Legislation and political discourse about ecological farming

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About the LIFT research project

Ecological approaches to farming practices are gaining interest across Europe. As this interest grows there is a pressing need to assess the potential contributions these practices may make, the contexts in which they function and their attractiveness to farmers as potential adopters. In particular, ecological agriculture must be assessed against the aim of promoting the improved performance and sustainability of farms, rural environment, rural societies and economies, together.

The overall goal of LIFT is to identify the potential benefits of the adoption of ecological farming in the European Union (EU) and to understand how socio-economic and policy factors impact the adoption, performance and sustainability of ecological farming at various scales, from the level of the single farm to that of a territory.

To meet this goal, LIFT will assess the determinants of adoption of ecological approaches, and evaluate the performance and overall sustainability of these approaches in comparison to more conventional agriculture across a range of farm systems and geographic scales. LIFT will also develop new private arrangements and policy instruments that could improve the adoption and subsequent performance and sustainability of the rural nexus. For this, LIFT will suggest an innovative framework for multi-scale sustainability assessment aimed at identifying critical paths toward the adoption of ecological approaches to enhance public goods and ecosystem services delivery. This will be achieved through the integration of transdisciplinary scientific knowledge and stakeholder expertise to co-develop innovative decision-support tools.

The project will inform and support EU priorities relating to agriculture and the environment in order to promote the performance and sustainability of the combined rural system. At least 30 case studies will be performed in order to reflect the enormous variety in the socio-economic and bio-physical conditions for agriculture across the EU.

Project consortium

No.	Participant organisation name	Country
1	**INRA – Institut National de la Recherche Agronomique**	**FR**
2	VetAgro Sup – Institut d'enseignement supérieur et de recherche en alimentation, santé animale, sciences agronomiques et de l'environnement	FR
3	SRUC – Scotland's Rural College	UK
4	Teagasc – Agriculture and Food Development Authority	IE
5	KU Leuven – Katholieke Universiteit Leuven	BE
6	SLU – Sveriges Lantbruksuniversitet	SE
7	UNIBO – Alma Mater Studiorum – Universita di Bologna	IT
8	BOKU – Universitaet fuer Bodenkultur Wien	AT
9	UBO – Rheinische Friedrich-Wilhelms – Universitat Bonn	DE
10	JRC – Joint Research Centre – European Commission	BE
11	IAE-AR – Institute of Agricultural Economics	RO
12	MTA KRTK – Magyar Tudományos Akadémia Közgazdaság – és Regionális Tudományi Kutatóközpont	HU
13	IRWiR PAN – Instytut Rozwoju Wsi i Rolnictwa Polskiej Akademii Nauk	PL
14	DEMETER – Hellinikos Georgikos Organismos – DIMITRA	GR
15	UNIKENT – University of Kent	UK
16	IT – INRA Transfert S.A.	FR
17	ECOZEPT Deutschland	DE

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List of acronyms and abbreviations

CA: Context Analysis

CAP: Common Agricultural Policy

CDA: Critical Discourse Analysis

DA: Discourse Analysis

EAFRD: European Agricultural Fund for Rural Development

EPI: Environmental Policy Integration

EU: European Union

RD: Rural Development

RDP: Rural Development Programme

1 Summary

The deliverable D6.1 of the LIFT project explores what types of discourses are used in six European Union (EU) member states' Rural Development Programs (RDP) and other agricultural policy documents and how they incorporate ecological approaches across three Common Agricultural Policy (CAP) periods. This multiple case study highlights similarities and differences in the dominant discourses as emerging from national policy documents in the following selected EU member states: France, Germany (Bavaria), Hungary, Poland, Romania and Sweden. It also demonstrates how discourse analysis can be used to gain understanding about the dominant discourses expressed in these documents in relation to how ecological approaches are defined, the policy rationale for encouraging ecological approaches and the expected consequences of doing so.

Conceptually, we focused on two types of discourses identified from the literature: 1) the three CAP discourses: i) neomercantilism; ii) neoliberalism and iii) multifunctionality, and 2) the five socio-political discourses of Rural Development (RD): iv) agri-ruralist, v) hedonist, vi) utilitarian, vii) nature conservation and viii) community sustainability. These types of discourses were together integrated in a model, where each policy discourse depicts agriculture as accomplishing a specific function. The theoretical framework is grounded within a political economy perspective. This means that policy develops because of confrontation between different concerned agents with different interest, pushing for different objectives. The state acts as an intermediary between these agents and aims at ensuring consensus and maintenance of agreement. Policy documents are therefore often the result of competing discourses and contradicting policy objectives.

Across EU member states, the results show that ecological approaches are mainly depicted with the multifunctionality discourse with two dominating sub-discourses of nature conservation and agri-ruralism. Nevertheless, we observe an increase in the use of the neomercantilist discourse in the last CAP period. This parallels what the previous literature finds in Commissioners' speeches: a reappearance of the traditional neomercantilist discourse in the CAP agenda 2014-2020. Farming systems (with farming practices) related to agroecology, biodiversity-based and organic farming are among the most commonly mentioned farming systems.

2 Introduction

Agricultural policy measures, such as the RDP in EU member states, function as a way for society to communicate desirable future orientation of farms and to create incentives to affect their behaviours. From an economic perspective, the basic rationale for any policy is to handle a market failure, which originates from positive or negative external effects of production and/or consumption and/or from a public good component. When it comes to ecological approaches, differences at societal level in attitudes, understanding and problematizing of environmental impacts of agriculture would therefore determine society's choices of related policy measures as well as promotion and justification of those measures. Those societal differences impacts would also explain, at societal level, the understanding of the external effects and/or public good component associated with this type of farming. It is reasonable to assume that this will impact farmers' uptake of ecological approaches.

A means for understanding such differences at societal level is viewing them as originating from different discourses (Nilsen & Ellingsen 2015). Discourse analysis has been highlighted as powerful tool for understanding policy (e.g. Gasper & Apthrope 1996), including the CAP (Erjavec *et al.* 2009; Erjavec & Erjavec 2009; 2015).

Therefore, understanding the policy discourse, and how ecological approaches are incorporated in the policy discourse, as emerging from RDPs and other agricultural policy documents in different EU member states would be one important step in understanding the nature of the external effects and/or public good component, which justify policy interventions from the perspective of different societies. Thus discourse analysis of the policy can be used for understanding the justification of the policy. Accordingly, this study explores the dominant discourse used in six EU member states' (France, Germany (Bavaria), Hungary, Poland, Romania and Sweden) RDPs and other agricultural policy documents and how it incorporates ecological approaches across three CAP periods, CAP 1: 2000-2006 for France, Germany (Bavaria) and Sweden, 2004-2006 for Hungary and Poland who joined the EU in 2004, none for Romania who joined the EU in 2007; CAP 2: 2007-2013 and CAP 3: 2014-2020.

While previous literature has contributed to the understanding about the usefulness of textual analysis in understanding the discourse of the CAP, there has so far been limited use of such methods to highlight how ecological approaches are incorporated in the dominant discourses revealed from individual member states' RDPs and related agricultural policy documents. In the same vein, there has also been limited interest in contrasting these dominant discourses across different EU member states. Therefore, this study contributes by demonstrating how discourse analysis can be used to explore the dominant discourses used in different member states and how the dominant discourses incorporate ecological approaches. This is useful for understanding the rationale behind policy interventions. This can function to inform discussions about reasons for regional differences in farmers' uptake of ecological approaches.

By exploring differences and similarities across six geographical units and three time units, the design of this study fits into a multiple case study. This approach is relevant when the objective is to analyse differences between and within cases (Baxter & Jack 2008). Yin (2003) explains that, within a multiple case study, cases need to be selected carefully in order to predict similar results or contrasting results based on theoretical considerations. However, in this present study, the aim is not to infer any causal relationships but rather to explore how ecological approaches are described and communicated across countries and CAP periods. This multiple case study is more exploratory in nature because no clear sets of outcomes can be predicted (Yin 2003) although geographical contrasted results are expected given specific national contexts and policy priorities.

The deliverable is structured as follows: section three describes the conceptual framework, including the relevant discourses identified in agricultural policy and the methods used in this literature; the method for this study is presented in section four; the main results for the discourses identified in the selected countries are presented in section five; and main conclusions are presented in section six.

3 Conceptual framework

This section first introduces in 3.1 what types of discourses have been developed conceptually in the literature in the field of agricultural policy: the CAP discourses and RD discourses. The section continues by explaining in 3.2 what types of methods have been used to analyse these discourses before presenting the results on dominant discourses from these studies in 3.3. Finally the sub-section 3.4 describes two different theoretical frameworks that are mentioned by these studies when referring to policy development and suggests how this study can be understood within one of these frameworks.

3.1 Relevant discourses identified in agricultural policy

Within agricultural economics, studies using discourse analysis are rather scarce. However, scholars from various fields such as political science, international relations, rural studies etc. have applied such methods to analyse agricultural policy. While there is an abundant research on how general environmental issues (e.g. climate change) are conceptualised through discourses, these studies will not be reviewed since they are not within the scope of this document.

3.1.1 The CAP discourse and its evolution

Since the McSharry reforms of 1992, there has been a tendency to "greening" CAP by making agriculture compatible with environmental sustainability. This signal seemed to motivate different authors to analyse the CAP's discourse and discursive strategies. Have these environmental concerns modified its core objectives and translated into concrete policy measures? What is driving this policy change? Since its launch in 1962, the CAP has undergone several reforms reflecting an evolution of its policy objectives and principles. A review of the literature suggests that three types of discourses have been identified over the CAP history. After the Second World War, the CAP was founded on productivist principles which emphasised the productive then export capacities of the European agriculture. Providing enough food supply to reach food security justified, at that time, state intervention. Farmers and their production were depicted as public goods that must be protected through market regulation and state assistance (Erjavec & Erjavec 2009). Potter & Tizley (2005) describe this first discourse of the CAP as *neomercantilist*.

In the beginning of the 1990s, a discourse of *multifunctionality* appeared, which depicts agriculture as accomplishing several functions: the sector not only produces food but also protects the environment, preserves biodiversity, enhances rural landscapes, maintains viable social conditions for rural communities and provides other services for society (Erjavec *et al.* 2009). This discourse was prominent during the Cork Declaration of 1996 on RD (Potter & Tizley 2005). More recently, the CAP has developed a *neo-liberalist* discourse after budgetary restrictions and international trade pressures from the World Trade Organisation (Erjavec & Erjavec 2015; Potter & Tizley 2005). Competitiveness, flexibility and liberalisation of agriculture are the new notions gaining importance in the current policy debate (Erjavec *et al.* 2009).

3.1.2 Socio-political discourses of Rural Development

While the literature above has identified discourses related to agricultural policy in general, the rural studies literature focuses on discourses of RD policies. The RD policy of the EU, designed under the second pillar of the CAP, underlines three main objectives for rural areas: improving competitiveness of agriculture and forestry, improving the environment and the countryside, improving quality of life and encouraging diversification of economic activity (European Commission 2013b). According to Elands & Wiresum (2001) and López-i-Gelats *et al.* (2009), some parts of the countryside are experiencing a profound transformation where agriculture is no longer the only obvious sector of activity. In fact, different functions for rurality are being promoted by different actors such as "recreational activities, nature conservation, a clean environment, local culture, housing etc." (López-i-Gelats *et al.* 2009). Different views and opinions on the processes and outcomes of RD policies are therefore expressed through diverse discourses.

Hoggart *et al.* (1995), Frouws (1998) and Elands & Wiresum (2001) identify altogether five socio-political discourses on RD, relevant at the European scale. These discourses are characterised as being socio-political in a sense that they were recognised from debates among publicly involved participants

from politics, government, interest groups, administration, institutions etc., and did not therefore represent views of rural or urban dwellers (Elands & Wiersum 2001; Frouws 1998). The first three discourses are derived from Frouws (1998) who focuses on rural discourses from the Netherlands but asserts that they are applicable to other Western European countries: the *agri-ruralist*, the *utilitarian* and the *hedonist* discourse. The validity and accuracy of Frouws' framework has been more recently re-evaluated by Hermans *et al.* (2010) in the case of Netherlands but by relating these three types of discourses to sustainable rural development. By using semi-structured interviews with different stakeholders, their results support most of the original typology of Frouws although discourses on sustainable agriculture is seen as a natural extension of these rurality discourses. Furthermore, they assert that stakeholders cannot always be categorised into three broad classes of discourses as they often would show elements of different discourses. As they mention, the debate on sustainable rural development is more than ever topical at the European level, hence the importance of this study to relate these discourses to ecological farming practices across different EU countries. The concept of sustainable agriculture is to some extent covered by the CAP discourse of *multifunctionality* presented in section 3.1.1, which highlights the importance of delivering environmental and social goods in agriculture. The *agri-ruralist* discourse from Frouws (1998) presented in the next paragraph, reflects also somehow this concept.

In the *agri-ruralist* discourse, farmers are the stewards of the countryside, carriers of rural values such as "food production, nature and landscape conservation, open space and cultural heritage etc." (Frouws 1998:58). Craftmanship, family farms and traditionalism should constitute the main mode of agricultural production and let little place for markets to organise the sector. Criticised for polluting the rural environment with modern farming, farmers need to establish a new "social contract with society, practising multi-functional agriculture that meets the social demand for items ranging from healthy food and pure drinking water to attractive landscapes and country recreation" (Frouws 1998: 58). The agri-ruralist discourse combines both the agrarist component emphasizing productivism and competitiveness of agriculture to sustain economic dynamism in the countryside through exports, employment and income, and the ruralist component focusing on nature preservation (Frouws 1998: 59). Improvement in technology is therefore encouraged although limited so that family production does not let place to agro-industrial production (Hermans *et al.* 2010). The state has a supportive role, it provides farmers with financial and institutional means in order to implement this "ecological modernisation" (Frouws 1998: 60). The social dimension is central to this discourse.

The *hedonist* discourse emphasises instead the cultural dimension of rurality. Countryside has a cultural function in a sense that it should provide a certain quality of life through beauty, attractive landscape and quietness (Frouws 1998: 62). This discourse originates from the "urban elite" composed of nature conservationists, biologists, artists and estate owners who see the countryside as the "garden of the city" (Frouws 1998: 62). The priority for RD is to regenerate the aesthetic characteristics of the rural scenery in order to provide authenticity to urban incomers. Interests of the rural inhabitants are therefore not highly considered in this discourse (Frouws 1998:63).

RD is instead conceptualised on economic dimensions in the *utilitarian* discourse. Rural areas are economically underdeveloped because of inefficient regulation and need instead to be "integrated in the dynamics of modern markets for housing, recreation, food specialties, high-tech agriculture, attractive business parks and so" (Frouws 1998: 60). Rural areas can develop thanks to openness to innovative economic activities and investment (Elands & Wiersum 2001). Countryside is here considered as a mere commodity where natural spaces should satisfy "productive and consumptive needs" (Frouws 1998: 61). It is worth noting that the agri-ruralist discourse promotes an endogenous form of RD while

the hedonist and utilitarian discourse emphasises the role of external forces in this process (Elands & Wiersum 2001).

Based on the book of Hoggart *et al.* (1995), Elands & Wiersum (2001) add two other types of discourses which are relevant to include to cover the broader European debate on rural development: *community sustainability* and *nature conservation*. In the *community sustainability* discourse, isolation and poor economic dynamism characterise rural areas which need to be revitalised with improved living conditions. RD should therefore aim at creating a "minimum set of social and economic structures" (Elands & Wiersum 2001) for the rural population. Employment and income need to be supported through state intervention and regulation and, compared to the *utilitarian* discourse, market forces should have very little role to play.

At last, the *nature conservation* discourse criticises the intrusion of agriculture into wild areas and the threat it constitutes for biodiversity. Nature has intrinsic values which need to be preserved for future generations instead of being consumed in the process of development. Eco-development is promoted instead of RD with the final objective to recover "a balance between the rural and wilderness areas" (Elands & Wiersum 2001).

3.1.3 Integrated model of discourses for this analysis

Since our study aims at exploring how ecological approaches are depicted in national policy documents from the RDPs and from other targeted policies of the CAP (e.g. cross-compliance), both types of discourses described in 3.1.1 and 3.1.2 are necessary for our analysis. However, the various roles promoted for agriculture within the CAP's multifunctionality discourse create some redundancy with the policy objectives expressed in each of the RD discourses. For instance, both the multifunctionality and the agri-ruralist discourses refer to environmental protection and both the multifunctionality and the community sustainability discourses mention the generation of employment and maintenance of viability in rural areas. This overlapping can be explained by the fact that multifunctionality was promoted by the CAP at a time when its RD policy emerged. In our theoretical model, we therefore integrate the different socio-political discourses of RD as sub-discourses of multifunctionality (see Figure 1). Furthermore, we consider that RD discourses cannot be related in similar ways with neomercantilism and neoliberalism since they are specific to RD policy while neomercantilism and neoliberalism are conceptualised at a broader level of the CAP.

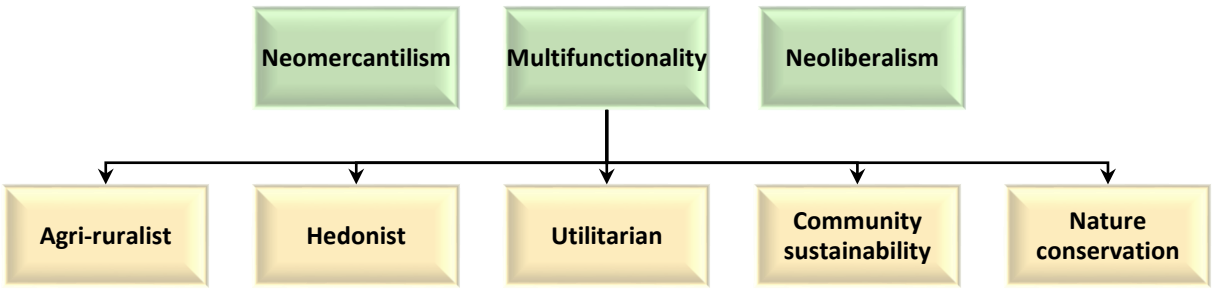

Figure 1: Integrated model of CAP and socio-political discourses

3.2 Review of methods used for discourse analysis in agricultural policy

3.2.1 Methods to analyse the discourse of Commissioners' speeches and EU official documents

Content analysis (CA) is the central method used by previous literature to analyse the CAP discourses. However, the discourse analyses of Erjavec & Erjavec (2015), Erjavec & Erjavec (2009) and Erjavec *et al.* (2009) were carried out at a more linguistic level with the use of critical discourse analysis (CDA). Based on the work of Fairclough (2002), Erjavec & Erjavec (2015) define CDA as "a more in-depth and interpretative approach compare to content analysis". A linguistic analysis of texts is performed on two levels: an analysis of macro-propositions to extract the main meanings of the text with the use of macro-rules (deletion, generalisation, construction) and a more micro-textual analysis with the identification of keywords in texts which are then compared to keywords used in a specific discourse (Erjavec *et al.* 2009). The discourse of different kinds of sources has been analysed in the literature but speeches of different EU Commissioners for different periods have been recurrently used (Erjavec & Erjavec 2015; Alons 2017; Erjavec & Erjavec 2009). Different discourses have been supposed to be represented in Commissioners' speeches since, according to the political economy framework (e.g. Taylor 1997), the European Commission acts as a moderator across competing discourses. Commissioner's speeches have therefore been collected when directed towards different audiences in order to evaluate whether specific discourses are strategically applied (Alons 2017). Erjavec & Erjavec (2009) also collected texts from other concerned agents (communication speeches, press released, reports) in order to compare their discourses with the one of the Commissioners. EU official documents were also gathered in the studies of Clark *et al*. (1997) and Alons (2017). Clark *et al.* (1997) even carried interviews with officials for triangulation of evidence.

While policy initiatives are of main focus in these discourse analyses, the most recent studies complemented it with a policy instrument analysis (Erjavec & Erjavec 2015; Alons 2017). Erjavec & Erjavec (2015) adopted an original approach by looking at the distribution of financial resources across measures from the 2010-2014 CAP reform (measured with the budget share) in order to evaluate the "financial value of the respective discourses". For instance, the Greening Direct Payments and the less favoured areas payment, associated to the multifunctional discourse, represented 25 percent of the total CAP budget (Erjavec & Erjavec 2015). Alons (2017) used a temporal approach and identified more generally how environmental aspects were included in policy instruments between the "exceptionalism"[1] period (from WWII to 1980s) and the "post-exceptionalism" period (from 1980s). For this, she analysed different reforms from policy documents.

3.2.2 Methods to analyse local views with Rural Development discourses

While the socio-political discourses were identified at national and European levels and were based on views and opinions from actors publicly involved in the RD debate (policy-makers, politicians, interest groups etc.), most of the empirical studies using these discourses were interested in the local perceptions and representations of certain aspects of the rural landscape. The objective, for some studies, was to contrast discourses from stakeholders with political influence and those without such influence. As Selby *et al.* (2007) pointed out, when a change in rural and agricultural policy is considered, this

[1] Where agricultural exceptionalism is about treating the agricultural sector differently from other economic sectors and includes a "belief system that provides cognitive justification and political legitimation" for this special treatment. It is linked to the state-assisted paradigms, aims at production and farm-income related objectives. Post-exceptionalism is linked to the multifunctionality paradigm and relates to the environment. Post-exceptionalism is likely to result in more demanding environmental policy objectives and mandatory instruments while in exceptionalism, environmental outcomes would be unintended because of the voluntary nature of policies.

local focus is important to understand how the "various sections of the target community (e.g., farmers) are likely to react". Quétier *et al.* (2010) for instance, explored how mountain grassland areas from a village in the French Alps were described by locals such as farmers, tourists or retired visitors, through interviews. Notions identified from stakeholders in their descriptions of landscape and grassland, indicated social representations that were then contrasted to a socio-political discourse. López-i-Gelats *et al.* (2009) focused on the discourse of different rural residents living in a county of the Catalan Pyrenees, from long-term residents to newcomers, representing different sectors of activity (farmers, tourist entrepreneur, local politician, member of civil society, nature conservation officer etc.). Hovardas & Korfiatis (2008) examined with CA, how environmental policy was framed by the local press through topics of ecotourism, forest management and environmental awareness. Local newspaper is an interesting unit of analysis because it gathers environmental narratives from a broad range of stakeholders (government, local community, tourists) all at once in a same material. A time dimension was here included with the collection of articles across different periods of ecotourism development in the Dadia Forest Reserve of Greece. A geographical comparison of discourses was carried by the study of Selby *et al.* (2007) who analysed the perceived importance of forestry for RD according to farmers and rural advisers across three districts of Finland, varying in forest coverage intensity. They made the hypothesis that the rural population will adopt a different discourse whether they live in a forest-rich district or a district where farming is dominant. The geographical dimension was also explored in the paper of Elands & Wiersum (2001) where the role of forestry within each socio-political discourse was analysed across different types of rural areas, ranging from remote rural areas to areas adjacent to urban agglomerations.

These empirical studies were generally focused on a more local unit of analysis to apprehend how RD is perceived. This implies that the methods used to analyse discourses are quite different from the literature focusing on the CAP discourses where policy document analysis was dominant. Authors mentioned in the previous paragraph usually set their analysis within a case study approach, where contextual and historical details about the selected region are provided. Semi-structured interviews were carried by Quétier *et al.* (2010) and López-i-Gelats *et al.* (2009). In Quétier *et al.* (2010), notions were identified from respondents' descriptions of landscape and grassland by using questions but also photographs. Co-occurring notions were then clustered and interpreted as social representations (classified as grass, postcard or heritage). Linking each social representation to a socio-political discourse was attempted but links were not straightforward because each representation was often a mix of discourses. López-i-Gelats *et al.* (2009) implemented instead a Q methodology which is often used in psychology. Statements were extracted from the interviews and, after several steps, the authors inductively identified four types of discourse with elements resembling the socio-political discourses, although contrasted on certain points. A quantitative survey is another method used by Selby *et al.* (2007) to analyse social perceptions on RD. Farmers and rural advisers could answer what various roles forestry and forests may play in RD thanks to a Likert scale from 1 to 5. Three components were identified through a principal component analysis: the "Environmental benefits" component linked to the *nature conservation* and *hedonist* discourses, the "Economics benefits" component linked to the *utilitarian* discourse and the "Non-timber benefits" component linked to the *community sustainability* discourse. Finally, the framing analysis of Hovardas and Korfiatis (2008) did not carry a discourse analysis per se but used the socio-political discourses as part of their identification of environmental narratives.

3.3 Review on previous results on dominant discourses

Several authors (Potter 2006; Potter & Tizley 2005; Erjavec & Erjavec 2009) have noticed a rise in the neo-liberal and multifunctional discourses of the CAP while the traditional neomercantilist discourse

is fading away. An example is the decoupling of farmers' subsidies by the CAP which for instance indicated that pressures from the WTO are being answered (Potter 2006; Potter and Tizley 2005). Moreover, the neoliberalist discourse has sometimes been used within the multifunctionality discourse where some elements of the multifunctional agriculture were associated with liberal rationales (Erjavec & Erjavec 2009). For instance, Erjavec & Erjavec (2009) found in their analysis of Fisher Boel's speech that the Commissioner highlighted the necessity for organic farming to be commercially viable, therefore including neo-liberal notions within a multifunctional discourse. This result is contrasted with a more recent study asserting that the neomercantilist discourse has not disappeared if we focus on the newest CAP agenda. In their analysis of the 2014-2020 CAP reform document, Erjavec & Erjavec (2015) found that these "traditional discourses were re-defined with new keywords and emphasised meanings". Together with the multifunctional discourse, the role of the state is reemphasised, and neoliberal concepts are seldom used. Furthermore, when looking at the CAP budget distribution and measures, the productivist rationale dominates while the greening element of multifunctionalism is weaker (Erjavec & Erjavec 2015). This result parallels what Rutz *et al.* (2014) indicated as part of their analysis: Dacian Ciolos, new Commissioner of Agriculture appointed in 2010, reasserted food security as an objective for the European agriculture and described the "greening" measures as being in accordance with this long-term objective. This resurgence of a productivist discourse appears after the price spikes of 2007 and 2008, which illustrates the necessity for agriculture to not be fully reliable on market mechanisms (Rutz *et al.* 2014).

Finally, regarding the discursive strategies of the CAP, Erjavec & Erjavec (2009) observed that the Commissioner Fisher Boel employed different discourses according to different audiences and generally used the discourse defended by the concerned agent. This confirms the theoretical political economy approach which identifies an intermediary component who balances competing discourses. However, Alons (2017) who selected speeches applied to different audiences in her analysis, did not find such discursive strategy with no significant variation of discourse across audiences.

Regarding the rural studies literature, it is rather difficult to generalise results from different case studies because of limited external validity. However, it may be interesting to see what the similarities and nuances are. In Quétier *et al.* (2010), farmers stressed the local aspect of farming, which is depicted in the agri-ruralist discourse, although they did not mention wider considerations for the role of farming such as providing desirable landscape and ecosystem services. Farmers also underlined that agriculture was entrenched in local culture in López-i-Gelats *et al.* (2009) but opposed the intervention of the government in creating natural protected areas and promoting the building sector, which harms the productive function of agriculture. Contrastingly, Selby *et al.* (2007) found for farmers a positive and significant (although weak) score associated to the landscape and nature conservation discourse, stressing aesthetic and nature values in rural areas. It is more complicated to contrast results for other types of actors since the definition of their status often vary across studies. However, not surprisingly, the utilitarian discourse was associated to tourist entrepreneurs in López-i-Gelats *et al.* (2009) and to ecotourism topics in the local press analysis of Hovardas & Korfiatis (2008).

To conclude, these studies testify that social perceptions on the role of rural areas are changing rapidly, specifically towards a multifunctional conception. As Elands & Wiersum (2001) demonstrated for instance in the case of forests, this rural element should not only fulfil productive functions but also consumptive and protective functions.

3.4 Review of theoretical concepts on policy change and discourses

3.4.1 Different theoretical frameworks to study the CAP development

Authors focusing on the CAP discourses have used different conceptual approaches to explain what is driving policy change. Erjavec & Erjavec (2015), Erjavec & Erjavec (2009), Erjavec *et al.* (2009), Potter & Tizley (2005) adopted a political economy approach which focuses on the role of competing interests for policy decision-making. Policy outcomes result from a bargaining process between different "concerned agents" having different ideologies (Erjavec & Erjavec 2009). This confrontation of views and interests contributes in altering the dominant policy paradigm (Erjavec & Erjavec 2015). Applying this approach to the CAP development, the CAP is presented as a "multi-level governance system" where different agents interact with different agendas and discourses (Erjavec *et al.* 2009). The European institutions play a role to reduce political asymmetries within the CAP by balancing competing discourses. Especially, the European Commission which is responsible to promote further CAP reforms and ensure consensus, acts as a moderator in this political battle (Erjavec *et al.* 2009).

In contrast, other authors have been underlining the role of ideas, instead of interests, for policy development such as Alons (2017) and Clark *et al.* (1997). Clark *et al.* (1997) adopted Majone's discourse model on policy change as theoretical basis, which is used in the political science and social learning literature. In short, this model argues that policy is made of "core principles" built from past policy decisions which represent a "frame of reference" for policymakers to develop policy since they provide "the criteria for accepting or rejecting ideas, so ensuring consistency in selection, and guarantees continuity of policy objectives" (Clark *et al.* 1997). Clark *et al.* (1997) identified the core principles of the CAP as the maintenance of rural stability and the farmer's role to (re)structure rural space. They argued that the agri-environmentalism of the CAP gained easily its legitimacy because of the notion of "environment" already present in the policy core. The "core principles" of the CAP therefore played a role for the development of EU agri-environmental policy. In her study, Alons (2017) emphasised the role of policy ideas to contribute to Environmental Policy Integration (EPI) in the CAP. She explained, based on the work of Hall (1993), that a discourse is usually derived from a policy paradigm which "contains ideas with respect to the understanding of the policy problem, appropriate policy goals, and the proper instruments to achieve them" (Alons 2017). Policy processes and policy instruments are therefore unlikely to change without a change in policy ideas. Different

3.4.2 Theoretical and contextual considerations for this present study

Based on this literature, our multiple case study can be approached from a political economy perspective in which policy develops because of struggle between different concerned agents with different interest, pushing for different objectives. The state acts as an intermediary between these agents and aims at ensuring consensus and maintenance of agreement (Taylor 1997). Policy texts are therefore often the result of competing discourses and contradicting policy objectives (Taylor 1997). Different discourses across EU countries could therefore originate due to different stakeholders' interest to prioritise different public goods and societal services from ecological approaches. For instance a large representation of environmentalist organisations could have a strong influence on the governments to implement measures for agriculture in accordance with the provision of clean water, greenhouse gas emissions, animal welfare etc. Other factors explaining why dominant discourses may differ between countries are related to the historical, political, economic and social context of each country. These contextual factors are difficult to identify in a comprehensive manner, but should nevertheless be kept into considerations when results are contrasted between countries.

Furthermore, it is worth briefly explaining the functioning of the CAP when it comes to political power allocation between the European Commission and the EU member states since this can influence as

well how policy is communicated within national policy documents (see Appendix 1). The CAP is currently structured into two different pillars commonly referred as Pillar I and Pillar II. The first pillar represents today around 80% of the CAP expenditures and mainly includes direct aid payments to farmers. Cross-compliance rules related to the respect of the environment, public and animal health and animal welfare are also part of this first pillar (introduced in 2003) together with the Green Direct Payments (introduced in 2015) which reward farmers for maintaining permanent grassland, ecological focus areas and crop diversification (Bureau & Thoyer 2014; European Commission 2013a). In general, member states do not have the flexibility to adapt the Pillar I's legislation to their specificities because of its mandatory nature. In contrast, the second pillar is focused on rural development policy and includes measures that aim at promoting other functions than the original productive functions of agriculture such as preserving agricultural landscape, biodiversity, the environment, viable conditions in rural areas etc. (Bureau & Thoyer 2014; Agra Europe 2006). The idea of integrating a RD policy to the CAP appeared with the Cork Declaration in 1996. The *Agenda 2000* legitimated the creation of the second pillar (Bureau & Thoyer 2014). While the European Commission sets the types of priorities and focus areas for RD policy, each member state or region decides on quantified targets, the types of measures to implement to achieve these targets and how much funding to allocate across measures (European Commission 2019). Concerning this analysis, the collected policy documents are mainly focused on the second pillar although few documents from pillar I have been collected but related to cross-compliance rules and the Green Direct Payments.

Figure 2 on the next page summarises this section 3.4.2 which gives an overview of the contextual factors potentially influencing the types of discourses depicted in national policy documents (in black in the figure). This concerns, altogether, the policy from the European Commission (in blue), different concerned agents inside or outside the member state (in orange) and the political, historical, economic and cultural context inside the country (in green).

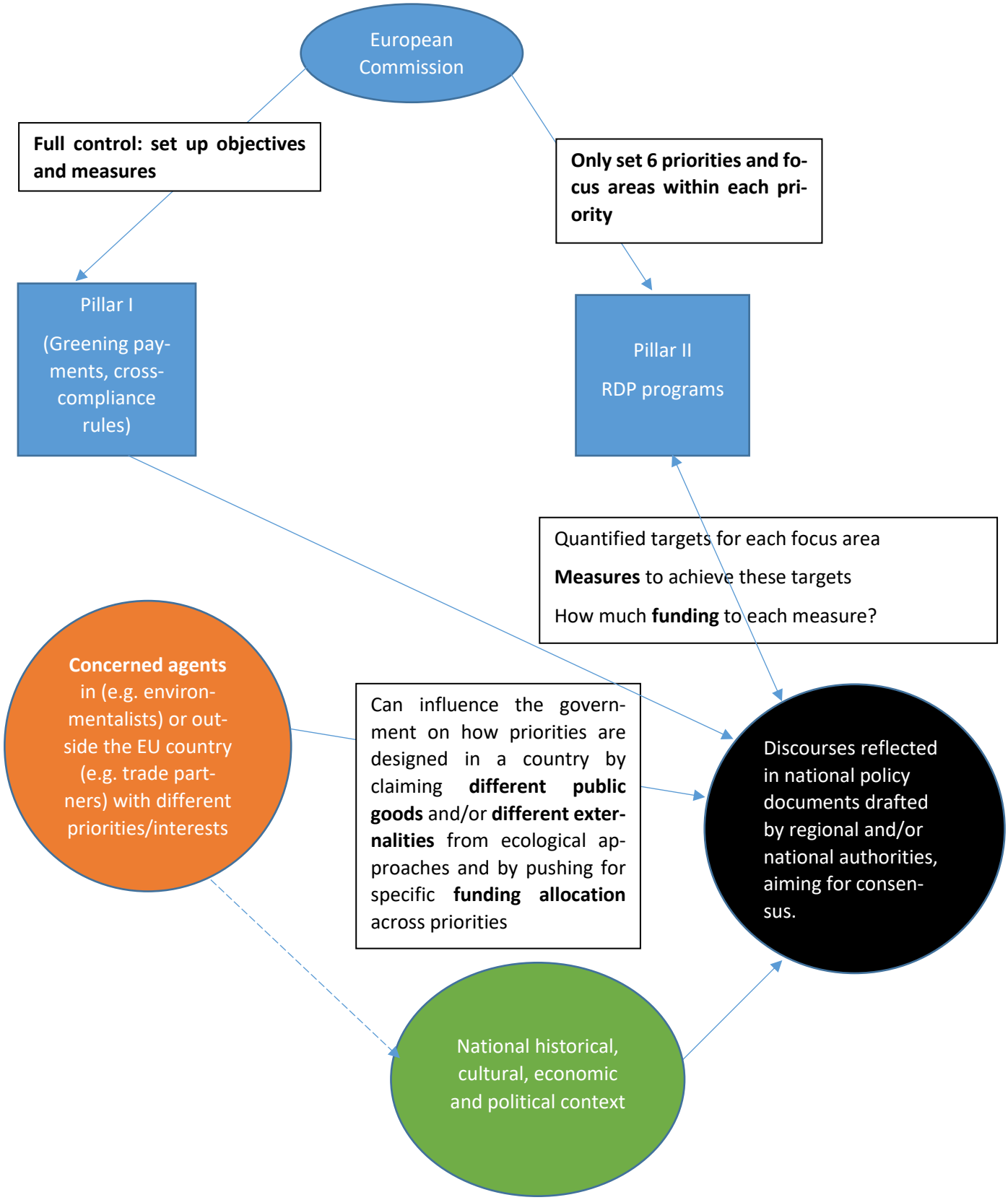

Figure 2: Theoretical framework on contextual factors influencing national discourses over the 2000-2020 CAP period

4 Method

This section starts by briefly introducing in 4.1 the methods of CA and DA and how they were combined before explaining in details in 4.2, 4.3 and 4.4 the procedure followed. The methodological limitations of this study are presented in 4.5.

4.1 Content analysis within a discourse analysis approach

This study implements a CA within a DA approach. While CA is a textual analysis but focuses on the text itself, "not of its relation to its context, to the intentions of the producer of the text, or of the reaction of the intended audience" (Hardy *et al.* 2004), DA, which is also a textual analysis, is interested in power relations and the meaning of language in texts (Herrera & Braumoeller 2004). Epistemological and ontological considerations therefore distinguish CA and DA: DA would be associated to constructivism, a socially constructed reality accessible through interpretative methods, while CA is associated to positivism, an independent reality accessible through the use of scientific methods. Hardy *et al.* (2004) further develop this philosophical difference by highlighting that "While discourse analysis is concerned with the development of meaning and in how it changes over time, content analysis assumes a consistency of meaning that allows counting and coding. Where discourse analysts see change and flux, content analysts look for consistency and stability." Nevertheless, the same authors highlight that DA and CA can be used as complementary methods and suggest how the two can be combined in their Table 2 (Hardy *et al*. 2004:21). While this present study does not totally follow Table 2 of Hardy *et al.* (2004), it can be considered as an interpretative type of CA in the sense that types of discourses, which are in themselves subjective concepts, directed the categories to look for in the data. Furthermore, this CA does not abstract from national contextual information which should be considered when interpreting the results. Finally, in comparison to the previous literature, the method of CDA was not adopted for this analysis. CDA is heavily focused on language and linguistic aspects of texts. Comparing these dimensions across countries may have led to considerable empirical difficulties, especially because translating discursive statements while conserving their precise meaning would have been problematic. The next paragraph presents in details the method of CA which constituted the main adopted procedure for this study.

CA is a systematic and replicable research method to compress many words from textual materials into fewer content categories sharing commonalities (GAO 1996; Stemler 2001; Weber 1990; Graneheim & Lundman 2004). The classification of content is done through coding which "consists of marking text passages with short alphanumeric codes" (GAO 1996:6). These codes represent the written information with abstracted "categorical variables" that can then be analysed quantitatively (GAO 1996). While this definition focuses on text as data to be coded (semi-structured interviews, survey, policy documents etc.), other non-verbal supports such as videotapes or photographs have also been analysed through CA (Stemler 2001).

Standardised guidelines on how to carry a CA are not evident since this method is rather flexible and depends on the objective and research question at hand (Elo & Kyngäs 2008). However, two general coding approaches are distinguished: the inductive and the deductive approach. The deductive approach, also called *a priori* coding (Stemler 2001), is generally based on a theory, model, hypothesis or literature informing on the types of categories to look for in the data. This approach is considered relevant to test a theory or to compare categories across time units (Elo & Kyngäs 2008). In comparison, the inductive approach, or *emergent* coding (Stemler 2001), does not rely on theory to design the coding scheme but instead, defines categories while reading or analysing the data. The coding scheme is refined by grouping similar categories and creating subcategories. This approach is useful when previous knowledge or hypotheses to study a phenomenon are lacking (Elo & Kyngäs 2008).

In this study, we adopted a deductive approach for CA. In fact, types of discourses and farming systems that were identified from previous literature (see Figure 1), directed the design of the coding scheme (see section 4.3). Using an *a priori* coding appeared appropriate to allow for comparison and replicate the analysis across time and geographical units. This approach was also the most manageable to use considering the large number of coders involved.

4.2 Sampling

Governmental documents on CAP over the period 2000-2020 constituted the sampling units to be collected across the six country cases of LIFT. Policy documents were extracted by each LIFT partner to cover the three CAP programs: CAP 2000-2006 for France, Germany (Bavaria) and Sweden, 2004-2006 for Hungary and Poland who joined the EU in 2004, none for Romania who joined the EU in 2007; CAP 2007-2013; and CAP 2014-2020. The data set primarily included:

i) national Direct Payment schemes

ii) national RDP

iii) national implementation plans.

The selected CAP documents were expected to provide valuable information for the policy incentives, i.e. policy discourse on how ecological approaches are accounted for by the CAP at national level. Detailed list with the documents analysed for the six countries is presented in Appendix 1[2].

The whole policy document was considered for coding. As for the recording/coding units, a sentence, several sentences or a paragraph could be coded. Selecting a single word as coding unit was not considered manageable since significant amount of information could have been lost. However, as Elo & Kyngäs (2008) and Graneheim & Lundman (2004) point out, selecting a broad coding unit such as several sentences or a paragraph can make the coding process challenging. Difficulties encountered during this process are explained in section 4.5.

4.3 Coding scheme

The coding scheme was elaborated based on two dimensions constituting the two sets of nodes: the type of farming system and the type of discourse. The first set of nodes gathered 34 codes (5 nodes and 29 theme nodes) containing information on the farming system clusters (5 nodes) and farming systems (19 theme nodes), as below. Farming systems were defined as previously by LIFT Deliverable 1.1 (Rega *et al.* 2018). Deliverable 1.1 was also used to guide the selection of farming system categories (based on the farming practices applied). Appendix 2 shows the main associations between the farming practices and the farming systems/clusters (see Tables A.2.1 and A.2.2).

1. Agroecology
    a. Agroecology
    b. Agroecology_ Biodiversity-based farming systems
    c. Agroecology_ Diversified farming systems
    d. Agroecology_ Ecoagriculture

[2] In the end, RDPs constituted the main coded documents in all countries. Selected national Direct Payment schemes and implementation plans only appeared in the Swedish case.

e. Agroecology_ Ecological arable farming system
f. Agroecology_Permaculture
g. Agroecology_ Natural system agriculture

2. Organic farming systems
   a. Organic farming systems_ Biodynamic
   b. Organic farming systems_ Biological input-based farming systems
   c. Organic farming systems_ Organic agriculture
   d. Organic farming systems_ Organic farming systems
3. Integrated farming systems
   a. Integrated farming systems_ Integrated arable farming systems
   b. Integrated farming systems_ Integrated crop-livestock systems
   c. Integrated farming systems_ Integrated crop-range-livestock systems
   d. Integrated farming systems_ Integrated farming system
   e. Integrated farming systems_ Integrated perennial crop systems
4. Low input extensive systems
   a. Low input extensive systems_ Extensive grass-based systems
   b. Low input extensive systems_ Extensive systems
   c. Low input extensive systems_ Low external input systems
   d. Low input extensive systems_ Low-input systems
   e. Low input extensive systems_ Low-intensity systems
   f. Low input extensive systems_ Reduced input systems
   g. Low input extensive systems_ Silvopastoralism
5. Conservation agriculture
   a. Conservation agriculture_ Conservation agriculture
   b. Conservation agriculture_ Conservative agriculture
   c. Conservation agriculture_ Minimum tillage systems
   d. Conservation agriculture_ No tillage systems
   e. Conservation agriculture_ Reduced tillage systems
   f. Conservation agriculture_ Strategic tillage systems

The second set of nodes corresponds to the types of discourses with 8 codes (3 nodes and 5 theme nodes), representing the CAP (3 nodes) and the RD policy discourses (5 theme nodes), as follows:

1. Neomercantilism
2. Neoliberalism
3. Multifunctionality
    a. Multifunctionality_Agri-ruralist
    b. Multifunctionality_Hedonist
    c. Multifunctionality_Utilitarian
    d. Multifunctionality_Comunity sustainability
    e. Multifunctionality_Nature conservation

This leads to a two-dimensional **categorisation matrix** presented in Table 1 on the next page.

Table 1: Two-dimensional categorisation matrix incorporating the selected farming clusters/farming systems and discourses

Systems incorporating differing degrees of ecological practices	Farming clusters	Farming systems	Discourse						
			Neomercantilism	Neoliberalism	Multifunctionality				
					Agri-ruralist	Utilitarian	Hedonist	Community sustainability	Nature conservation
	Agroecology	Agroecology							
		Biodiversity-based farming systems							
		Diversified farming systems							
		Eco-agriculture							
		Ecological arable farming system							
		Permaculture							
		Natural system agriculture							
	Organic farming systems	Biodynamic							
		Biological input-based farming systems							
		Organic agriculture							
		Organic farming systems							
	Integrated farming systems	Integrated arable farming systems							
		Integrated crop-livestock systems							
		Integrated crop-range-livestock systems							
		Integrated farming system							
		Integrated perennial crop systems							
	Low input/ extensive systems	Extensive grass-based systems							
		Extensive systems							
		Low external input systems							
		Low-input systems							
		Low-intensity systems							
		Reduced input systems							
		Silvopastoralism							
	Conserva-tion agriculture	Conservation agriculture							
		Conservative agriculture							
		Minimum tillage systems							
		No tillage systems							
		Reduced tillage systems							
		Strategic tillage systems							

Note: The terminology on farming systems is taken from LIFT *Deliverable D1.1* (Rega *et al.* 2018). The terminology on discourses follows the "*Integrated model of CAP and socio-political discourses"* presented in Figure 1.

The literature review in section 3.1 gives an overview of the types of discourses and their characteristics. A summary of themes that are covered by each discourse is provided in Table 2 and Table 3:

Table 2: Themes of CAP discourses

	Type of discourse	Themes
CAP discourses	Neomercantilism	1. State protection / Market regulation 2. Productivism / Food security 3. Exports / Competitiveness
	Neoliberalism	1. Deregulation 2. Trade competition
	Multifunctionality	1. Environment protection 2. Viability of rural areas 3. Biodiversity protection 4. Sustains rural landscape and cultural heritage

Table 3: Themes of Rural Development, socio-political discourses

	Type of discourse	Themes
Socio-political discourses of RD	Agri-ruralist	1. Farmers as stewards of the countryside, promote: food production, nature and landscape conservation, open space and cultural heritage 2. Local and handicraft production 3. Healthy and quality food 4. Agricultural practices respecting the environment and/or animal welfare 5. Ecological modernisation
	Hedonist	1. Aesthetic/ cultural values of the landscape 2. Quietness/ quality of life for urban dwellers
	Utilitarian	1. Innovative economic activities (e.g. ecotourism, housing, high-tech agriculture) 2. Openness to markets and investments for economic RD
	Nature conservation	1. Biodiversity/ protected areas 2. Eco-development
	Community sustainability	1. Basic community infrastructure for rural dwellers/ improved living conditions 2. Generation of employment and income

This coding scheme was pretested with one CAP document from Sweden to check its reliability, but also to further develop the guidelines to provide to partners for the coding process. The details of these guidelines are presented in the next section, 4.4.

4.4 Protocol for discourse analysis and template for results

A detailed protocol explaining how coding should be carried out and what should be reported in the categorisation matrix was provided to all LIFT partners in the concerned case studies (protocol details are presented in Appendix 3). A template explaining how results should be presented and what type of information needed to be reported was sent later after this protocol. Not every partner had access to a qualitative software (see Table 4 on the next page) so the protocol was drafted in order to allow for manual coding as well.

Table 4: Coding method used across countries

Partner/Country case-study	**Method used for coding: manual or quantitative/qualitative software**
Bavarian region (Germany)	Manual
France	R Computing, package quanteda, stringr
Hungary	NVivo 12
Poland	Atlas.ti 8
Romania	Manual
Sweden	Qualitative software: NVivo 11 and NVivo 12

The overall analysis was instructed in the following steps:

Step 1: Reading and coding of the document. Text passages that correspond to a respective farming system, need to be marked, and linked to the respective code (identified for the farming systems, see Table 1). The text passage should provide information for the policy (goals and/or instruments), and how it relates with the ecological approaches clusters/systems (see examples 1 and 2 in Appendix 3).

Step 2: Linking the selected text, or part of the selected text from Step 1 with a respective discourse (see Table 1): neomercantilism, neoliberalism and multifunctionality comprising the five socio-political discourses of RD: agri-ruralist, hedonism, utilitarian, community sustainability, and nature conservation (see example 3 in Appendix 3).

Step 3: The third step implied repeating this coding procedure over three CAP programs: CAP 1: 2000-2006 for France, Germany (Bavaria) and Sweden, 2004-2006 for Hungary and Poland, none for Romania; CAP 2: 2007-2013; and CAP 3: 2014-2020.

Step 4 & 5: Quantification of the results in a matrix table (see Appendix 4) and word frequency across types of farming systems (optional, since some of the partners conducted the analysis manually).

Step 6: Reporting the results in a "country report", containing results on the contextual/local facts and the contextual dynamic over the three CAP programs and an overall summary of the discourses and farming practices found and the type of policy instruments identified over the three CAP programs.

Step 7: Cross-check of the findings presented in the country reports.

4.5 Limitations

As previously mentioned, some difficulties were encountered during the coding process. First of all, since the coding unit was based on several sentences or a paragraph, it created some difficulty to include both information on the farming system and the type of discourse at once within a single reference. In fact, one could find for instance a farming system at the beginning of a paragraph and the associated discourse in the end, which truncated the coding unit and may have entailed some issues when coding, depending on the attention of the reader. Furthermore, linking the text to a specific measure has not always been straightforward since the coder sometimes had to go back and forth to headlines or the structure of the policy document. Redundancy concerning the objectives of measures encountered in policy documents created double or triple counting of farming systems and discourses for some country cases, especially in cases where the coding was made with a quantitative software. The extent to which considering repetition of a policy objective associated with a specific farming system and discourse in the number of coded references is debatable: does this repetition reflect the implicit ambition of policymakers to stress a specific discourse or is it simply a mere bureaucratic repetition?

Regarding the conceptual framework, some types of discourses were not seen as being mutually exclusive categories by some coders (e.g. the complexity of agri-ruralism which somehow could overlap with nature conservation). However, we tried to cope with this issue by letting the possibility to code a text passage to multiple categories in order to limit subjective decision when selecting one type of discourse instead of another. Similarly, given the conceptual framework, many different farming practices could be associated with multiple farming systems (e.g. see, cover crop, crop rotation, in Appendix 2), thus some types of farming systems were not seen as being mutually exclusive categories. Such approach could be seen as "double counting" most often for agroecology since many of the farming practices are associated with that farming system (Appendix 2), which may give an impression that agroecology is a prevailing farming practice. Therefore it is important to highlight that such a result should not be interpreted as "agroecology is a prevailing farming system", but rather that multiple farming practices "construct" agroecology as a farming system.

5 Results

5.1 Discourse analysis on ecological approaches across country cases

5.1.1 France

5.1.1.1 *National context on ecological approaches in France*

Across the three last CAP programs, France has progressively adopted an ecological approach in agricultural development. France is among leading member states who defend the multifunctionality of agriculture under public regulation. During 2000-2006 period, there was a net separation between the 1st pillar, seen as the continuation of the production activity's support, and the 2nd pillar which introduces non-productive functions of agriculture such as environment, biodiversity, rural vitality, quality food chain. In 2012, France adopted the national agroecology strategy, to answer to the need of protecting the environment and natural resources. The objective of this program is to have a majority of performant farms engaging in ecological practices in 2025. This is also called the double (economic and ecological) performance objective. To implement the program, the French government pays attention to 5 points: Farmer's training, research and development, creation of an agroecological diagnostic tool, reorientation of public subsidy, and regular monitoring. While an important part of subsidy for the program comes from the green payment, all the rest of agroecological tools are concentrated in the 2nd CAP pillar. It is worth to note in the last program 2014-2020, French regions have obtained new roles: they become the authority of management of the FEADER budget. In this context, the French Government maintains their control only on some of the most important subsidies, among which the funding of the 10th measure relating to Agro-Environmental Climate Measure. The content of the 10th measure occupies a very important place in the French National Framework Document (DCN 2015) that defines the French policy of rural development. It contains more than 100 operations facilitating the implementation of ecological practices.

5.1.1.2 *Discourse analysis on ecological approaches in France*

During the CAP period **2000-2006,** two discourses are dominant on the French RDP when talking about ecological approaches: **nature conservation** and **community sustainability** (21 and 6 reference respectively). Such results are in line with two principles of the policy: to have a sustainable development with an integrated approach at farm's level. Nevertheless, the National RDP in 2000-2006 didn't give credit to ecological farming textually. The concept of a multifunctional agriculture was applied for the

first time and was not linked to ecological approaches. It is rather disjoint, and appears as a compromise with socio-economic objectives, compromise that the French government let appreciate by regional and local authorities according to local needs. Main identified ecological approaches are **extensive grass-based system** and **reduced input system** (with 10 and 9 references respectively). They are supported by the Agro-environmental measures, and less favoured areas subsidy. The National RDP in 2000-2006 (PDRN 2006) has an important role for the forest management. At best, forest management is expected to be a diversified source of income for farmers. Graphical presentation of the dominant discourses on ecological approaches in France during CAP 2000-2006 is given in Figure 3. Details on the number of coding references across the farming systems and the discourses are presented in Appendix A4, Table A.4.1.

For the 2nd CAP period **2007-2013**, the **nature conservation** discourse keeps the dominance (with 80 references), followed by the **agri-ruralist discourse** (42 references). The RDP document (PDRH 2011) puts a clear accent on environmental protection. Concerning ecological approaches, the programme focuses essentially on the protection of ecological areas (Natura 2000), the protection of forest and water resources by extensive or low-input system. **Agroecology** (with 38 references) is by far the most referred to ecological approaches, followed by **biodiversity-based farming** (25 references)**,** reduced input system (23 references) and extensive grass-based system (12 references). These latter are followed by integrated system, and by organic agriculture. The forest management has also received a lot of attention, but once again, it is not well connected to ecological approaches, except in the integrated system of culture – livestock – forestry. Comparing to the previous program, the main line of public intervention in the French RDP is still present, but with a reduced scope. The character of interventionism is related to the boost of competitiveness, the improvement of product's quality, the protection of sector (Axis 1), or the need of maintaining activities and employment in rural areas (Axis 3). They are always disconnected from ecological approaches that is basically summed up in Axis 2. Figure 4 provides a graphical presentation of the dominant discourses on ecological approaches in France during CAP 2007-2013. Details on the number of coding references across the farming systems and the discourses are presented in Appendix A4, Table A.4.2.

In the period 2014-2020, the RDP presents an important change in the French vision on the multifunctionality of agriculture: it is largely opened toward the protection of nature and natural resources, like water or biodiversity. Main discourses are **nature conservation** (90 references), and **agri-ruralist** (14 references). **Biodiversity-based** and **agroecology** farming systems are the most referred to (with 44 and 22 references respectively) followed by extensive grass-based and reduced input systems (with 16 and 13 references). Organic farming, does not get much attention in the text (only 2 references), despite the fact that the measures for maintaining and conversion to organic farming receives important budget allocation. Figure 5 provides a graphical presentation of the dominant discourses on ecological approaches in France during CAP 2014-2020. Details on the number of coding references across the farming systems and the discourses are presented in Appendix A4, Table A.4.3.

In terms of dynamicity, it is clear that France has moved toward greater protection of the environment in its rural development policies. At the beginning, the environmental function was disjointed from socio-economic functions. The French discourse in the 1st period was essentially administrative strict regulation. But in the 2nd and 3rd periods, it comes up progressively with explanations on advantages of ecological approaches for the nature conservation. The practices themselves have been shifted from low-input / extensive practices to ecological approaches, mostly in the National Framework Document (DCN 2015). The role of agriculture was affirmed to support the multifunctionality.

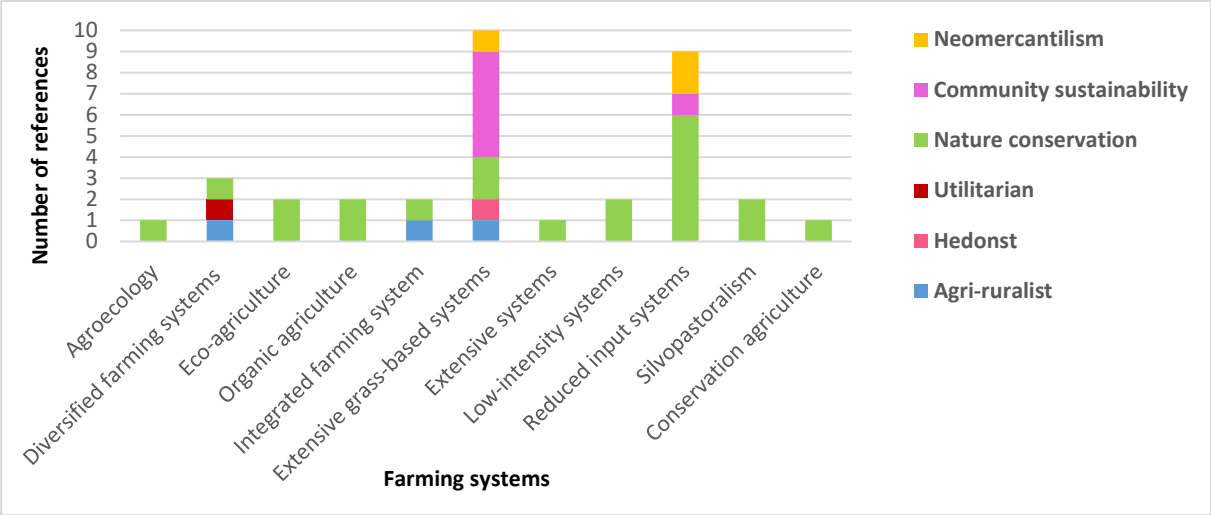

Figure 3: Dominant discourses and ecological approaches in France, CAP 2000-2006

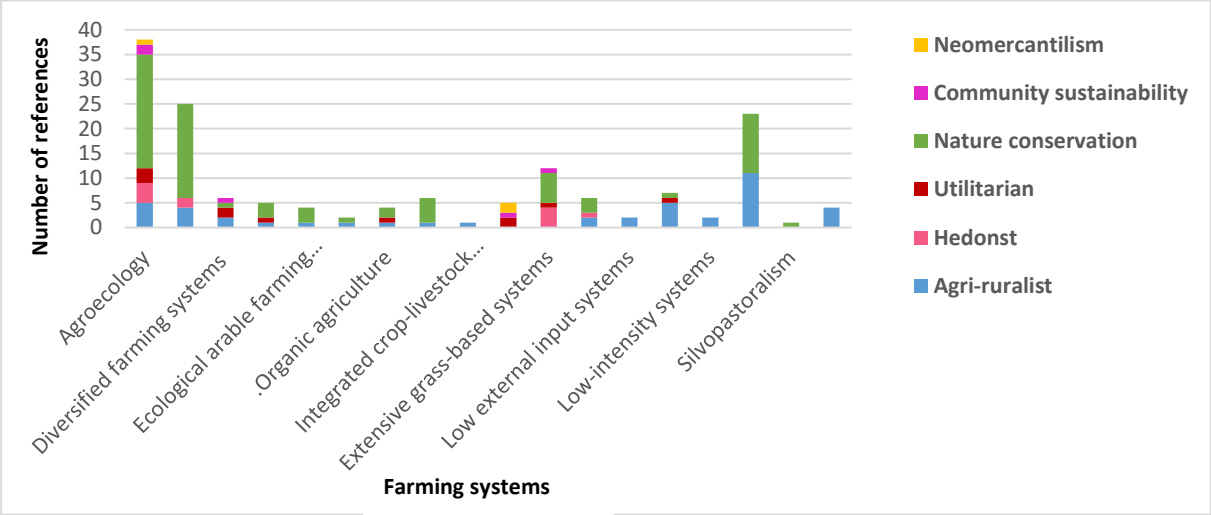

Figure 4: Dominant discourses and ecological approaches in France, CAP 2007-2013

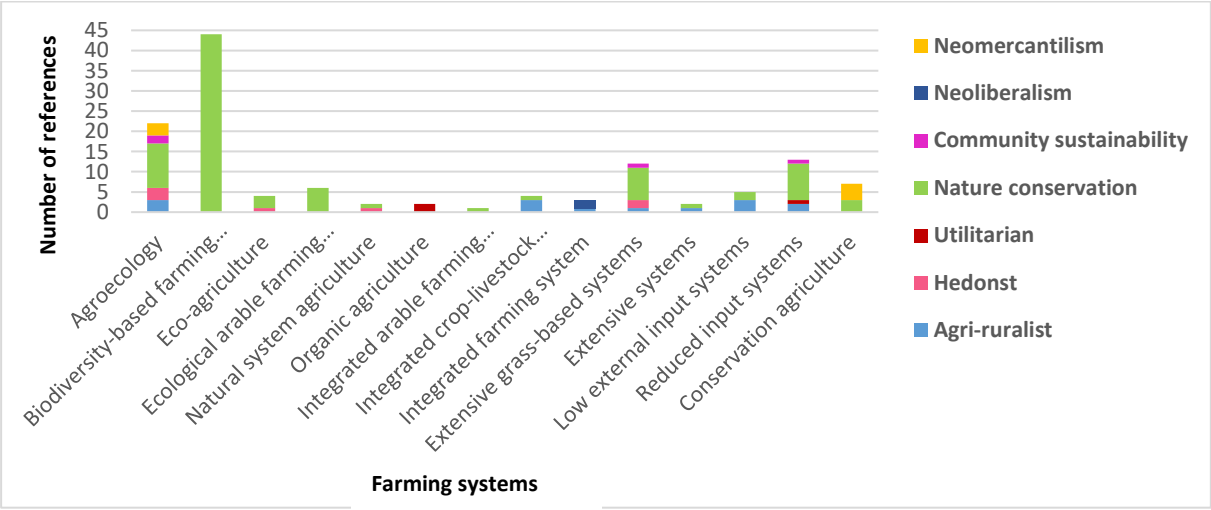

Figure 5: Dominant discourses and ecological approaches in France, CAP 2014-2020

5.1.2 Germany (Bavaria)

5.1.2.1 *National context on ecological approaches in Germany (Bavaria)*

The research case study area Bavaria represents 20% of the German surface area and 18% of the German agricultural area. Agricultural land and forests cover nearly 90% of its total surface (forests account for 36%), where about one third of the Bavarian agricultural land is permanent grassland and the rest is arable land (mostly cereals, 35.6%, and fodder 18.7%). Bavaria is one of Germany's leading region in terms of organic farming as well as dairy farms. Nearly 10% of the agricultural land is organically certified. Over the three periods of the RDP analysed, the main problems concerning agriculture in rural areas were the decreasing number of farms leading to bigger farm sizes, rising purchase prices for farmland and access to land in general (STMELF 2018b) as well as regional disparity (decreasing number of inhabitants, job offers etc.). Other problems are more related to the value chain as a whole: processing facilities, especially in the animal sector, get more and more concentrated and specialised, which leads to logistic problems (need for transport, warehouses, storage solutions) as well as lower added value at farm level (STMELF 2007:41; STMELF 2018a:95).

5.1.2.2 *Discourse analysis on ecological approaches in Germany (Bavaria)*

The **multifunctionality** type of discourse is dominating the CAP 2000-2006 programme with two dominant sub-discourses **"nature conservation"** and **"agri-ruralist"** with 17 and 8 references respectively. Across the farming systems, main farming clusters concerned are **agroecology** and **extensive grass-based systems** (with 9 and 7 references). It is very likely that the reason for the often-mentioned extensive grass systems in the RDP is the very represented extensive dairy farms in the Alpine foreland. They are not only an important agricultural branch, but they also shape the landscape; that is why we attributed them not only in the agri-ruralist-discourse, but also in the hedonist-discourse, with 5 references. Nevertheless, **the most dominant discourse is the nature conservation discourse**. It is important to state, that the measures within this discourse, demanding more agroecology and biodiversity, are related to integrated conservation, through the integration of nature into agricultural land, so that the agricultural production is sufficient while the conservation of biodiversity of the natural system is ensured within the agricultural land. The opposite would be segregated conservation by segregating nature and agricultural land and maximizing the agricultural production on a small part of the land while strictly protecting the other parts of the land. However, we could not identify the concept of segregated nature conservation in this RDP. Interestingly, in this CAP period organic agriculture was not of big importance. It is mentioned only very rarely; in one occasion (as organic farming and organic agriculture) in context to support the nature conservation, and in another occasion for supporting the neomercantilist discourse. We could identify the neomercantilism discourse only once throughout the whole RDP, whereas the utilitarian or the neoliberalism discourse has not been used in order to argue the programmed measures. Graphical presentation of the dominant discourses on ecological approaches in Germany (Bavaria) during CAP 2000-2006 is given in Figure 6. Details on the number of coding references across the farming systems and the discourses are presented in Appendix A4, Table A.4.4.

The dominating discourse of the CAP period 2007-2013 is again **multifunctionality** with two main sub-discourses **nature conversation and agri-ruralist** (with 26, respectively 8 references). As in the previous period **the agroecology** (with 20 references) **and extensive/extensive grass-based systems** (12 references) continue the dominance across the farming systems in the Bavarian agriculture. In the RDP extensive systems are often related with the nature conservation discourse, showing again that special emphasis is placed on integrated nature protection measures instead of segregated ones. Within the community sustainability discourse, the focus is on making rural areas more attractive for people again. For example, the RDP aims to foster secure jobs and make rural areas more attractive for all

generations. The measures listed within the hedonist discourse also stress out the importance of keeping the typical landscape, which could also be an indicator for keeping the landscape attractive for people. Interestingly, the measures for organic agriculture and climate change that we identified were fitting into the agri-ruralist and the nature conservation discourse. Measures to prevent climate change as well as measures aiming to develop organic agriculture, are therefore more related to environmental protection than to societal challenges. Compared to the previous CAP period 2000-2006, the neomercantilism discourse is relatively present (with 3 references), mainly explained with the agroecology farming system. Graphical presentation of the dominant discourses on ecological approaches in Germany (Bavaria) during CAP 2007-2013 is given in Figure 7. Details on the number of coding references across the farming systems and the discourses are presented in Appendix A4, Table A.4.5.

In the period 2014-2020, the **nature conservation discourse** was very clearly dominating the whole RDP (26 references). Again, as in the other periods, the focus is not on segregated nature conservation, but on integrated nature conservation. Again it can be seen that dairy farming, especially **extensive dairy farming** (with 10 references for extensive/extensive grass-based systems), is an **important branch of the Bavarian agriculture**. This is why extensive grass-based systems are mentioned that often within the RDP. Climate change was clearly kept in mind by creating this programme, but again, it is more related to the agri-ruralist discourse and therefore to nature conversation, than to a societal challenge. This is why measures against climate change are not justified by the community sustainable discourse. Therefore, in that discourse, as in the programme before, some importance is given to the fact, that people are moving away from rural areas. So the approach is making rural areas more attractive again, by conserving the beauty of the landscape, which is especially emphasised in the hedonist discourse, by fostering jobs for inhabitants and by improving infrastructure. Organic agriculture is mentioned several times (4 references), mainly justified by the nature conservation discourse. Figure 8 provides a graphical presentation of the dominant discourses on ecological approaches in Germany (Bavaria) during CAP 2014- 2020. Details on the number of coding references across the farming systems and the discourses are presented in Appendix A4, Table A.4.6. Something special about this RDP period might be the animal welfare aspects that are based on the community sustainability discourse. So these animal welfare measures are not established because of nature or animal protection, but rather because of consumers' requests.

As stated above, the dominant discourses of the first two RDP's were multifunctionality, with nature conservation as a main sub-discourse. Extensive (grass-based) farming practices as well as those related to agroecology play an important role over the three RDPs since large parts of Bavaria are concerned by extensive livestock production (milk and meat). The practice "Organic agriculture" is also present over the three periods mainly related with the nature conservation discourse. It is interesting to see that over the years hedonist discourse has been replaced by a nature conservation discourse.

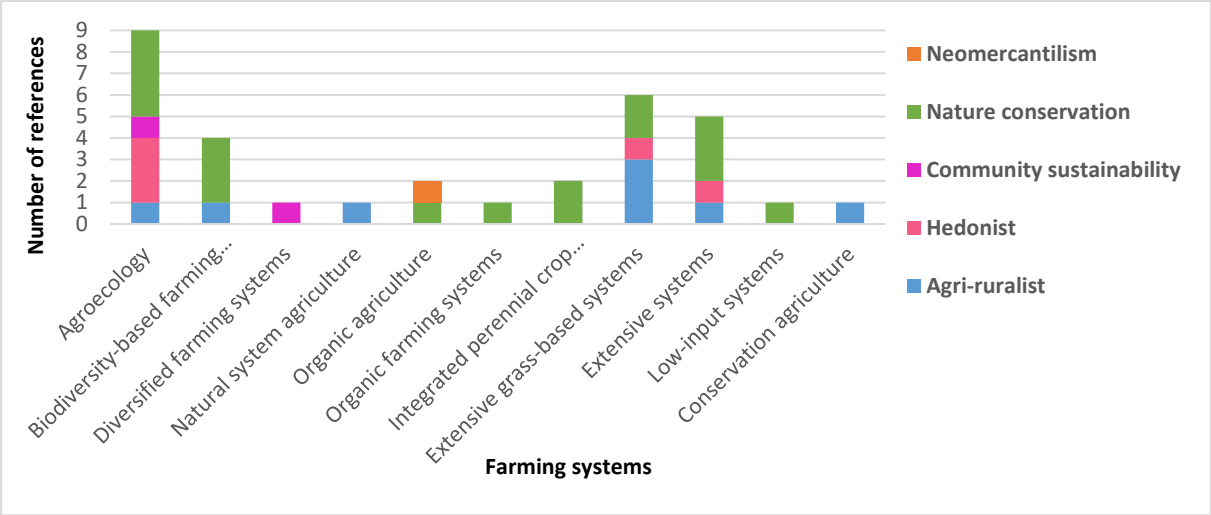

Figure 6: Dominant discourses and ecological approaches in Germany (Bavaria), CAP 2000-2006

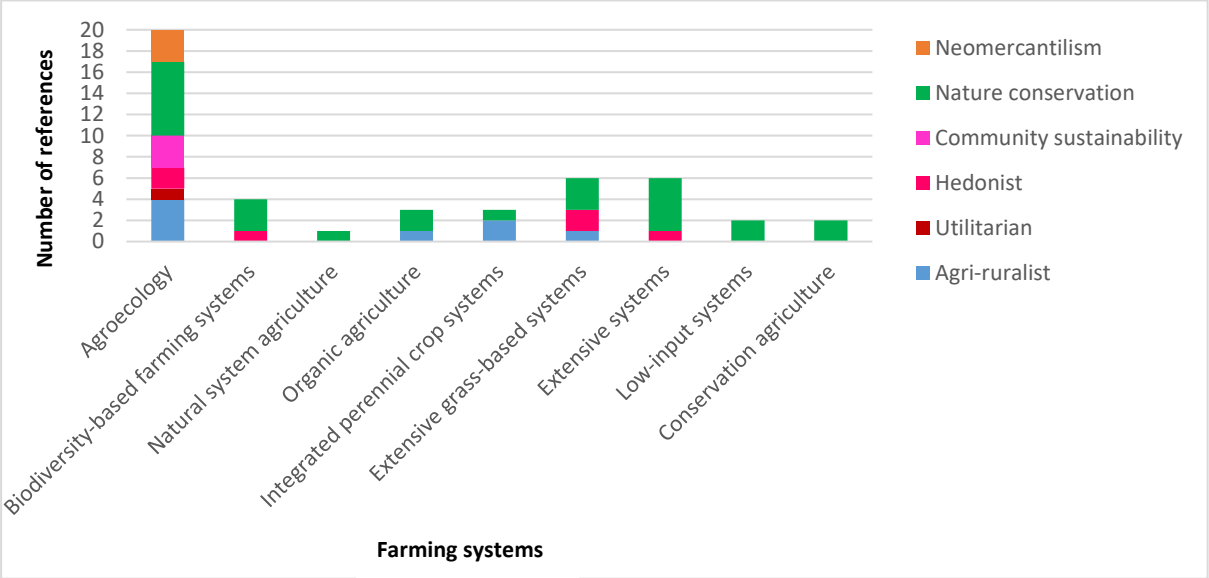

Figure 7: Dominant discourses and ecological approaches in Germany (Bavaria), CAP 2007-2013

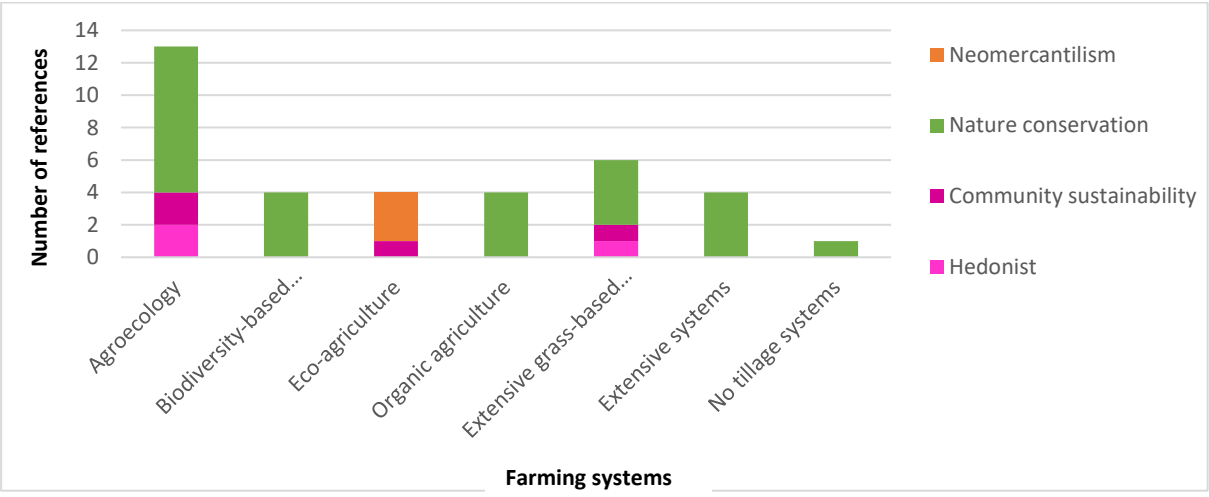

Figure 8: Dominant discourses and ecological approaches in Germany (Bavaria), CAP 2014-2020

5.1.3 Hungary

5.1.3.1 *National context on ecological approaches in Hungary*

Hungary covers 93,000 km^2 with a population of 9.7 million. With an unfavourable (decreasing) demographical situation and an ageing population, RDPs were expected to help its underdeveloped economy and infrastructure. In Hungary, 87% of the country is considered rural, and 47% of the population lives in these areas (NHRDP 2011). Agricultural activities take place on 63%, i.e. 6.9 million hectares of the total area. Hungary introduced organic labelling of agricultural products with the Act on Organic Farming passed in 2001 (NRDP 2006:25). The structure of farming is problematic since it is almost exclusively focusing on crops, where 70% of the production are grains (NHRDP 2011:18). Hungary is characterised with a wide-ranging biodiversity (NHRDP 2011: 27), and the size of nature conservation areas is considerable (NHRDP 2011:27). Erosion and the loss of organic nutrients are an important issue in the documents of all programming periods.

5.1.3.2 *Discourse analysis on ecological approaches in Hungary*

Nature conservation discourse is a distinct leader of the **policy discourse in the CAP period 2004-2006**[3] (13 references were found). **Agri-ruralist** discourse is the second most referred category (6 references). A number of references within the nature conservation discourse focus on the prominent problem of Hungarian agriculture, namely soil erosion, e.g. "Environmental problems related to agriculture, such as soil erosion, soil degradation, compaction due to inappropriate land use and cultivation techniques, loss of habitats for wildlife and landscape elements and the need for alternative, low-input farming systems call for new solutions, sound techniques in farm management." With respect to organic farming only rather general statements can be found e.g.: "Conversion to organic farming systems provides gains in terms of soil health and fertility, benefits for biodiversity and wider landscape benefits through the use of organic soil cultivation, crop rotation and the absence of synthetic pesticides, herbicides and fertilizers." **Agroecology** is the most **prominent farming system** mentioned in the policy document of this programming period. It is followed by **biodiversity-based farming systems** with 3 references. The other farming systems are generally mentioned 2 times each and 3 references could not be classified within a specific farming system but related to ecological approaches in a broader sense, later referred in the next paragraphs as "ecological farming". Within agroecology the main issue seems to be the large scale nature of Hungarian agriculture: "The development of agricultural technologies in line with the so-called American model and the general introduction of the intensive use of plant protection chemicals and fertilisers during the 1970s and 80s, along with the agricultural crisis of the 90s caused by the general economic downturn led to the almost total eradication of traditional, environment-oriented, resource-efficient forms of farming" (NRDP 2006:55). As a result of the very intensive farming, often not considering agroecological conditions the physical, chemical and biological condition of soils has deteriorated (NRDP 2006:52). Graphical presentation of the dominant discourses on ecological approaches in Hungary during CAP 2004-2006 is given in Figure 9. Details on the number of coding references across the farming systems and the discourses are presented in Appendix A4, Table A.4.7.

Multifunctionality continues to be a **dominant policy discourse in the CAP** period 2007-2013, represented with **two main sub-discourses nature conservation** (33 references) and **agri-ruralist** (15 references). The **neomercantilism** is also a significant discourse (10 references). Within the nature conservation discourse, soil erosion and deterioration of soil fertility are commonly referred problems, "caused by wind and water erosion, abandonment of cultivation, the loss of biodiversity, and soil compaction. Out of the total of the country's arable-land area, died-out plantations, abandoned land are

[3] Hungary joined the EU in 2004, therefore the first period of the analysis refers to 2004-2006.

amounted to 1.9% in 2005" (NHRDP 2011:37) or "Certain environmental problems mainly originate in soil degradation and inadequate nutrient management (unfavorable trends of nutrient ratios). The rate of area treated with organic manure decreased by 21.5% between 1994 and 2005, and the quantity of manure used dropped by nearly 25.5%" (NHRDP 2011:37). The following statement "The agri-environmental payments contribute to the development of rural areas and provide environmental services for the whole of the society. They encourage farmers to apply production methods that are compatible with the sustainable use of the environment, the landscape and the natural resources and the conservation of genetic sources on agricultural lands."(NHRDP 2011:178) gives an example of the agri-ruralist discourse in this programming period. With respect to **farming systems, agroecology** (12 references) is followed by **biodiversity-based farming systems** (9 references), **ecological farming systems** (9 references) and **conservation agriculture** (8 references). Organic farming systems are increasingly recognised in this document. Graphical presentation of the dominant discourses on ecological approaches in Hungary during CAP 2007-2013 is given in Figure 10. Details on the number of coding references across the farming systems and the discourses are presented in Appendix A4, Table A.4.8.

Same as for the previous two periods, during CAP 2014-2020, **nature conservation** is leading with 15 references followed by the **agri-ruralist** discourse with 5 references. Nature conservation discourse usually focuses on the promotion of low input systems e.g. extensive systems as emphasised by the following quote: "the suppressing of traditional extensive farming methods and in parallel with it the degradation of semi-natural habitats established and maintained by the extensive agricultural practices can be observed in quite a lot of areas alongside with the environmental problems. In these areas the promotion of extensive farming is a key task. This has positive impact on food quality and also on employment, due to its greater labour intensity" (MVP 2014:54). With respect to **farming systems, agroecology and organic farming systems** are mentioned in 5 references each. Organic farming systems are better represented in this programming period. It is illustrated with two rather contradictory statements: "In Hungary there are great traditions of organic farming since 1988" (MVP 2014:210) and "The proportion of controlled areas has not changed significantly following either the EU accession of Hungary in 2004 or the introduction of the agri-environmental payments. The covered area is between 122,000 and 145,000 hectares. In 2010 it has just exceeded 130,000 hectares. Based on 2010 data nearly 65,000 hectares of land under organic cultivation do not receive agri-environmental support" (MVP 2014:210). Figure 11 provides a graphical presentation of the dominant discourses on ecological approaches in Hungary during CAP 2014-2020. Details on the number of coding references across the farming systems and the discourses are presented in Appendix A4, Table A.4.9.

There is a striking difference between references recorded in different programming periods, where the 2007-2013 period has the highest number of references (77), compared with 22 and 24 references in 2004-2006 and 2014-2020. This result is somewhat expected, considering Hungary's 2004 accession to the EU. Thus, in the first (2004-2006) programming period, Hungary's policymakers were preparing to integrate local RDPs into the community policies, whilst the 2007-2013 document seemingly fully uses the opportunities opened through accession. The discourse generally focuses on nature conservation, with 13, 31, and 15 references in 2004-2006, 2007-2013 and 2014-2020 programming periods respectively. This is not surprising, since erosion (mostly wind and to some extent water), and the loss of organic nutrients are an issue in the documents of all programming periods. The neoliberalist policy discourse seems to be the least important in Hungarian policy documents since it is only found once for all programming periods.

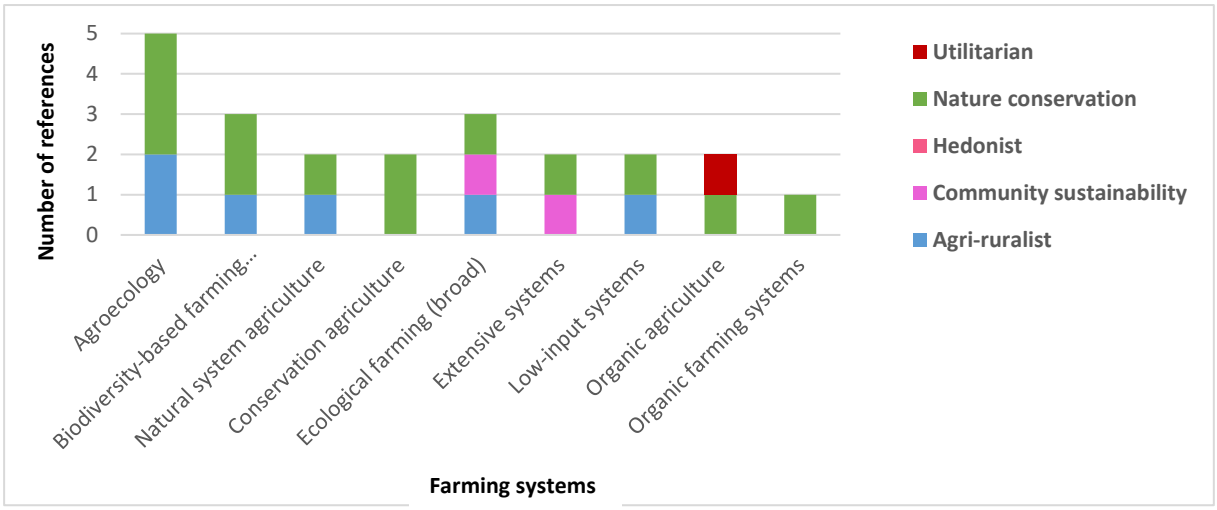

Figure 9: Dominant discourses and ecological approaches in Hungary, CAP 2004-2006

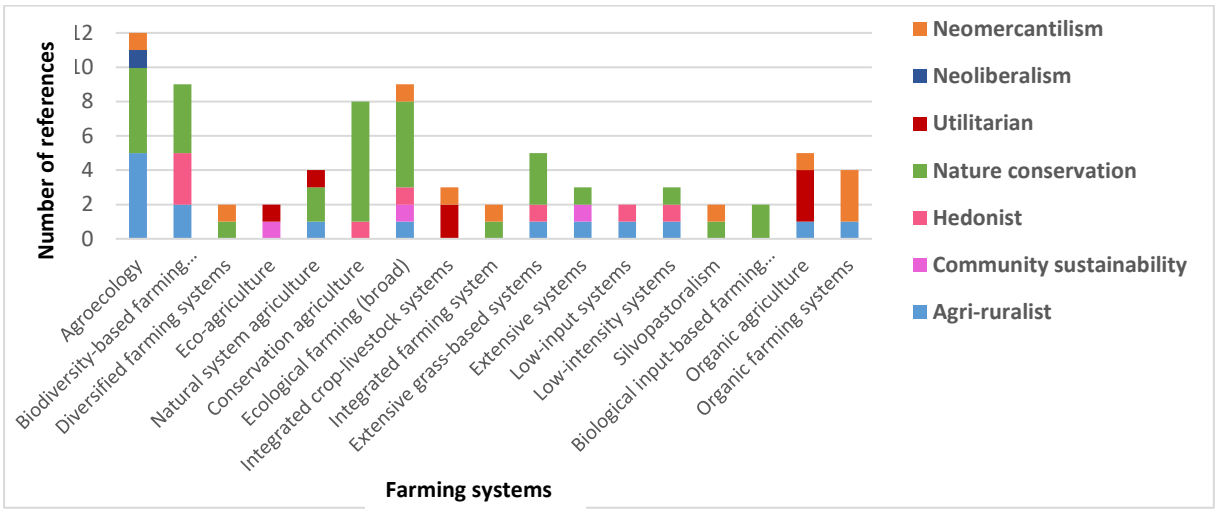

Figure 10: Dominant discourses and ecological approaches in Hungary, CAP 2007-2013

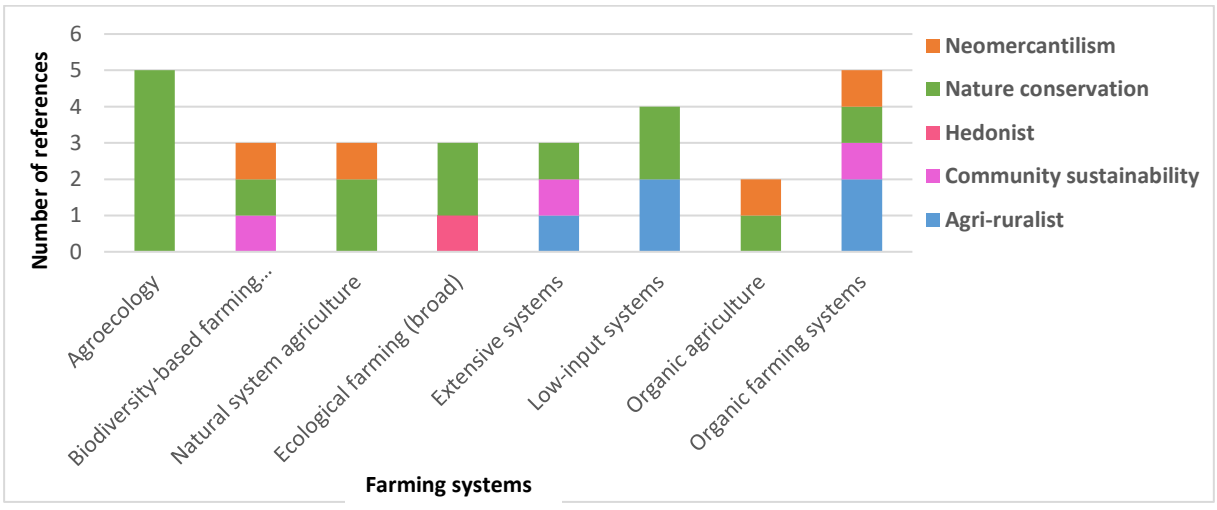

Figure 11: Dominant discourses and ecological approaches in Hungary, CAP 2014-2020

5.1.4 Poland

5.1.4.1 *National context on ecological approaches in Poland*

When entering the EU in 2004, Polish agriculture had preserved its traditional character. The majority of holdings have a mixed production pattern and apply extensive methods of cultivation, mainly based on the farm's own supply of feedstuffs. Due to the low productivity, the impact of agriculture on the environment and landscape is limited. The natural qualities of rural areas and abundant labour resources provide opportunities for the development of labour-intensive farm production, particularly in organic farming (RDP 2004-2006 2005:9). Over the years there is a growing interest in high quality production, such as regional products, organic products[4] and integrated farming products in Poland (RDP 2007-2013 2007:68). As regards biodiversity, Poland is one of the best-endowed countries in Europe, especially in south-eastern regions of the country, due to continued existence of the traditional agricultural economy in these areas (RDP 2004-2006 2005:36). High biodiversity of rural areas provides basis for the implementation of agricultural and environmental undertakings (RDP 2007-2013 2007:114). In the structure of agricultural land, meadows and pastures, most valuable habitats for biodiversity, occupy almost 21.9% of farmland. The diversity of agricultural area habitats creates favourable conditions for the stable presence of around 702 vertebrates including 100 bird species (RDP 2004-2006 2005:36). Grasslands, which occupy about 22% in the structure of agricultural land, have a special value for the maintenance of biodiversity (RDP 2014-2020 2018:47).

5.1.4.2 *Discourse analysis on ecological approaches in Poland*

The dominant discourses identified over the **CAP period 2004-2006**[5] refer to the **multifunctional discourse** with the sub-discourses of **agri-ruralism and nature conservation and** (with 5 and 12 references respectively). Polish policy documents from the 2004-2006 period usually refer to farming systems of agroecology (12 references out of 25), which is described both in nature conservation and agri-ruralism discourses. For example, the Polish government stresses the importance of "good farming practices conducted in accordance with the requirements of environmental protection (counteracting water contamination, soil erosion) protection and shaping of landscape, protection of the species of wild fauna and flora, endangered with the extinction and of their habitats" (RDP 2004-2006 2005:130). Agri-environmental programmes "aim to promote sustainable agricultural production, maintain the countryside, improve the landscape, and provide incentives for the implementation of biodiversity" (RDP for Poland 2004-2006 2005:85). Organic agriculture is the second most referred farming system (4 references), mainly related with nature conservation, but also with community sustainability and neomercantilism. Figure 12 provides a graphical presentation of the dominant discourses on ecological approaches in Poland during CAP 2004-2006. Details on the number of coding references across the farming systems and the discourses are presented in Appendix A4, Table A.4.10.

The dominant discourses identified over the **CAP period 2007-2013** refer to the **multifunctional discourse** with the sub-discourses **of agri-ruralism, nature conservation and community sustainability** (represented with 11, 9 and 5 references respectively). Farming systems such as **agroecology** (13 references), **integrated farming system** (11 references) and **organic agriculture** (5 references) are among the most represented. Agroecology is described mostly within a multifunctional discourse, mostly related to the themes of nature conservation and agri-ruralism. For instance, the main objective of measure 4 of the RDP 2007-2013 (supporting agri-environmental actions and increasing animal welfare) is

[4] The Act on Organic Farming was passed in 2001, regulating the conditions of engaging in agricultural production and food processing utilising organic methods and establishes a system of audit and certification of such production and processed products (RDP for Poland 2004-2006, 2005, p. 25)

[5] Poland joined the EU in 2004, therefore the first period of the analysis refers to 2004-2006.

to "promote the agricultural production systems compliant with the environmental protection requirements". Integrated farming system is also described mostly within a multifunctional discourse and the sub-discourse of agri-ruralism (including themes such as farmers as stewards, respect of the environment and safe, good quality food production), but is also often justified for neomercantilist purposes, with interventions aimed at improving the competitiveness of the agricultural sector and multiple governmental regulations. As in the previous period, organic agriculture is described within various sub-discourses of multifunctional discourse, such as community sustainability, nature conservation, agri-ruralism and neomercantilism. Graphical presentation of the dominant discourses on ecological approaches in Poland during CAP 2007-2013 is given in Figure 13. Details on the number of coding references across the farming systems and the discourses are presented in Appendix A4, Table A.4.11.

The dominant discourses identified over the CAP period 2014-2020 refer to the **multifunctional discourse** with the **sub-discourses** of **nature conservation and agri-ruralism** (20 and 7 references respectively). However, the neomercantilist discourse was also present (13 references). Polish policy documents from the 2014-2020 period refer to various farming systems, mostly **biodiversity-based farming system** (9 references), **agroecology** (8 references), **integrated arable farming system** (5 references), **organic farming system** (4 references) and **low external input system** (3 references). Biodiversity-based farming system is mostly described within a multifunctional (agri-ruralism and nature conservation) discourse. The Polish government expresses the objective of preserving "the surface area of traditional varieties of fruit trees, the living environment of many organisms, the traditional method of cultivation and the characteristic element of the rural landscape" (RDP 2014-2020 2018:299). However, it is sometimes described within a neomercantilist discourse, for example when endangered local varieties of arable crops and valuable farmed animal breeds are depicted as public goods and need to be protected through state assistance (RDP 2014-2020 2018:289). For agroecology the dominating sub-discourse was the nature conservation, with emphasis on "restoring, preserving and enhancing ecosystems related to agriculture" (RDP 2014-2020 2018:173). Integrated arable farming system was described mostly in neomercantilist discourse, but also in multifunctional discourse focusing on nature conservation, with the objective of "proper use of soils, protection against water erosion, action against loss of soil organic matter, protection of water against pollution" (RDP 2014-2020 2018:295). Organic farming system was described mostly using neomercantilist discourse, with multiple EU and governmental regulations, specific control and certification scheme. Low external input system was described mostly by the multifunctional discourse, especially within the sub-discourse of nature conservation. Graphical presentation of the dominant discourses on ecological approaches in Poland during CAP 2014-2020 is given in Figure 14. Details on the number of coding references across the farming systems and the discourses are presented in Appendix A4, Table A.4.12.

Dynamics across the CAP periods shows that **nature conservation** was important in all CAP periods, with the highest emphasis in the programming period 2014-2020. **Neomercantilism** increases its importance in the following programming periods. Also the **agri-ruralist** discourse was relatively strong in all programming periods, with the greatest importance in the years 2007-2013, where it was present slightly more often than nature conservation. **Community sustainability** discourse was relatively weak in all programming periods, gaining slightly more importance in the years 2007-2013. The **hedonist** discourse was not heavily present in any programming period and was entirely absent and in the years 2014-2020. In all programming periods the neoliberalist discourse was absent; similarly, the utilitarian discourse. **Agroecology** was the most represented farming system in all CAP periods. **Integrated farming systems** were also heavily represented in the last two programming periods, especially in the years 2007-2013. The representation of **organic farming systems** increased over time, becoming as often represented as **integrated farming systems** in the CAP period 2014-2020. In this period also **extensive**

systems gained representation significantly, compared to previous **CAP periods. Conservation agriculture** was the least represented system in all examined periods.

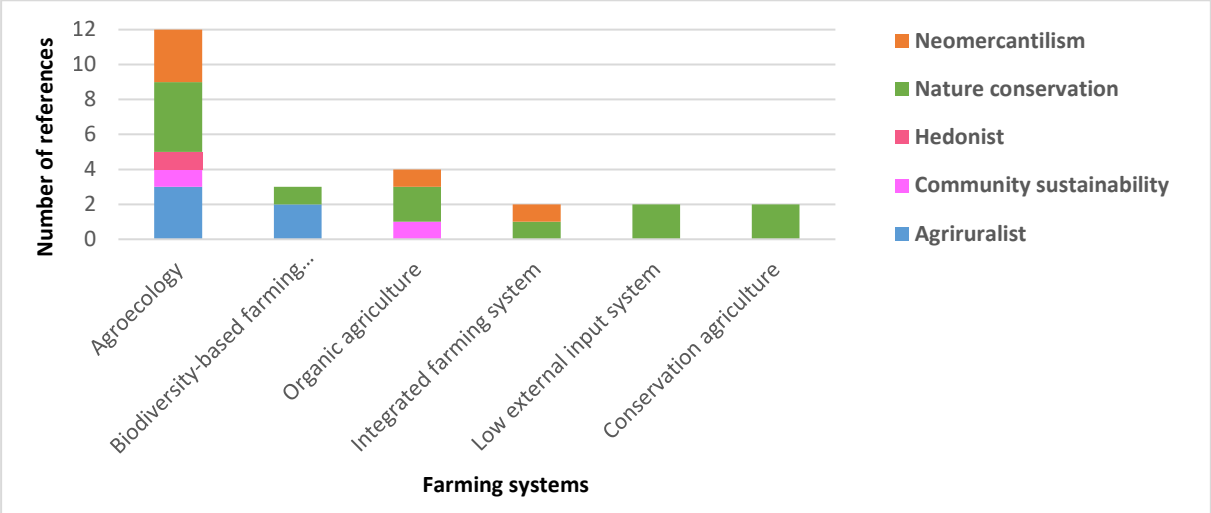

Figure 12: Dominant discourses and ecological approaches in Poland, CAP 2004-2006

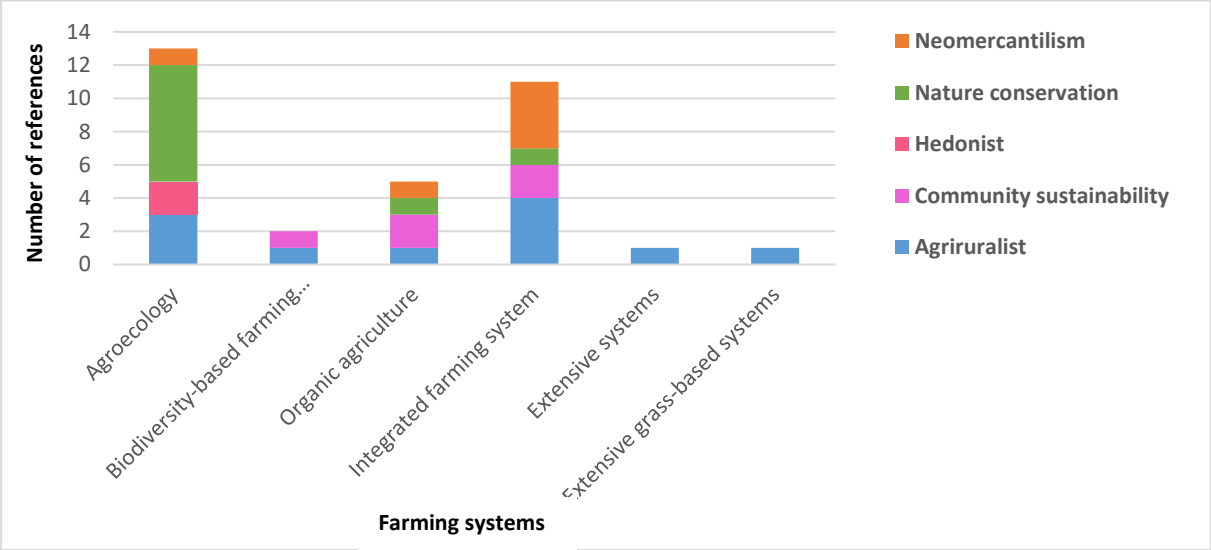

Figure 13: Dominant discourses and ecological approaches in Poland, CAP 2007-2013

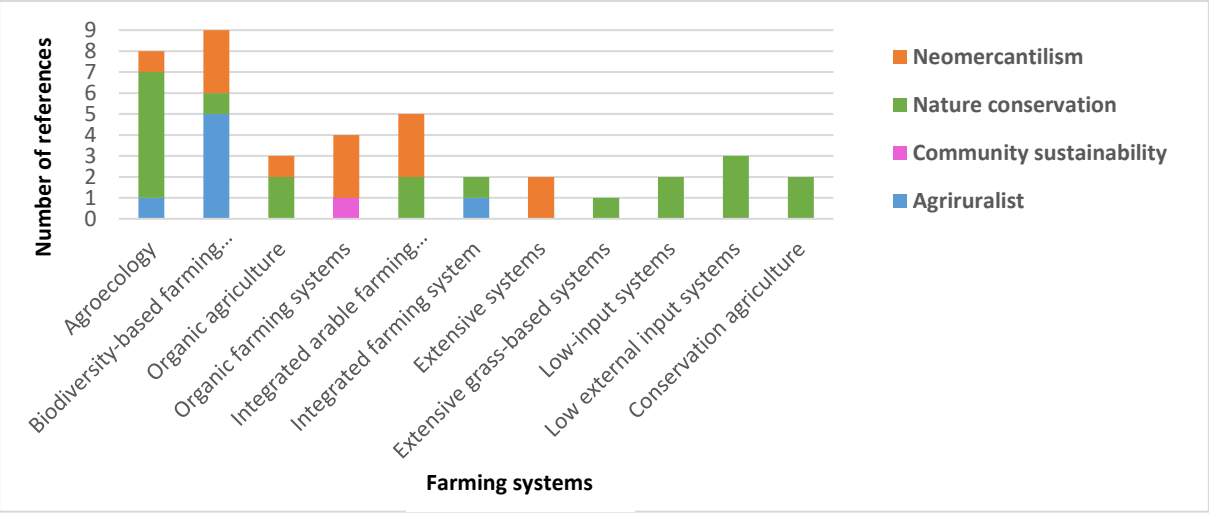

Figure 14: Dominant discourses and ecological approaches in Poland, CAP 2014-2020

5.1.5 Romania

5.1.5.1 *National context on ecological approaches in Romania*

Natural environment in Romania is generally characterised by relatively good state of conservation of natural soil and water resources, with variety of traditional landscapes and rich biological diversity (NRDP 2019:71). In Romania 80% of the utilised agricultural area is characterised by low intensity farming activity, highly (more than half of Romania's agricultural land area) affected by various soil degradation phenomena (NAEP 2018:257). Pastures and hayfields represent 33% of the agricultural land, and the conservation status in these agricultural habitats is favourable in 85.7% of the evaluated habitats (in 2012). In 2014, 21% of total agricultural area in Romania was classified as high natural value land as a result of the great variety of species in the permanent pastures, characterised with traditional mowing or grazing activities (NRDP 2019:91). The greatest part of water resources in Romania (surface and ground waters) is classified as high quality. At present, the Romanian agriculture is not considered a main polluting factor of surface and ground waters, as the number of livestock herds, the application of mineral fertilisers and the greenhouse gas emissions are low. However, the greenhouse gas emissions from the improper manure storage and application continue to be at a high level (NRDP 2019:74).

5.1.5.2 *Discourse analysis on ecological approaches in Romania*

The period 2007-2013[6] was characterised by a prevalence of the **multifunctional discourse** with sub-discourses of **nature conservation** (10 references), and **agri-ruralism** (5 references). Some references were also found for the community sustainability discourse (4 references), the hedonist- and neoliberalist discourse (2 references each). **Agroecology** is the most **dominant farming systems**, targeting the modernisation and development of farms and the sustainability of rural communities. During this period the nature conservation discourse refers in most of the cases to agroecology, but also addressed farming systems such as integrated perennial crop, organic farming silvopastoralism and conservation agriculture. Specific examples related to nature conservation discourse are that "proper use of agricultural land should contribute to the protection of bird species" (NRDP 2015:89) or "actions for the survival of global and local ecosystems" (NPRD 2015:90). Agri-environmental payments, payments provided for afforestation of agricultural land, and for improving the economic value of forest are expected to encourage farmers to apply agricultural production methods compatible with the protection

[6] Romania joined the EU in 2007. The first period of the analysis refers to 2007-2013.

and improvement of the environment, of landscape and its characteristics of natural resources, soil and diversity. Elements of hedonist discourse were represented by the rural recreational opportunities, with measures directed towards construction and development of viable variants of rural tourism. Graphical presentation of the dominant discourses on ecological approaches in Romania during CAP 2007-2013 is given in Figure 15. Details on the number of coding references across the farming systems and the discourses are presented in Appendix A4, Table A.4.13.

In the CAP period 2014-2020 the multifunctional discourse is prevailing, with particular emphasis on the sub-discourse of **nature conservation** (36 references) and **agri-ruralism** (27 references), in line with the two environmental priorities of the RDP, i) Priority 4: restoring, preserving and enhancing ecosystems related to agriculture and forestry and ii) Priority 5: promoting resource efficiency and supporting the shift towards a low carbon and climate resilient economy in the agriculture, food and forestry sectors. These sub-discourses are mainly identified for practices characteristic for **agroecology** (24 references)**,** as well as organic (19 references) and biodiversity-based farming systems (11 references). Other farming systems such as integrated arable farming systems, extensive grass-based systems, extensive systems, minimum tillage systems are also identified, but their presence is smaller (with approx. 5 references each). In most cases organic farming systems are associated with the agri-ruralist sub-discourse. In the policy documents "Organic agriculture promotes extensive farming practices, supplying public environmental goods and responding to the society demand for the use of environment-friendly agricultural practices, as well as to the increased consumer demand for organic products. In addition to their environmental benefits, organic agriculture is expected to serve as a basis for increasing the added value of agricultural production and developing economic activities at local level" (NPRD 2019:557). The economic dimension of this type of agriculture is emphasised by the "growing trend of the organic sector" (NPRD 2019:76), supported by the national RDP, underlying the "increase of the added value of agricultural production and the development of economic activities at local level". At the same time, the organic agriculture farming system is also found, yet with fewer mentions, in other sub-discourses of the multifunctional discourse (community sustainability, utilitarian), as well as in the neoliberalism and neomercantilism discourses. In few cases, there are passages that can fit into hedonist and utilitarian sub-discourses. Graphical presentation of the dominant discourses on ecological approaches in Romania during CAP 2014-2020 is given in Figure 16. Details on the number of coding references across the farming systems and the discourses are presented in Appendix A4, Table A.4.14.

Dynamics across the CAP periods shows that nature conservation discourse was most dominant, during both CAP periods, yet with a significant increase of references in the period 2014-2020 compared to 2017-2013. The agri-ruralist discourse ranks second, and especially its importance increases much in the period 2014-2020. During both periods, most references are found in support of farming practices of agroecology. The focus on organic agriculture increased in 2014-2020.

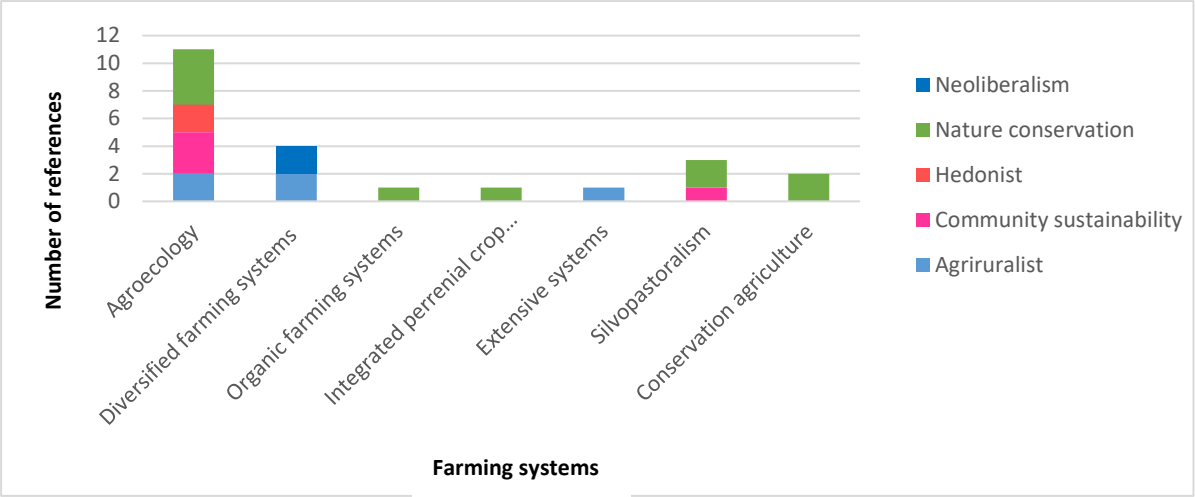

Figure 15: Dominant discourses and ecological approaches in Romania, CAP 2007-2013

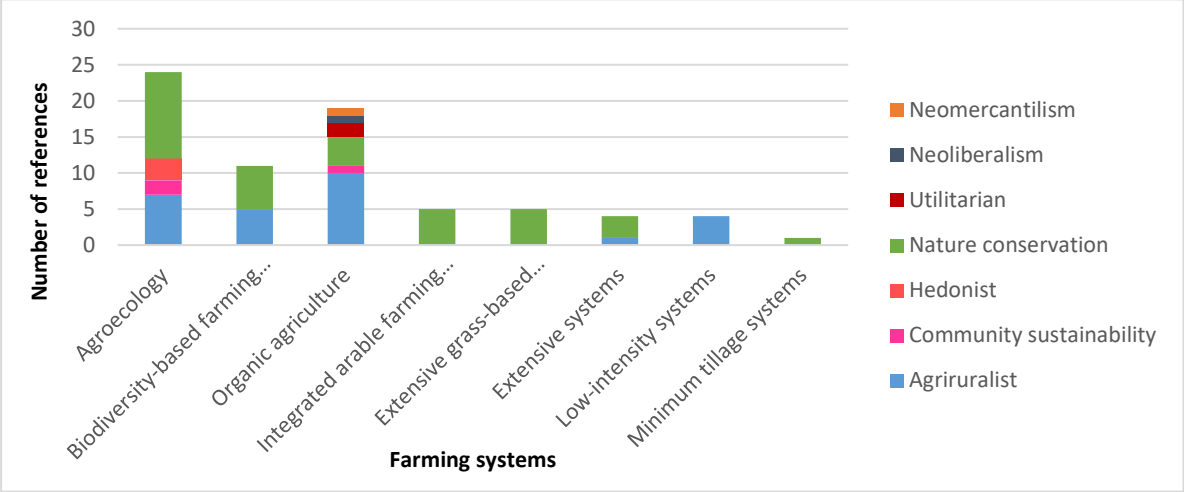

Figure 16: Dominant discourses and ecological approaches in Romania, CAP 2014-2020

5.1.6 Sweden

5.1.6.1 *National context on ecological approaches in Sweden*

Since the beginning of the 1980s, Sweden has shown its ambition to tackle environmental issues in the agricultural sector. Different environmental quality objectives have been adopted by the Swedish Parliament in 1999 as well as measures for limiting the environmental and health risks associated with the use of pesticides (Regeringskansliet 2000:131). Since its accession to the EU in 1995, Sweden has engaged several initiatives to preserve biodiversity, cultural heritage and the environment (Regeringskansliet 2000:53). In fact, Sweden has signed several international agreements to favour biodiversity and environment protection (e.g. Convention on Biological Diversity, UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage, Helsinki Convention) (Regeringskansliet 2000:125). The Swedish agricultural policy continuously highlights the importance of natural pasturelands for preserving biodiversity, cultural heritage and open landscape (Regeringskansliet 2014). Cultivated land is also seen as providing important natural and cultural values (Regeringskansliet 2000:54). The first measures to preserve the "farmed landscape's most valuable natural pastureland and meadows" were introduced in 1998 (Regeringskansliet 2000: 44). While in the 2000-2006 RDP, the report highlights the importance to implement some changes in order to develop and strengthen the

organic sector (Regeringskansliet 2000:105), Sweden is nowadays one of the leading EU countries in converting to organic farming, with 19% of the total agricultural area converted (Jordbruksverket 2018), after Austria with 23% (Eurostat 2019). However, extensive regulations on environmental and animal welfare requirements have influenced profitability and production costs for livestock farms in the sense that this has entailed investments and therefore higher production costs than in other countries (Regeringskansliet 2000:26; Regeringskansliet 2008:56).

5.1.6.2 *Discourse analysis on ecological approaches in Sweden*

The dominant types of discourses found over the **CAP program 2000-2006** refer to the **multifunctionality** with the **sub-discourses of agri-ruralism** (51 references) and **nature conservation** (18 references). The two major farming systems described within an agri-ruralist discourse are **agroecology** (including biodiversity-based farming) and **organic farming**. Riparian strips, grassland, ley farming, local varieties, catch crops, mown meadows and pasturelands are some mentioned farming practices. Measures to promote such practices are justified to limit nitrate pollution and nutrient leaching which affect the environment, improve the soil structure, preserve traditional cultivation (e.g. compensation for the cultivation of brown beans on the island of Öland) and conserve cultural heritage values in the case of semi-natural pastureland and mown meadows. The coded content from decoupling measures of pillar I, very much describes agriculture within a multifunctional perspective, promoting different roles for the sector from securing people's health to protecting the environment. Organic farming is also promoted to limit nutrient leaching and "use the nutrients in the soil and manure in a good manner to get a high crop yield as possible and to preserve the soil" (Regeringskansliet 2000:199). Finally, some references were also coded in the nodes of conservation agriculture (crop rotation, catch crops), integrated farming systems, extensive grass-based systems and reduced-input systems for this type of discourse. The nature conservation discourse has been used to mainly describe biodiversity-based farming system (from the agroecology cluster system) but not so much organic farming. The central focus is put on natural pasturelands which should be managed in such a way to conserve and enhance the fauna and flora. Preserving biodiversity is also mentioned when referring to the agri-environmental measure of conserving local threatened breeds of domestic animals. Ley farming, riparian strips and landscape features are also seen as beneficial for promoting biodiversity and therefore providing important cultural heritage values, concept which overlaps with the agri-ruralist discourse. It is worth noting that what is promoted within this discourse is an integrated approach of nature conservation in which cultivation favours biodiversity rather than a segregation between nature and agriculture. Finally, the very few coded references within the hedonist discourse refer to agroecology and argue that "Previously cultivated pasturelands are important for the appearance of the landscape" (Regeringskansliet 2000:81). The neomercantilist discourse is also present but less apparent (4 references) as well as the hedonist discourse (2 references). The neomercantilist discourse mostly refers to the organic farming system which is described within a productivist sense. Graphical presentation of the dominant discourses on ecological approaches in Sweden during CAP 2000-2006 is given in Figure 17. Details on the number of coding references across the farming systems and the discourses are presented in Appendix A4, Table A.4.15.

The dominant discourses identified over the **CAP period 2007-2013** refer to the **multifunctional** discourse with the sub-discourses of **agri-ruralism** and **nature conservation.** Swedish policy documents from the 2007-2013 RDP usually refer to two main farming systems: agroecology and organic farming systems. Both systems are described within a multifunctional discourse but policy measures and strategies supporting organic agriculture are more often justified for neomercantilist purposes than for agroecology. For instance, the Swedish government stresses the importance of increasing organic food supply (productivism) especially through investments (e.g. of measure: "adding value to agricultural

products and forestry products") and government intervention by fostering the "consumption of certified organic products in the public sector" (Rereringskansliet 2008:55). Organic agriculture is also described as an opportunity for diversification of the Swedish rural economy, which echoes one of the utilitarian rationales. Regarding agroecology, several policy measures related to practices of sustainable grazing and selection of breeds and cultivars highlight the objectives to preserve natural and cultural values of the Swedish agriculture. Some interesting recurrent keywords used when referring to agroecology are "cultural heritage", "natural", "biodiversity" while "market", "products", "natural" or "efficient" are used when organic farming is mentioned. Graphical presentation of the dominant discourses on ecological approaches in Sweden during CAP 2007-2013 is given in Figure 18. Details on the number of coding references across the farming systems and the discourses are presented in Appendix A4, Table A.4.16.

The **multifunctionality discourse** continues to be dominant over **2014-2020**, represented mostly with the **agri-ruralist sub-discourse** (125 references). Community sustainability, hedonist, nature conservation and utilitarian appear in few occasions. Across the farming systems **agroecology** is the most dominant (75 references), followed by extensive **grass-based systems**, **reduced-input systems** (with 25 and 23 references respectively), **biodiversity-based systems** and **organic agriculture** (with 15 and 14 references). For the RD sub-discourses of multifunctionality, keywords promoting agricultural practices respecting the environment, climate/and or animal welfare, biodiversity, open landscape and cultural heritage, are prevailing. Among the agricultural practices, most evident are those that lead to: decreased overuse of nutrients and nutrient leakage, water quality, greenhouse gas emission. Ecological production is promoted as an appropriate system preventing the physio-chemical, hydro morphological, biological quality of the soil, as well as the animal welfare via feeding methods, and environment that meets the animals' needs for natural behaviour. The extensive grass-based systems are mostly related with appropriate pasture management, increasing the natural and the cultural value of the pastures, the biological diversity, keeping the landscape character. Above-mentioned practices are also explained to contribute to possibilities for development of recreational capacities, recreational experience value, building communities that take care for the nature and cultural heritage, but such hedonist and utilitarian discourse is rather rare. In the Swedish RDP, multiple, multitasking measures to meet these goals, are designed. Most of the policy measures are classified under the sub-measures for support for environmental and climate friendly agriculture. Direct payments contribution to uptake of agro-environmental practices is mainly via the greening requirements (ecological focus area, diversification, maintenance of permanent grassland) aiming at improved environment (biodiversity, erosion, reduced use of chemicals) and limiting the climate change (Regeringskansliet 2014). **Neomercantilism** is identified with 23 references across different farming systems (e.g. agroecology, biodiversity-based- extensive- and reduced input systems, and organic agriculture). Within the neomercantilism discourse, farmers are expected to be compensated (compensation and investment support) for the income decrease and the extra costs originating from the practices producing social goods. Graphical presentation of the dominant discourses on ecological approaches in Sweden during CAP 2014-2020 is given in Figure 19. Details on the number of coding references across the farming systems and the discourses are presented in Appendix A4, Table A.4.16.

Agri-ruralism is the dominant discourse over the whole period, followed by **nature conservation** during the period of 2000-2013, and **neomercantilism** during the period of 2014-2020. Agroecology and biodiversity-based farming, reduced, low input farming systems and organic farming systems are continuously present. We observe over time, an increasing appearance of the neomercantilist discourse. As mentioned previously the long-lasting policy on strict regulations on environmental and animal welfare requirements has influenced profitability and production costs in the sense that this has entailed

investments and therefore higher production costs than in other countries. This may explain the importance of the theme of state protection identified from the discourse analysis and therefore the larger presence of a neomercantilist discourse in the last CAP period.

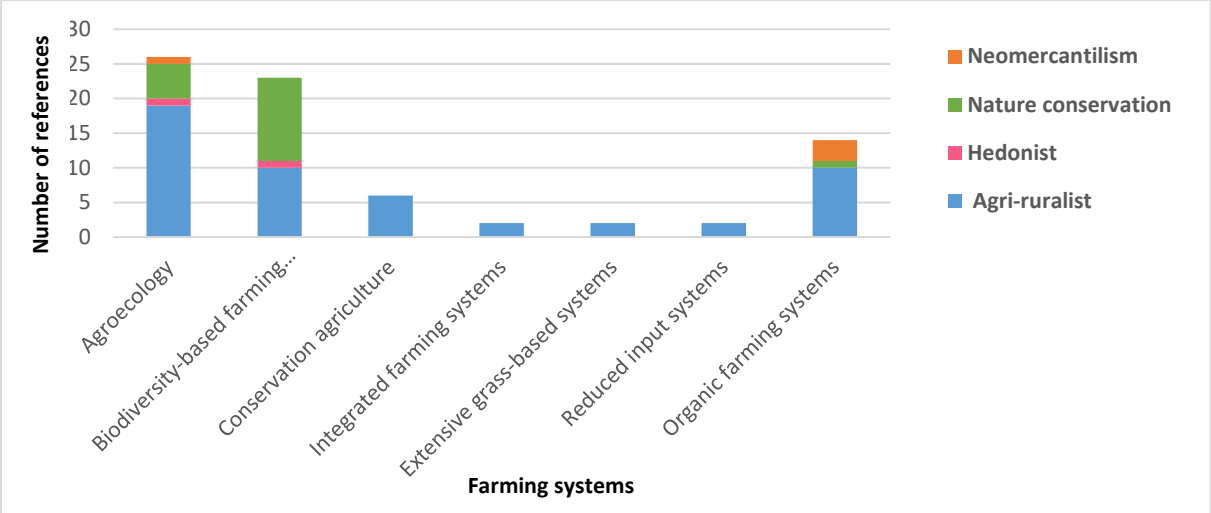

Figure 17: Dominant discourses and ecological approaches in Sweden, CAP 2000-2006

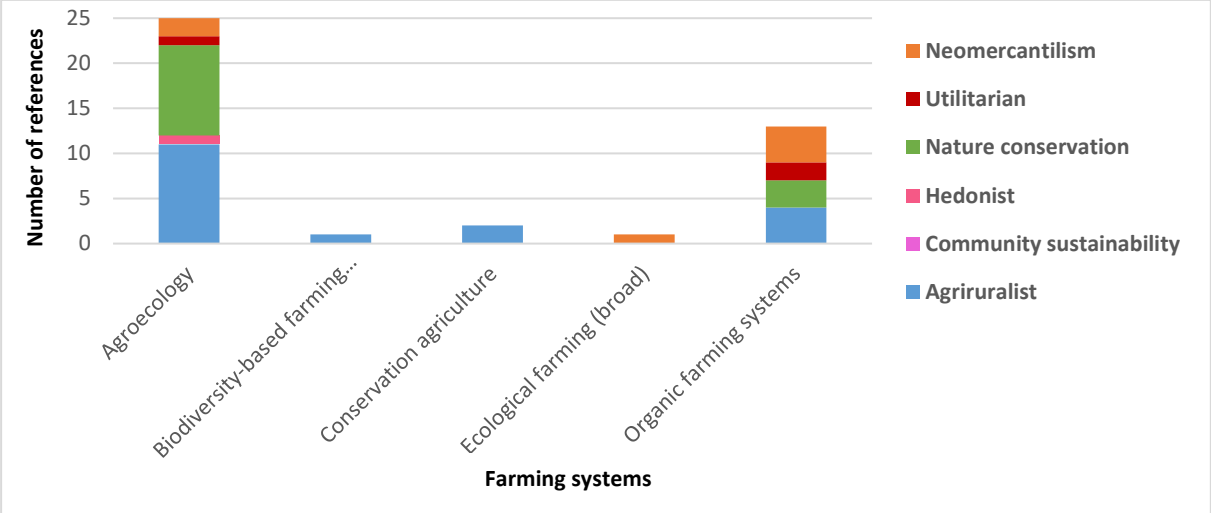

Figure 18: Dominant discourses and ecological approaches in Sweden, CAP 2007-2013

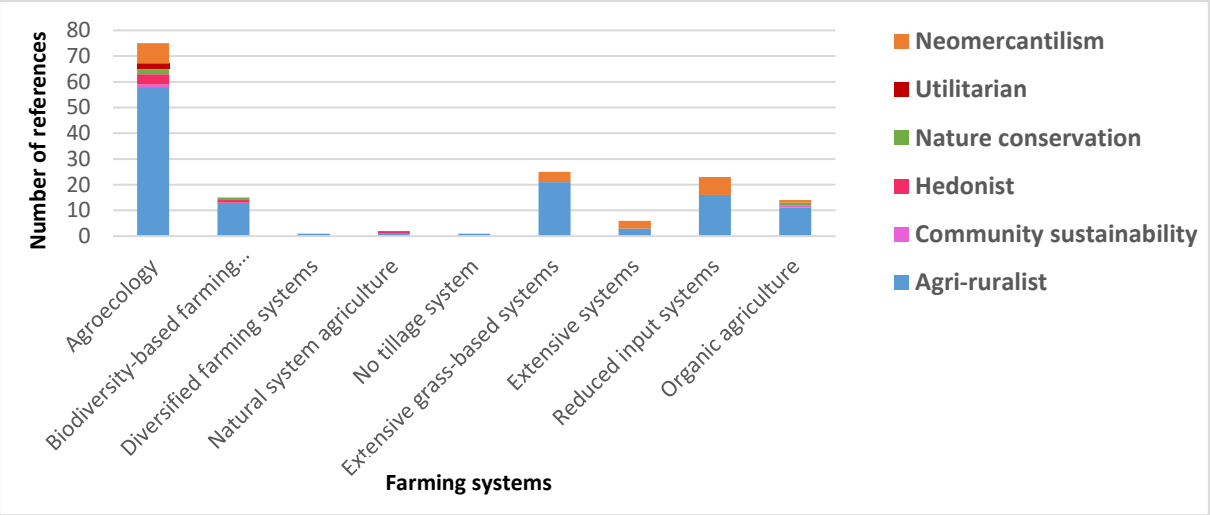

Figure 19: Dominant discourses and ecological approaches in Sweden, CAP 2014-2020

5.2 Cross-country comparison of discourses and farming systems across the CAP periods

In this section we compare the results across countries and time periods by focusing on the type of discourse and the farming systems identified for each CAP period.

As Figure 21 shows, overall in the 6 EU member states, the sub-discourse of **nature conservation** from the multifunctionality discourse dominates in **the first CAP period, i.e. 2000-2006** with 60% of the total coded references in France, 52% in Bavaria, 59% in Hungary and 48% in Poland and 24% in Sweden. In all countries except France, **agroecology,** together with **biodiversity-based** farming system, is the most recurrent type of farming system mentioned in policy documents of the 2000-2006 CAP period (Figure 20). In France, **extensive grass-based** system and **the reduced-input system of low input farming system** are instead the most mentioned types of farming system over this period and nature conservation is mostly used to refer to reduced-input system (see Appendix 4, Table A.4.1). Agroecology is mostly represented with nature conservation for Bavaria, Hungary, Poland and Romania, but not for Sweden where the agri-ruralist discourse is the most dominant one (see Appendix 4, Tables A.4.4, A.4.7, A.4.10 and A.4.13). The second dominant type of discourse over this period is the agri-ruralist sub-discourse of multifunctionality with 9%, 24%, 27%, 20% and 68% of the total coded references in France, Bavaria, Hungary, Poland and Sweden respectively (Figure 21). Except in France, agroecology is the farming system that is most commonly associated to agri-ruralism in Sweden, Romania, Poland and Hungary while this type of sub-discourse is used for extensive grass-based farming system of low input farming in Bavaria. The sub-discourse of community sustainability from multifunctionality appears third with 17%, 6%, 9% and 8% in France, Germany, Hungary and Poland respectively (Figure 21). This discourse is mostly represented in France with 5 references within the extensive grass-based system (see Appendix 4, Table A.4.1). Finally, the neomercantilist discourse is also apparent with 9%, 3%, 20%, and 5% of total coded references in France, Germany, Poland and Sweden respectively (Figure 21). This discourse does not appear in Hungary.

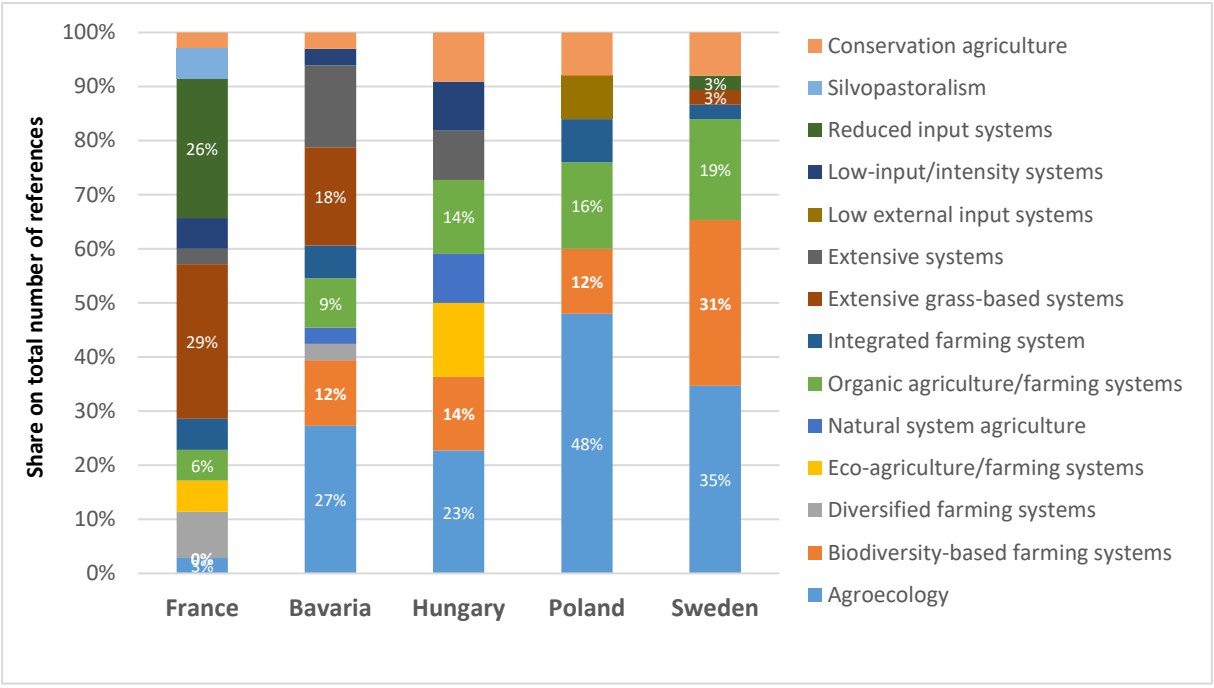

Figure 20: Cross-country comparison of ecological approaches, CAP 2000-2006

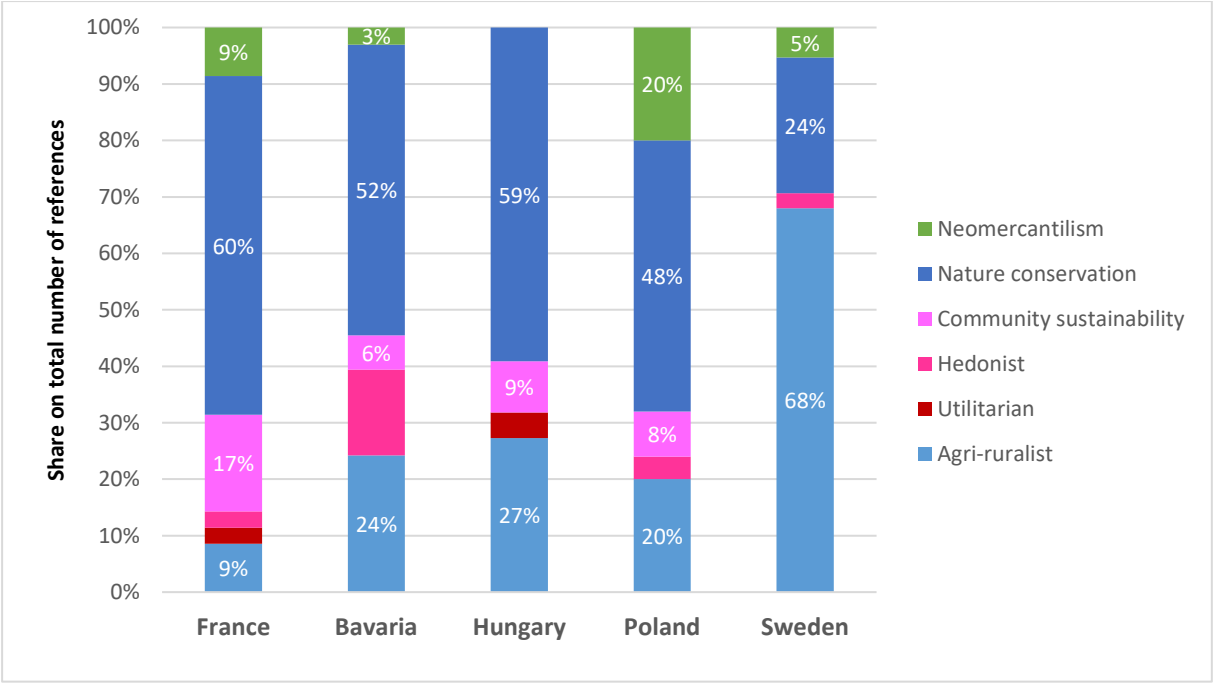

Figure 21: Cross-country comparison of discourses, CAP 2000-2006

In the **CAP 2007-2013**, the sub-discourses of **nature conservation** and **agri-ruralism** from the multi-functionality discourse are still dominating but we notice a slight increase of the representation of the **neomercantilist** discourse with 19 percentage points increase compared to the previous period (Figure 23). **Agroecology** is the most mentioned farming system in all EU members with 60% of the total coded references in Sweden, 48% in Romania, 43% in Germany, 39% in Poland, 25% in France and 16% in in

Hungary (Figure 22). In Poland, integrated farming system follows closely agroecology with 33% of the total coded references while in Sweden organic agriculture appears second with 31% if the total coded references. The sub-discourse of nature conservation is used to refer to agroecology, organic farming and extensive/low input farming systems in France (Table A.4.2); in Bavaria to agroecology and extensive/low input farming (Table A.4.5); in Hungary to agroecology and conservation agriculture (Table A.4.8), in Poland to agroecology, organic agriculture and integrated farming system (Table A.4.11); in Romania to agroecology and conservation agriculture (Table A.4.13) and in Sweden to agroecology and organic agriculture (Table A.4.16). The sub-discourse of **agri-ruralism** is mostly associated to the same types of farming systems as above for France (Table A.4.2), Bavaria (except for low input farming, Table A.4.7) and Hungary (with organic farming as well). In Poland and Sweden, agri-ruralism is the most dominant discourse during this period, mainly associated with extensive farming systems (in both countries), and with conservation agriculture (in Sweden). The **neomercantilist discourse** appears third across all country-cases, except Romania, within the 2007-2013 period. In all country cases except France and Romania, this type of discourse is used to justify measures related to integrated farming systems. It is also related to agroecology in all country cases except Romania, especially in Germany, while in Sweden, it is used mostly to refer to organic agriculture. The sub-discourse of community sustainability is quite present in Poland and Romania for this period with 15% and 17% of the total coded references. In Poland it used to refer to integrated farming system and organic agriculture while in Romania it is mentioned with agroecology and silvopastoralism.

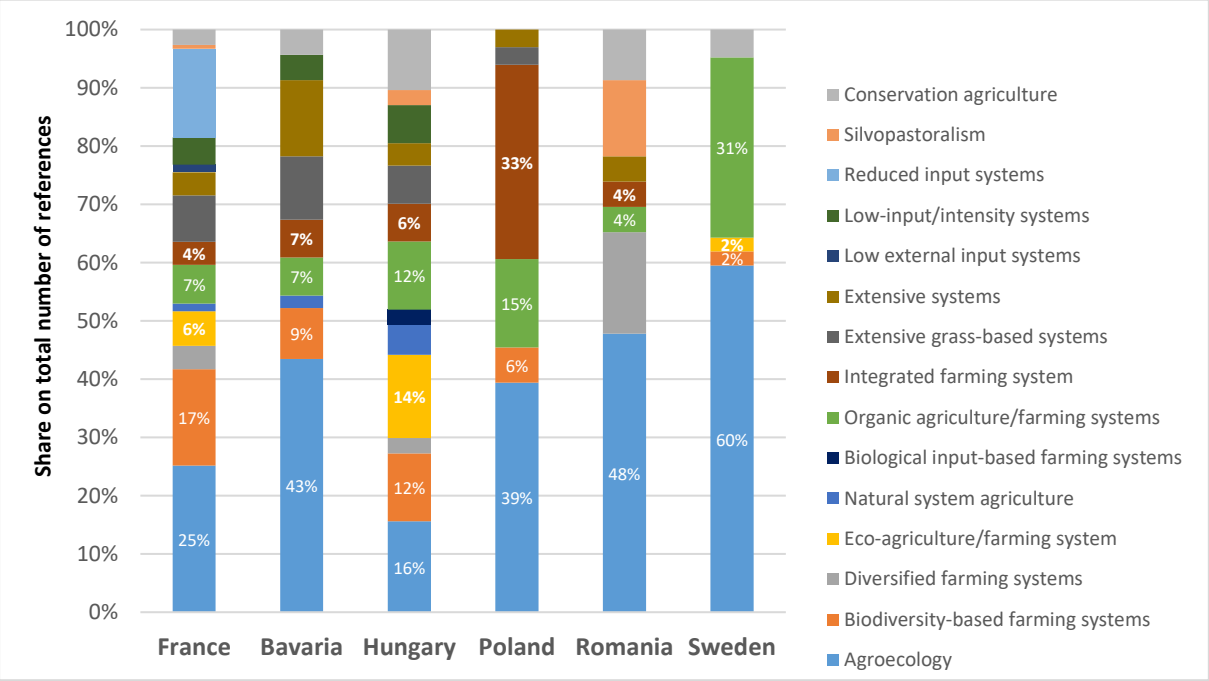

Figure 22: Cross-country comparison of ecological approaches, CAP 2007-2013

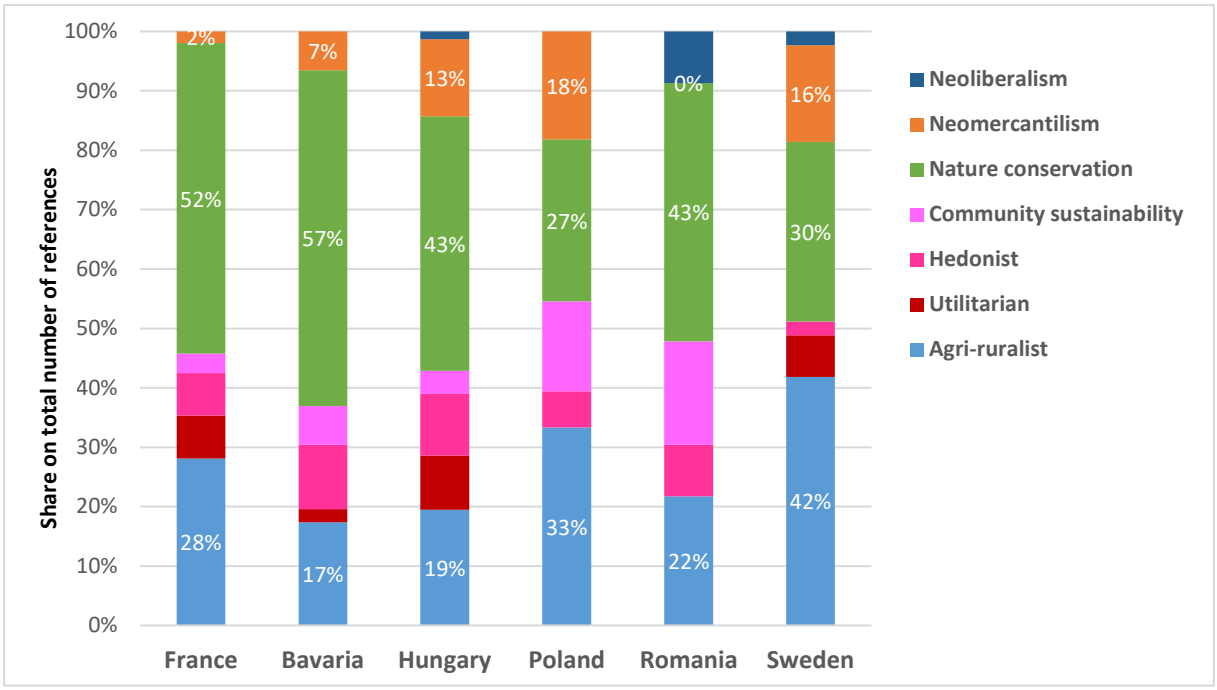

Figure 23: Cross-country comparison of discourses, CAP 2007-2013

In the last CAP period, 2014-2020, the **nature conservation** remains the dominant type of sub-discourse within multifunctionality followed again by **agri-ruralism** (Figure 25). The **neomercantilist** discourse increases again compared to the CAP 2007-2013 period with 29 percentage points increase. **Agroecology** remains the most commonly mentioned farming system while **organic farming** becomes more apparent in this last period across countries with 14 percentage points increase compared to the CAP 2007-2013 period (Figure 24). In fact, organic farming represents 28% of the total coded references in Romania, 25% in Hungary, 17% in Poland, 12% in Germany, 9% in Sweden and 2% in France. In this last period, organic farming is described within a multifunctionality, neomercantilist (only 1 reference, Table A.4.14) and neoliberalist (only 1 reference, Table A.4.14) discourse in Romania; within both multifunctionality and neomercantilism in Hungary (Table A.4.9); within both nature conservation and neomercantilist discourse in Poland (Table A.4.12); within nature conservation in Bavaria; within both multifunctionality and neomercantilism but mostly within agri-ruralism (11 references) in Sweden (Table A.4.17) and finally within a utilitarian sub-discourse in France with 2 references (Table A.4.3).

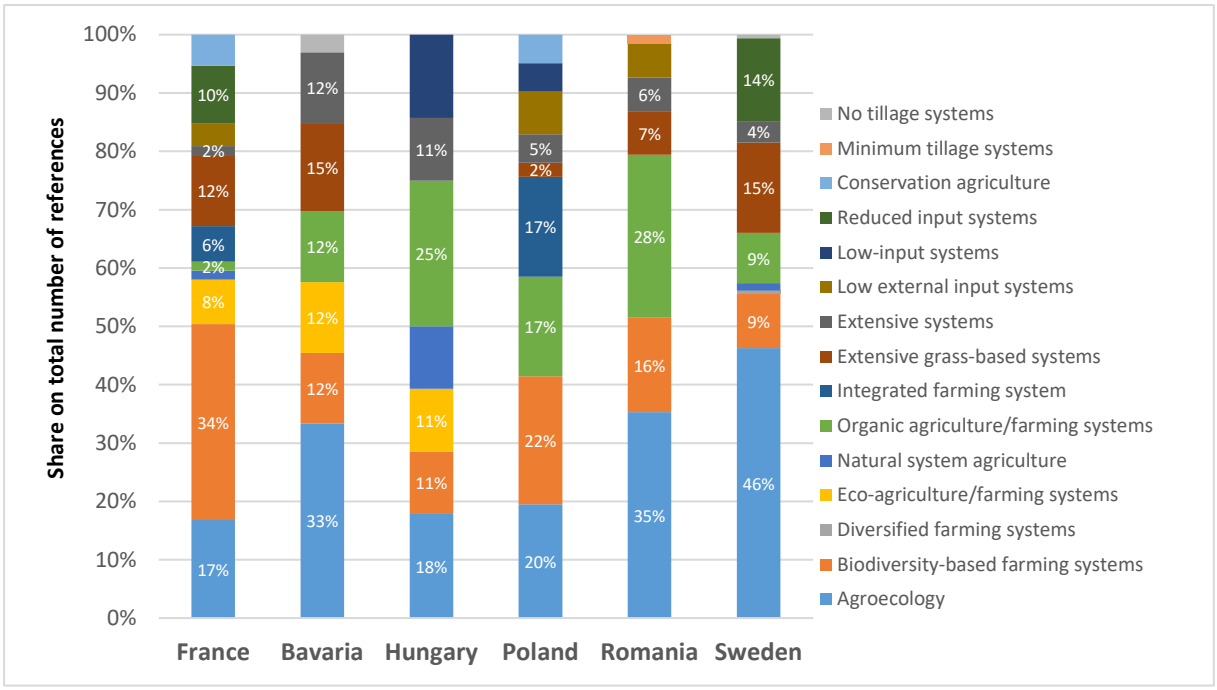

Figure 24: Cross-country comparison of ecological approaches, CAP 2014-2020

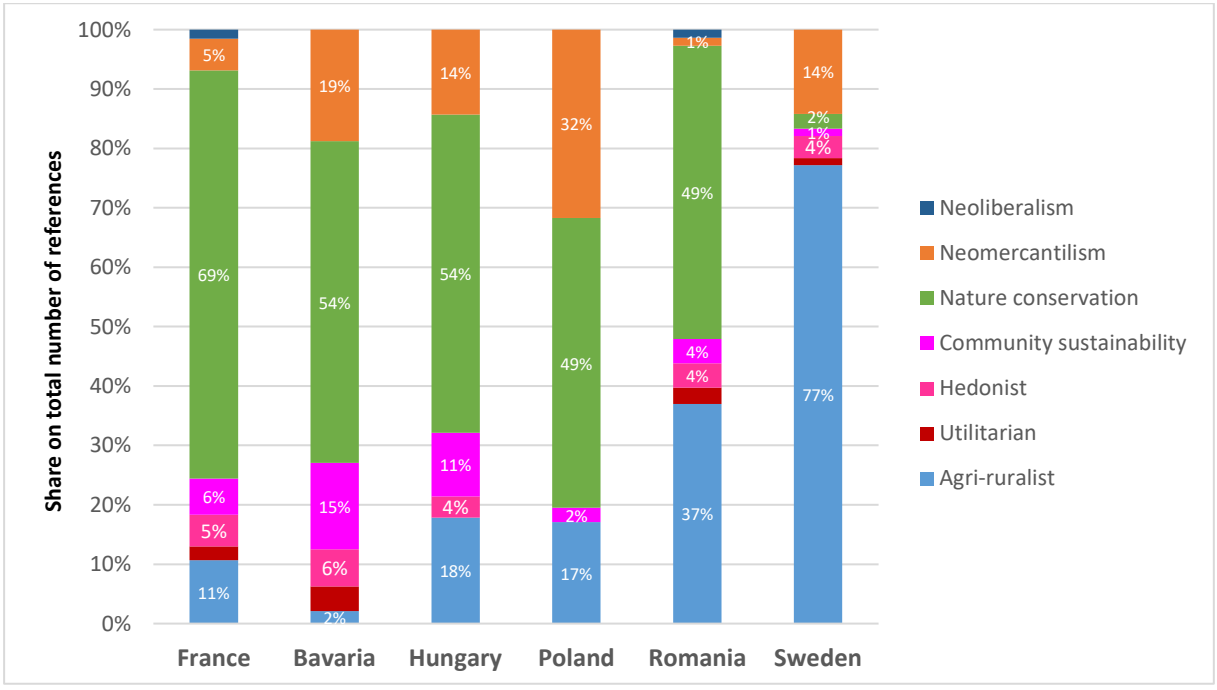

Figure 25: Cross-country comparison of CAP discourses, CAP 2014-2020

6 Conclusion

This study aimed at exploring the dominant discourses used in six EU member states' RDPs and other agricultural policy documents to investigate how the policy discourse incorporates ecological approaches. In so doing, this study could highlight similarities and differences in the dominant discourses that emerge from policy documents. Furthermore, this study could highlight the usefulness of discourse and content analysis of agricultural policy documents in gaining understanding about what type of discourses are used and how the use of discourses differs between member states.

Agricultural policy measures function as a means for society to communicate desirable future orientations of farms and as a way of incentivising desirable behaviours. In this study, an assumption has been that differences at societal level in attitudes, understanding and problematizing of various positive and negative impacts of agricultural production and consumption of agricultural products determine choices of policy measures, and the way in which they are promoted and justified. Furthermore, this is assumed to explain positive and negative externalities and/or what kind of public good components are associated with the type of farming in focus for policy. Differences at societal level can be considered as originating from different discourses. In this study, we assumed that by applying discourse analysis we could better understand the types of externalities and/or public goods a set of different EU member states attribute to ecological approaches, and how this differs across time and space.

This study makes two explicit contributions. First, this is one of the first attempts to explore how ecological approaches are discussed in individual member states' RDPs and in related agricultural policy documents. By applying discourse analysis to those documents, we were able to clarify how such practices are discussed and to demonstrate the usefulness of these methods to map the discourse used when referring to ecological approaches. To do so, an integrated model containing both CAP and RD socio-economic discourses was developed. Second, this study is a rare attempt to contrast the dominant discourses in a set of different EU countries. Findings are for informing discussions about farmers' uptake of ecological approaches.

Findings indicate that over the whole period 2000-2020 ecological approaches are related with the multifunctionality discourse with two dominant sub-discourses: i) nature conservation in all considered EU member states (except in Sweden); ii) agri-ruralism in Sweden. The neomercantilist discourse becomes more and more prominent over time, appearing in third position in the two last CAP periods of 2007-2013 and 2014-2020. Agroecology, biodiversity-based and organic agriculture are among the most frequently mentioned type of farming system in the policy documents.

7 Deviations or delays

None

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Appendix 1: List of national documents used for the analysis

France:

1. PDRH (2011). Programme de développement rural hexagonal 2007-2013, Tome 1 – 2 – 3 – 4, version 7 validée par la Commission. Décision C (2011) 3622 du 24 Mai 2011. 735 pages.
2. PDRN (2006). Programme de développement rural national, mise à jour avec les révisions en 2006 approuvées par la Commission Européenne. C(2006) 5364 du 3 Novembre 2006. 346 pages.
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Appendix 2: Selection of farming system categories and practices

Table A.2.1. Main associations between farming practices and farming systems

Practices	Agroecology	Organic Farming	Low input/ Extensive systems	Integrated farming systems	Conservation agriculture	Conventional systems
Agri-environmental measures	X	X	X	X		
Agroforestry	XX			X		
Use of chemical inputs					X	XX
Use of organic pesticides	X	XX	X	X		
Biodynamic preparations		XX				
Semi-natural habitat on farmland	XX	X	X	X		
Intercropping	XX	X	X	X		
Crop-livestock integration	XX		X	X		
Use of organic animal manure	XX	XX	X	X		
Use of green manure	XX	XX	X	X		
Biological pest control	XX	XX	X	X		
Biological nitrogen fixation	XX	XX	X	XX		
Cover crops	XX	XX	X	XX	XX	
Conservative tillage	X	X	X	X	XX	
Crop rotation	XX	XX	X	XX	XX	X
Sustainable water management	XX	X	X	X		
Extensive livestock systems	X	X	XX	X		
Inclusion of fallow land	XX	X	X	X		
Spatial heterogeneity	XX	X	X	X		
Selection of breeds and cultivars	XX	X	X	X		
Use of GMO						XX
Sustainable grazing	XX	X	X	X		
Integrated pest management			X	XX		
Low agrochemical input			XX	X		
Low fertilisers input	X	X	XX	X		
Low mechanisation	X	X	X	X	X	
Integrated nutrient management	X	X	X	XX		
Mulching	XX	XX	X	XX	X	
Alternative weed management strategies	XX	XX	X	X		
Use of concentrate						X
No use of concentrate	X	XX				
No use of chemical input	X	XX				
Management of soil organic matter	XX	XX	X	X	X	
Precision farming						X
Set aside	X	X	X	X		
Crop residue management	XX	X	X	X	X	
Crop diversification/Polyculture	XX	X	X	X		

Source: LIFT Deliverable D1.1: Review of the definitions of the existing ecological approaches.(Rega *et al.* 2018)

Table A.2.2. Clustering of farming practices

Proposed cluster label	Practices		
Agri-environmental measures	Agri-environmental measures	Agrienvironmental measures	
	Agri-environmental schemes	Agrienvironmental schemes	
Agroforestry	Agroforestry		
Use of chemical inputs	Agrochemical	Agrochemical input	
	Herbicide	Herbicide input	
	Insecticide	Insecticide input	
	Inorganic chemicals		
	Mineral fertiliser		
	Pesticide	Pesticide input	
Use of organic pesticides	Biological insecticide		
	Amendments		
	Copper		
	Sulphur		
Biodynamic preparations	Biodynamic preparations		
Semi-natural habitat on farmland	Diversified field edges		
	Conservation buffers		
	Border planting		
	Ecological compensation Areas	Ecological focus area	(Agro) ecological infra-structure (management)
	Grassy buffer strips		
	Habitat	Semi-natural habitat	Wildlife plots
	Hedgerows		
	Insectary strips		
	Living fences		
	Noncrop plantings		
	Beneficial fauna	Beneficial flora	Functional biodiversity
Intercropping	Alley intercropping		
	Intercropping	Intercrops	Mixed intercropping
	Multiple intercropped species		
	Relay intercropping		
	Polyculture		
Crop-livestock integration	Animal circulation		
	Crop-livestock integration	Livestock-crop integration	
Use of organic animal manure	Manuring	Manure fertiliser	
	Farmyard manure	Feedlot manure	
	Organic manure	Animal manure	
Use of green manure	Compost	Compost application	Composting
	Green manure		
Biological pest control	Bio-control	Biological pest control	Natural pest control
	Plant extract bio-control		
	Diversionary strategy		
	Biological nitrogen fixation	Biological N fixation	

Biological nitrogen fixation	Legume-cereal rotations		
	Legumes	Pulse crops	Pulses
Cover crops	Catch crop	Clover	Cover crops
Conservative tillage	Conservative tillage	Strategic tillage	
	Minimum soil cultivation	Reduced soil cultivation	
	Minimum tillage	Shallow tillage	
	No tillage	No-tillage	
	Occasional tillage	Reduced tillage	
	Ridge till	Ridge tillage	
	Asynchronous tilling		
	Direct drill	Direct sowing	
Crop rotation	Crop rotation	Crop sequence	Rotation
	Dryland rotation		
	Irrigated rotation		
	Multifunctional crop rotation	Diversification of crop rotation	
Sustainable water management	Deficit irrigation	Reduced irrigation	
	Drainage		
	No irrigation		
	Flooding		
Extensive livestock systems	Transhumance		
	Silvopasture		
	Extensive livestock	Extensive livestock management	
Inclusion of fallow land	Fallow	Fallow land	Fallowing
Spatial heterogeneity	Diversification		
	Farm heterogeneity		
	Spatial diversity		
	Patch intensification		
Selection of breeds and cultivars	Breed	Breed selection	
	Seed selection		
	Genetic diversity	Genetic varieties	Multiple genetic varieties
	Crop variety improvements		
	Local breed	Regional breed	
	Varietal diversity	Varietal mixtures	
	Local variety	Regional variety	Traditional variety
Use of genetically modified organisms (GMO)	Genetically modified organisms	GMO	Biotech crops
Sustainable grazing	Grass ley	Grass-clover ley	
	Ley	Ley farming	
	Perennial leys with legumes		
	Improved pastures		
	Grassland mixtures		
	Grazing		
	Grazing on crop residues	Use of fallow	
	Rotational grazing	Management-intensive rotational grazing systems	
Integrated pest management	Integrated crop management		
	Integrated crop protection	Integrated pest management	

Low agrochemical input	Low agrochemical input		
	Low herbicide input	Reduced herbicide application	Reduced herbicide use
	Low insecticide input	Reduced insecticide use	
	Low pesticide input	reduced pesticide use	reduced plant protection
Low fertilisers input	Low fertiliser input	Low nutrient input	Reduced fertiliser application
	Low-solubility mineral fertilisers		
Low mechanisation	No mechanisation		
	Low mechanisation	Low degree of mechanisation	Reduced mechanisation
Integrated nutrient management	Integrated nutrient management		
	Bioinoculants	Soilbiostimulants	
Mulching	Organic mulching		
	Mulching		
Alternative weed management strategies	Fumigation	Soil fumigation	
	Mechanical operations		
	Mechanical weeding		
	Mechanisation		
	Weeding		
	Push-pull system		
Use of concentrate	Use of concentrate	Concentrate	
No use of concentrate	No concentrate	No use of concentrate	
No use of chemical input	No mineral fertilisation		
	No pesticide input	No pesticides	
	No herbicide input		
	No insecticide input		
Management of soil organic matter	Organic matter	Soil organic matter	
Precision farming	Precision farming		
	Precision livestock farming		
Set aside	Set aside	Set-aside	Set-aside
Crop residue management	Stockpiled forages		
	Crop residue management		
	Stubs not grased		

Source: LIFT Deliverable D1.1: Review of the definitions of the existing ecological approaches (Rega *et al.* 2018).

Appendix 3: Extended protocol for discourse analysis

STEP 1	Reading and coding of the document. While reading, contextual information such as cultural, geographical, political or economic facts, which are country specific, should be marked/highlighted in the text (but not coded). Text passages that correspond to a respective farming system need to be marked (and linked to the respective code, for the software based analysis). The text passage should provide information for the policy (goals and/or instruments), and how it relates with the agroecological farming clusters/systems. The text passages can comprise one or more sentences, or a paragraph, but the reader should clearly recognise which type of policy measure and/or objective, and farming cluster/system has been addressed. If the text refers to a specific policy instrument, the name of the measure should be reported, otherwise "no measure" is indicated. References with exact page number need also to be provided. Example 1 below is evidently related to organic agriculture. In Example 2, no farming system from Table A2.1 is directly recognisable but we can observe that the text refers to the "local variety" practice. This type of practice is first identified from Table A2.2 as belonging to the cluster "selection of breeds and cultivars". This cluster of practice "selection of breeds and cultivars" is then associated to a farming system in Table A2.1 by selecting the column(s) marked with two XX, which corresponds in our case to agroecology. *Example 1: Text to be associated with a specific farming system* Priority I - Measures for environmentally sustainable agriculture: Environmentally friendly agriculture (sub-programme 3) Measure 1: Environmental compensation for organic production methods. The aim of the environmental compensation for **organic production methods** is to increase environmentally friendly production methods in agriculture. The acreage of organically farmed land should be doubled to 20% by 2005. By that time 10% of the total number of dairy cows and of cattle and sheep for slaughter should be under organic production. (The Environmental and Rural Development Plan for Sweden 2000 –2006, Regeringskansliet, 2000:116) *Example 2: Text to be associated with a specific practice and then a farming system* Axis 2 – Payments for environmentally sustainable agriculture: Traditional cultivated plants and livestock breeds (sub-measure 7) Sub-measure 7: "The overarching EQOs for environmentally friendly cultivation of brown beans on the island of Öland are Zero eutrophication, A varied agricultural landscape and A non-toxic environment. The target is to conserve **local varieties** and maintain traditional cultivation of brown beans, reduce the risks posed by use of plant protection products and reduce leaching of plant nutrients." (Rural Development Programme for Sweden – the period 2007-2013, Regeringskansliet, 2008:74)
STEP 2	Linking the selected text, or part of the selected text from Step 1 with a respective discourse: neomercantilism, neoliberalism and multifunctionality comprising the five socio-political discourses of RD: agri-ruralist, hedonism, utilitarian, community sustainability, and nature conservation (see example 3 and 4). The key characteristics of the CAP, and socio-economic discourses are presented in Table 3 and 4. In the CAP documents, the national concern for existence of agro-ecological farming systems/practices is presented via policy instruments, adopted to achieve variety of policy objectives and goals. Thereby, the policy discourse on agro-ecological farming systems/practices is primarily based on the content of the policy instruments as such, and the goals and objectives to be fulfilled. Please consider that one policy measure and/or objective can be related with more than one farming systems, and discourses. Furthermore, a text passage can be coded if an objective is mentioned without any specific policy instrument such as in Example 3.

	In Example 3, the text passage was coded within the node of organic farming system (represented in black) and the theme nodes of nature conservation (represented in red), agri-ruralist (represented in green) and utilitarian (represented in orange) for the discourse set of node. *Example 3: Text to be associated with several discourses* ***No measure, Axis 2- 3.2 Strategy selected to deal with strengths and weaknesses*** "Plant protection products are not used in **organic farming**. This type of production thus contributes to **good water quality**, and also has positive effects on **biodiversity**, sustainable and efficient production, and the prospects of achieving several of the national environmental quality objectives. Organic production, including processing of organic products and other forms of value-added production **may also stimulate new enterprises in rural areas**." (Rural Development Programme for Sweden – the period 2007-2013, Regeringskansliet, 2008:66)
STEP 3:	Repeating the coding procedure over three CAP programs: CAP 1: 2000-2006, CAP 2: 2007-2013 and CAP 3: 2014-2020.
STEP 4	Once the coding of the documents was finished, a table presenting the quantification of the results was asked to be provided. Instructions on how to produce such tables in Nvivo 11 were provided.
STEP 5	Once the coding of documents was finished, a word frequency across types of farming systems was suggested to be provided for the team partners who carried the analysis with a qualitative or quantitative software. Instructions for performing a word frequency in Nvivo 11 were provided.
STEP 6:	A "country report" template for reporting the results was provided with the following general structure: i) Title page with information of the researchers and affiliation; ii) Results summarised on 2 pages, containing information on: the contextual/local facts and the contextual dynamic over the three CAP programs, an overall summary of the discourses and farming practices found and the type of policy instruments identified over the three CAP programs; iii) The completed categorisation matrix (Table 1) for each CAP programme: 2000-2006; 2007-2013; 2014-2020; iv) Tables presenting a quantification of the results (see Appendix 4); v) Optional table with frequently occurring terms by type of farming system. This template was asked to be provided by the 31st of March.
STEP 7:	After a country report from a partner was submitted with the preliminary results, a cross-check of the findings was asked to be performed before submitting the final version. Complementary information on financial allocation across measures and/or priorities was asked to be reported if such information was provided in policy documents.

Appendix 4: Number of coding references across farming systems and discourses over three CAP periods: CAP 2000-2006 (or 2004-2006); CAP 2007-2013 and CAP 2014-2020.

Table A.4.1. Number of coding references across farming systems and discourses for France, CAP 2000-2006

	Agri-ruralist	Hedonst	Utilitarian	Nature conservation	Community sus-tainability	Neomercantilism	**TOTAL**
Agroecology	0	0	0	1	0	0	**1**
Diversified farming systems	1	0	1	1	0	0	**3**
Eco-agriculture	0	0	0	2	0	0	**2**
Organic agriculture	0	0	0	2	0	0	**2**
Integrated farming system	1	0	0	1	0	0	**2**
Extensive grass-based systems	1	1	0	2	5	1	**10**
Extensive systems	0	0	0	1	0	0	**1**
Low-intensity sys-tems	0	0	0	2	0	0	**2**
Reduced input systems	0	0	0	6	1	2	**9**
Silvopastoralism	0	0	0	2	0	0	**2**
Conservation agri-culture	0	0	0	1	0	0	**1**
TOTAL	**3**	**1**	**1**	**21**	**6**	**3**	**35**

Table A.4.2. Number of coding references across farming systems and discourses for France, CAP 2007-2013

	Agri-ruralist	Hedonst	Utilitarian	Nature conservation	Community sstainability	Neo mercantilism	**TOTAL**
Agroecology	5	4	3	23	2	1	**38**
Biodiversity-based farming systems	4	2	0	19	0	0	**25**
Diversified farming systems	2	0	2	1	1	0	**6**

1co-agriculture	1	0	1	3	0	0	**5**
Ecological arable farming system	1	0	0	3	0	0	**4**
Natural system agri-culture	1	0	0	1	0	0	**2**
Organic agriculture	1	0	1	2	0	0	**4**
Organic farming systems	1	0	0	5	0	0	**6**
Integrated crop-livestock systems	1	0	0	0	0	0	**1**
Integrated farming system	0	0	2	0	1	2	**5**
Extensive grass-based systems	0	4	1	6	1	0	**12**
Extensive systems	2	1	0	3	0	0	**6**
Low external input systems	2	0	0	0	0	0	**2**
Low-input systems	5	0	1	1	0	0	**7**
Low-intensity systems	2	0	0	0	0	0	**2**
Reduced input sys-tems	11	0	0	12	0	0	**23**
Silvopastoralism	0	0	0	1	0	0	**1**
Conservation agriculture	4	0	0	0	0	0	**4**
TOTAL	**43**	**11**	**11**	**80**	**5**	**3**	**153**

Table A.4.3. Number of coding references across farming systems and discourses for France, CAP 2014-2020

	Agri-ruralist	Hedonst	Utilitarian	Nature conservation	Community sstain-ability	Neoliberalism	Neomercantilism	**TOTAL**
Agroecology	3	3	0	11	2	0	3	**22**
Biodiversity-based farming systems	0	0	0	44	0	0	0	**44**
Eco-agriculture	0	1	0	3	0	0	0	**4**
Ecological arable farming system	0	0	0	6	0	0	0	**6**
Natural system ag-riculture	0	1	0	1	0	0	0	**2**
Organic agriculture	0	0	2	0	0	0	0	**2**

Integrated arable farming systems	0	0	0	1	0	0	0	**1**
Integrated crop-livestock systems	3	0	0	1	0	0	0	**4**
Integrated farming system	1	0	0	0	0	2	0	**3**
Extensive grass-based systems	1	2	0	8	1	0	0	**16**
Extensive systems	1	0	0	1	0	0	0	**2**
Low external input systems	3	0	0	2	0	0	0	**5**
Reduced input systems	2	0	1	9	1	0	0	**13**
Conservation agriculture	0	0	0	3	0	0	4	**7**
TOTAL	**14**	**7**	**3**	**90**	**8**	**2**	**7**	**131**

Table A.4.4. Number of coding references across farming systems and discourses for Germany (Bavaria), CAP 2000-2006

	Agri-ruralist	Hedonist	Community sustainability	Nature conservation	Neomercantilism	**TOTAL**
Agroecology	1	3	1	4	0	**9**
Biodiversity-based farming systems	1	0	0	3	0	**4**
Diversified farming systems	0	0	1	0	0	**1**
Natural system agriculture	1	0	0	0	0	**1**
Organic agriculture	0	0	0	1	1	**2**
Organic farming systems	0	0	0	1	0	**1**
Integrated perennial crop systems	0	0	0	2	0	**2**
Extensive grass-based systems	3	2	0	2	0	**7**
Extensive systems	1	1	0	3	0	**5**
Low-input systems	0	0	0	1	0	**1**
Conservation agriculture	1	0	0	0	0	**1**
TOTAL	**8**	**5**	**2**	**17**	**1**	**33**

Table A.4.5. Number of coding references across farming systems and discourses for Germany (Bavaria), CAP 2007-2013

	Agri-ruralist	Utilitarian	Hedonist	Community sustainability	Nature conservation	Neomercantilism	**TOTAL**
Agroecology	4	1	2	3	7	3	**20**
Biodiversity-based farming systems	0	0	1	0	3	0	**4**
Natural system agriculture	0	0	0	0	1	0	**1**
Organic agriculture	1	0	0	0	2	0	**3**
Integrated perennial crop systems	2	0	0	0	1	0	**3**
Extensive grass-based systems	1	0	2	0	3	0	**6**
Extensive systems	0	0	1	0	5	0	**6**
Low-input systems	0	0	0	0	2	0	**2**
Conservation agriculture	0	0	0	0	2	0	**2**
Total	**8**	**1**	**6**	**3**	**26**	**3**	**47**

Table A.4.6. Number of coding references across farming systems and discourses for Germany (Bavaria), CAP 2014-2020

	Hedonist	Community sustainability	Nature conservation	Neomercantilism	**TOTAL**
Agroecology	2	2	9	0	**13**
Biodiversity-based farming systems	0	0	4	0	**4**
Eco-agriculture	0	1	0	3	**4**
Organic agriculture	0	0	4	0	**4**
Extensive grass-based systems	1	1	4	0	**6**
Extensive systems	0	0	4	0	**4**
No tillage systems	0	0	1	0	**1**
TOTAL	**3**	**4**	**26**	**3**	**36**

Table A.4.7. Number of coding references across farming systems and discourses for Hungary, CAP 2004-2006

	Agri-ruralist	Community sustainability	Hedonist	Nature Conservation	Utilitarian	TOTAL
Agroecology	2	0	0	3	0	**5**
Biodiversity-based farming systems	1	0	0	2	0	**3**
Natural system agriculture	1	0	0	1	0	**2**
Conservation agriculture	0	0	0	2	0	**2**
Ecological farming (broad)	1	1	0	1	0	**3**
Extensive systems	0	1	0	1	0	**2**
Low-input systems	1	0	0	1	0	**2**
Organic agriculture	0	0	0	1	1	**2**
Organic farming systems	0	0	0	1	0	**1**
TOTAL	**6**	**2**	**0**	**13**	**1**	**22**

Table A.4.8. Number of coding references across farming systems and discourses for Hungary, CAP 2007-2013

	Agri-ruralist	Community sustainability	Hedonist	Nature Conservation	Utilitarian	Neoliberalism	Neomercan-tilism	TOTAL
Agroecology	5	0	0	5	0	1	1	**12**
Biodiversity-based farming systems	2	0	3	4	0	0	0	**9**
Diversified farming systems	0	0	0	1	0	0	1	**2**
Eco-agriculture	0	1	0	0	1	0	0	**2**
Natural system agriculture	1	0	0	2	1	0	0	**4**
Conservation agriculture	0	0	1	7	0	0	0	**8**
Ecological farming (broad)	1	1	1	5	0	0	1	**9**
Integrated crop-livestock systems	0	0	0	0	2	0	1	**3**
Integrated farming system	0	0	0	1	0	0	1	**2**
Extensive grass-based systems	1	0	1	3	0	0	0	**5**
Extensive systems	1	1	0	1	0	0	0	**3**
Low-input systems	1	0	1	0	0	0	0	**2**
Low-intensity systems	1	0	1	1	0	0	0	**3**
Silvopastoralism	0	0	0	1	0	0	1	**2**
Biological input-based farming systems	0	0	0	2	0	0	0	**2**
Organic agriculture	1	0	0	0	3	0	1	**5**
Organic farming systems	1	0	0	0	0	0	3	**4**
TOTAL	**15**	**3**	**8**	**33**	**7**	**1**	**10**	**77**

Table A.4.9. Number of coding references across farming systems and discourses for Hungary, CAP 2014-2020

	Agri-ruralist	Community sus-tainability	Hedonist	Nature Conservation	Neomercantilism	TOTAL
Agroecology	0	0	0	5	0	**5**
Biodiversity-based farming systems	0	1	0	1	1	**3**
Natural system agriculture	0	0	0	2	1	**3**
Ecological farming (broad)	0	0	1	2	0	**3**
Extensive systems	1	1	0	1	0	**3**
Low-input systems	2	0	0	2	0	**4**
Organic agriculture	0	0	0	1	1	**2**
Organic farming systems	2	1	0	1	1	**5**
TOTAL	**5**	**3**	**1**	**15**	**4**	**28**

Table A.4.10. Number of coding references across farming systems and discourses for Poland, CAP 2004-2006

	Agri-ruralist	Community Sus-tainability	Hedonist	Nature Conservation	Neomercantilism	TOTAL
Agroecology	3	1	1	4	3	**12**
Biodiversity-based farming systems	2	0	0	1	0	**3**
Organic agriculture	0	1	0	2	1	**4**
Integrated farming system	0	0	0	1	1	**2**
Low external input system	0	0	0	2	0	**2**
Conservation agriculture	0	0	0	2	0	**2**
Total	**5**	**2**	**1**	**12**	**5**	**25**

Table A.4.11. Number of coding references across farming systems and discourses for Poland, CAP 2007-2013

	Agri-ruralist	Community Sus-tainability	Hedonist	Nature Conservation	Neomercantilism	**TOTAL**
Agroecology	3	0	2	7	1	**13**
Biodiversity-based farming systems	1	1	0	0	0	**2**
Organic agriculture	1	2	0	1	1	**5**
Integrated farming system	4	2	0	1	4	**11**
Extensive systems	1	0	0	0	0	**1**
Extensive grass-based systems	1	0	0	0	0	**1**
TOTAL	**11**	**5**	**2**	**9**	**6**	**33**

Table A.4.12. Number of coding references across farming systems and discourses for Poland, CAP 2014-2020

	Agri-ruralist	Community Sus-tainability	Hedonist	Nature Conservation	Neomercantilism	**TOTAL**
Agroecology	1	0	0	6	1	**8**
Biodiversity-based farming systems	5	0	0	1	3	**9**
Organic agriculture	0	0	0	2	1	**3**
Organic farming systems	0	1	0	0	3	**4**
Integrated arable farming system	0	0	0	2	3	**5**
Integrated farming system	1	0	0	1	0	**2**
Extensive systems	0	0	0	0	2	**2**
Extensive grass-based systems	0	0	0	1	0	**1**
Low-input systems	0	0	0	2	0	**2**
Low external input systems	0	0	0	3	0	**3**
Conservation agriculture	0	0	0	2	0	**2**
TOTAL	**7**	**1**	**0**	**20**	**13**	**41**

Table A.4.13. Number of coding references across farming systems and discourses for Romania, CAP 2007-2013

	Agri-ruralist	Community Sustainability	Hedonist	Nature Conservation	Neoliberalism	TOTAL
Agroecology	2	3	2	4	0	**11**
Diversified farming systems	2	0	0	0	2	**4**
Organic farming systems	0	0	0	1	0	**1**
Integrated perrenial crop systems	0	0	0	1	0	**1**
Extensive systems	1	0	0	0	0	**1**
Silvopastoralism	0	1	0	2	0	**3**
Conservation agriculture	0	0	0	2	0	**2**
TOTAL	**5**	**4**	**2**	**10**	**2**	**23**

Table A.4.14. Number of coding references across farming systems and discourses for Romania, CAP 2014-2020

	Agri-ruralist	Community Sustainability	Hedonist	Nature Conservation	Utilitarian	Neoliberalism	Neomercantilism	TOTAL
Agroecology	7	2	3	12	0	0	0	**24**
Biodiversity-based farming systems	5	0	0	6	0	0	0	**11**
Organic agriculture	10	1	0	4	2	1	1	**19**
Integrated arable farming systems	0	0	0	5	0	0	0	**5**
Extensive grass-based systems	0	0	0	5	0	0	0	**5**
Extensive systems	1	0	0	3	0	0	0	**4**
Low-intensity systems	4	0	0	0	0	0	0	**4**
Minimum tillage systems	0	0	0	1	0	0	0	**1**
TOTAL	**27**	**3**	**3**	**36**	**2**	**1**	**1**	**73**

Table A.4.15. Number of coding references across farming systems and discourses for Sweden, CAP 2000-2006

	Agri-ruralist	Community sustain-ability	Hedonist	Nature Conservation	Neomercantilism	**TOTAL**
Agroecology	19	0	1	5	1	**26**
Biodiversity-based farming systems	10	0	1	12	0	**23**
Conservation agriculture	6	0	0	0	0	**6**
Integrated farming systems	2	0	0	0	0	**2**
Extensive grass-based systems	2	0	0	0	0	**2**
Reduced input systems	2	0	0	0	0	**2**
Organic farming systems	10	0	0	1	3	**14**
TOTAL	51	0	2	18	4	**75**

Table A.4.16. Number of coding references across farming systems and discourses for Sweden, CAP 2007-2013

	Agri-ruralist	Community Sus-tainability	Hedonist	Nature Conservation	Utilitarian	Neoliberalism	Neomercantilism	**TOTAL**
Agroecology	11	0	1	10	1	0	2	**25**
Biodiversity-based farming sys-tems	1	0	0	0	0	0	0	**1**
Conservation agriculture	2	0	0	0	0	0	0	**2**
Ecological farming (broad)	0	0	0	0	0	0	1	**1**
Organic farming systems	4	0	0	3	2	0	4	**13**
TOTAL	**18**	**0**	**1**	**13**	**3**	**1**	**7**	**43**

Table A.4.17. Number of coding references across farming systems and discourses for Sweden, CAP 2014-2020

	Agri-ruralist	Community sus-tainability	Hedonist	Nature Conservation	Utilitarian	Neomercantilism	**TOTAL**
Agroecology	58	1	4	2	2	8	**75**
Biodiversity-based farming systems	13	0	1	1	0	0	**15**
Diversified farming systems	1	0	0	0	0	0	**1**
Natural system agriculture	1	0	1	0	0	0	**2**
No tillage System	1	0	0	0	0	0	**1**
Extensive grass-based sys-tems	21	0	0	0	0	4	**25**
Extensive systems	3	0	0	0	0	3	**6**
Reduced input systems	16	0	0	0	0	7	**23**
Organic agriculture	11	1	0	1	0	1	**14**
TOTAL	**125**	**2**	**6**	**4**	**2**	**23**	**162**