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What place for the environment in today's agriculture?



Photograph: Menezes, N.

*Defining agriculture and its priorities in Brittany,
France*

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Title: What place for the environment in today's agriculture? Defining agriculture and its priorities in Brittany, France

Keywords: agriculture, environment, Brittany, globalization

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Program: Environmental Communication and Management; 60 ECTS (1 year master program)

Course: Practice and Thesis Work in Environmental Communication and Management, EX0409; 15 ECTS

Paper: Master Thesis in Environmental Communication and Management, 15 ECTS / 15 hp
Advanced (D) level
Uppsala 2011

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Introduction

Agriculture, in addition to being an essential economic activity in this globalised world, has a physical, social, and symbolic existence and a meaning in society that other activities don't have. Unlike many other activities and products taking more and more importance in the global economy, it also has a capital economic role *outside* the global market. It is an ancestral role of feeding men and cultivating nature; a role maybe so obvious and so real, so concrete that it has been taken for granted and disregarded by society, and undermined by the liberal market economy. However, in such times of economic trouble, it is judicious to try to get a grasp at what is real, what actually exists outside the system as we know it, having to face the possibility of it collapsing, or the realisation that it might not be the best way for economic development.

For instance, in Brittany, one of the 22 French continental regions, the population is facing a real crisis of agriculture, which is the “engine of its economy”, and has always been the backbone of its development (Nouvelle Alliance pour une Agriculture Bretonne, 2010). As a consequence of the instability of food prices, the industrialisation and corporatisation of the profession, many farmers struggle to keep the chin up and save themselves from drowning under the economic pressures of keeping competitive, keep increasing the output, working endless workdays with very unstable income while maintaining quality standards and complying with environmental standards from the European Common Agricultural Policy and the government. On top of all this comes the recent burdening reputation they must drag since they are pointed at by ecologist movements as the responsible for polluting the region's environment (Drévilion, 2010). Having to face the collapse of agriculture as they knew it, the Bretons¹ are looking to understand their place in this system. Debates opened that seek to discuss the actual orientation, the evolution, past and future of agriculture, and its actual meaning. For instance, environmental associations and farmer's trade unions organise reunions and conferences, the regional council organised a vast public consultation in order to define what agriculture is in the Region today, and what it should be. While the media focus on the debate itself and report the opposition of views, it seems necessary to dive into the issue and understand it in more depth. It is, of course, a large endeavour and this paper can only focus on one of its aspects, which is the environmental one. It is about understanding the issue in its environmental context, from an environmental communication perspective. It is very interesting as both a spectator of this debate and a concerned citizen, to witness this debate and see whether it is possible or not, for an ancestral activity which has borne the region and yielded its development, to resist the strong currents of globalisation and manage to keep standing out of its whirlpool.

¹ Inhabitants of Brittany

Chapter 1

Agriculture in Brittany: Background

In Brittany, France, agriculture is more than just a sector of economic activity; it is deeply engraved in the region's identity as an essential element of its history, economy and culture. The 38 000 exploitations, over 61 600 (Agreste, 2007) jobs and 8.2 billion euro turnover make of it the first agricultural region France, which is itself the first producer in the European Union (Agreste, 2010). Its production is mainly based on livestock farming, porcine cattle and poultry, and therefore fodder to support it. Beyond farming itself, agribusiness is the main industry of the region and represents 70 000 jobs and 18 billion euro (Conseil Général Bretagne, 2010). As a major activity, agriculture deeply influenced the way of life, the culture and the social structure through the decades and, with 60% of the land devoted to agricultural purposes (Bretagne-Environnement, 2010), it played a crucial role in shaping its territory too. In a word, both society and land were definitely affected and evolved together with the practice of agriculture.

In fact, the development of this outlying, remote and somewhat until then forsaken region, its opening-up and integration within the French territory and economy, was considerably yielded through the impulse of agricultural activities that gave it an important role in the economic development of the country after the second World War. Agriculture in Brittany had a tremendous jump forward during the 1960's with the national agrarian modernisation, through a policy of regrouping of land and mechanisation known and spoken about as *remembrement*. Authorities and investors encouraged through subventions and loans the enlargement of exploitations, flattening of slopes, taking down hedges, development of intensive monocultures, going hand in hand with the mechanisation of the activity in facilitating the work of tractors, combined harvesters and other machines (INA). The turning point was in the 1960's but technical progress also kept appearing in the following decades in the shape of chemical treatments, fertilisers, pesticides, the spreading of soilless cultures. Livestock farming intensified together with battery farming, and farms kept growing in size. The average farm size grew 2.5 times bigger between 1970 and 2000 (Agreste, 2003). Cultivations no longer had to adapt to natural conditions, landscapes and available resources; the landscapes themselves were adapted to agriculture.

These changes were inscribed in the market opening context and logics, the merging into one single European market with common regulation: if small plots could suffice to feed the French, larger ones were needed to feed Europe (Berger, 1972: 2). The productivity had to be increased in order to ensure competitiveness on this international market (INA, n.a). A lot of information can be found on the success of techniques over decades to increase productivity and production, but little mention was made until recently of the 'victims' of this policy, those who couldn't amortise the costs, couldn't keep up with the changes in the profession or who were forced to retire, as suggested by the tremendous drop in the number of exploitations (divided by 5.2 between 1955 and 2007) (Bretagne-Environnement, 2010). The tremendous investment that this adaptation represented ran numerous farmers into debts that were to be reimbursed by the expected bigger income from bigger output: they were condemned to look for ever greater productivity.

Besides, in addition to the rather unspoken social costs, considerable environmental implications have been noticed and increasingly pointed at. The environmental impact of such intensification policy might have taken some time to be noticed and even though many preferred to see the advantages of the technical progress made, the resulting damage cannot be ignored anymore. The pressures on the quality of natural resources, like water and soil, or biodiversity (Bretagne-Environnement, 2010) due to the uncontrolled use of chemicals, the upsetting of the natural conditions, the disrespect of natural parameters in the choice of cultivations are increasingly denounced by environmental movements as a terrible mistake in the region's development that harmed its natural richness. Incidentally, the discovery and growing awareness of these impacts creates mixed feelings about agriculture. The agricultural profession is now pointed at as responsible for environmental damage. To illustrate the accusations carried out against farmers, we can quote the national campaign of early 2011, in the margin of the Paris *Salon de l'Agriculture*, from FNE (France Nature Environnement). The environmental organisation targeted agriculture as a danger for health and guilty for pollution. This campaign mobilised the public opinion on matters of GMO, nitrates and phosphor pollution, pesticides and it isn't just some practices being denounced, but the whole agricultural system being questioned. Because of its boldness and direct interjection towards farmers, it was nevertheless perceived as an attack against them, and provoked vivid discontent in the *paysan*² community. It particularly aroused feelings of injustice in Brittany and a law suit was even undertaken by the regional council of Brittany and porcine breeders, who saw their integrity being insulted (n/c, Le Télégramme, 2011).

The topic is very important and mobilises broad concern. Opinions are in fact quite divided and many do indeed, hold agriculture as responsible for the pollution of the region. Diverse voices were heard in the media, denouncing agricultural irresponsible behaviours, and, oppositely, farmers denouncing the scapegoating of their profession being blamed for the failures of a system which pressures them (BDZE, 2011; n/c, Le Télégramme, 2011).

But whatever the stance towards the profession, the environmental harm caused by many agricultural practices is now generally asserted for all, including farmers. With the development of this environmental awareness, agriculture which was until recently seen as a beneficial, developing, supporting and feeding activity is now questioned on its long-term effects. The will to protect the natural richness of the region has arguably become a primary concern in public discourse. Speeches on the *remembrement* have changed too. Enthusiasm about new techniques, gains of productivity and expansion went down together with the income gains coming from it. The idea of the progress brought by this sudden development has been replaced by a nostalgia of simpler times, closer to nature, when hedged farmlands covered the countryside, with warrens, banks and slopes; some more genuine, romantic time where ecological damage didn't even exist. It seems like, even though liberal economic discourses on agriculture, with notions of economic development, technical progress, intensive production, of efficiency too, haven't disappeared, new ones appeared and probably altered the definition of agriculture. Now, for instance, notions of environmental harm, pollution, soil and water quality depletion, toxicity, synthetic, which have a derogatory connotation, have changed its image into something harmful to nature. And this is a very topical and interesting issue from an environmental communication point of view: The evolution of the way agriculture is spoken about both reflects and shapes the evolution of agriculture itself. As we will see in this study, the way society in general handles environmental issues has everything to do with matters of communication. If our way of

² *Peasant*. The term peasant in French agricultural background doesn't have a derogatory meaning. It simply refers to the milieu au farmers.

depicting and communicating about agriculture changes, then agriculture itself changes, and vice-versa.

The problem which is formulated for this thesis is to understand the relationship which the actors of agriculture perceive between environment and agriculture. We now know that agriculture is objectively responsible for environmental damage. We know that it creates a public questioning of the practices and legitimacy of agriculture. It changed the public perception, or public definition of agriculture. It is legitimate to wonder about the main people concerned: about the actors of agriculture's point of view. This thesis seeks to study the place and importance of environmental matters within agriculture in Brittany, to the eyes of its actors, now that awareness has been brought of the physical implications of the one on the other.

This problem is to be studied in analysing texts from farmers and experts of agriculture, from which we will answer three research questions: Firstly, how much of a priority are environmental matters in Brittany's agriculture, according to its main actors? Secondly, what competes with environmental matters as a priority for agriculture in Brittany, according to its main actors? And thirdly, is there a consensus in the two first questions amongst the different actors considered in the study?

Chapter 2

Theoretical background

I- Agriculture as a constructed social object

To begin this overview of the theoretical background this thesis is building upon, it is essential to understand the centrality of the notion of definition, and comprehend why it is so relevant in telling us about the reality of today's agriculture. We need here to clarify notions of reality, meaning, and definition, in a word, establishing the communicative context that gives all its sense to our undertaking.

Environmental communication isn't only about the way we speak about our environment, but also about communication as what *constructs* the meaning of environment to us. It concerns the words, their meanings and all the symbols that help us represent the environment and give it sense. As explained by the symbolic action theory, symbols create meaning (Cox, 2010: 20); they don't just convey it. We are therefore considering communication as the meaning-making process that allows us to understand and define the world, and in our case, environment and agriculture.

According to a constructionist ontological view, the world, the reality is socially constructed. No doubt that there is an objective reality, a physical world that exists independently from us humans, but the world as we know it only exists through our perception of it, our acknowledgement, our interpretation of it (Charon, 2010: 43). If we don't know something exists, then it doesn't exist to us. And even if they do exist in a purely physical world, objects need to be defined in order to exist in the social world. They are socially defined by the use we make of them, the way they appear, or other objects they are associated with. We interpret them and behave towards them according to our knowledge of them. The meaning of an object results from a reflexion, an interaction with oneself or others. It is a very reflexive process, as opposed to an instinctive reaction. Objects don't have an intrinsic meaning (Blumer, 1969 in Charon, 2010: 45), they are given one through the role they have in the social world. In that sense, objects only exist to us through the definition we make of them. In our case, it is now established that agriculture is defined by its relevance to us, by its role in our society and the relationship we have with it.

By the same reasoning, the definition of the object also determines the way we act towards it. Symbolic interactionists consider the definition of objects, or as they prefer to call it, the definition of the situation, (because the object itself might not be the only parameter to take into account) as the main determinant of human action. In Charon's words, 'Humans act accordingly to their definition of the situation' (Charon 2010: 114). Or, as Donald Ball puts it, the definition of the situation is the sum total of all recognised information relevant in engaging action (Ball, 1972, in Charon, 2010: 125). We continuously define the world and objects around us in relation to the present, the way we see them in relation to other objects, the use we could make of them in the present, and behave in accordance with our understanding of them. Thus, making sense of the world, defining objects, social objects, is the most important activity in society, even though we rarely notice it.

To come back to our study, agriculture isn't just an economic activity in the physical world; it is a social object with a defined role, whether it is a feeding role, an economic role, an environmental stewardship role, a social status etc... And depending on which of these characters are most emphasised in their definition of agriculture, its actors will tend to act differently. This is why this study seeks to identify the features that prevail in the actors' definition of agriculture. We are especially interested in the place given to environmental matters. We want to understand their importance to the eyes of farmers and experts. Therefore we seek to know if they are for them an important feature in the definition of agriculture, or if other aspects prevail over it. In an environmental communication approach, if, as Cox explains (2010: 15), human communication mediates our understanding of the world, if we want to learn about farmer's and experts' understanding of agriculture, we must study their communication about it. In the same fashion, if symbols create meaning (Cox, 2010: 15), then to learn about the meaning of environmental matters for them, we must study the symbols used to refer to them. This is why we are going to analyse speeches from farmers and experts about agriculture, with connections to environmental matters.

II- Agriculture, environment and the societal context

The second part of this chapter is devoted to clarify the societal context of our study. The topic being the place of environmental matters in today's agriculture in Brittany, having established the background of agriculture in Brittany, the relevance of environmental dimension of it; it is time to define the *today* in this topic. In exposing the background, we acknowledged an evolution in the definition of agriculture, with the inclusion of new notions of, namely, environmental awareness. Agriculture isn't perceived the same way it was in the previous decades. New elements aroused or presented themselves to public awareness that changed the identity, the meaning of agriculture in today's society. And this is what we are studying in this part of the paper: these societal changes that affect agriculture and upset its definition.

To understand the evolution of the perception and definition of agriculture in society, one must consider the evolution of the relationship between men and nature. Indeed, it is rather clear that agriculture is a link, and at least one of the main links that bonds men and nature together. And it has undergone terrific change in the last decades. New advances, development and the lifestyles deriving from them have modified the link between men and nature. It can be argued that it happened over centuries and men progressively developed tools, crafts and techniques that gave them some power and control over natural phenomena and the natural environment but, in accordance with Giddens, we notice a tremendous acceleration of this trend together with globalisation, in the last decades (Giddens, 2000: 3-5). Most would agree that this relationship evolved into a domination of mankind over nature. However, not all agree on the mechanisms of this domination. Anthony Giddens emphasises the opportunities brought by technical advances to act upon nature and the power it gives over it. Vandana Shiva, on the other hand, stresses economical domination and the liberal economic dictatorship (Shiva, 2005: 6). They both have different explanations on the effect of globalisation on environment but both can be considered true, and the argument here is that the truth probably stands somewhere in a combination of both arguments, as both technical progress and economic development are so bound together, and both are complementary in the liberal society this study is inscribed in. Therefore, the study we are carrying out on

Brittany's agriculture will be understood in its societal context through the help of both these authors. Let us then expose their theories.

To Giddens, the present relationship between men and nature is to be understood through the development of technologies and knowledge that helped men comprehend the world, act on it and even manipulate nature to his benefit. Applied in the field of agriculture, men developed products to control eventual natural risks such as spreading of pests, fertilisers to boost the capacity of nurturing crops, even genetic modifications that allow arbitrarily choosing the properties of a seed. They developed technologies, not to adapt to their environment anymore, but to adapt the environment to their needs, for instance, modifying lands into flat parcels easy to cultivate for large machines. Technology gave men power over nature; power to control it and even prevent or fake its phenomena. It created a situation of domination over nature. But by doing so, men also created risks that they hadn't considered before. Climate change or the impacts of chemicals on biodiversity are both typical examples of uncontrolled and unprecedented risks created by men. They introduced science and technology in all aspects of their life without really considering the impact over nature before doing so. This is why society now has to face the possibility of new risks created by these techniques, creating what Giddens calls *manufactured uncertainties*, or the risk society (Giddens, 2000:5; 1994: 220; 1999:1). What's more, in the interconnectedness of the globalised world, it is very hard to assess the scale of these risks which is too unprecedented (Giddens, 1994: 219).

Facing human helplessness in coping with these risks, Giddens argues, it is important to give science a new dimension that was neglected in modern times which is one of ethics. Indeed, until then, science had been a driving force for human development. It was the major value of modern times and the human world relied on rationality and logics, leaving aside matters that couldn't be demonstrated, matters of feelings and morals. Science was dedicated to the pursuit of truth and making discoveries, "following its own path" (Giddens, 1994: 217) but what was missing is the questioning of the application of the acquired knowledge, and application of technological advances. This is, to him, the challenge of post-modern times, to include more ethical thinking and open the reflexion on the use that should be made of science and technological progress. What should it be used for, and what should its limits be? To him, the central question of our time is *How shall we live* (Giddens, 1994: ch8)? He argues that the arising of manufactured risks implies a "reorientation of values" (Giddens, 1999: 5). The risk society presents whole new risks and also opportunities, therefore opening to a "plurality of future scenarios", a broad set of choices that need to be made (1999: 4-5). In other words, it comes to reflecting about the power we asserted over nature, questioning its legitimacy, consequences and limits through matters of ethics. Above all, the challenge is to decide of the priorities of life and society.

This same need for re-centring the priorities of society is appealed by Shiva's reflections on contemporary pressures on the environment. Except, to her, the relationship between men and nature is understood in more Marxist economic terms of exploitation of the resources, within a more traditional-leftist frame of mind, Giddens would argue (Giddens, 2000:45). She calls to the revision of contemporary priorities that neglect sustenance and satisfaction of basic needs to the benefit of satisfying demand and cravings. She has a very clear anti-capitalist stance and denounces the domination of both the social and natural world by capitalist corporate power (Shiva, 2005: 1-8). In her theory of living economies (2005: ch1), she explains that the liberal world relies on invisible values and flux of digits while neglecting what is real, the people and the resources. She argues that a stable economy should be shaped like an equilateral triangle and rely, firstly, at the bottom on nature's economy as a

broad base, that is, on the goods and services produced and provided by nature, then, sustenance economy builds on to it, that is, the activities necessary to the subsistence of humans, to satisfy their basic needs. The market economy should only come as the small pointy end relying on top of those two, as the activity of trade of goods and services that aren't essential to life. Shiva argues that any economic system that neglects natural resources, good and services, that doesn't take their value into account in its value-system is vowed to collapse and is highly threatening for human life. She states that without ecological limits to commerce, "life itself is being pushed to the edge", bound to fall-off and disappear (Shiva, 2000: 129). The natural resources have been turned into mere commodities exploited by transnational corporations to serve the market economy, without any limits, restrictions, or any consideration for the value of these resources (Shiva, 2000: 128). She argues strongly against the liberal market economy which, in giving no value to natural resources, caused its overexploitation and damage. In the liberal world, men dominate and exploit nature without even realising it, and, in this system of floating and invisible values, they forget to consider the capital importance of natural resources. So, like Giddens, she calls for a questioning of values and re-centre what really matters in society, reflect upon the relationship between men and nature, because the one constructed by corporate globalisation is unsustainable and damaging for both men and nature.

Both authors have different views about what aspect of human development and what mechanisms of society brought upon these noticed increased environmental pressures. However, whether it is the focus on questioning science or questioning the economic system, both call to critically question the progress, or development achieved and emphasise that progress should also bear a dimension of ethics and morals missing so far, that call upon a constant reflection on the human-nature relationship and definition of the important values of society to be respected. To sum-up, our study is inscribed in a societal context of questioning some instances of society taken for granted so far, of doubting the technological and economic progress of the previous decades, in reaction to the realisation of the environmental damage it caused. It seeks to understand the importance of ecological concerns of agriculture in this reflexive context.

Chapter 3

Methodology

I- The method

The method used in this study is content analysis. It is a method of analysis of visual documents and texts that quantify content in determined categories in a “systematic and replicable manner” (Bryman, 2004: 181). It has been chosen both for its unobtrusive character, in the way that it gives less influence to the researcher’s interpretation than qualitative approaches such as discourse analysis (Bryman, 2004: ch 9), although it should be acknowledged here that it is impossible to have none, since the meaning withdrawn from the text is necessarily imbued by the researcher, if only by the choices made in designing and conducting analysis. It was also chosen, and it’s the main reason, for its ability to withdraw sense and patterns from a corpus of texts, and not just from one or a few, independently from each other. It allows studying different occurrences from different sources together in order to draw a rather general conclusion. Indeed, here, we don’t want to find out what individual farmers think, but instead we want to identify a general tendency. However, our method is close to qualitative content analysis in the way that we decided to choose a rather limited sample in order to be able to study it more in depth and closely look at it. It is defined as an approach deriving from content analysis but with emphasis on the context of the item being analysed and a sort of adaptability in letting categories emerge out of the data, without necessarily being defined prior to any study of it (Bryman, 2004: 183). It was important not to have a too systematic study, but leave it open to adaptation and deepening some categories that seemed to take more importance as the research goes on. It allows deeper understanding instead of a simple surface counting, and allows distinguishing different categories and comparing texts with one another, considering the context of each in relation to the others, rather than only drawing general conclusions about the whole sample without distinction. The intention is that this more in-depth analysis can counter-balance the limitations of the purely quantitative approach of content analysis. In a word, our method seeks to draw out general patterns but also possibly identify differences between the texts and possibly outstanding elements or nuances. We hardly expect to find one consensual, homogeneous definition of agriculture for all actors.

According to content analysis methodology, in our sample, we will be looking at the significance of the speaker’s choice to use certain words, or signs, over others: the very words or phrases, or type of sentences used tell a lot about their producer’s views or ideas. We will be looking at the signs used: the words, syntax and punctuation, at the way they are associated together and the meaning this creates, at emerging and recurrent subjects or themes in the corpus, at the actors referred to, and finally at the dispositions showing through the texts, that is, the inclination or stance of the speaker towards the object (see Bryman, 2004: ch. 9). Having withdrawn them from the sample, we will attempt to interpret them and draw patterns of definition of agriculture for its main actors. The approach used is close to hermeneutics in the way that the meaning we extract from the texts is considered essentially in relation to the

perspective of its author (Bryman, 2004: 394-395). We consider the link between the author of the text and the text itself, but we don't consider the effects on the audience and their interpretation. It is only about what the text says on the author's perspective, not on the message he wants to send or the impact he wants to or can have.

II- The data analysis

As mentioned, the study relies on texts from the main actors, at least the most direct actors of agriculture: the farmers and the scientific experts. These actors have been selected because they are considered as having the most direct influence on the activity and the most direct link with the "field", the physical reality of agriculture. The farmers are the ones directly cultivating the earth, practicing agriculture. The final decision on how to practice it belongs to them and the relevance as main actors is very clear. As for the experts, they are the ones influencing the methods and practices of agriculture. By their reports, studies, or the advances they develop, they are the influential authority on the activity because they detain the empirical and theoretical knowledge on agriculture. They are the ones relied upon for making decisions by the corporations, governments, associations, organisations, trade unions, media and more generally the public sphere. All build their understanding of agriculture upon the knowledge and explanations provided by the experts. They are appointed as the link between the farmers and the scientific knowledge, and between agriculture and the public sphere, as the official source on agriculture. Public and political opinion and decisions regarding agriculture relies on them. Thus we have chosen our sample depending on the sources. It is composed of individual testimonies from farmers extracted from a public consultation on the future of agriculture launched by the regional council of Brittany (Nouvelle Alliance pour l'Agriculture Bretonne, 2010-2011). It consisted in a forum where people who felt concerned could post messages and testimonies that everyone could read and which would be taken into account in the conclusion of the consultation. What interested me was the spontaneous character of the messages. The texts were selected amongst the most viewed testimonies; the 10 first ones which in one way or another mentioned or referred to environmental issues associated with agriculture were selected³. Here, it can be noted that those which didn't, mostly dealt with issues of income and consideration and starting-up of agricultural profession. This study will also look at 2 farmers' interviews carried out in February 2011 for another project seeking to understand the conflict on Green Algae management in the region (Divanac'h, 2011; Babilotte, 2011). They were more conversations rather than interviews, and broadened to discussing agriculture as a profession. Like in the consultation testimonies, the speeches were spontaneous and not guided by specific questions.

As far as the experts are concerned, three different sources are being studied: Firstly, corporate experts, from the UIPP, Union of Industries for Plants Protection⁴ through one brochure on phytopharmaceutics and the environment (UIPP, 2009) and one on the utility of phytopharmaceutics (UIPP, 2010). Secondly, a governmental institute, INRA (National institute for agronomic research)⁵ which issued a brochure on soil evolution in relation to agriculture and another one on reducing pesticide use in agriculture. Finally, we will have a

³ Each text is referred to in this paper by "NaaB" (Nouvelle Alliance pour l'Agriculture Bretonne) and the number it has been given, from 1 to 10 /i.e : "NaaB 1"

⁴ Union des Industries pour le Protection des Plantes

⁵ Institut National de Recherche Agronomique

look at texts from an environmental organisation through an article on green algae management from the association Eau & Rivières (Eau & Rivières, 2010).

III- The sample

The choice of the contributions to the regional public debate on the future of agriculture in Brittany has been explained, and the selection of the most viewed ones, as the ones that aroused curiosity and interests and have been shared with the most people. It is an objective and logical way of selection. The 30 most read contributions were considered and it was noted that only 5 of them did not mention environmental concerns nor had any environmental connection, while the 25 others had. This can be the first relevant point to our study to withdraw from the data. It shows that to almost everyone feeling like sharing their opinion on this public debate, the future of agriculture is generally connected to the environment. Out of those 25 contributions, the 10 first that appeared to be written by farmers, or *agriculteurs*, which is the term used in French and signifies someone working in agriculture, but does not imply owning a farm, were selected for a closer study. Added to the notes of the 2 interviews also mentioned in the methods chapter, they constitute the data we are analysing to understand the importance of environmental matters within the definition of agriculture in the farmer's point of view.

The list of data used to study the question from the expert point of view has also been made in the previous section. Here, the selection was more specifically turned towards data that clearly dealt with environmental aspects of agriculture. Therefore they will not tell us whether or not, environmental aspects are important to it, as it is already clear from the titles that both are very connected. However, it can tell us about the ways in which the environment matters to agriculture and what connects them, according to the different actors studied. The UIPP was selected as a source because it seemed very interesting to carry out the study on a corporate source, in order to look for similarities or differences in priorities with other private and governmental actors. The first idea was to study documents from a corporate *cooperative agricole*, Triskalia, which is the biggest one in Brittany and provides, collects and transforms products for over 20 000 farms (Triskalia.fr⁶), and took over after the merging of the three main cooperatives of the region. Only, its birth being very recent, the communication of the group is still building up and no scientific document from them could be accessed. The choice then fell on a national-level institute, funded and controlled by agro-industry groups which are the main phytosanitary products providers for Brittany as for France. All their documents are concerning phytopharmaceutics; the two retained were selected as the two most relevant in order to read about their consideration for environmental matters. On expert sources, The INRA also caught interest because it can tell about the national governmental definition of agriculture and the way it considers the environment and relates to it. It was attempted to gather material from Regional governmental sources, but the scientific research made at that level is in fact carried out by national institutes and published through them. The documents chosen deal, one with pesticides which can provide an interesting comparison with the UIPP, and the other on agriculture's impact on forestry and soil. They are not specific to the case of Brittany, but this too, can be a relevant point to note: the lack of accessible scientific data on environmental implications of agriculture at a regional or local level. We acknowledge that there is indeed available data, but limited to a very strictly scientific use, and very disconnected to popular understanding and reach, which is why we didn't judge it as accessible. Lastly, it appeared very legitimate to consider a local ecologist expertise too. Here

⁶ http://www.triskalia.fr/le_groupe/trois_grands_metiers/agrofourniture.html

again, a very interesting acknowledgement is made: environmental associations at that level have very limited staff and funds, therefore, they rely on the scientific expertise from other sources. However, they can exert a critical assessment of the orientations given and the reports made by other scientific actors, which we also consider as an expertise and therefore include in the expert sources' data. Most of their publications found were rather militant than explanatory and appeared more political than scientific, so only one text was selected, one from the association Eau & Rivières de Bretagne (Water and rivers from Brittany), critically reporting expert assessment of the green algae situation in the region.

Chapter 4

Findings

I-Approach

Firstly, we shall take a look at the approach of the authors of the texts analysed to the issue studied. By the term *approach*, we mean the discipline through which the issue is tackled, whether it is economics, sociology, politics, natural sciences etc... This will teach us about the nature of environmental implications in agriculture, in what ways nature and agriculture affect each other.

In order to identify the approach used in the texts, attention is paid to the vocabulary used, and to which field of science it relates to. As far as the farmers are concerned, the dominant approach to the issue of agriculture is clearly socio-economic. A lot of economical terms are to be found, as well as many cultural, beliefs, ideal references, ethical judgements, links with other social actors and so on. The economic aspects are often bounded with the peasant community, with them, “financial difficulties” (Difficultés financières) (NaaB 1) for farmers, “ever increasing charges” (NaaB 1), “returns on investment” (NaaB 5), but also social notions of “recognition” (Naab 4) or “bloom” (NaaB1;4) and “fulfilment” (Naab6;1). Oppositely, the UIPP’s experts’ documents present an economic-scientific approach. The terms used are very precise and specific to the fields of economy, such as “productivity” (productivité) or “yield” (rendement), “optimisation”, and of natural science, with, for instance, chemical components, “toxicity” (toxicité), “molecules” (UIPP, 2009; UIPP 2010). The national institute INRA (2009;2010) texts also show a scientific approach, with very precise case studies and reports of scenarios, hypotheses and graphs, but also in relation to economics and political reasoning: “commercial agricultural policies” (“politiques commerciales agricoles”) “economic impacts” (impacts économiques), “public policies” (politiques publiques). Lastly, ecologists from Eaux & Rivières de Bretagne (2010) use a rather multidisciplinary approach. They analyse a policy, with regards to social and economic implications relying on scientific observations. Such terms as “nutrient”, “nitrogen flux”, “political courage”, “penalty”, “costly” cohabit in their text.

To Sum-up, it appears that environment and agriculture have strong economic bonds, recognised by all, according to the vocabulary used, but the social dimension of their relation, essential to farmers who relate economic concerns to persons, to themselves, is disregarded by scientific experts, who hardly show connection between economics and social implications.

II- Scope

Studying the scope given in discussing environmental matters in agriculture in the texts can tell about the concerns of the actors and the geographical level identified in which

environment is affected by agriculture according to them. Again, we rely on the vocabulary used to gather clues on the geographical scope tackled.

Here too, the results differ according to the sources. When the UIPP clearly places the issue on a global scale, with very general affirmations and no geographical precision, relating to regions in France as well as African countries or global figures (UIPP, 2009; UIPP 2010); the INRA is more inscribed in a national scale, or a European one. The studies focus on France, as the title makes it clear, even specific areas for some case scenario studies, but it is acknowledged that the policy aspects are linked to a European level of governance, and to the CAP (Common Agricultural Policy) also mentioned as PAC (in French, Politique Agricole Commune) and “European Union”. The text from the environmental association, Eau & Rivières (2010) have a much more local and regional scope, mentioning localities like Saint-Michel en Grèves, Douarnenez, the region under the authority of SDAGE (local water planning scheme) and are interested in the regional repercussions of the ministry plan against green algae. As for the farmers, they seem to place their concern at a local and regional level, as well as global, as they mention the region, local ecosystems, their surroundings, as well as global market economy.

We learn through this that the interrelation of agriculture and environment matters at different levels. Farmers and the regional association show concern for the local, palpable, concrete aspects of this relationship, whereas experts tend to consider it on a larger scale, the UIPP even at a worldwide, global scale. It seems that the experts’ thinking is very general and quite detached from the reality of the locality, and their vision seems completely globalised. It could also be said to be a lack of expertise at a local level, but, as previously discussed, there is expert scientific study and data in the localities, simply missing channels, institutions to share it and make it accessible.

III- Emerging themes

We are now paying attention to the different specific themes tackled in the texts which link agriculture to the environment. It is a way to learn *how*, through what phenomena are environment and agriculture affected by each other; what aspects of agriculture impact the environment. Five emerging themes were noticed in the whole corpus of texts (see appendix. Table 1).

The first main theme we noted is economics, which we already mentioned as an approach to the issue, but should also be considered as a discussed theme too. It concerns the economic pressures between environment and agriculture. Both in the way that agriculture has an economic impact on the environment, for instance, the clean-up cost of green algae provoked by agricultural nitrates mentioned by Eau & Rivières and some farmers, or else the funds gathered to study and protect natural resources from agricultural practices, but also and mainly the economic pressures for productivity and high output which impacts the environment by over-using natural resources, as we shall see later. Also in the opposite way, the financial costs that the environment imposes on agriculture are less present, but still mentioned in the corpus, through, notably, costly norms to comply with. This economic aspect of the link between agriculture and environment is present in all sources’ speeches.

Secondly, we note the emergence as a theme of technology, or technological advances in agriculture. It is a theme to be found in texts from all sources too. It is referred to through mention of specific tools and products such as “pesticides, fertilisers, antibiotics, synthetic

chemicals, genetically modified products, bulldozers, pulverisation, hybrid” (NaaB, 2; 3; 4; 5; 8; 9; 10; UIPP, 2009; 2010; INRA 2009; 2010), also with the mention of advances in terms of practices, like “intensive corn crops, industrial husbandry, soilless cultures” (NaaB 5; 9) and so on.

Linked to this theme, is the theme of pollution and natural resource depletion, also often represented by term such as pesticides, fertilisers, with a very derogatory connotation which we shall see later, or else, “nitrates”, “phosphor”, “green algae”, “erosion”, “water quality”, or clearly “pollution”. They appear in most farmers’ contributions, in the INRA’s state researchers’ documents, the Eau & Rivières one, but not with the UIPP one.

Then, the environment is often linked to agriculture through the theme of sustainable agriculture, of agriculture biologique: organic agriculture. It is itself mentioned, by farmers, also by Eau & Rivières, and the INRA (2010) refers to a more sustainable agriculture, “alternative” or “high environmental performance agriculture”. It isn’t quite present as a theme in the UIPP documents. Only one of them (UIPP, 2010) mentions organic agriculture to oppose it to “conventional agriculture” using phytopharmaceutics, yet, it is found in the text. However, the term “agriculture durable”, which most literally translates “sustainable agriculture”, as in opposition to “conventional farming” using chemicals, is there inscribed as a priority.

Finally, the last theme dominating in the texts is one of ethics and morals. It shows through matters of consideration for the profession from the farmers, through the mention of duties and “respect” towards the environment, showing in the NGO and the farmers’ texts. For the other experts it seems much less emphasised but can be noticed for the UIPP through a notion of “good agriculture” and “reasonable” and “respectful” use of chemicals, and for the INRA, it is implied through the terms of “deep questioning” (INRA, 2009), “social and political preoccupations” and “question of moderation” (INRA, 2010). This shows an ethical dimension and a critical judgement of the interaction between environment and agriculture.

Now that these main themes emerging from the whole corpus have been identified as determinant in considering the relationship between environment and agriculture in the farmers and experts point of view, we are to investigate the way they are considered by them. This will tell us about their perception of how environment and agriculture impact each other.

IV- Dispositions

By studying the disposition of the actors, we mean to identify their stance, their ideas, what they stand for or against, in terms of environmental implications of agriculture. For this purpose, we took a very close look at the vocabulary employed to qualify each of the aspects that we noticed build the definition of agriculture in the texts, which correspond to the themes noticed above: environmental alterations of agriculture, technical progress, organic practices in opposition to conventional ones, the role of agriculture in economics and society, and finally, an assessment of the agricultural system as a whole, the two latter being considered here in relation to the environmental dimension they may have. We researched the adjectives, attributes and connotations attached to them in each text in order to understand the author’s opinion, or rather disposition towards them.

🌱 Environmental matters

To begin with, we shall study the connotation attributed to the environment within agricultural matters. It appears clearly that environment and ecology are a major priority in

agriculture. There seems to be a consensus on almost all texts that it is a major determinant in the definition of agriculture. In fact, environment appears here like a main, if not the main criteria to assess agricultural practices. It is also given as a main, or the main criteria to take into account when imagining the future orientations to follow for agriculture. The vocabulary referring to nature, natural resources, biodiversity, energy and so forth, is coupled with positive connotations of value, and notions of priority and care (“respectful”, “capital”, “essential”, “fundamental”). The few instances where terms signifying natural elements or phenomena are associated with negative meanings are when they are associated with human depletion and pollution (“erosion”, “water quality”, “green algae”...) (NaaB 6;8;9; Eau & Rivières,2010). For Eau & Rivières, environment is even clearly given as the supreme goal to fight for, through associations of nature with “reconquest”, “mission”, “plan of fight”.

The UIPP texts are an exception here, because they associate natural elements to danger, like bacteria infecting crops, “destructive insects”, “pests”, “bio-aggressors” (UIPP 2009; 2010). Unlike the other actors, these corporate experts don’t associate the natural objects, beings and phenomena with a completely positive image. Another exception is to be found in one farmer’s contribution and one of the interviewed farmers (NaaB 5; Divanac’h, 2011). The two of them don’t share the consensus on environment as a priority in agriculture, but rather point at it as a constraint. They have a sarcastic view on it and explicit that agriculture isn’t so harmful and that other priorities come way before it. They refer to environmental concerns in relation to “policies”, “norms” and “costs” that make it appear as a burden for the farmers to comply with. No mentions allow us to suppose whether it is important too but is overwhelmed by the constraints it represents, or whether it is simply something burdening the agriculture, with no legitimacy.

🌐 Technical progress

The dispositions showing in the texts about technical progress quite clearly differ depending on the source. For Eau & Rivières, technology is paired with “uncertainties”, and clear notions of indignation shown through punctuation too, and the use of exclamation marks, also present in similar patterns in farmers’ texts. The farmers appear like an almost homogeneous group here too, as almost all refer to technologies and scientific advances with a derogatory connotation. In addition to clear statements backing this finding, such technologies as chemicals or genetically modified organisms are referred to as pollutions or dangerous, are thwarted by notions of limitation, moderation or elimination. They undoubtedly carry a negative meaning in relation to the environment. They are presented as harmful, or as necessary to get rid of. That is, except for two farmers, the two same exceptions as in the previous point. One doesn’t show any opinion on technologies (NaaB 5), and the other associates them with a real progress for the profession, easing his job, that he thinks should be protected and not denigrated (Divanac’h, 2011). The INRA documents make it rather clear that technical innovation is a source of objective progress and will help harmonise the relation between agriculture and environment. It doesn’t have a clear negative connotation, nor a positive one, but it is accompanied by notions of moderation or quantity when talking about present techniques and notions of necessity for future innovations “implies more science, more technicity”, “implies technical innovations”, (INRA, 2009; 2010) thus, while questioning, namely, pesticides or deforestation, they suggest that science will bring the answer to their lacks. The UIPP, on the other hand, shows a completely different disposition towards technologies, namely, phytopharmaceutics. It can be supposed here that the term *phytopharmaceutics* is preferred to “pesticides” or “chemicals” which are assumed to have a derogatory connotation in the public opinion. In the UIPP’s texts (2009; 2010), they are associated with usefulness: “useful”, “compulsory”, with “security”,

“protection”, with “quality” and opposed to natural “dangers” and “aggressors” mentioned previously. They are the clear key to a more efficient agriculture and remain relatively unquestioned in their environmental impact.

© Practices: conventional versus organic

The texts studied also show diverse dispositions about differing practices of agriculture. As expected, they show an opposition between organic farming, or what some assimilate to sustainable farming, and “conventional” farming. The term “conventional” itself, found in a few texts says a lot: it implies a notion of conformity to the expectation, arguably a sort of cowardice, as well as tradition and stability. It is hard to decrypt. Some texts actually do explicitly mention the actual opposition between the two sorts of agriculture. One argues that they actually are compatible, while others induce the need to make a choice.

The dispositions regarding organic agriculture are very much split. Not many exact mentions are made of organic agriculture, and they are connected to notions of marginality, as a whim, in the way that it can't produce enough to fill the stalls and satisfy the demand. One farmer refers to organic farmers as “amateur gardeners” (*jardiniers du dimanche*) (NaaB, 7), and one interviewed farmer referred to organic agriculture as a whim to satisfy “bobos” (“bourgeois-bohème”) (Divanac'h, 2011), designating bourgeois with anti-establishment attitude and attention to lifestyle). It is discredited as a relevant alternative to current agriculture. The regard to organic practices in the UIPP's text is very interesting. As it embodies the enemy of what they stand for, namely, chemical fertilisers and pesticides, they have an interesting way to tackle it. They also point at the “inefficiency” and “insufficient” character of it. They also associate it with “risks”, “contamination”, but, on the other hand, they explain that it is “meaningless” (“pas de sens”) to oppose both modes of agriculture and explain being “committed for a sustainable agriculture”, adding blur to the definition of sustainable agriculture, usually opposed to the use of chemicals (UIPP, 2010).

But positive connotations are noticed too. For instance, for Eau & Rivières, organic agriculture is seen as an undoubted and obvious solution to make agriculture and environment compatible, like for some farmers, we find notions such as “save agriculture”. But, because of its precise criteria and requirements, organic agriculture is arguably more regarded as a model to tend towards. What allows this supposition is that even though very few mentions actually name organic agriculture in a positive sense, it is possible to feel a general consideration for organic methods, for practices that are more respectful of nature's cycles and elements, smaller exploitations, more diversity, natural pasture, as opposed to the artificial, chemically or genetically manipulated elements of conventional farming. For instance, one farmer refers to André Pochon as an example (NaaB, 3). He was the defender of sustainable agriculture and peasant agriculture in the 1980's, refusing monocultures and chemicals (CEDAPA, 2010⁷). Indeed, enthusiasm for more organic or natural modes of production, that is, less human intervention in cultivations and breeding, is mainly felt by the alternative it offers, here, its textual opposition to current practices and principles of conventional farming. It might not be so much of a pleading for organic agriculture, but this corpus shows more of a pleading against conventional agricultural practices for most sources, except, the UIPP and maybe the INRA which seeks more of a compromise:

Conventional agriculture is very disregarded in the texts, especially by farmers. In the text from Eau & Rivières, it is embodied in the clearly negative issue of green algae. As for farmers' texts, the current agricultural system is referred to in the texts, if not by the technologies previously discussed, by its economic liberal traits. It appears through mentions of “productivity”, “quantity”, “intensive”, “productivism”, “over-productivism”,

⁷ <http://www.cedapa.com/histoire.htm>

“concurrence”, “competitiveness”, “agribusiness” and farmers compared with “merchants”, “corporate managers”; (Naab, 1;2;3;4;5;6;7;8;9;10; Divanac’h, 2011; Babilotte, 2011) and the connotations and adjectives associated are very negative: “scourge”, “ill”, “sickening”, “unbearable”, “disconnected”(-from nature), “insult to the future” and so on... (Naab, 3;4;5;6;10). There is a clear discontent about the essence of the current agriculture, conventional agriculture. If, in texts from the INRA, there is no such evidence of dissatisfaction, there are mentions of a need for “change”, “evolution”, “adaptation”, “development”, which induce that the current system presents lacks or limitations that must be worked on. There also is a matter of “innovations” and “alternatives” opposed to the current “artificialisation” of cultivation milieus created by chemicals, or “alternative to the intensive logics” (INRA, 2010). On the opposite, the UIPP associates current practices with actions of lasting and continuity, such as “maintain”, “keep”, “preserve”, “securing”, constructing a feeling of satisfaction with conventional agriculture. Chemicals are even presented as essential for the “world food security”, mentioned in parallel to hunger and “famine riots” (UIPP, 2010). The UIPP is the only actor presenting no criticism for conventional agricultural practices.

© The role of agriculture

First that comes to mind, feeding is presented in the texts as the main role of agriculture. For some, half of the farmers, it is a matter of producing quality foods, as opposed to large quantities. It is a matter of taste and health. But for others, the concern is to produce sufficient quantities (“famine”, “massive”, etc...). Great emphasis is placed on that role in the texts from UIPP where “food security” is the named “stake of tomorrow’s agriculture”. Eau & Rivières don’t really emphasise any role of agriculture; more of its actions but do not quite define it. As for the INRA, their texts are very precise and scientific, but mentions are made of socio-economic and ecological roles, rather than feeding role. Several mentions of “social, economic and ecological performance” are found, but no emphasis on feeding the population. However, ecological importance has previously been discussed, but the economic function imbues the texts much more whereas social aspects don’t. Indeed, economics vocabulary punctuates the texts with, for instance, “reflation”, “economic order”, economic performances”, “gross margins”, “yield”, “volatility of prices” (INRA, 2009; 2010). It shows that for them, agriculture is more anchored in economics, whereas some others linked the feeding role to some more basic activity of sustenance, rather than exchange, as producing food, rather than producing goods.

In fact this too is very recurring in the corpus: the role of agriculture as serving the market economy is actually very central to most texts in it. And it is mostly linked with destructive practices in the farmers’ contributions. For instance “productivism” is linked with “pesticides”, “abusive use of antibiotics”, “destructive use of pesticides”; “agro-industrialisation” with “massive importations”, “too numerous livestock”; “porcine field” (filière porcine) with “unproductive investments”, “productivist agriculture” simply with “environmental destruction”, “intensive agriculture” with “too high use of chemicals”. It is even stated, in different phrases that “this model isn’t sustainable anymore, because it destroys our environment”. It appears very clearly that in the public mind, or at least among farmers, the economic requirements on agriculture are responsible for destructive practices. The economic system pressures agriculture into increased production which, in turn causes more pressure for natural resources. The link is clear in the texts between market economy, intensive agricultural practices and environmental harm. For the UIPP, agriculture’s main role is indeed economic. It is to create wealth, “stocks” to sell on the market to “answer the world demand”, “satisfy consumption”, and its priority is to adapt to “diversified food habits” and

fill new “outlets”. It doesn’t show connection with environmental harm though (UIPP, 2009; 2010). As for the INRA (2009; 2010), this liberal aspect of the role of agriculture does show through mentions of “yields”, “output” or “efficiency” but goes together with notions of “environmental interests” such as “moderated chemical inputs”.

The analysis of the texts revealed quite clearly that the environment is a priority for most, a richness to be protected against current consequences from conventional agricultural practices. Technical advances brought with intensification of agriculture are perceived very negatively in terms of their environmental consequences. They are seen as a source of uncertainties and risks rather than progress for the majority of actors, and even the scientists who remain enthusiastic about technological development suggest distancing from the technologies and moderating their use in respect for natural consequences. The perceived reflection and questioning of the practices opens questioning on the system as a whole, and of its role in society. Farmers themselves distance themselves and criticise today’s agriculture, showing that they don’t want to support this system but probably explore other options such as organic agriculture. It appears that agriculture is torn between feeding the population and satisfying consumption, and on this definition of its role depend the emphasis on efficiency and yield, and therefore the pressures on environmental resources. The debate doesn’t even seem to be about whether environment is a priority in agriculture, because it clearly is, but it is to know whether it is overthrown by economic aspirations. This appears to be the actual barrier to environment being the one and only priority. This economic concern appears in the analysis to be the tipping point between men coexisting and interacting with nature to withdraw livelihood, and men exploiting it to generate profit.

Chapter 5

Interpretation of the analysis findings

The results of the qualitative content analysis show elements of the definition the different actors have for agriculture. Our analysis consisted in picking-up the different elements of the individual definitions of agriculture given by each source of it in the texts, and put them together within one of the defined categories such as approach, scope, themes, dispositions. We have then been able to reassemble those elements all together to obtain a general definition of agriculture, common to all the actors studied, each having brought their contribution to the edifice, and identify the place of environmental matters in it. It was understood in the second chapter that studying the place of environment in agriculture corresponded to understanding the relationship between men and nature embodied by agriculture, from the actors' point of view. The actual, physical, empirical link, corresponding to the objective world as explained in chapter 2, between environment and agriculture is obvious, since agriculture couldn't exist without natural resources. However, from an environmental communication point of view, understanding the *representation* of the link, as a subject for our understanding or interpretation, isn't so clear and simple. Here, we are discussing the results of our data analysis under the lights of the theories exposed in order to comprehend this relationship, to the eyes of the actors, through Giddens and Shiva's explanations. This is done by answering the three research questions formulated in chapter 1.

The first of the three research questions formulated for this thesis was about identifying the place of environmental matters in agriculture, to the eyes of the actors studied. The study shows a broad questioning of contemporary modern agriculture amongst farmers, with regards to the environmental damage it has caused. Environmental matters appear to be a major priority for all the actors, and an essential element of the definition of agriculture. In fact, in the farmers' texts studied, all the other elements, identified as "themes" seemed to either define themselves according to environmental matters, or against them, but anyways in relation to them. In these texts, whatever the angle or theme or approach expressed, it always seemed connected with environment. Of course, it should be reminded here that the texts were chosen for the criteria of being related to environmental matters but it wasn't expected that their content would revolve so much around it. In fact, it seems that, facing the manufactured risks implied with agriculture, and the idea of the end of nature, that natural resources aren't eternally stable and renewable, agriculture is being redefined, not only in including notions of environmental concerns, but *around* them. It seems clear from the analysis that environment is a top priority in agriculture today and that there is a clear ethical position of the farmers of moral consideration of their relationship with nature, translated in the texts by environmental respect. In answering Giddens' question of "How shall we live?", their position is rather homogeneous and clear: they should withdraw from nature the resources necessary to their sustenance while being careful of not damaging or abusing them. Much like Shiva, they emphasise the importance of nature and sustenance over economic interests. As for the INRA

and UIPP experts' texts, as mentioned in the previous chapter, this ethical stance towards environmental protection also exists, although moderated in terms of priority by emphasis on other elements.

The second question was about finding out what comes in the way of environmental preservation as a priority for agriculture. Our study shows that emphasis is placed in the scientific discourses on other priorities that clearly compete with environmental interests. The competition also shows in farmers' texts but they are for them considered in relation to the environment and subjected to it. Their position tends to comply with these priorities after environmental requirements have been respected, but make sure they don't come in the way of environmental preservation. We are talking about two other elements which seem of capital importance in the definition of agriculture: science and economics. Economics stand here as the aim, the end for agricultural production. Although severely criticised in the farmer's texts, economic imperatives seem to come first in the scientific discourse. Much like Shiva explains, the whole globalised world is dominated by the "economic neoliberal dictatorship" (Shiva, 2005:6) and everything is subjected to its logics, including environmental matters. They don't come into the picture *within* the frame of environmental matters, but rather include environmental matters within their framing of agriculture. For instance, natural resources depletion is integrated as a barrier to economic performance. However, the environmental risks can also, according to Giddens' suggestion (2000: 4; 1999: 1-10), and as denounced by Shiva (2000: 124-125) be viewed as opportunities: scarcity can become a source of increased value, scaremongering can be a motivation to protect resources, and soil depletion can be an opportunity for selling fertilisers. We find that the farmers' indignation through the vividly critical references against economics give a clear illustration of Shiva's explaining that the market economy in its dictatorship over society arbitrarily decided to confer no value to the environment for the goods and services it provides, no particular status in the economic world, simply the opportunity to be treated as any other commodity (Shiva, 2005: ch1). As for the other actors, being bound to this economic system, as corporate (UIPP) or state representatives (INRA), they consider the issue within this neoliberal economic frame and don't confer any superior status to the environment. In this system, nothing seems to exist outside the economic system.

Science, on the other hand cannot be defined as a priority in itself for agriculture, as it is more of a means than an end or consequence, or so it seems. In fact, science in agriculture should also be carefully defined and considered because it has taken a considerable place. It isn't just a way of easing the practice of agriculture anymore, but it has become a business, and a very successful one. It has given tremendous power to engineering corporations which now dominate the "food chain" as Shiva calls it (Shiva, 2000: 118-120), or the food production system. As transnational corporations, they are very powerful, assert their influence all over the world and are hardly subjected to specific regulations. They dominate agriculture at a global scale, and are also very anchored at local scales, Triskalia we quoted earlier, for instance, has almost a monopoly of providing seeds, fertilisers, nutrients, all the material needed for production, but also collects the products, crops, milk, cattle etc... and transforms them for distribution. It controls most of the chain of production by selling its agronomic advice and techniques. This explains why economic interests and science are so related together in agricultural matters, because science in agriculture has a great economic importance. And this explains too, why both Shiva's emphasis on economics and Giddens' on science are so closely connected. The whole business of chemical and mechanical, as well as intellectual innovations made by science for agriculture is now threatened by the question of environmental impact. It is in the interest of major agribusiness corporations to minimise the environmental concern, or to arrange so their activity doesn't appear in contradiction with it,

which is clearly felt in the analysis of experts' texts from UIPP and their reassuring tone. We noticed their interest in integrating notions of environmental concerns and play down their importance with regards to other concerns, such as economic competitiveness or else, scare of hunger.

It is argued, in accordance with Giddens (1999: 5) that what has the priority and the most importance in agriculture is all a matter of which risk is perceived most threatening by its actors. We have here a clash between different types of risks, implying a clash of values (Giddens, 1999: 5). Some fear of losing their place on the market, or of endangering the competitiveness of their business, or maybe their nation in the case of INRA and see it as a more direct threat than the depletion of natural resources. Therefore, to answer our second research question, even if it seems that, for some experts, environmental matters have gained importance in the definition of agriculture, it is still contained within the frame of economics, and defined in terms of economic advantages or hindrance. And so is science. It isn't a priority in itself, but it still is given superiority over natural resources for the purpose of serving economic interests. Not only are economics a priority, but they are for some the frame through which the rest of society, the rest of the world is perceived. It is bigger and stronger than anything; and everything is defined through it. It is this frame being questioned by farmers because of its damage to nature, but it seems to remain untouchable for the experts. So in a word, our study agrees with Shiva and concludes that it is the supremacy of the market and its omnipotence over agriculture that is competing with and threatening the environmental interests.

This begins to answer the third and last question: there isn't a consensus on the priorities of agriculture. There isn't one unchallenged definition of it or a fixed place and concern for environmental matters in it. What there is, is a disagreement rather than a debate, because, as a brief reading showed, if farmers are open to dialogue and permeable to expert discourses, the scientific experts seem much closed to interaction with them. We noticed, together with the questioning of the current agricultural system and the negative image of technology conveyed by farmers, a distancing from science as a form of authority. It is now open to be questioned by society (Giddens, 1999: 5). Giddens (1999: 6) speaks about a contemporary reflexive modernisation; he explains it as coming to terms with the limits and contradictions of the modern order. It corresponds to the questioning of modern principles and the institutions carrying them. It is very similar to what we noticed in our analysis: the criticism of global capitalism -which is the embodiment of globalisation- and its power on agriculture, and the questioning of science as domination over nature. In this same fashion, applying Giddens' thinking, we could therefore talk about *reflexive globalisation* in relation to our case study, in the way the actors seem to acknowledge the failures and limits of the global values and principles, namely here, its failure to preserve the natural environment.

Conclusion

To summarise our analysis, what we have noticed in this study is a split, a drifting apart between, on the one hand, the sustenance and feeding agriculture, with consideration for natural resources and little pressure on them, which mostly corresponds to farming, and, on the other hand, agribusiness, which serves the global market economy in stimulating production at ever lower costs, with high pressure on natural resources. The actors of agriculture are split between nostalgia of local peasant agriculture (*agriculture paysanne*) and continuity of global corporate agriculture. And, according to our research, it also corresponds to a split between farmers and environmentalists on the one side and scientific experts on the other. Our argument is that, as argued by Shiva, the global market economy has constructed a society according to its values, which therefore disregards the importance of nature and the environment, or, at most, considers it in terms of economic value. It is translated, in objective, physical, concrete actions, by the domination of technologies over nature and the alterations it causes, as explained by Giddens. Only, both authors don't perceive similar solutions to combine and conjugate economic development and environmental conservation. My stance would be to side with Shiva in the consideration that as long as the market remains the highest authority of society, the real values will always be neglected, or, at most, reduced to a commercial price, but it is my opinion that some things should be kept out of the influence of the market, and preserve a character of sanctity, of vital value, as opposed to market value, and livelihood and nature are the most capital ones. This means, and on this consensus is reached between Giddens and Shiva, that the governance of global society should be reviewed and that regulation must be brought on the market. The debate now bears on the extent of this regulation, and whether it still makes it a liberal market economy or another new system.

In an environmental communication point of view, we have learnt through this study that studying an environmental issue from a social science point of view has everything to do with studying the relationship men have with the environment. Here, the definition of agriculture and the place of environmental matters in it all depends whether the actor sees it through a global neoliberal frame, like the state and corporate experts who affirm the human domination of natural resources to their benefit, or from an ethical, more local and concrete frame of mind like most of the farmers studied, and environmental movements, who advocate a more harmonious system where sustenance and sustainability primes over commerce. It is all a matter of perception, values, social context and communication. This opposition and clash of values will eventually, once appropriate communication between the actors is engaged, engender a constructive debate. We should believe it is the starting point for revising the current system into something more sustainable for both men and nature, as actors seem to remember that their fate is so closely tied, from the way they are found so strongly associated in our analysis.

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Appendix

Table 1

Themes showing in each farmer's texts

themes\ text	1	2	3	4	5	6	7	8	9	10	interview	interview	total/12
											A	B	
economics	1		1	1	1	1	1	1	1	1	1	1	11
pollution/depletion		1	1	1	1	1	1	1	1	1	1	1	11
sustainable agriculture	1	1	1	1		1	1		1		1	1	9
technology		1	1	1	1	1		1	1			1	8
ethics/ morals	1	1	1	1	1	1	1	1	1	1	1	1	12