid

Regional cooperation and stakeholders	The brewery
Products differentiation	A special recipe beer, with organic barley, but the product is not certified entirely organic
Stakeholders shared values	No other stakeholders involved
Distribution of the added value	Business as usual
Agricultural production practices	Organic certified barley
Context	

#### 3.2.5 La Grange Boutique :

La Grange Boutique is a business situated in Soleymieu, that sell local products sourced from local farmers from the area, in a refrigerated counter. It's a very recent initiative since it's only started at the beginning of 2017, and it was founded by a couple.

During the week, they are also poultry farmers, they raise free range chickens and guinea fowls. Plus, during the week-ends (Friday, Saturday and Sunday), they offer their clients to taste their product (roast chicken) and the products of other farmers (local hamburger, local salads, pork, cold meat, cheeses, yogurt, beer) in the form of prepared meal in their restaurant. Concerning their poultry, they feed their animals local feed (grain and flour).

Concerning the price, it is the producer themselves who fix the price of the product they will sell at their counter.

During our observations at their restaurant, we noticed that Marie, put an emphasize on saying that they care a lot about the animal welfare. They source locally sourced feed for their animals.

Two persons work in this company, with an impressive work load compared to the wage they get from it.

#### Sum up of the initiative in the analysis grid

Regional cooperation and stakeholders	2 persons + the local farmers around
Products differentiation	Fresh and locally grown/raised products
Stakeholders shared values	A wish to support the local farmers and know-how
Distribution of the added value	Fair price formation for everyone
Agricultural production practices	Free-range chicken fed by locally sourced feed
Context	

## 4 Discussion

### *Cross-sectional analysis*

In order to analyze all the initiatives compared to our initial problematic, a comparison has been done using a cross-analysis method.

In terms of ecologization of production practices, we looked at the data collected during our case studies and compared it with the literature of Wezel et al. (2013), to find out whether the production practices of the initiatives could be seen as agroecology.

The data used for the comparison are the one situated in the fourth column of our analysis grid called “Agricultural production practices”. Also, we took the information from the second line of our analysis grid called “Product differentiation” to see if the stakeholder were describing their products or approaches, using the production practices.

In the one hand, we discovered that some initiatives were not really employing a lot of agroecological production practices in their approach and were not referring to them while describing their product. This is the case for example of the two *local minced beef of the Roannais and BRD*. However, we can say that the project in the Roannais scores higher because they do cow-calf production and they do not give as much as silage to their cows since the major part of the feed is coming from the farm. But, this rank is to put into perspective since the composition of the minced beef in the Roannais is still not fixed yet. Indeed, the fact to choose R or U animal type traits will render worst or better their production practice. In fact, if farmers decide to go back for a R type traits, it means that the production practices won't be as strict as for a U type traits. But while having a carcass with U type traits, it is more difficult to find sufficient markets for the back pieces of the animal. This criterion will define the application of agroecological practices or not in the future.

The initiative of the shop the *Etincelle Gourmande*, is scoring low on the ecologization of production practices. This is due to the fact that in their first ring of certification, they only ask to farmer to be GMO-free and free range. In order to have a wide range of local offers in their shop, they do not ask other production requirements. Also, this result has to be put in perspective since for the second ring, they ask for the organic certification. We assume that with this certification it will gather more agroecological criteria by definition.

On the other hand, the initiatives that ranked well in terms of ecologization of production practices are at the number of six. The initiatives *Etamines* and the closely related association *VBR* ranks well since they are organically certified. At the same position is the initiative *Heavy Pork on Straw* it is described right in the name of the product that the pigs are raised on straw, as an alternative to the standard pig raising that are raised on and not on slatted floor. They also give a certified no-GMO feed to animals. Then we have the mobile sorter where the farmer go beyond its organic certification and implement agroecological measures as well such as conservation tillage or farm saved seed. Then we can see that the initiative *La Grange*, performs well in terms of agroecological production practices integration in their chicken raising system. They do have a free-range herd and they feed them with local supply for example. The initiatives that performs to a lower extent in the ecologization of their production practices is the *CoPLER* initiative, because they do not really facilitate project with ecological production practices, although some of them are project that are certified organically. Instead, they are implementing local project with the aim of developing the food access of the territory.



Two were at the limit of decision and their rank can be discussed, it is the *local soy production* and the *Ursulines brewery*. Indeed, soybean producers didn't change a lot their production practices and are still using pesticides to produce the soybean. But, this result has to be taken with perspective since we saw that some farmers were not ploughing after a soy production and were limiting their use of irrigation. Also, the *Ursulines brewery* only have organic barley that it organic and do not necessarily supply it locally.

In terms of structuring of the food systems, we looked back at our analysis grid in the line : “regional cooperation and stakeholders”, “stakeholders shared values” and “the distribution of the added value”. With those information, we evaluate their compliance with the socioeconomic principles of agroecology presented in Dumont et al. (2015) such as the environmental equity, the financial independence, the market access and autonomy, the sustainability and adaptability, the diversity and exchange of knowledge, the social equity, the partnership between producers and consumers, the geographic organization, the limited profit distribution, the democratic governance and the joint implementation of the various principles in actual practice. As mentioned earlier, we didn't look at all the principles since they were not related to the approach of agriculture of the middle (Brives et al., 2017).

As a result, we saw that some initiatives are not raking high in their approach of agroecological structuring the food system. Indeed, the initiative VBR is not oriented towards the “*sustainability and adaptability of agricultural organizations stemming mainly from their inclusion in a network*” Dumont et al., (2015, p.28), and nor to having a shared organization which give it a low integration of the socioeconomic principles of agroecology. Coming to the *Ursulines brewery*, due to its non-integration of principles like the geographic proximity (we don't know where its organic barley is coming from), and shared organization it is not placed highly on Also the *local soy production*, due to the fact that there are no democratic governance, shared organization, nor a financial independence for farmers, it has gathered many agroecological socioeconomic principles. And lastly, the initiative of the *mobile sorter* did not success to mobilize a lot of socioeconomic principles of agroecology. Indeed there are no respect to the criteria of sustainability and adaptability since for two years, the stakeholders were not able to find a feasible project for all. Also, it fails to create a partnership between producers and consumers in a concrete way.

In the opposite, we saw that four initiatives were performing well in the structuring of an agroecological food system. Indeed, in the initiative *Etamines*, where farmers are in control of the economic and technical decisions but they are also included in a network since the neighbored farmers and municipalities helps them. It is also a good example of democratic governance since Etamines is the emergence of the work of seven different entities. Since they are doing direct selling, they also have a “direct contract between producer and consumers”. Concerning the *Heavy Pork on straw*, this initiative is by far the one that mobilizes the most the criteria of democratic governance because it gathered right at the beginning all the stakeholders (included the pork feed company, although not the supermarket) involved and decided of the price with a fair distribution for all, and all the important decisions are taken altogether. The initiative *CoPLER* is also gathering criteria such as social equity, the partnership between stakeholders and consumers, but not the one for financial independence since they finance a lot of their project, which is not an easy solution for the farmers to be independent later one. The initiative *Local minced beef of in BRD* performed well and better that the same initiative in the Roannais. But the difference between

them is that in the BRD, in terms of geographic proximity, it scores higher since the transformation unit CARREL is close to the stock farmers. The initiative *Etincelle Gourmande* had a strong emphasis on its social equity, democratic governance and shared organization, so it has a good rank in terms integration of socioeconomic agroecological practices. But, one thing to mention is that it is still a lot relying on subsidies which is complying with the criteria of financial independence.

To a lower extent, the initiative of the *local minced beef of the Roannais* scored well for gathering many socioeconomic principles of agroecology since the organization of its creation has been thought and designed with many stakeholders. And lastly, we can see that the initiative of *La Grange* is mobilizing the criteria of but fails but assure a social equity to the stakeholders. But this result has to be taken with perspective because this project is really new and need some time to settle and generate profit.

### Cluster comparison

In order to respond to our initial question and problematic, a graph has been made (See Figure 15 below). This graph is an overall representation of all the initiatives that I saw in my case studies, on a double entry table representing the level of integration of the ecologization of production practices, and the level of integration of an agroecological socioeconomic principles while structuring regional food systems. Ordering them like this allowed me draw conclusions and generalities. The objective is to identify locks and levers regarding the link between the ecologization of production practices and the structuring of regional food systems.

When reading this figure, the more we go to the right, the more the initiatives are applying agroecological production practices. And the more we go up, the more initiatives are implementing some agroecological socioeconomic principles in their project.

We can see that we can delimit the initiatives in three different groups. The first one (colored in green and labeled 1) is the cluster where the initiatives that makes the link are gathered. The second group (colored in blue and labeled 2) is the cluster where the socioeconomic principles of agroecology are tackled in the structuring of their food system project, but they had failed to make the link with an ecologization of their production practices. And then, in the third group (colored in orange and labeled 3), the initiatives are engaged into an ecologization of their production practices, but the link with creating a more agroecological food system is not done.

When comparing the cluster 1 and 3, with the cluster 2, we can observe that the process of ecologization of production practices comes from the fact that the stakeholders involved in the project are “eco-literate”. This means that the values held by the core actors of an initiatives in terms of agroecological production practices, and their ability to promote them during the structuring of a regional food system can also play a major lever in linking agroecological practices during the structuring a regional food system. This is the case especially of the Heavy Pork on Straw where the meat refiner emphasized in that fact that he wanted pigs to be raised on straw and not on slatted floor.

When comparing the cluster 2 and 1, with the cluster 3, we are able to draw some conclusions on the levers for the implementation of an agroecological food systems success. Indeed, what we can see is that, the initiatives on top almost have been all created by a group of people, instead of one person. That is why, we can say that local cooperation and a shared organization is key lever to have a social and economic sustainable food system. And indeed,

in the minced beef sector of the Roannais, Etamines and Heavy Pork for example, right at the beginning, all the stakeholders involved gathered in meetings and agreed together upon important criteria and decisions. It seems that for the local soybean production, only La Dauphinoise was in charge of the further development of the sector. Or in the initiatives mobile sorter, only Jack were to moving force of the project. Therefore, when initiatives are created by someone on its own, it has been showed that was not socially sustainable and viable in the long-term.

This can highlight the fact that, in the Roannais territory, initiatives tend to be more socially and economically sustainable due to the fact that they are supported by Roannais Conurbation or the Agro-food hub. Those structure do not exist in the BRD territory, and this can be a major lock, especially when starting a new project.

Also, when comparing the two major initiatives that we conducted, and according to our result, we can say that while implementing a project, the communication campaign is crucial. Indeed, for the minced beef sector in the Roannais (which is in the cluster 2), the communication campaign that launched the first slaughter of the animals was very important in the acceptance of the project by consumers. This is not something that has been done by the local soy production actors (which is in the cluster 3). Indeed, some farmers don't even know it is possible to produce local soybean and how it is used. But in the same time, it is understandable because a soybean oilcake communication campaign will therefore lead to a condemnation of the farmers who used soybean oilcake coming from Brazil

Moreover, for such complex and big initiatives like the local minced beef and the local soy production, it is important to have people that are in contact with all the persons in the project. This is the case of the initiative Minced Beef in the Roannais where Dan played an important role in linking people together, he is what we called the “**boundaries passer**”. Indeed, the duet Dan and the stock farmer played a crucial role in the creation of the minced beef supply chain because they had an extensive experience from the production to the consumption. Such persons did not appear during our observation of the local soy production.

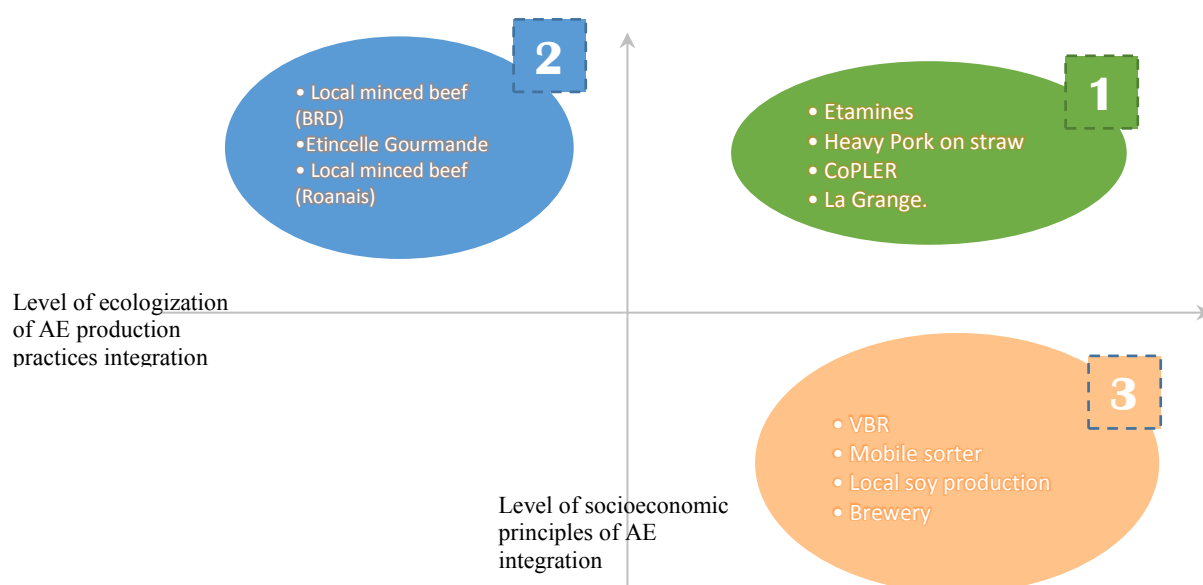


Figure 15 Double entry table with our two main reflections topic as axes.

## 5 Conclusion

As we saw in this present paper, during the scaling up of agro-food related project in agroecology, it is not always easy to make the link between the ecologization of production practices and the structuring of regional food system. This paper intended to respond to the questioning whether it was possible to keep this link, that is so obvious in agroecological short food supply chain such as direct selling, while scaling up projects when intermediaries were needed ?

This paper showed some recommendation to achieve it in the form of levers and locks.

Firstly, in terms of levers, we found that it was very important that project holders were aware of the agroecological principles and were holding strong values and will to support them. Another level that can be highlighted is once there is a local cooperation between the stakeholders, the project tend to be more viable, sustainable and adapted to its territory. Therefore, having shared organization where every stakeholder related to the project play an important role rather being presented the project at the end. In those initiatives where shared organization and local cooperation were implemented, the power relation has changed as well, bringing farmers back to the decision force. And this is an important lever as well.

Secondly, in terms of locks that hamper the initiatives to be looking at both socioeconomic and production principles of agroecology at the same time, the first one to mention is the absence of a territorial structure or knowledgeable experts can that help and link stakeholders together. Indeed, experts on various topics are needed sometime to solve problems or simply to facilitate a group of people. It is not always easy to organize meetings, to find time and facilities to the dedication of new project.

Another lock important to mention here is the bad communication skills. We saw in our case studies that when the communication campaign was made successfully, even for the smallest local projects, consumers were more aware of it.

Therefore our recommendation for stakeholders willing to start a project related to agroecology and agro-food products, the emphasis should be on the integration of lots of stakeholders to co-create project with shared values and local cooperation. To help achieve this, structures such as the agri-food hub should be replicate and made available in other territories.

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## 6 Appendices

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## Appendix 1 : Map of the Auvergne-Rhône-Alpes and ex-Rhône-Alpes region

### Map of the Auvergne-Rhône-Alpes new region<sup>19</sup>



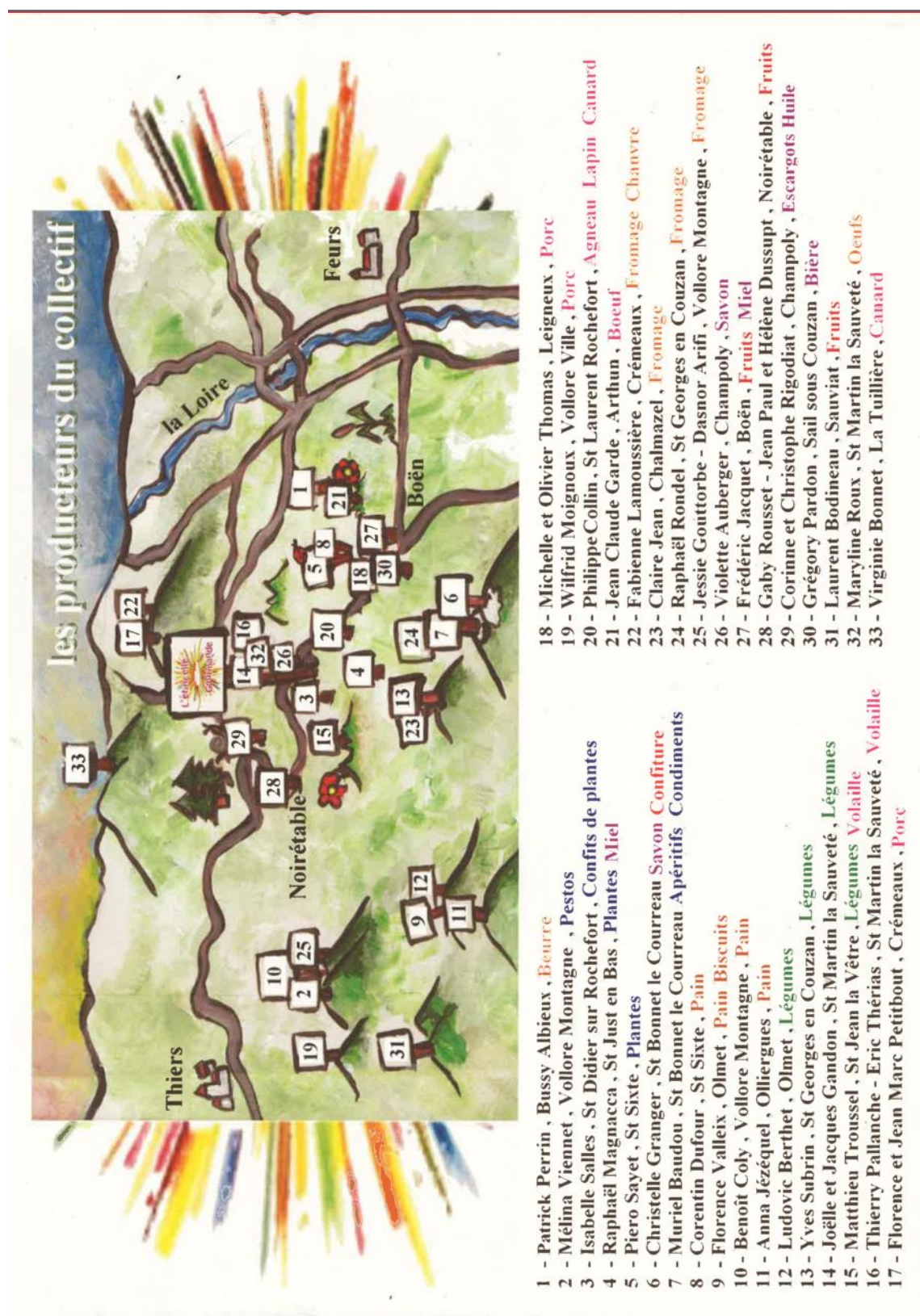
### Map of the ex-Rhône Alpes region



<sup>19</sup> Source image <http://www.zoomdici.fr/actualite/Les-chiffres-clefs-de-la-future-region-Auvergne-Rhone-Alpes-id147411.html> [accessed 29 August 2017]

Source image : DR Lyon Capital

## Appendix 2 : Map of the 33 local producers of the Etincelle Gourmande shop



### Appendix 3 :Material of analysis for each analysis

Initiative name	Material used
Local minced beef Roannais	<ul style="list-style-type: none"> <li>• Interview of the stock farmer</li> <li>• Interview with Dan</li> <li>• Interview with Dan and another stock farmer</li> <li>• Interview with the responsible of the agriculture department of Roane Conurbation</li> <li>• Interview with a responsible of quality at Carrel</li> <li>• Interview with the responsible for the commercial relation at Carrel</li> <li>• Master Thesis Aurélien Quenard (2016)</li> </ul>
Etincelle Gourmande	<ul style="list-style-type: none"> <li>• Interview with Charlotte and Geraldine</li> <li>• Interview with Nils Maurice</li> <li>• Document written by Etincelle Gourmande</li> <li>• Website</li> </ul>
Etamines	<ul style="list-style-type: none"> <li>• Interview with the vice-president of VBR</li> <li>• Participation of the General Assembly of Etamines</li> <li>• Video clip of TERRAE + rushes</li> </ul>
Heavy Pork on Straw	<ul style="list-style-type: none"> <li>• Master thesis of Aurélien Quenard (2016)</li> <li>• Video clip of TERRAE + rushed</li> </ul>
VBR	<ul style="list-style-type: none"> <li>• 2 interviews with the vice-president of VBR</li> </ul>
CoPLER	<ul style="list-style-type: none"> <li>• Interview with the person in charge of the economic services</li> </ul>
Local soy prodcutin	<ul style="list-style-type: none"> <li>• Interview with the AFT'ALP</li> <li>• Interview with a soybean producer</li> <li>• Interview with another soybean producer</li> <li>• Interview with a soybean producer and milk producer doing the outsourced work</li> <li>• Interview with a milk producer</li> <li>• Interview with the president of La Dauphinoise</li> <li>• Interview with the responsible of the Est sector production of La Dauphinoise</li> <li>• Interview with the breeding responsible at La Dauphinoise</li> <li>• Interview with a vet</li> <li>• Interview with the milk control agency</li> <li>• Interview with a farmer expert on the functioning of La Dauphinoise</li> <li>• Articles written about the oilcake experimentations</li> </ul>
Mobile sorter	<ul style="list-style-type: none"> <li>• Interview with Jack</li> <li>• Interview with Veronique Rochedy</li> </ul>

	<ul style="list-style-type: none"> <li>• Document given by Veronique Rochedy</li> <li>• Their website</li> </ul>
Local minced beef BRD	<ul style="list-style-type: none"> <li>• Participation of the General Assembly of CT BRD</li> <li>• Interview with a stock farmer</li> <li>• Interview with the responsible for the commercial relation at Carrel</li> <li>• Interview with a responsible of quality at Carrel</li> <li>• Meeting with stock farmers from the Roannais to talk about their experience on the creation of the minced beef sector</li> </ul>
Ursuline Brewery	<ul style="list-style-type: none"> <li>• Their website</li> <li>• Video clip of TERRAE + rushes</li> </ul>
La Grange Boutique	<ul style="list-style-type: none"> <li>• Observation at their restaurant</li> <li>• Video clip of TERRAE + rushes</li> </ul>