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Farm business pathways under agri-environmental policies: Lessons for policy design

Introduction

Recent studies have reported an institutionalization of the ecological movement in agriculture (BRANDENBURG et al., 2013), but we still have limited understanding on how farm pathways are influenced by agri-environmental policies. Important lessons can be learnt from the European effort for promoting sustainable farming systems initiated in the 1990's (POTTER, 1998). Recent reforms in the Common Agricultural Policy (CAP) have introduced environmentally targeted instruments such as cross-compliance, greening and agri-environment schemes (AES) with great influence on farming systems. In this paper we explore how farmers are adapting to these reforms by making changes to their business strategies, and what are the implications are in terms of farm pathway dependence.

Studies reveal the existence of different farm pathways in Europe (POTTER and LOBLEY, 1996; ROUX, 2014), and some suggest that there is an increasingly bimodal farming structure, with larger farms dominating agricultural production and other farms instead relying on incomes from outside of agriculture (BUTTEL, 2001). Detailed sur-

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veys suggest that the state has a growing role in shaping agricultural trajectories and that the CAP can even promote changes in farm pathways (KAY, 2003; IRAIZOZ, 2007; SHUCKSMITH and RONNINGEN, 2011; BARNES et al., 2014). These ideas have led to a growing interest in how farm pathways are influenced by policy instruments, and have transformed the connection between agricultural policy and farm-household development to become a key issue for the current academic debate (VIAGGI, 2013).

A number of recent studies have focused on assessing the effectiveness of the CAP's environment-related instruments, with important lessons in terms of policy design (SATTLER and NAGEL, 2010; MATZDORF and LORENZ, 2010; ESPINOSA-GODED, 2013; METTEPENNINGEN et al., 2013). Other studies have focused more generally on farmers' strategies for coping with the CAP, revealing that most farmers remain essentially agri-centric and alert to productivist signals from the institutional framework (SELFA et al., 2010; FISH et al., 2013). Recent studies have also revealed the adoption of environmental orientation by a subgroup of already extensive farmers (INGRAM et al., 2013; MURPHY et al., 2014); a behaviour that has been interpreted as a free-riding effect by some (FINGER and BENNI, 2013).

However there has been less interest in understanding the implications of CAP instruments for the farmers themselves and how they affect the farmers' pathways. SUTHERLAND et al. (2012) argue that major changes to farming systems tend to be limited by farm pathways, although changes can occur in response to certain 'trigger events' which may then influence pathways and lead to a further period of path dependency⁴. Ingram et al. (2013) suggest that rather than promoting a distinct development pathway, the influence of the CAP instruments, particularly AES, can be better understood as additional strands which simply are (or are not) incorporated into existing farm pathways.

In this study we examine how farmers have responded to the changes in the CAP, and its implications in terms of farm pathway dependence. Through interviews with a sample of 10 farmers, we specifically:

⁴ Farm pathways are driven by survival strategies which are embedded in the farm life cycle but subject to change in response to external opportunities and constraints (INGRAM et al., 2013) while path dependency refers to the concept that historical events can 'lock-in' development pathways (SUTHERLAND et al., 2012).

- Identify farmers' adaptive strategies in relation to the CAP and the consequent level of support received as part of the farmer's income;
- Reveal the environment-related measures that are actually adopted by farmers and the proportion of land allocated for environmental purposes;
- Discuss the implications for policy design of the farmers' different strategies in relation to the CAP.

The hypothesis of this study is that some farmers tend to maintain intensive farming systems and cope with the CAP by adopting basic measures in order to access the direct payments integrally, but will avoid taking any land out of production. In contrast, extensive farmers increasingly follow an environmentally-oriented pathway by promoting changes in the allocation of land specifically in order to access the high level of the AES. For policy makers, these divergent policy-influenced farm pathways create a system which is inherently complex to support.

Background and current form of the cap

Incorporating environment related instruments

Since the implementation of the 1992 reforms, the CAP has been promoting multifunctional farming systems which, besides food, also deliver environmental goods and services (WILSON, 2007; POTTER, 1998). Taken together, the recent changes to the CAP have transformed what once was a blanket-rule policy focused on production, into a multi-targeted set of instruments which now also encompasses environmental targets. At the policy level, this multifunctionality is understood as a transitional process bounded by productivist and non-productivist action: therefore it is non-linear, heterogeneous, complex, inconsistent, and somewhat unpredictable (WILSON, 2007)⁵. In this sense, instead of a clear transition from the productivist to the multifunctional paradigm, the current CAP can be better understood as a multi-layered set of instruments established in an additive pro-

⁵ Productivism is characterised by agricultural policies encouraging food production, the governance of rural spaces, the ideology of rural development led by the agricultural sector, the establishment of agro-commodity chains, the increased use of farming technology and growing incompatibility with environmental conservation (WILSON, 2007, 87).

cess, changed in response to different interests and development paradigms, including multifunctionality (MEDINA and POTTER, forthcoming). Indeed, according to some, the multifunctional roles played by farmers are increasingly important to justify the continued support for farmers through the CAP (POTTER, 1998).

This has required important changes to be made in order to incorporate the environment-related instruments, primarily through changes to the way that subsidies are implemented. This includes the effort to tie the first CAP pillar direct payment (currently made through the Single Farm Payment (SFP), representing 71% of the CAP budget) to cross-compliance with environmental, animal welfare and food safety standards, which has been adopted since 2003 (JUNTTI, 2012)⁶. Additionally in 2013, 30% of the direct payment was tied to three greening measures: crop diversification, maintenance of permanent grassland and ecological focus areas (EFA) (DAVIS, 2012). Overall, these changes mean that in order to receive the direct payment income support, farmers not only have to comply with cross-compliance norms as a minimum, but in order to receive it fully they must also start complying with the new greening measures.

Environment-related measures also include the creation of the second CAP pillar in 1999 and the establishment of modulation as a means for transferring resources from the first pillar to the second pillar. The second pillar is implemented through the Rural Development Program (RDP), which currently represents 23% of the CAP budget (DG AGRICULTURE, 2012). In the RDP, the agri-environment schemes (AES), also established in 1999, are considered the main environment-targeted policy instrument currently available in the CAP with a minimum allocation of 25% of the RDP budget (ESPINOSA-GODED, 2013). Farmers have to apply to AES, and payments are received additionally to the direct payment, aiming to compensate income foregone by the establishment of environment-related measures which go above and beyond the cross-compliance and greening norms.

Agri-environmental schemes

AES are particularly influential on farming pathways in Europe because they are focused on land sharing, meaning that they promote simultaneous agricultural and non-agricultural ecosystem service ou-

⁶ Cross-compliance includes both Statutory Management Requirements (SMRs) and Good Agricultural and Environmental Condition (GAEC), referring to instruments to protect soils, avoid the deterioration of habitats and manage water.

tputs from the same area of land (FRANKS, 2014)⁷. In most of the EU countries farmers can apply for a first tier AES and then try to access the higher tier, the latter often including organic farming. However, the higher level schemes tend to require much greater changes to common farming practice, often with the need to set land aside, and so generally have a greater impact on production.

While cross-compliance and greening are standardised measures implemented across the EU with little room for local adjustments, AES vary enormously between member states, as the implementation of the second pillar is discretionary to local authorities. As a consequence, countries have different distribution of money between pillars (based on historic and current modulation options) and different priorities within the second pillar (some countries prioritising AES and other countries prioritising other schemes). For example, while in England 80% of the RDP budget is allocated to AES (covering 66% of the agricultural land) (Natural England, 2009), in Scotland there has been more priority on supporting the Less Favourable Areas Support Scheme (LFASS) as an additional income support for farmers, although the AES still represent more than 50% of the second pillar budget (RSPB, 2012).

The content of the schemes is also different according to the country. In the UK, agricultural policy is a devolved administrative issue, with each country having the freedom to decide how to implement their AES independently. This means that in Wales the AES have been favouring farms with potential environmental value, mostly upland sheep farms which tend to be less intensive than lowland farms (INGRAM et al., 2013). The new Glastir AES (which since 2012 replaces the classic Tir Cymal, Tir Gofal, Mynydd and Organic schemes) is broadly focused on encouraging reduced environmental impact from farming (NATIONAL ASSEMBLY FOR WALES, 2011). In Scotland the AES are offered through the Rural Development Contracts which comprise Land Managers' Options as an 'open to all' scheme, and Rural Priorities as a competitive scheme for specific areas where most of the budget is allocated (RSPB, 2012). In England AES have existed since 1987 and traditionally have paid particular attention to bird protection, although the current Environmental Stewardship AES launched in 2005 has a broader range of objectives including enhancement of habitats, mitigation of climate change and promoting visits to the countryside (NATURAL ENGLAND, 2009).

⁷ In contrast, in America, AES tend to be focused on land sparing (FRANKS, 2014).

In Germany the different regions each have autonomy for defining their AES and the region of Baden-Württemberg was the first in the EU to introduce a result-oriented AES within the regional agri-environmental programme (MEKA) (MATZDORF and LORENZ, 2010). The MEKA was focused on protecting the ground water and has proven to be particularly suitable for farms that lie in water protection zones, and for special marginal farms with structural financial support (WILSON, 1995). The current program *Förderprogramm für Agrarumwelt, Klimaschutz und Tierwohl* (FAKT), launched in 2014, replaces MEKA and adds a focus on sustainable management of grassland.

In addition to differences in terms of budget and content, the different AES have been evolving over time to incorporate lessons learned and promote various adjustments. In most countries, the initial aim for the entry-level tier was to get more land managers involved with environmental protection and deliver benefits at landscape level. However, AES have been criticised for failing to raise environmental standards in the farming sector (WHITTINGHAM, 2007; SCHROEDER, 2013) and therefore have become the subject of growing demand for more targeted and competitive criteria (see BAULCOMBE et al., 2009). Indeed, in the latest CAP reform, England and Scotland decided to abandon the lower and organic tiers and focus more on intermediate and high level schemes, thereby raising the bar for farmers applying for AES. These changes can have significant implications for the different CAP-influenced farm pathways.

Implications for farmers

All the differences in terms of budget, content and current developments in the AES imply that they can offer different opportunities and challenges for farmers in different countries. For farmers, adjusting to the requirements of the CAP might involve making changes to maximise receipts of CAP payments or it could mean trying to decouple from the CAP to varying degrees. In the current scenario, farmers have the option of not including environmental measures at all, therefore not receiving any income support; coping just with cross-compliance and receiving 70% of the direct payment or meeting all cross-compliance and greening requirements and receiving the full direct payment. Depending on location, they may also additionally apply for AES in the entry level to receive a relatively low payment and then try the higher level by adopting more measures for better payments.

However by coping with the CAP farmers guarantee an important proportion of their total income from subsidies. To illustrate this,

figures from the UK Department for Environment, Food and Rural Affairs (DEFRA, 2012) reveal that on average, cereal farmers in England have an annual income of 118,250 Euros, of which around 37% comes from the CAP, with 32% from the direct payment and 5% from AES (in Scotland the CAP accounts for around 74% of an 81,250 Euro income) (DEFRA, 2012). Dairy farmers in England have an average annual income of 108,375 Euro, of which around 33% comes from the CAP, with 29% from direct payment and 4% from AES (in Scotland the CAP accounts for around 42% of an annual 127,500 Euro income) (DEFRA, 2012). Meanwhile livestock farmers (cattle and sheep) in less favourable areas (LFA) in England have around 79% of their annual income of 36,500 Euros from the CAP, with 72% coming from the direct payment and 7% from AES (in Scotland the CAP accounts for around 60% of their annual 137,500 Euro income) (DEFRA, 2012). It is clear therefore that the CAP represents a vital part of farm income, and thus farm planning can be strongly influenced by the resulting ability to access CAP payments.

Methods

As the specific design of the CAP instruments, particularly the AES, has a strong influence on farmers' participation (METTEPENNINGEN et al., 2013), this research was carried out in different countries chosen to represent a range of levels of investment in the AES and to include different scheme designs. The study focused on the UK, where the average second pillar payment rate per hectare is the lowest in Europe (with great variation among UK countries) and on Germany, where payments are above the European average and rank among the highest for a major food producing Member State (COUNCIL OF THE EUROPEAN UNION, 2011).

We carried out 10 in-depth case studies across a cross-section of farms, selected by farmers' organisations as being representative of the local farming systems. The case study approach was selected to allow the level of detail required to identify farmers' strategies as well as the actual CAP measures adopted. It follows recent studies revealing the value of biography–ethnography in research that problematises rural change (PARINAGUA, 2013). By adopting this approach, we have aimed to identify possible different adaptive strategies from farmers in response to the CAP, but with no intention to reflect all possible responses nor to reveal how representative the identified responses are. This is a target for further research.

Farmers from the three main food producing sectors were included in the sample: livestock (including beef cattle and sheep), arable, and dairy. In the UK the research was carried out in the counties of Merionethshire and Montgomeryshire in Wales, supported by the Farmers' Union of Wales; in the Aberdeenshire council area of Scotland, supported by the National Farmers Union of Scotland; and in the counties of Bedfordshire and West Sussex in England, facilitated by the London Farmers' Market. In Germany the research was carried out in Baden-Württemberg, facilitated by the Landesbauernverband in Baden-Württemberg (LBV), a regional representation of the national farmers' union Deutscher Bauernverband (DBV) (WILSON and WILSON, 2001).

The sample included intensive farmers encompassing productive and very productive business, as well as extensive farmers. The intensive farmers often relied upon labour availability and areas which either have relatively good natural assets, or that are managed in a way to target productivity. Extensive farmers farmed in areas with low agricultural potential, faced labour shortages or were influenced by an extensive tradition/culture. These reasons meant that they were traditionally more connected with extensive systems or had historically moved into it in a given moment.

Personal on-site visits were made to each case study, lasting between four and twenty-four hours (in these cases, the first author was invited by farmers to stay overnight at the farm). In all the cases, the study started with a visit to different locations on the farm in order to achieve an overview of the overall management of land and to assess the measures that had been adopted in order to cope with CAP reform. This was then followed by an interview with the key responsible person, focusing on: the farmers' strategies towards the CAP; the measures adopted in order to cope with the CAP; the land allocated to these measures; and the benefits obtained in terms of farm income. In most cases, after the interview the researcher joined the farmers in the ongoing management practices adopted in the farm, thereby developing further understanding of the previously discussed topics.

In order to maintain farmers' anonymity, codes are used in place of names, with the first letter representing the sector (L for livestock, A for arable and D for dairy) and the second letter identifying the country (W for Wales, S for Scotland, E for England and G for Germany) (Table 1). Farm sizes (small, medium and large) are given in Table 1, and were defined according to farmers' self-classification, considering regional averages.

Table 1 - Case-studies

System	Intensive (very productive)		Intensive (productive)				Extensive			
	L/S	D/S	L/W1	L/W2	A/E	A/S	L/E	D/G	L/W3	A/G
Case studies										
Sector	Livestock	Dairy	Livestock	Livestock	Arable	Arable	Livestock	Dairy	Livestock	Arable
Country	Scotland	Scotland	Wales	Wales	England	Scotland	England	Germany	Wales	Germany
Size	Small	Medium	Medium	Medium	Large	Large	Large	Small	Medium	Medium
Area (ha)	121 private + 162 rented	97 private + 206 rented	141 private + 7 rented	186 rented + 315 of common land	607 private + 606 rented	261 contracted	1,400 private	44 private + 28 rented	328 private + 6 rented	55 private
Land potential	Less favourable area	Good quality grass land (grade 3)	Disadvantaged area	Disadvantaged area	Part is good quality arable land. Part is subject to flooding	Good quality arable land (grades 2 and 3)	Clay soil with limitations for agriculture	Good quality, restrictions for chemicals	Severely disadvantaged area (hilly)	Reasonable quality arable land, difficult to farm in rainy years
Labour available	2.5 persons (family members)	2 persons (farmer + 2 part-time employed)	4 persons (family members)	2 persons (family members)	4 persons (3 employed + one secretary)	1 person (contractor)	4 persons (owner-managed + 3 employed)	2 persons (family members)	0.5 person (family member)	2 persons (husband and wife) for the farm business

Results

Farmers' adaptive strategies in relation to the CAP and the level of support received

Farmers have adopted different strategies in relation to the CAP. Although all farmers currently follow cross-compliance rules and are planning to respond to the greening requirements in order to access the integral direct payment, involvement in AES varied considerably among farmers. As a consequence, there are important differences in the relevance of different CAP instruments for different farmers' income.

Case studies

The 10 studied cases comprised:

Intensive farms

- Very productive livestock farms (L/S and D/S) - The small-size livestock family farmer L/S raises beef cattle (Salar breeding) and sheep for meat; the medium-size dairy family farmer D/S raises dairy cows (Holstein breeding) in a highly automated farm. Both have been traditionally farming in their sectors since taking over from relatives in the 1980s and both have since expanded the farm in terms of area and production. Both cases are owner-occupied farmers who have also been renting additional areas for summer grazing and planting feed crops. Both farmers rely on areas of grass for free range and for producing silage, which is rotated with areas of barley for producing feed and straw (in the rotation cycle D/R also sows wheat and oil seed rape which is sold to local markets). The high intensity of the management limits the availability of land for dedicated natural assets, although all the first pillar environment-related obligations are fulfilled by both farmers.
- Productive livestock farms (L/W1 and L/W2) - The medium-size livestock family farmers L/W1 and L/W2 traditionally focus on sheep mixed with beef cattle. They have a long history of targeting high productivity and responding to market prices, which was learned from their relatives who were also sheep farmers. L/W1 is an owner occupied farmer while L/W2 is a tenant farmer. They both have relatively reasonable soils in the main farm and also rely on additional areas for supplementary feeding. Both use permanent pasture for free range and buy supplementary feed from the local market, reducing the need for very intensive management, although the fields are fertilised in an annual basis. Both farmers set aside small parts of the farm for environmental purposes, with technical restrictions on agriculture.
- Productive arable estates (A/E and A/S) - The large estates A/E and A/S are run by contractors who use most of the area for arable crops (oil seed rape and wheat) in an intensive and highly mechanised system. The estate A/E business originally started as a mixed system and moved to combined cropping 30 years ago, leading to an expansion of the activity onto rented

areas. The arable part of the estate with the best soils is sown with wheat and oil seed rape. The estate has part of the farm along river banks which is less productive and is allocated to low input permanent pasture. Meanwhile the A/S estate used to run a dairy business, until 2000 when low prices led the owner to instead hire an arable contractor to run the farm with his own machinery for a share of the profits (which include the CAP support). The management system mixes a rotation of winter barley (72 ha), winter oats (79 ha), potato seed (13 ha) and winter wheat (94 ha). The few soils of the farm with constraints for agriculture are allocated either into the maintenance of woodlands or environment-related measures.

Extensive farms

- Extensive livestock estate (L/E) - The diversified large estate L/E used to be devoted to traditional arable and dairy farming in a mixed system including dairy, beef, sheep, and industrialised wheat. But the heavy clay soil of the farm has always resulted in limited harvests, affecting the competitiveness of the business. With the advent of single farm payments in 2003 (direct payment) – whereby subsidies are given for occupation of the land rather than production– an ecological alternative to farming began to be seen as attractive way forward. A re-wilding project was started, targeting near-natural grazing for beef cattle. This idea was then taken further with the advent of the AES, which allowed the implementation of a landscape-scale wild-land in 2009 including different businesses such as free-range beef cattle, renting out of houses and offices, wildlife shooting and rural tourism.
- Organic dairy (D/G) - The small organic family farm D/G is located in the watershed of the city of Freiburg, which confers a permanent prohibition of the use of agrochemicals in the farm in order to avoid water contamination. For this reason, the traditional dairy business, taken over from relatives in 1983, has been converted to organic. The cows go for free range twice a day in permanent pasture, and different fields are planted in rotation with summer and winter cereals for feeding the animals. The system also includes other activities which help support the claim for a high level AES, including an orchard, a small plantation of potato for the local market and an area of forest.

- Extensive livestock farm (L/W3) - The medium-size livestock family farm L/W3 is set in an area of high declivity and faces strong family labour shortages which affect the farmer's capacity to intensify their sheep raising system. The farm is managed by the son (since the father retired in the early 2000s and moved to the town nearby) who like his wife, has an off-farm full-time job. The father's management tradition is maintained, with the farm focused on extensive sheep farming and hobby pheasant shooting in woodlands. The sheep business is run by the son, and there is also management of the woodlands for timber extraction which is a rented out separate business.
- Organic arable farm (A/G) - The medium-size family farmer A/G produces potato and different types of wheat, and also runs a restaurant in the village. The family has held the farm since 1724, and until the 1960s it was a diversified farm with cows, pigs and crops, which was also the case for the other nine farmers in the village. However in the 1980s, demand for cheap food led these farms to amalgamate and focus on producing maize conventionally in most of the areas; currently he is one of only two farmers remaining in the village. However instead of starting producing maize conventionally, in 1980 the family decided to become organic. The advent of the AES in 1993 offered an opportunity to improve the farming management and also made organic production financially as attractive as the conventional maize farming systems in the neighbourhood. The farm accessed MEKA 1, 2 and 3 and is now enrolling with the new FAKT program.

Intensive farms

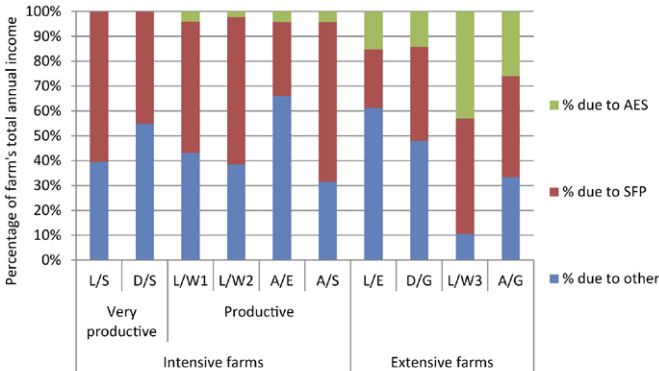
Very productive farmers have not applied to AES as they state that they do not want to take the necessary areas out of production, and do not consider the potential benefit to be worth the burden of enrolling in the bureaucracy of the schemes. Productive farmers who access the entry level of AES do so by adopting basic measures which avoids setting productive land aside or using labour intensively.

The intensive farmers (both productive and very productive) proportionally rely more on the support received from the first pillar direct payment and on the trade of the produced food than on the support received through AES. Indeed, productive farmers at the entry level have less than five per cent of their total income from the AES (Figure 1), whilst the very productive farmers do not access AES support at all.

Extensive farms

The extensive farmers have responded to the environmentally-oriented incentives by enrolling large areas of their land into high level AES. By doing so, they manage to access high level AES payments, which represent between 14% and 43% of their total income (Figure 1). In addition, their income from food trade tends to be limited, and so the overall effect is that the extensive farmers proportionally rely much more on the AES than the intensive farmers.

Figure 1 - Sources of farm income



Environment-related measures adopted and implications for land allocated

Intensive farmers have allocated relatively small proportions of their farm for compliance with environment-related CAP instruments, often instead choosing to implement measures which fit into their existing production systems and thereby avoid putting productive land aside. Meanwhile extensive farmers set aside large proportions of their land into environment-related measures, particularly the AES, often in long-term investments.

Intensive farms

Very productive farmers allocated up to 2% of their farm for coping with cross-compliance and greening, with part of this area set aside idle and part still producing but with its intensity of production reduced (Figure 2). Productive farmers allocated up to 18% of their farms as, besides coping cross-compliance and greening norms, and they also chose to access entry level AES. However, intensive farmers (both productive and very productive) tend to maintain most of their areas

primarily productive as their business model is so strongly predicated on productivity and they do not want this to be affected. Nevertheless, they are particularly aware of the financial implications of eventual penalties related to breach of cross-compliance and greening norms, and they allocate the parcel of land necessary to comply with these norms and receive the full direct payment.

From all the cross-compliance environment-related measures identified (Figure 3.1), the most common with implications for land allocation was the maintenance of hedges, ditches and ponds surrounded by strips without ploughing, fertilising or using herbicides. Besides these common measures, there are also sector specific measures. Intensive livestock and dairy farmers additionally had to deal with manure management, which has implications for both the amount and the time period for acceptable spreading of slurry in the field. The intensive arable farmers had to deal particularly with soil management and use of chemicals. In addition, the farmers in Nitrogen Vulnerable Zones (NVZ) (L/S A/S and D/S) needed to have an NVZ plan with particular care regarding manure management and use of nitrogen-based fertilisers.

Greening measures are foreseen as a big challenge by most of the intensive farmers. Intensive farmers with arable land (including arable farmers and livestock and dairy farmers planting crops for animal feed) (L/S, D/S, A/E and A/S) are the most impacted as they will have to comply with crop diversification and EFA (Figure 3.2). Their main challenge will be the establishment of the EFA, and interviewed farmers are expecting to try to claim existent areas of hedges, ditches, ponds and woodlands as EFA in order to avoid setting land aside. For some, this also stems from the unwelcome perception that EFAs will allow the encroachment of wild areas onto good agricultural land. Another alternative considered by farmers with previous parcels currently designated as AES (A/E and A/S), is to claim those areas as EFA instead of AES, if necessary.

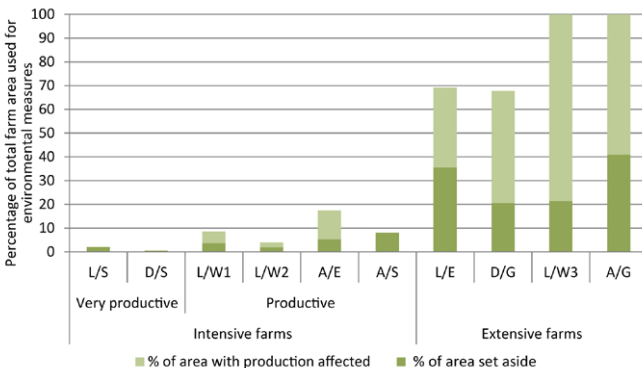
Regarding crop diversification, all the interviewed farmers already used a rotation of two or more species. Productive arable farmers had various systems, such as wheat rotated with oil seed rape or rotation of barley, oats, potato and wheat. Very productive livestock and dairy farmers (L/S and D/S) had grass for grazing and silage (4 to 5 years) rotated often with spring barley for straw and feeding the animals (3 to 4 years) followed by grass again. Those needing to add a third species are expecting that some species of interest will be accepted in the rotation, such as maize (to be sold to bio-digesters) in the case of A/E,

and brassicas (used as forage for animal feed) in the case of L/S. Lastly the livestock farmers farming on permanent grazing (L/W1, L/W2 and LW3) revealed no problems in coping with the greening measures.

While the very productive farmers have not invested in AES, those productive farmers who do access the entry level have adopted basic measures. The most common basic measures include: fencing the hedgerows and part of the rivers, which is considered a worthwhile investment for the farming system in any case; establishing bird boxes, which is considered less time consuming and has no implications for setting land aside; maintaining strips along ditches beyond the cross-compliance requirements; maintaining permanent pasture; and allocating some fields to crop diversification, such as areas planted with root crop and left as fallow during winter for bird feeding, which was seen to be implemented by the Welsh farmers.

An exception is the productive A/E estate farmer who realised in 2005 the possibility for a joint application to both the entry and high level AES for which he received a 10 year contract. The estate owner used the maintenance of the area of grass with ridges and farrows and permanent pasture along the river banks to claim the entry level and then also took additional measures in the arable section of the estate to access the high level. As this estate is expecting standards to be raised for accessing the higher tier of the AES in the future, the owner is considering maintaining just the entry level with the pasture area. The areas currently dedicated to the high level would then either be ploughed back into agriculture or used as EFA to comply with greening.

Figure 2 - Percentage of areas allocated to cross-compliance, greening and AES in each farm (considering the areas set aside idle and the area which is still producing but less intensively)



Extensive farms

Extensive farmers have allocated more than 43% of their land for environment-related measures (Figure 2). In addition to meeting cross-compliance requirements and planning greening measures, extensive farmers were the ones promoting major investments in terms of land allocation beyond the basic measures in order to access the high level AES.

Livestock farmers accessing high level AES have commonly adopted measures such as complying with maximum stocking defined according to the ratio between the amount of manure produced and the area available for spreading it, and maintenance of grass fields with low or no input (fertiliser and ploughing) (Figure 3.3). Another common measure was fencing rivers and woodlands to prevent access by the animals. Fencing rivers, however, often created the need for pumping water into the fields, and therefore farmers tended to leave some parts of the rivers unfenced.

The arable farmers accessing the high level AES have adopted measures to keep part of the fields uncropped (such as field corners) and establish fields for wildlife. Another important feature of AES is the potential support for moving the farm into organic production as a priority measure which was used by the farmer D/G.

Extensive farmers farm their land less intensively, so there is smaller cost in losing production from that land. As such, extensive farmers have a greater capacity to set land aside, and so have not found challenges in complying with the environment related cross-compliance norms. Regarding greening, the livestock farmers L/W3 and L/E have permanent grass for free ranging and therefore can comply easily with the requirement. D/G and A/G are exempted from greening because they are organic.

For extensive farmers, environmental measures appear to be less of a challenge to cope with, and instead are an opportunity to access greater support. The advent of the AES offered extensive farmers an opportunity to access additional CAP support by allocating an important proportion of the land into the schemes. The farmer L/E saw in the AES a possibility for going further with the re-wilding transformation that had been initiated when the SFP was decoupled from production. For D/G, AES represented an opportunity to finance the costs of establishing an organic small-scale farm, thereby also complying with an existing requirement not to use agrochemicals near a watershed. AES also offered the farmer L/W3 a possibility to enrol the




already extensive sheep farming system as well as the woodland into the second pillar of the CAP. A/G accessed AES as a means to finance an organic management system, established a few years prior to the advent of the scheme.

Figure 3 - Most common environment-related measures adopted by farmers in the case studies

Cross-compliance environment-related measures

General	General	Livestock and dairy	Arable
			
Minimum activity (stocking/production)	Bureaucracy - Keeping records	Manure spreading (quantity and time)	Soil management
			
Hedges, ditches and ponds surrounded by strips, without ploughing, fertilizing and using herbicides	NVZ areas = NVZ plan with additional care to manure management and use of fertilizers	Sheep ID and cattle movements	Use of chemicals

Greening measures

		
Permanent pasture – Not a challenge for extensive livestock systems. Farmers without permanent pasture are planning to follow the crop diversification rule	Crop diversification - Exploring the possibilities of having additional crops which are financially viable	EFA – Exploring the possibility of using existent areas of hedges, ditches, ponds, woodlands and AES as EFA

Main AES-related measures

General



Crop diversification

Livestock and dairy



Maximum livestock stocking

Arable



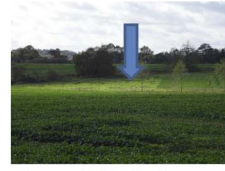
Keep field corners



Establishing bird boxes
and fencing woodlands



Maintain permanent pasture
and ridge and furrow



Flower fields/Pollen and
Nectar/Wild bird cover



Organic farming (orchard)



Fencing access to river



Additional/wider strips

Source: Field research (Pictures taken by Gabriel Medina).

Discussion

Besides recent studies suggesting an institutionalization of the ecological movement in agriculture (BRANDENBURG et al., 2013), there is still limited understanding on how farm pathways can be influenced by agri-environmental policies. In this paper we have presented important lessons from the European effort for promoting multifunctional farming. Aiming to maintain CAP support without taking land out of production, intensive farmers have complied with cross-compliance and are exploring the possibilities for complying with greening; but either do not access or only access the basic (entry) level of the AES. In this sense, these intensive farmers' strategies remain essentially agri-centric and continue to respond to a productivist framework, as revealed by Selfa et al. (2010) and Fish et al. (2013).

Meanwhile, extensive farmers easily comply with cross-compliance environment-related norms and greening, and tend to see new

opportunities for income via AES payments. As such, they tend to enrol most of the farm in environmentally-oriented practices in order to access the high level of the AES. By accessing the AES, extensive farmers receive additional support through the second pillar as compensation for eventual income foregone due to the adoption of environment-related measures. This is an important contribution to their overall income: for farmer L/W3 AES contributions account for more than 40% of annual farm income.

For some extensive farmers, the CAP's environment-related instruments have triggered structural changes in pathways, as suggested by Sutherland et al. (2012). For example, the case-study L/E used to be a traditionally intensive farmer, who identified first in the SFP and then in the AES an alternative route to access support through the current re-wilding project. The farmer D/G has found in the CAP the possibility to co-finance an organic business, offering an alternative that avoids the use of chemicals for his farm, which is located in the neighbouring city's watershed.

In other cases, these instruments have worked as an additional strand that was incorporated into an existing pathway, as suggested by Ingram et al. (2013). As an example, AES offered the farmer L/W3 a possibility to enrol an already extensive sheep farming system together with the woodland into the second pillar of the CAP. Similarly, the case-study A/G found in the CAP the necessary support to finance his ongoing organic farming system, thereby avoiding the mainstream farming systems which have otherwise been financially very attractive for farmers in the region, and which focus instead on the production of maize in a conventional management system.

Such diverse response to the policy has been made possible by the recent CAP reforms which have reconfigured what used to be a blanket policy (MEDINA and POTTER, forthcoming) into a policy package that now incorporates various new aims, including this promotion of multifunctional farming systems (POTTER, 1998). While policy making is a non-linear process (WILSON, 2007) and subject to change, it is clear that at the farm level, concrete measures are being implemented in order to cope with the CAP requirements. These measures can then have strong influences on farm pathways (KAY, 2003; IRAIZOZ, 2007; SHUCKSMITH and RONNINGEN, 2011) and as farmers have long-term trajectories (BARNES et al., 2014), this implies that there will be long periods of subsequent path dependency (SUTHERLAND et al., 2012).

Overall, for farmers following environmentally-oriented pathways, AES tends to be the environment-related measure with the greatest

relevance, which justifies the number of studies on the topic (e.g. SATTLER and NAGEL, 2010; ESPINOSA-GODED, 2013; SCHROEDER, 2013). Our results show that from the farmers' perspective, cross-compliance and greening represent norms that must be followed in order to maintain their direct payment, but AES are the possibility to reward their environmentally-oriented pathways.

There is an ongoing debate about whether or not some of these farmers should be considered free-riders (FINGER and BENNI, 2013) and, therefore to what extent the AES should be made more flexible or more selective and competitive. As it currently stands, the farmers as individuals get a list of optional measures to be implemented for AES status, and tend to pick and choose the ones that fit their farm best. The academic debate therefore tends to focus more on the trade-offs between a more flexible and inclusive approach as requested by farmers (METTEPENNINGEN et al., 2013) and the current developments towards more targeted and restrictive schemes as demanded by environmentalists (BAULCOMBE et al., 2009). Our results suggest that the approach needed for AES tends to be seen as fitting better with extensive farming practices, however even these farms generally need to make significant changes to access AES payments. This can lock farmers in to a particular farm pathway, and means that the question of 'free-riding' is not at all straightforward. It is clear that this issue will continue to be a question for policy design for some time to come (MATZDORF and LORENZ, 2010).

Our results suggest that the different CAP-influenced farm pathways must be taken into account in any future effort for reforming the CAP. It is particularly relevant considering the potential influence of the CAP in promoting an eventual state-led transition to a bimodal farm structure (BUTTEL, 2001; IRAIZOZ, 2007). Further research on how farm pathways are influenced by the CAP is necessary, particularly to identify other possible pathways and to assess how representative these different pathways are among farmers. This information is fundamental for policy design and efficient support of different farming pathways.

Conclusions

By characterising the actual measures adopted by farmers in order to cope with the CAP instruments, we have revealed two different CAP-influenced farm pathways: intensive farmers focusing on production and extensive farmers following an environmentally-oriented pathway.

The divergent CAP-influenced farm pathways imply that there will be new challenges for policy makers, as these pathways must be taken into account in any future effort for reforming the CAP. We have revealed that both pathways rely on policy support, and that they tend to be affected in opposite ways by changes in the CAP.

Intensive farmers rely greatly on the first pillar direct payments and tend to lose from transfers of money to the second pillar and AES through modulation. In their turn, extensive farmers receive an important part of their income from high level AES and tend to be affected both by limited transfers of money to AES, as well as by changes in the AES that would jeopardise their access to it. As different member states have different approaches towards the AES, a particular implication is that extensive farmers in countries prioritising the scheme can find it easier to have their pathways supported. In all cases however, extensive farmers tend to be particularly affected by the ongoing developments which promote more targeted and competitive AES.

Overall it is clear that the structure of the CAP and the specifications of its environmental instruments continue to influence the decisions made by farmers and can even determine the direction of farm pathways. However this influence is seen in different ways for different farms, with clear divisions between productive and extensive farming systems. This divergence must be recognised by policy makers as it means any future changes to CAP instruments, particularly the AES, will impact different farms in very different ways.

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Abstract: (*Farm business pathways under agri-environmental policies: Lessons for policy design*). European farmers have been adopting different practices in response to the Common Agricultural Policy (CAP). One of the new features of the CAP is the effort to encourage multifunctional farming systems which, besides food, also deliver environmental goods and services. The key policy instruments promoting environmentally-oriented farming are cross-compliance and greening, included as prerequisites for accessing the CAP direct payments, and agri-environment schemes (AES) provided as an optional additional program. In this study we examine how farmers have been coping with the CAP and its implications in terms of farm pathway dependence. The results reveal that intensive farmers adhere to cross-compliance and are exploring the possibilities for complying with greening in order to access the direct payments integrally, but either do not access or access the basic (entry) level of the AES in order to avoid taking land out of production. Extensive farmers easily comply with cross-compliance and greening and tend to enrol most of the farm into environment-related practices in order to access the high level of the AES. As all the farmers have an important part of their income from the CAP, these divergent coping strategies imply new challenges for policy makers in any future effort to reform the CAP.

Key words: Common Agricultural Policy (CAP), agri-environment schemes (AES), Europe, Ecological movement.

Resumo: (**Caminhos dos produtores rurais no contexto de políticas agri-ambientais: Lições para desenho de políticas públicas**). Agricultores europeus têm adotado diferentes práticas em resposta à Política Agrícola Comum (PAC). Uma das novas características da PAC é o esforço para encorajar sistemas agrícolas multifuncionais que, além de alimento, também produzem bens e serviços ambientais. Os principais instrumentos da política promovendo uma agricultura ambientalmente orientada são “cross-compliance” e “greening”, incluídos como pré-requisitos para o acesso ao pagamento direto da PAC e “agri-environment schemes (AES)” como um programa adicional. Neste estudo nós examinamos como os agricultores estão lidando com a PAC e as implicações para suas trajetórias e dependência da

política. Os resultados revelam que agricultores intensivos cumprem com as normas de “cross-compliance” e estão se planejando para adotar as medidas de “greening” como forma de receber o pagamento direto de maneira integral, mas ou não acessam ou acessam apenas o primeiro nível dos AES como forma de evitar retirar áreas da produção agropecuária. Agricultores extensivos facilmente cumprem com “cross-compliance” e “greening” e tendem a alocar a maior parte de suas propriedades para práticas ambientais de forma a acessar o nível mais elevado dos AES. Como todos os agricultores têm parte importante de sua renda proveniente da PAC, essas estratégias divergentes implicam em novos desafios para tomadores de decisão em qualquer esforço futuro para reformar a política.

Palavras-chave: Política Agrícola Comum (PAC), esquemas agro-ambientais, Europa, movimento ecológico.

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