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Putting farmers first or following the scheme? The design dilemma in driving environmental experimentation

RESEARCH ARTICLE

Stephanie Marwood[a]ⓘ, Noreen Byrne[b], Olive McCarthy[c], Alison Brogan[d] and Ciara Heavin[e]

[a]PhD researcher, [b]Senior Lecturer, [c]Professor, [d]Research Assistant, University College Cork, Centre for Co-operative Studies, Department of Food Business and Development, College Road, University College, Cork, Ireland

[e]Professor, University College Cork, Department of Business Information Systems, College Road, University College, Cork, Ireland

Abstract

The future of dairy farming is complex, requiring a systematic transition to ensure long-term resilience for the sector. Tools to guide this transition, therefore, need effective design to meaningfully engage farmers with the environment. This study proposes farmer-led experimentation as an effective approach to achieve this. Farmer-led experimentation refers to farmers' autonomous trial of environmental practices to build knowledge, resilience and adaptability into the farm and farming system. This study investigates how farmer-led experimentation is influenced by the design and implementation of agri-environmental interventions and supports from the view of key stakeholders who are directly or indirectly involved in programme design in the Republic of Ireland. This perspective is drawn from thirteen semi-structured interviews. Gioia analysis identifies thirteen aggregate dimensions that act as enablers or inhibitors of farmer-led experimentation. Our findings reveal that systemic lock-ins pose major barriers to achieving a more sustainable agri-food system. Thus, we argue that creating a support infrastructure that enables farmers to engage and experiment with practices opens opportunities for farmers to develop and trust their own local knowledge and build agency and peer networks. While the exogenous drivers of systematic change are important, it is through the agency and experimentation of farmers that a sustainable transition may be leveraged.

Keywords: agency, design, farmer-led, engagement, on-farm experimentation, sustainable transition
JEL codes: Q00, Q01, Q10, Q18, Q19, Q56, Q58

ⓘCorresponding author: 114369356@umail.ucc.ie

1. Introduction

Europe's current agricultural regime faces environmental challenges that necessitate a fundamental shift towards sustainability in the food system (Ingram, 2015; Kuhmonen and Siltaoja, 2022). A sustainable transition within the agri-food system challenges the dominant paradigm, shifting the societal function of food production from its roots in a productivist outlook to being developed around broader principles of sustainable production and rural development (Hermans *et al.*, 2016; Huttunen and Oosterveer, 2017; Ingram, 2015). However, the current agri-food system is an entrenched one (Bijman and Höhler, 2023). Systemic lock-ins are the mechanisms which entrench systems, making them resistant to change and constraining innovation breakthroughs (Hinrichs, 2014). Such lock-ins are path dependent and caused by a combination of self-reinforcing processes (i.e., increasing returns to adoption) that inhibit systemic change (Williams *et al.*, 2024). A transformation therefore requires an enabling context in which actors can innovate to disrupt the system (Williams *et al.*, 2024). Against this backdrop, Bijman and Höhler (2023) (drawing on Sutherland *et al.* (2015) and Lamine *et al.* (2019)) argue for the importance of farmer-led experimentation and a policy landscape which enables it.

Modernisation and intensification of agriculture have resulted in the standardisation of agricultural expertise (Šūmane *et al.*, 2018). It is through experimentation that farmers can "generate or discover new knowledge and combine it with already existing local knowledge" (Leitgeb *et al.*, 2012: p. 3). Experimentation has shaped the natural evolution of agriculture as farmers regularly face changing contexts which require adaption. Several means of experimentation have been identified, relying on varying levels of collaboration between scientists, stakeholders and farmers (Kummer *et al.*, 2012; Toffolini and Jeuffroy, 2022). Here, however, we focus on farmer-led experimentation, understood as a mechanism through which farmers "adopt, adapt and formulate new ideas, try them out in different settings, evaluate the results and make decisions on their value for improving the farm … they are conducted in everyday circumstances and are an integral part of farming" (Kummer *et al.*, 2012: pp. 309–310). This experimentation is autonomous, effectual (Sarasvathy, 2001) and dependent on the agency and resourcefulness of the farmer, while also acting as a key resilience-building strategy for farming systems to adjust to fluctuating conditions (Darnhofer *et al.*, 2010; Kummer *et al.*, 2017; Leitgeb *et al.*, 2012). Experimentation bridges knowledge systems and gives a sense of agency and ownership to farmers (Lactose *et al.*, 2021). However, such experimentation requires an enabling and supportive context that builds the agency and motivation of the farmer (Ellerman, 2007, 2025).

Agri-environmental supports are a significant policy lever to encourage experimentation with environmental practices amongst farmers (Quinn *et al.*, 2025). Their design, however, can dictate the success and effectiveness of engagement, while also holding potential to either undermine or enable the farmer's own agency. This paper investigates stakeholder views on agri-environmental interventions and supports, assessing their ability to enable or inhibit farmer-led experimentation and advance a sustainable transition in Irish dairy farming. The novelty of this research is in its focus on formal schemes as an enabling context for farmers' agency, rather than a focus on farmers' participation as is often the case (Wittstock *et al.*, 2022; Schaub *et al.*, 2023). We seek to move beyond engaging farmers with schemes and towards how their agency, capacity and resilience can be fostered through design. We consider the stakeholders involved in the design and delivery an important cohort in this discussion. With diverse perspectives from on the ground experiences with farmers, asking stakeholders to consider, identify and discuss the enabling or inhibiting elements of design adds valuable insights to the discourse. To achieve this objective, the current study poses two research questions:

(1) What intervention design elements enable and inhibit farmer-led experimentation on Irish dairy farms?
(2) How can these design elements be either enhanced or minimised to support farmer-led experimentation amongst Irish dairy farmers?

2. Theory

2.1 Farmer-led experimentation

Farmer-led experimentation is dependent on the agency and resourcefulness of the farmer and built on experiential learning and knowledge. There are varying degrees of experimentation, ranging from the use of protected urea and soil sampling to more laborious experiments such as building ponds and wetlands, working towards eliminating fertiliser use and increasing the amount of space dedicated to nature on the farm (EASAC, 2022). Such experimentation is essential for a transition to sustainable agriculture and argued to need greater recognition for its role in this regard (Bijman and Höhler, 2023; Kummer *et al.*, 2012; Röling and Brouwers, 1999). Farmer-led experimentation allows farmers to develop their knowledge and strengthen their capacity to deal with changes to the system, thus increasing the resilience of the farm and farmer (Kummer *et al.*, 2012). Resilience, as an idea, understands the world to be fundamentally unpredictable and thus emphasises the need to "enable the adaptability and transformability of systems" (Darnhofer, 2014: p. 462). It can be understood as the ability to manage, adapt to and shape change and is a necessary precursor to transformation (DeVerteuil and Golubchikov, 2016; Folke *et al.*, 2003). While resilience can be triggered through crisis (Darnhofer, 2014), it also develops through experimentation and learning (Armitage *et al.*, 2008; Kummer *et al.*, 2012) and an embodied and experiential connection with context (Herman, 2015). While resilience encourages the farmer to continue through the highs and lows of experimentation, it will not, by itself, lead to transformation (DeVerteuil and Golubchivov, 2016). It is in this context that we look to the concepts of farmer agency and the entrepreneurial idea of effectual thinking to theoretically position farmer-led experimentation.

Farmer-led experimentation requires the active agency of the farmer. Agency can be conceived as "oriented towards future possibilities and an individual's capacity to reflect upon and evaluate their present situation" (Emirbayer and Mische (1998), as summarised by Parsell *et al.*, 2016: p. 241). Here, we conceptualise farmer agency as relational and emergent from the farmers' own knowledge (i.e., as developed through experimentation), their environment, social networks and culture (Charli-Joseph *et al.*, 2018). This understanding assumes that people always operate within a particular context, and that this context both influences and is shaped by their actions (Charli-Joseph *et al.*, 2018).

While farmers may have the capacity to experiment, not all farmers are willing to engage (Kummer *et al.*, 2012). Given the autonomous nature of farmer-led experimentation, we draw on the entrepreneurial theory of effectuation. Effectuation was characterised by Sarasvathy (2001) in the context of entrepreneurship, where the active entrepreneurial agent innovates from the resources at hand and co-creates the future rather than working towards a predicted future driven by causal thinking (Chandler *et al.*, 2011; Sarasvathy, 2001). Effectual behaviours are pro-active, emergent and flexible, using experimental strategies to navigate the inherent uncertainties in their environments (Manyise *et al.*, 2023). Contrasting this idea, causal thinking relies on predictions and established outcomes — an approach that assumes the future is static and linear (Manyise *et al.*, 2023; Sarasvathy, 2001). The significant level of investment in the Irish dairy sector would appear to align with this type of causal thinking. Effectual thinking, which engages with a future that is dynamic, non-linear and ecological, would appear to be what is required for a transition to sustainable agriculture (Chandler *et al.*, 2011; Sarasvathy, 2001). Farmers' own experiential learning, and knowledge is central to the development of their resilience (Darnhofer, 2014) and effectuation (Manyise *et al.*, 2023).

2.2 Experiential learning and knowledge

Experiential learning theory, pioneered by Dewey (1938) and Kolb (1984), explains farmers' knowledge and awareness as being enhanced through experience (Okumah *et al.*, 2021). This reflects the notion of farmers' informal or tacit knowledge, highlighting diverse, context-dependent insights developed through experience

and grounded in practical action (Šūmane *et al.*, 2018). Experiential learning is linked to social learning (Skaalsveen *et al.*, 2020; Šūmane *et al.*, 2018; Wood *et al.*, 2014). As individual farmers learn through their own experimentation, they are supported and enhanced by social networks of farmers that discuss, share and validate knowledge and experiences (Ingram, 2010). Learning, in this sense, is experiential, reflective and continuous.

Through a collective pooling of experiences and knowledge, farmers become 'the experts' in the eyes of their peers (Ingram, 2010; Skaalsveen *et al.*, 2020; Wood *et al.*, 2014). Integrating farmers' experiential knowledge with formal scientific knowledge is a valuable tool for fostering systemic change (Knickel *et al.*, 2018; Kummer *et al.*, 2012), giving support and legitimacy to farmers' experiential learning, leading to the creation of social networks. Herman (2015) argues that farmers' experiential knowledge needs to play a central part in the co-creation of agri-interventions.

2.3 Farmer-led experimentation and intervention design

Farmer-led experimentation draws on the resourcefulness and agency of the farmer, and the integration of experimental knowledge and formal knowledge. Intervention design (i.e., agri-environmental schemes (AESs)) plays a significant role in how these parameters are moulded and developed. Development theory, a lens which describes the central player (i.e., the farmer) as the 'doer', helps to explore and understand design approaches (Ellerman, 2007). Ellerman (2007) discusses the concept of 'social engineering', a form of 'unhelpful help' which can undermine the agency and inherent motivation of the 'doer'. This approach follows a premise that the 'doer' is doing the 'wrong thing', requiring motivation to do the 'right thing' through financial incentives and conditionalities (Bergman and McMullen, 2022; Ellerman, 2007). To counteract these forms of unhelpful help, Ellerman (2007) argues for an indirect and autonomy-respecting approach to design. Such an approach implies that external motivations are not imposed upon individuals but rather that intrinsic motivations are identified and used as a basis for offering supports (Ellerman, 2007; 2025; Sanford, 2022). More recently, Ellerman (2025) proposes that autonomy-respecting help must be "enabling but not directive" and fills the gas tank "but [does] not try to take over the steering wheel" (p. 7). This indirect approach works with the latent potential of the individual, community or system (Sanford, 2022). Complicating this approach, however, are urgent policy goals or metrics that drive more direct interventions rather than the slower work of facilitating an enabling context for farmer-led experimentation for resilience and effectuation (Ellerman, 2025).

The intricate entanglement of farmers and the land they steward adds further complexity. Farming is more than a business or policy mechanism but is also an "immersive lifestyle grounded in embodied, experiential relations" (Herman, 2015: p. 3). This is captured in Rieple and Snijder's (2018) discussion of the role of 'emotions' in relation to innovation adoption in an Irish dairy farming context. Similarly, this complex relationship is noted in the findings of Rowles (1984) in terms of being 'physiologically melded' with the farm and resistance to retirement (Rowles, 1984) and 'enchanted resilience' from deep engagement with the land (Conway *et al.*, 2018). We argue that this literature emphasises the need to engage farmers at their current mindset or situation through appropriate intervention design, employing an indirect approach, and where possible, co-creating interventions to enable rather than undermine farmer-led experimentation and agency.

3. Ireland's dairy context and background

To examine how the theoretical lenses of agency, experiential learning and development theory are supported by the current system, we turn to intervention design in the context of the dairy sector in the Republic of Ireland. Ireland's dairy sector accounts for approximately 18% of the Irish agricultural sectoral composition and includes approximately 15 000 farmers (Teagasc, 2024). Dairy farms are consistently the most profitable of Ireland's mainstream farming systems with the average income standing at €765 per hectare and the

average farm size totalling 65 hectares (Teagasc, 2024). In a wider context, the sector is important for Ireland's economy in terms of economic contributions, employment and rural development (DAFM, 2025). In 2024, the sector exported an estimated €6.3 billion, with over 1.6 million tonnes of product shipped to approximately 140 markets (Bord Bia, 2025).

The discourse around farmers' environmental practices and behaviours often focuses on farmers' participation in national scale AESs. Since the 1980s, prescriptive action-based schemes were the template for AESs. This shifted to a results-oriented approach in the 2000s which better aligned farmers' incentives with scheme objectives (Osawe *et al.*, 2024). There is still, however, a noted lack of engagement from dairy farmers (Cullen *et al.*, 2021; McGurk, 2020). In recent years, participation from dairy farmers is higher in programmes which take on novel design approaches, such as project-based and advice-led. Project-based schemes are commonly bottom-up, multi-stakeholder collaborations between farmers, scientists and other experts to develop and test solutions (DAFM, 2024). Taking a 'farmer-centred approach', these projects typically have strong contextual bases (landscape, catchment, habitat or species) and draw upon both scientific evidence and local, experiential knowledge (Knickel *et al.*, 2018; Moran *et al.*, 2021). Examples include the BRIDE (Biodiversity Regeneration in a Dairying Environment, 2018–2023) Environmental Innovation Project (EIP) which focused on biodiversity on intensive dairy farms. A total of 43 farmers took part in the BRIDE project, revealing the success of a farmer-driven approach and a focus on farmers' ownership over practices (Sheehan and Hickey, 2025). Additionally, the ongoing Farming for Water EIP focusses on achieving water quality improvements in collaboration with farmers, with a focus on placing the farmers' skills, expertise and knowledge at the centre of the project's development (Waters of Life, 2026). Advice-led schemes are free and confidential, removing the typical 'command and control' element of AESs (Osawe and Curtis, 2024; Osawe *et al.*, 2024). An example includes the Agricultural Sustainability Support and Advisory Programme (ASSAP) which provides free and confidential environmental advice to farmers. Interventions and supports are a valuable resource with power to create a motivational infrastructure. Understanding how design impacts outcome is thus vital for policymakers. An overview of Ireland's AESs and their characteristics is presented in Appendix A (Table A1).

4. Methodological approach

The aim of this research was to examine the enablers and inhibitors of farmer-led experimentation amongst Irish dairy farmers as perceived by stakeholders. A series of in-depth semi-structured interviews was conducted with key relevant stakeholders, the methodology for which obtained ethical approval from the Social Research Ethics Committee of the University (Log 2023-092). While this study explores stakeholders and programme design, it informs future research focusing more specifically on the farmer, their mindsets around experimentation with practices and the enabling supports.

4.1 Data collection

A purposive sampling approach was taken to identify key stakeholders who represent sectoral or focused interests (Colvin *et al.*, 2016) and those who have a role (to varying degrees) in the design and/or implementation of on-farm interventions relevant to sustainable transitions in the dairy sector within an Irish context. A summary of participants is presented in Table 1. A target sample size of 12–14 stakeholders was determined *a priori* and informed by established research indicating that saturation typically occurs within 12 interviews (Guest *et al.*, 2006; Hennink and Kaiser, 2022). A total of 13 interviews, ranging from 30 minutes to 1 hour in duration, were conducted between July and September 2024. One interview was removed prior to

Table 1. Summary of participants.

Participant ID	Gender	Stakeholder Type
P1	Female	National advisory body
P2	Male	Project manager national agri-environment scheme
P3	Female	Government department
P5	Male	National advisory body
P6	Male	Researcher on agri-environmental policy
P7	Female	EIP Project manager
P8	Female	National advisory body
P9	Male	Farm advisor
P10	Female	Former Life project scientist
P11	Male	NGO policy and advocacy officer
P12	Female	Farmer and member of regenerative agriculture NGO
P13	Female	Government advisory body

analysis due to poor recording quality. Interview questions focused on farmers' environmental practices and experimentation and how design of schemes accounts for the development of farmers' agency to experiment (see Appendix B).

4.2 Data analysis

The Gioia method was used for qualitative data analysis to ensure plausible and defensible portrayal of the phenomena of interest (Gioia *et al.*, 2012; Swallow and Barkemeyer, 2024). Two key assumptions underlie the method: that the organisational world is socially constructed and that people in organisations are aware of what they are aiming to do and can describe their thoughts, intentions, and actions (Gioia *et al.*, 2012). For stakeholders, this means their understanding of farmer-led experimentation, and sustainable practices is shaped by their daily experiences, social and professional interactions, community norms, advisory networks, and broader policy contexts. Their interpretations of what "good farming" or "experimentation" means are socially formed rather than fixed, making the Gioia approach suitable for capturing these constructed meanings.

As summarised in Figure 1, this methodology uses a three-step coding procedure which results in a visual data structure graphically detailing the development from first-order themes to second-order concepts and aggregated dimensions (Gioia *et al.*, 2012; Murphy *et al.*, 2017). Coding followed an iterative process, with constant referral back and forth between the interview transcripts and codes as well as literature and emerging theory (Swallow and Barkemeyer, 2024). First-order concepts remain firmly rooted in the participants' own terms, words and descriptions which allows the author to become lost in the data, an important part of the process (Gioia *et al.*, 2012). To obtain theoretical saturation (Glaser and Strauss, 1967), coding first-order concepts continued until further shared patterns could be identified in our data (Nag and Gioia, 2012). Across 12 interviews, this process identified 381 first-order codes. Second-order themes used existing theory and knowledge to reduce concepts to a workable set of themes through tentative relationships emerging from the data (Gioia *et al.*, 2012). This yielded 82 second-order themes. Finally, emergent themes were further distilled into 13 aggregate dimensions which encapsulate the design elements enabling and inhibiting experimentation. These three stages form the basis of a data structure (see Appendix C), a pivotal step in the Gioia method, providing a visual demonstration of the rigorous process from initial concepts to aggregate dimensions (Gioia *et al.*, 2012), as illustrated in Figure 2.

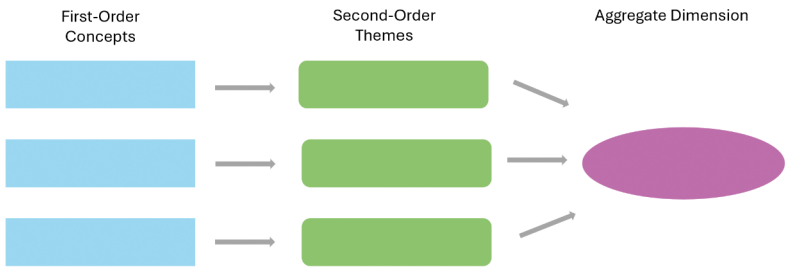

Figure 1. The Gioia method (Gioia *et al.*, 2012).

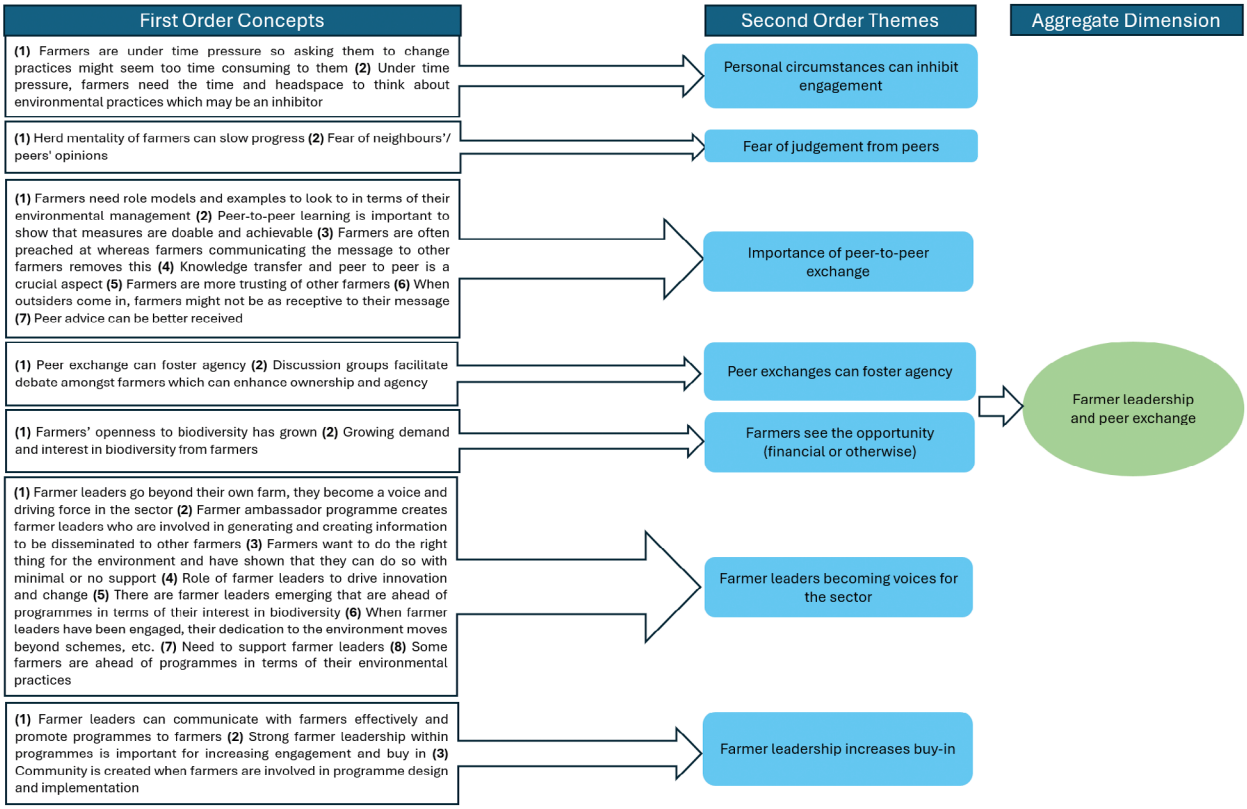

Figure 2. Analysis snapshot: Data structure detailing the aggregate dimension for farmer leadership and peer exchange. Data structures for each aggregate dimension are presented in Appendix C.

5. Findings

Thirteen aggregate dimensions emerged from the analysis which encapsulate the design elements enabling and inhibiting experimentation. These aggregate dimensions are listed in Figure 3. The discussion of findings is structured based on the inhibiting and/or enabling nature of the dimensions.

5.1 Inhibiting design elements

Opportunity cost

Farmers have a multitude of financial influences which impact decision making around experimentation. Stakeholders identified opportunity cost, defined by Merriam Webster as "the cost of making an investment that is the difference between the return on one investment and the return on an alternative," as a factor which reduces dairy farmers' likelihood of engaging with environmental experimentation. The profit margins of dairy farming reduce the inclination to experiment and financial necessity to participate in programmes and interventions: "They can easily ignore the agri-environment schemes because that's small money compared to overall business" (P1). Given the rising cost of land across Europe and Ireland (Alberdi *et al.*, 2020), there is a growing pressure to maximise land use for production, developing a potential barrier to measures that can improve the sustainability of the sector: "Farmers feel under pressure … financially and I think the crux of the issue for some of the more difficult environmental measures is, let's say, space for biodiversity in a sense that maybe in some areas there would need to be a reduction in economic output …" (P13).

Scaling up programmes

Scaling up programmes from a local scale to a national scale was seen as a challenge by stakeholders. The most notable challenge in scaling up is a weakening of the elements integral to success, and as a result, there is an observed loss of momentum and trust as supports built up at a local level are reduced or lost: "It's something we should be proud of, and we continue to have to build upon rather than weakening" (P11). When working on a larger scale, there is more national oversight and bureaucracy which was found to limit design flexibility during the course of the programme: "We don't have the same control we had, that if we saw something wasn't working … we'd be able to pivot quick enough and fix that issue and do it differently or between year one and two, we were able to redesign the scheme if we felt there was an improvement to be made" (P2). Scaling up was noted as impacting effectiveness resulting in a regression of results that were

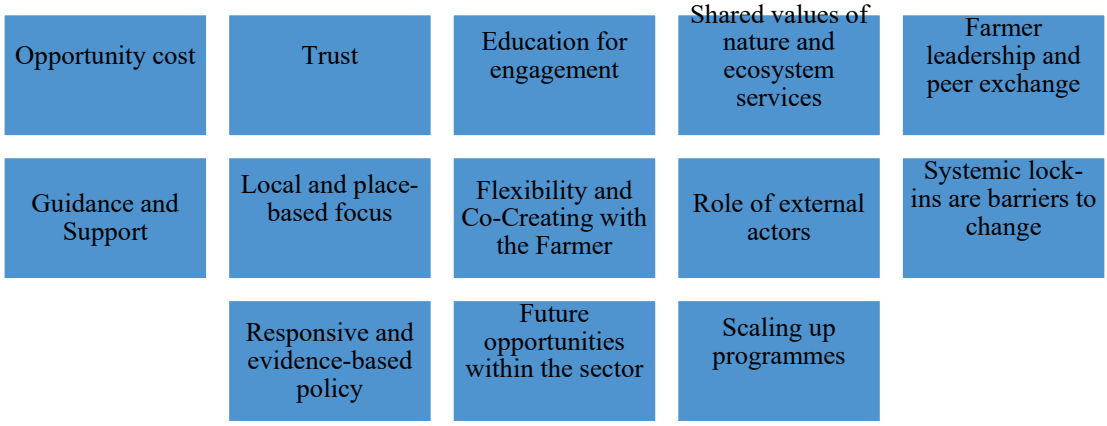

Figure 3. An overview of 13 identified emergent aggregate dimensions.

experienced at local scale: "We know the field scores are going backwards, that momentum has been lost … I think trust has been lost" (P10).

Systemic lock-ins are barriers to change

Systemic lock-ins act as barriers to change, a broad dimension that brought together ideas that sit at a higher systemic level. Key to this dimension is the prominence of the productivist regime which emphasises a focus on profitability and the economy: "It's the economy overrides everything, even dictates in terms of societal structures … and definitely doesn't work within the limits of the environment." (P6). Dominance of this model has pushed farmers to invest financially in production focused systems, perpetuating a reliance on this model. Path-dependencies and lock-ins make moving away from this model complex, with advice, research and education from formal sources remaining in this mindset: "You're almost swimming against the tide of the push for productivity and that is where most of the information is coming from. That's where … most of the education, most of the support is" (P10).

Hand in hand with the productivist model is a determination to address Ireland's environmental crises and meet climate targets within this paradigm. As a result, there is a reliance on technological innovations or 'silver bullets' (i.e., methane inhibitors) and efficiency measures to improve Ireland's environmental standing, which does not enable the fundamental reform of the system that stakeholder participants and scholars alike call for (Ingram, 2015; Kuhmonen and Siltaoja, 2022): "I think the hope is that technological innovations … say around methane inhibiting feed additives will … kind of do the real heavy lifting, so that we can meet our targets without really transforming the system" (P13).

Stakeholders highlighted the centralised nature of Irish agricultural policy which generalises the complex nature of Ireland's landscapes: "We have centralised everything around government departments … even in terms of the advice is centralised in terms of dairying" (P6). Ireland has been noted as one of the most centralised countries within the EU in terms of government (The Council of Europe, 2023). However, Ireland also has a broad spatial variation of land cover and use, with a range of unique landscapes, leading to a call for "dedicated landscape and catchment-specific approaches to identifying, addressing and monitoring environmental pressures" (Carlier *et al.*, 2021: p. 11). Our findings come to a similar conclusion, identifying a lack of "translational mechanism in local areas" (P6) and calling for more regional governance structures in Ireland's agri-food system.

5.2 Enabling and/or inhibiting design elements

Farmer leadership and peer exchange

The role of the farmer and the farmer's voice in moving the sector towards a more sustainable future was stressed. Stakeholders noted that peer exchange plays a significant and influential role in farmers' decision making. Like others (Bakker *et al.*, 2021; Scherfranz *et al.*, 2024), this impact was found as both an enabling and inhibiting factor. Stakeholders noted that having an example within the community gives confidence to peers in their experimentation: "… If the other farmers are doing it and everybody knows what it's about and where it's going and what the end result needs to be, then you've got a lot more buy in, rather than just being like a lone soldier saying, listen, we should be doing this, but nobody else is doing it" (P8). However, exploring new practices can be inhibited by fear of judgement from peers when deviating from the norm: "Most of them wanted to do the right thing, but they were frightened of looking silly in front of … their neighbours" (P10).

Findings point to the idea of farmer leaders, who champion a more sustainable production system and become a strong positive example for others to follow: "There's certain farmers that are leaders. I would say that … they're environmentalists who are farmers" (P11). In their analysis of the role of farmers' social networks in

influencing practice change, Skaalsveen *et al.* (2020) also found that the social networks of farmers included fellow farmers that stood as 'clear influencers in the network', referred to by others in the study as 'early adopters', "having the ability to be innovative and think outside the box … or as someone who prompted other farmers to change (to no till) practice" (Skaalsveen *et al.*, 2020: p. 5).

Shared values of nature and ecosystem services

An identified influence on engagement was the value placed on nature and ecosystem services by policy, society, and the wider system. First, it was argued that value placed on ecosystem services needed to be increased. A key design mechanism for this was through financially rewarding farmers for the services provided. It was reasoned that for this approach to be further embraced within policy and design, the value that the system and wider society place on the vital ecosystem services, of which farmers are custodians, needs to be increased: "But when you show them what their farming is actually delivering and supporting for conservation and biodiversity and ecology, then they start to become proud of it. And that was a big shift" (P10). In taking this approach, ecosystem services become a product, reducing the opportunity cost and enabling engagement and experimentation: "It was making conservation a product, not just something airy fairy at the end" (P10). The second component of this dimension refers to a more innate sense of connection to the environment through the value placed on nature by individuals which acts as an enabler to engagement. This element moves away from seeing nature as a product and towards valuing it in a less extractive way: "Farmers who are parents and who are grandparents, for the first time in their life, were bringing their children or grandchildren out and showing them, identifying different species of birds and trees and things like that...that they just walk past before" (P9).

Guidance and support

It was found that, while farmers may be willing to experiment, they might not have access to the appropriate supports or guidance to do so. Stakeholders stated that farmers often held the knowledge and ideas themselves, and the programme provided "somewhere to go" (P10) for guidance and support to enact this knowledge: "You'd get farmers coming in suggesting other ways … that we haven't thought about and that. So, they're not going to do that unless they've got somewhere to go with the idea. And they're not going to think about it unless there's a reason to think about it" (P10). Long-term access to support was considered by stakeholders to be more conducive to meaningful change amongst farmers and, moreover, not in line with the prominent short-term programme model (i.e., 3–5-year cycles): "They should be sort of going forward and being very much part of the farm, its enterprise, how it operates, how we think about managing it long into the future" (P12). Short-term projects are "reactionary" (P6) and evoked a sense of distrust in the scheme and in what the scheme can achieve.

Role of external actors (family, friends, community)

Stakeholders highlighted the role that external actors (family, friends, community) play in influencing farmers' engagement with environmental experimentation. Being recognised and acknowledged by actors outside of the farming community built pride amongst farmers: "We were included in the achievements of what the project got recognition for … and that would give a sense of pride" (P12). Moreover, external actors (i.e., family, community) can significantly influence farmers' decision-making around experimentation. One example given saw familial resistance to experimentation (also seen in Mills *et al.*, 2017): "They'd feel like it's a death in the family … they would nearly see it as capitulation to all the hard work that they would have done" (P12). Alternatively, community influence saw neighbours experimenting with measures despite not engaging directly with a scheme: "There were participants within that catchment who weren't part of the scheme who weren't being funded or getting incentivised through the scheme but would have seen some of the activities that our neighbours were implementing and were thus willing to implement similar measures within their own farm for no financial benefit" (P5).

Future opportunities within the sector

Moving towards a more sustainable agricultural system creates space for new opportunities for both the farmer and wider sector. Stakeholders point to the need to shift the outlook of both farmers and society towards ecosystem services and begin to recognise the market opportunities that can result. Exploration into premium payments for ecosystem services delivered was suggested: "If a dairy farmer gets a premium payment for his or her fat content in the milk, for example … he or she should also be rewarded for having high biodiversity features or a high percentage of habitats under land or good water quality or carbon storage" (P5). Such marketability holds an opportunity for Ireland to become a leader in this space, a shift in mindset which needs to be embraced and championed by the system and shown to farmers to encourage and motivate environmental engagement and experimentation.

Responsive and evidence-based policy

The necessity of responsive and evidence-based policies was highlighted by stakeholders to be influential in terms of farmers' decision making around experimentation. On a broad level, stakeholders stated that a sustainable transition requires policy to be in place: "Getting farmers to change their approach really ultimately comes down to the policy that's been implemented from the government and from the EU …" (P8). Coherency within policies was stressed in several areas. First, while national targets are in place, these are often not followed by coherent policy: "We've got all of these different targets or ideas but translating that into a really coherent sense that everyone is on the same page as to what it means for the future of agriculture we're quite far away from" (P13). Knickel *et al.* (2018) concur, finding a 'glaring mismatch' between the required systemic changes and the existing visions and the policy measures, market developments, and outcomes in place to achieve them. This mismatch becomes apparent in how environmental issues are addressed through policy measures: "I think fundamentally it's gone in the wrong direction. There's a very siloed approach. So, we're looking at environmental issues in isolation and then telling farmers that there's quick fixes or there's … efficiency measures that can be put in place" (P11). The importance of evidence-based policies (i.e., taking forward learnings and assessing impacts) was stressed: "We need continuous assessment of these national scale schemes to see what is working from an effectiveness point of view. And if one of the reasons it's not working is because farmers aren't engaging in the measure, we need to know why a farmer isn't engaging with the measure" (P5).

At the direct farmer level, findings show that policies are often inefficient within their contexts. Stakeholders pointed to a failure to engage farmers and drive momentum, lost trust, and the prescriptive nature of policies as factors in this ineffectiveness. Prescriptive policies are constraining to the farmer, resulting in reducing the farmers' ability to use their own contextual knowledge and problem-solving skills, in turn impacting engagement and effectiveness: "Prescriptions can work in certain situations. The problem with them is … people see it's a constraint and being told what to do. It is the outside experts telling them how to farm" (P10).

5.3 Enabling design elements

Trust

Trust emerged as a nuanced dimension, centring around the growing need to build farmers' trust, as a distrust in the system may stifle engagement and experimentation amongst farmers. Messaging directed at farmers from varying sources was found to be confusing, incoherent and, at times, conflicting, with fears raised that it may result in a loss of momentum and trust, leading to inertia and polarisation in the sector: "I think farmers have been told to do something. Then they've one group of people telling them that what they did was correct … and another group of people saying [the opposite] … I think that fundamentally will result in inertia from farmers. It will result in polarisation and a real toxic environment where it's hard to engage on

specific issues and try and progress" (P11). Rust *et al.* (2022) concur, arguing that, to enable farmers' own agency and decision making, more creative engagement approaches which are based on trust and mutual respect of farmers' tacit knowledge are needed.

Education for engagement

Education, as a dimension, comprised three key ingredients: the need for education, learning through practical demonstration and education to foster engagement. Stakeholders note that fundamental education about the environment, environmental systems, and the impact of practices, while often overlooked in the education of farmers, is critical: "I got very little environmental education, it was all very much production focused" (P9). Knickel *et al.* (2018) agree, stating that "the current agricultural knowledge and innovation systems, particularly national level agricultural institutions, including higher education, is deeply attached to the model of technologically driven agricultural industrialisation" (p. 204).

Stakeholders observed that engagement and buy-in was fostered through education and understanding: "It's that knowledge, awareness, appreciation being its own self-fulfilling kind of motivation" (P13). Having this understanding and the opportunity to use it benefits the farmer, allowing them to use their own knowledge to make decisions, experiment and problem solve within their own contexts: "A very important message that should be out there is … enabling farmers to make the decisions in their context with a full awareness of what the actual environmental issues are and getting the right evidence-based information" (P6).

From a stakeholder perspective, practical demonstration garnered a more engaged and enthusiastic response from farmers, with greater levels of understanding and awareness shown. Learning through practical demonstration creates a participatory and interactive learning environment and fosters an enabling environment for experimentation. In this setting, farmers become mutual and "active partners" in learning and "co-producers" of knowledge (Šūmane *et al.*, 2018: p. 235): "When you show them in the right way at the right time … they will never go back to doing the wrong thing … it's demonstration and … understanding the nature and … it becomes so obvious then what's good or what's bad" (P1).

Local and place-based focus

Taking a local and place-based focus was detailed by stakeholders as a key aspect of programme design that increased farmers' engagement. Grounding schemes within local areas (such as catchments, unique landscapes, or habitats) was found to build pride amongst participating farmers: "Even for those who might not have bought in, they felt like they belonged to something. It made their area. By showing people things, it made them realise how special their area was" (P10). A local and place-based focus to design allows for a sense of community amongst participants, creating space for individual agency but also for collective agency as communities work together to address local problems: "They're built on a kind of sense of a landscape which I think engenders a sense of pride in community, which I think is quite helpful when you're trying to bring communities together" (P11).

Flexibility and co-creating with the farmer

A key point raised was allowing farmers flexibility over practices. Affording flexibility allows space for utilising their local knowledge and an increased sense of ownership over the changes implemented: "But the agency part being you're involved in this programme because you want to improve the outcomes, but it's totally up to you as a farmer which type of measure, which type of approach would suit you, or you might come up with your own approach" (P13). Designing programmes with farmers and utilising their knowledge allowed for ownership and belief in the programme, increasing buy-in and pride. This finding is in line with that of Riley (2016), who finds that farmers gained a sense of ownership when their understandings are recognised

within schemes: "Everything was built on the farmers' own knowledge. We use their knowledge … we then added our own knowledge, and we moved ideas around" (P10).

6. Discussion

Given our objective to explore how farmer-led experimentation can be supported through the design and implementation of agri-environmental interventions and supports, in Table 2 the findings are characterised with respect to their enabling and/or inhibiting effect on farmers' experimentation. Where design elements fall into a 'middle ground' having the potential to both enable and inhibit, design characteristics are considered which could impose an enabling or inhibiting influence (italicised in Table 2).

The discussion presented explores the enabling and the inhibiting elements of design, considering how to maximise the enablers and minimise the inhibitors while navigating the middle ground.

6.1 Enabling design elements

The analysis finds that crucial to enabling farmers' experimentation are design elements that give voice to the farmer, allowing space for agency, resilience, and effectual entrepreneurship to develop. Here the importance of education, knowledge, and understanding is argued. Arming farmers with understanding and giving them the space to apply this knowledge to decision-making and experimentation benefits the farmer in terms of agency and ownership (Table 2). Riley (2016) came to a similar conclusion, finding that through participation, farmers' understanding of and recognition for environmental issues grew. Leader *et al.* (2024) consider communication strategies with farmers crucial to engagement, with communication activities inspiring moments of realisation amongst farmers. Designs that promote experiential learning can reclaim the significance of farmers' tacit knowledge, knowledge that has been undervalued due to the standardisation of agricultural information (Morris, 2006; Šūmane *et al.*, 2018). Our results point to strong links between education, experiential learning, and peer exchange. Similar to Šūmane *et al*. (2018), we observe that practical

Table 2. Categorising enablers and inhibitors

Design elements inhibiting engagement with experimentation (−)	**Design elements which can either enable or inhibit engagement with experimentation (−/+)**	**Design elements enabling engagement with experimentation (+)**
Systemic lock-ins are barriers to change		Flexibility and co-creating with the farmer
Scaling up programmes		Local and place-based focus
Opportunity cost		Trust
		Education for engagement
Solidifies social norms	Farmer leadership and peer exchange	*Removes 'lone soldier' and gives confidence*
Confusing/ restrictive policy	Policy	*Responsive and evidence-based policy*
Commodification of nature	Shared values of nature and ecosystem services	*Connection to nature*
'Business as usual'	Future opportunities within the sector	*Market opportunities seized*
Short-term engagement	Guidance and Support	*Long-term and engaging support infrastructure provided*
Rigid social norms	Role of external actors	*Community recognition*

learning, and the peer networks and collective forms of agency that grow from it, is particularly influential. Šūmane *et al.* (2018) find that sharing and exchanging knowledge helps to develop and disseminate sustainable practice while also strengthening the social structures through which these practices are disseminated, "ties of friendship or solidarity, community and identity building" (Šūmane *et al.*, 2018: p. 239).

The findings show that stakeholders believe that local and place-based approaches give further value to farmers' tacit knowledge, fostering engagement and building pride and community (Table 2). In line with experiential learning, over time, farmers develop local understandings of specific areas (Riley, 2016). Generated in local contexts, this knowledge considers the complexity of realities in which farms operate and stresses the interconnectivity between dynamic local conditions and allows farmers to respond and adapt to them (Šūmane *et al.* 2018). Our findings show that, from the stakeholders perspective, harnessing this knowledge in scheme design brings with it unique benefits. For example, involving farmers in scheme co-design was found by stakeholders to create further opportunity for knowledge integration and, like that of Riley (2016), create a "sense of ownership in that their knowledge is being drawn upon" (Riley, 2016: p. 67). This approach removes the 'placeless' nature of AESs, anchoring the design in context though the farmers' observation and input (Riley, 2016). A local and place-based approach has further social elements, creating and strengthening community ties and enabling a sense of collective agency. In line with the findings of Quinn *et al.* (2025), we conclude that the importance of place should be carefully considered in design, focusing attention on tangible community-level action (Amel *et al.*, 2017), giving farmers "a sense of you being part of a bigger collective effort" (P13).

6.2 Navigating the middle ground

We consider how to navigate and balance the identified middle ground. An interesting finding to consider here is perceptions of nature. Agricultural systems emphasising production and intensification lead to farmers' interactions with nature becoming disconnected, utilitarian, and economic-focused (Giagnocavo *et al.*, 2022). Ecologist Aldo Leopold (1949) said that "we abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect". Thus, the value placed on ecosystem services provided by farmers must be increased to enhance the stewardship afforded to it. A design mechanism identified to allow for this is to financially reward farmers for ecosystem service provision. While there is value in commercially incentivising farmers' environmental stewardship, it is possible that nature and the environment become viewed as commodities from which to be extracted. Leopold's quote points to the other identified element of this dimension of farmers' relationships with nature as being more innate, for example, seeing nature as heritage to be passed down. We pose that farmer-led experimentation may be a leverage point to move from an extractive to an innate relationship (Table 2), as has been seen in previous research. Giagnocavo *et al.* (2022), for example, stress that 'a farmer's relationship with nature is a fundamental cornerstone of any attempt to transition to sustainable agricultural systems' (pg. 4). Gosnell (2022) agrees, finding that the 'kinship' farmers develop through working regeneratively with nature is a catalyst or leverage point for wider social-ecological transformation. Furthermore, through experimentation with sustainable practices, farmers become appreciative of the functionality of biological elements in farming activities, and innovation projects can highlight to farmers the benefits of agricultural practices becoming more embedded in nature (Giagnocavo *et al.*, 2022).

Additionally, the role of farmer identities and peer exchanges must be cautiously balanced. The influence of peer exchanges amongst farmers is well established (Sutherland and Marchard, 2021). Our findings contribute to the existing literature, demonstrating that peer exchange and the resulting social learning amongst farmers has the potential to play an important role in engagement and experimentation with pro-environmental practices (Table 2). Peer learning can establish a culture of sustainable, pro-environmental practices amongst farming communities (Osawe *et al.*, 2024), removing the 'lone soldier' (P8) element of experimentation.

By contrast, it was found that the fear of ridicule from peers for deviating from the norm, a well-established pressure identified in literature (Bakker *et al.*, 2023; Bradfield *et al.*, 2025; Mills *et al.*, 2017), solidifies established norms and inhibits experimentation (Table 2). Farmers are influenced by societal and cultural norms (Mills *et al.*, 2017). Notions of good farming practice have developed around the ideas of productivity (Burton *et al.*, 2008; Riley, 2016; Saunders, 2016), an outlook that has been engrained in the practices and mindsets of farmers (Šūmane *et al.*, 2018). We suggest that, in the absence of an enabling environment, this idea is maintained. To support farmer-led experimentation and momentum in this direction, scheme design must create space for and support social learning and social networks for farmers, through such means as discussion groups and farm walks (Sewell *et al.*, 2017). In a similar vein, farmer leaders must also be supported. Farmer leaders are described by Moghfeli *et al.* (2023) as farmers with strong social ties within social networks which allow them to "promote collective actions and facilitate the distribution of novel ideas and practices" and play a key role in promoting positive change (p. 991).

Policy was found to be a strong influencing factor in farmer-led experimentation. Our findings highlight the restrictive nature of prescriptive national programmes which constrain farmers' flexibility to experiment with practices. Morris (2006: p. 116) argues that AESs (in the UK) "encapsulate a heavily 'scientised', codified, bureaucratised, and centralised approach to knowing nature on farms", positioning farmers as lacking knowledge around environmental management (Riley, 2016). Maintaining this rhetoric within design undermines farmers' trust of themselves and their knowledge and capabilities. Moreover, it echoes Ellerman's (2007) idea of unhelpful help, while also driving causal, rather than effectual, thinking and behaviours (Sarasvathy, 2001). To balance these elements, we reiterate the conclusion drawn by Osawe *et al.* (2024) who stress the importance of re-engagement and feedback loops rather than once-off policy strategies for engagement. Engaging farmers must be a constant to ensure farmers' efforts are in line with agri-environmental policies as they evolve (Osawe *et al.*, 2024). This continuous effort must recognise that AESs are, in effect, a springboard for developing farmer capability and enabling engagement in on-going farmer-led experimentation and are thus, not the central actor.

6.3 Inhibiting design elements

Design elements found to inhibit experimentation are those which sit at a higher systemic level. In the case of Ireland's dairy sector, the prominence of the productivist paradigm emerges in our analysis with education, schemes and policies having been developed around the ideas of productivity, growth and efficiency, deepening path dependencies, and lock-ins (Knickel *et al.*, 2018). Systemic lock-ins create a policy and design landscape that can focus on unhelpful forms of help (Ellerman, 2007) and causal thinking (Sarasvathy, 2001) as a mechanism to move towards a more sustainable dairy system. This self-perpetuating cycle can undermine the learning capacity of farmers, siloing them into a mindset of productivity and inhibiting movement away from this. To counteract this, the system must look for ways to facilitate and enact farmers' agency, focusing on the provision of an enabling context, indirect and autonomy-respecting help, and the capacity of the farmer to support an experimental and effectual mindset.

6.4 A note on the stakeholders' role in design

The authors emphasise that stakeholder roles and mindsets are central to shaping effective engagement and experimentation. They contend that stakeholders' institutional loyalties can act as powerful lock-ins that limit openness to change. This may influence the ability and willingness of the designer to pass control to the farmer and to trust the farmer with the autonomy to act in an environmental manner that impacts design. Enabling engagement and experimentation through design, in a sense, relinquishes an element of control to the farmer as the focus must shift to allow room for farmers' capacity to guide a transition through

farmer-led experimentation. The use of the Gioia methodology (Gioia *et al*., (2012) enabled a structured and transparent analytical process, allowing participants' own language and interpretations to remain central to the development of the concepts. This was particularly valuable given the socially constructed nature of stakeholders' understandings of farmer-led experimentation and sustainable practices, as it captured the nuanced and context-dependent meanings they attribute to these activities.

6.5 Recommendations

Key recommendations for policymakers on designing interventions that incorporate the identified enabling dimensions are outlined in Table 3.

The recommendations outlined in Table 3 reiterate the need to focus on the voice and agency of the farmer and to create an enabling context for farmer-led experimentation. Interesting models which begin to apply these approaches include ecological or farmer clusters in the UK (Game and Wildlife Conservation Trust, 2025) and territorial co-ops (Bianchi and Vieta, 2020) in Germany and The Netherlands.

Table 3. Recommendations for an enabling context

Design area	Design mechanism	Description and desired outcome
Financial resources	Payment structure	Given the benefits, further integration of results-based payments into design is encouraged. Likewise, there is scope to explore the idea of place-based or catchment-based payments (Osawe *et al.*, 2024)
	Funding	Easy to access grants to supplement farmers' experimentation, e.g., community grants such as LAWPRO Community Water Developing Funding
Learning and support	Regional or local support and learning labs	Create regional or local support hubs which are accessible to farmers to get contextual information from trusted sources as well as a place for farmers to go to bring ideas to life and create a mechanism for knowledge integration
	Social and peer to peer learning	Support and provide opportunities for social learning through farm walks, discussion groups
	Long-term frameworks for on-going support	Develop long-term frameworks into scheme and programme design for on-going support, moving away from "reactionary" (P6) short-medium term design (3–5-year funding cycles). An example of such an approach is seen in the Landscape Recovery Projects in the UK which run for 20 years or more.
Communication	Recognition	Increase recognition within local communities, catchments, and the wider consumer base, i.e., farmer-led events, community discussion meetings
	Landscape/ community focus	Take the focus off the individual farmer and frame discussions within landscape, e.g., community-based behavioural change initiatives (Osawe *et al.*, 2023)
	Feedback loops	Open and regular feedback loops, first to ensure farmers' voices are heard within policy assessment and design (i.e., knowledge integration) and second to afford farmers increased access to data

7. Conclusion

Design that begins with farmers creates the conditions needed for meaningful experimentation. This requires giving farmers a strong voice, enabling their agency and ownership, integrating local knowledge, and building trust in their own abilities. By creating space within schemes for farmers' experimentation, driven by farmers' own motivations and supporting momentum in this direction (i.e., through programmes/ schemes/ policy), agency can emerge. We resolve that agency and experimentation are intrinsically linked. To take learnings, knowledge, and advice into practice, farmers must first understand, and then experiment to adapt to their own contexts, realities and knowledge, grounding and testing understanding in their own experiences. It is in this experimentation that agency manifests. Farmer-led experimentation does not occur in a vacuum but is embedded in a context (the farm, communities, and the wider policy environment) and must be supported by the broader system and scheme design.

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Conflict of interest

The authors have no competing interests to declare that are relevant to the content of this article.

Data availability

The data that support the findings are not publicly available.

Ethical approval

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Appendix

Appendix A

Table A1. An overview of Ireland's agri-environmental schemes and their characteristics

Scheme characteristics	Description	Example
Action or management based	Payments based on a set of actions/ measures	▪ REPS (Rural environmental protection scheme), 1994–2009 ▪ AEOS (Agri-environment options scheme), 2010–2014 ▪ GLAS (Green, low carbon, agri-environment scheme), 2015–2020)
Results based/ Hybrid	Payments based on results. In the case of hybrid, certain management conditions are tied to results-based payments or schemes may include a combination of results-based and action-based elements. These schemes are becoming increasingly locally adapted with the use of multi-actor approaches (Cullen *et al.*, 2018)	▪ ACRES (Agri-climate rural and environment scheme (2023–2027) ▪ The Burren Programme (2016–2023)
Project based	Bottom-up multi-stakeholder collaboration between farmers, scientists and other experts to develop and test solutions	▪ EIP Agri Operational Groups projects (European Innovation Partnerships/ EIPs), e.g., the Pearl Mussel Project, the BRIDE Project ▪ EU LIFE projects, e.g., Corncrake LIFE
Advisory and/or monitor farm	Advisory service	▪ ASSAP (Agricultural sustainability support and advisory programme) ▪ Signpost Programmes

Appendix B

Semi-structured interview questions:

1. What is your current role within your organization? What does your position entail? How long have you been in this position?
2. What do you think are the key challenges for dairy farmers in engaging in environmental practices on their farms?
3. How does your programme help in the advancement of environmental/ecological practices on dairy farms?
4. What key design features of these programmes work well/ don't work well in terms of advancing environmental practices on dairy farms?
5. Based on your exposure to the sector, do you think there is a need for additional innovative approaches to environmental management focusing on dairy farming? Why?
6. From your experience, how are the various approaches encouraging a change in how farmers approach environmental management on their farms? Or, how not?
7. In your experience, how do these programmes build agency amongst farmers?
8. How are the results of your initiative/ scheme measured? How are these results used as a tool to empower/ encourage farmers to take on further environmental practices?
9. Have you seen evidence of on-going momentum from farmers in advancing environmental/ecological practices on their farms beyond the programme?
10. What do you think enabled this momentum? (If not on a dairy farm – would some of these work on dairy farms) Do you think that your programme had an impact in encouraging this additional practice change?
11. In terms of on-going farmer momentum, are there specific environmental practices which particularly enable this?
12. How are the practices and mindsets of farmers after the programme comes to an end considered in the development/ design/ implementation of your programme or future programmes?

Appendix C. Aggregate dimensions

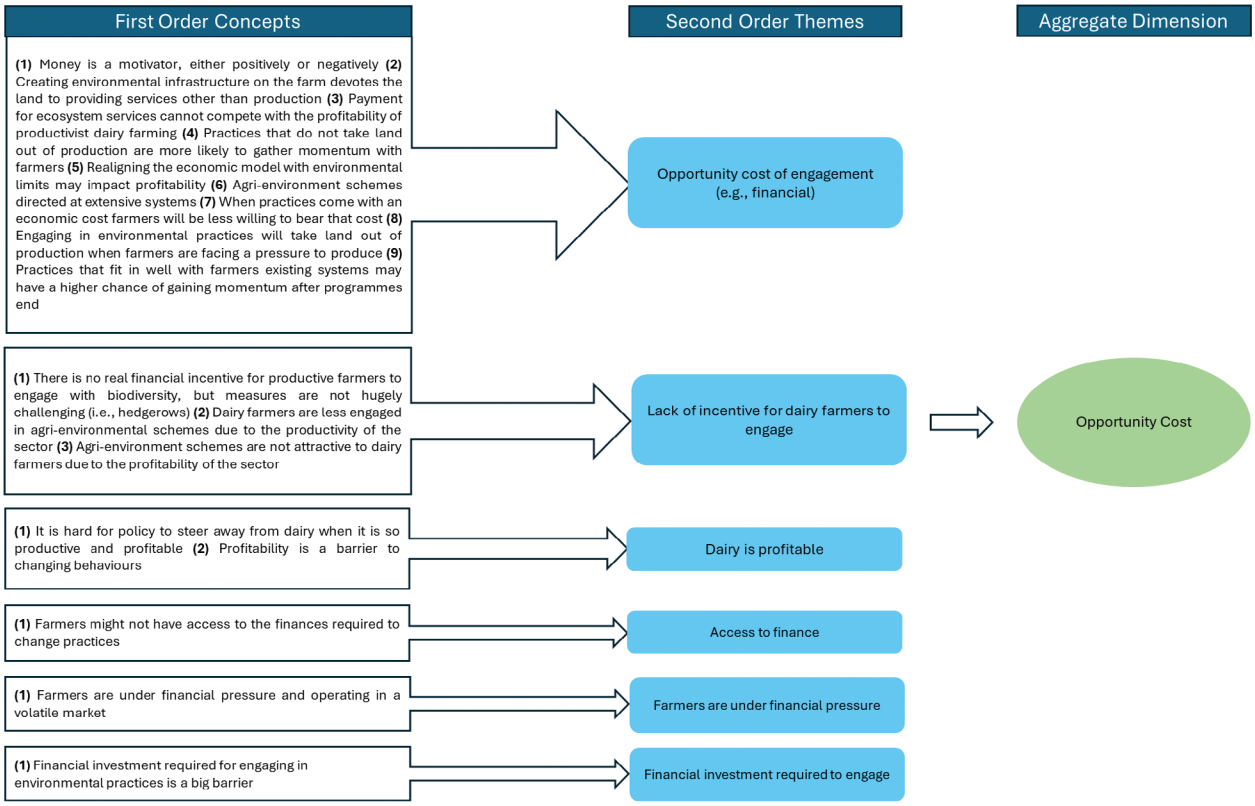


Figure C1. Data structure for 'opportunity cost'.

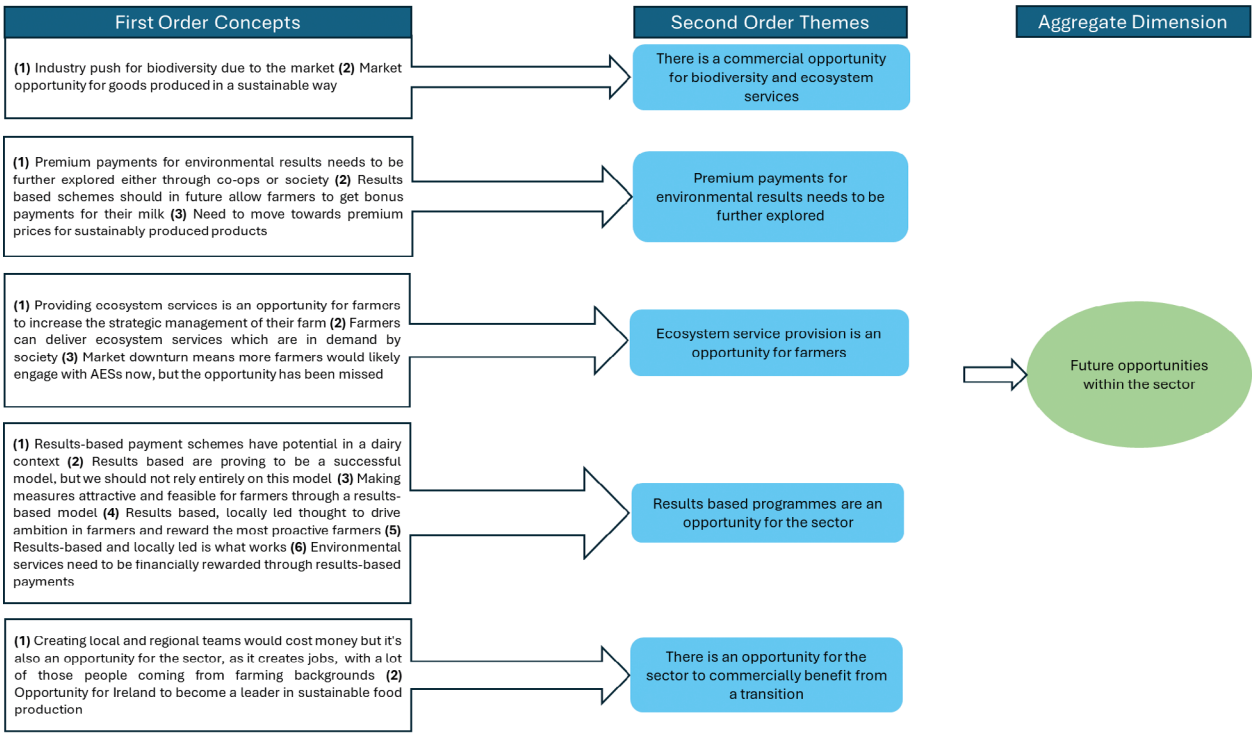


Figure C2. Data structure for 'future opportunities within the sector'.

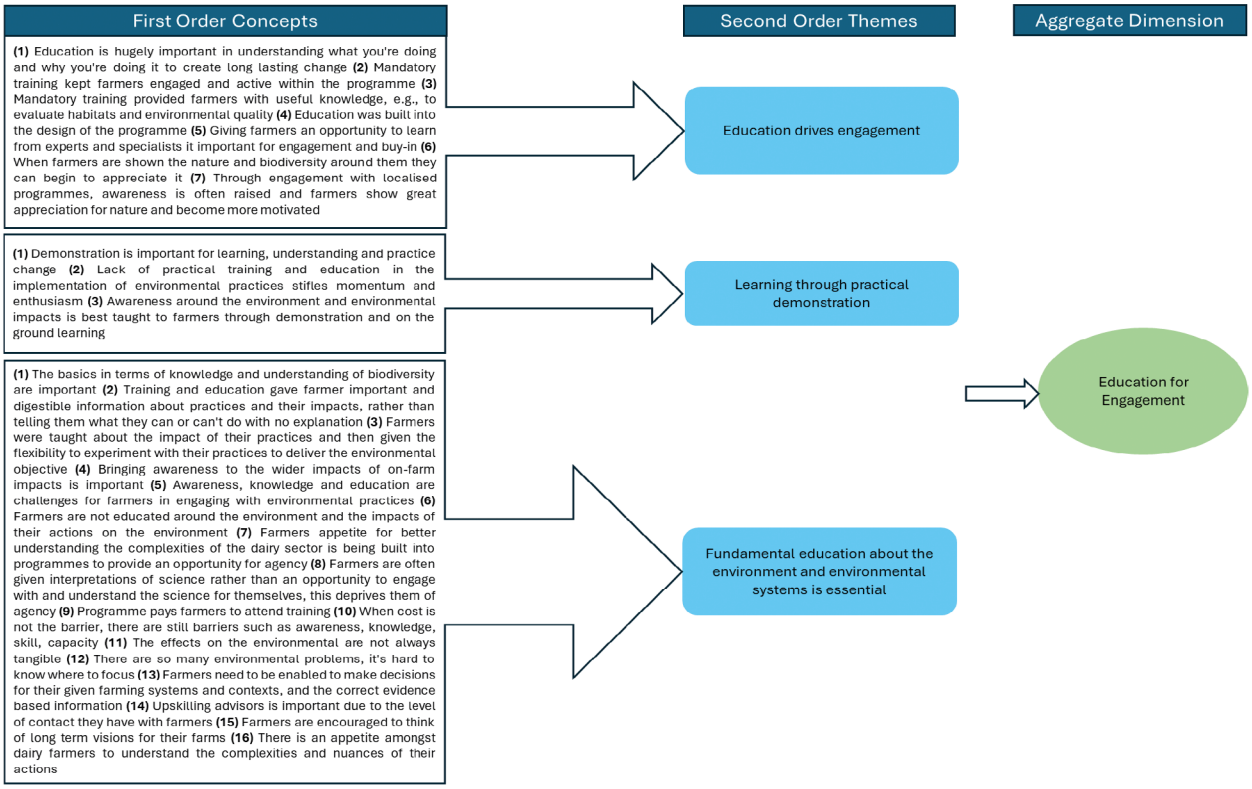


Figure C3. Data structure for 'education for engagement'.

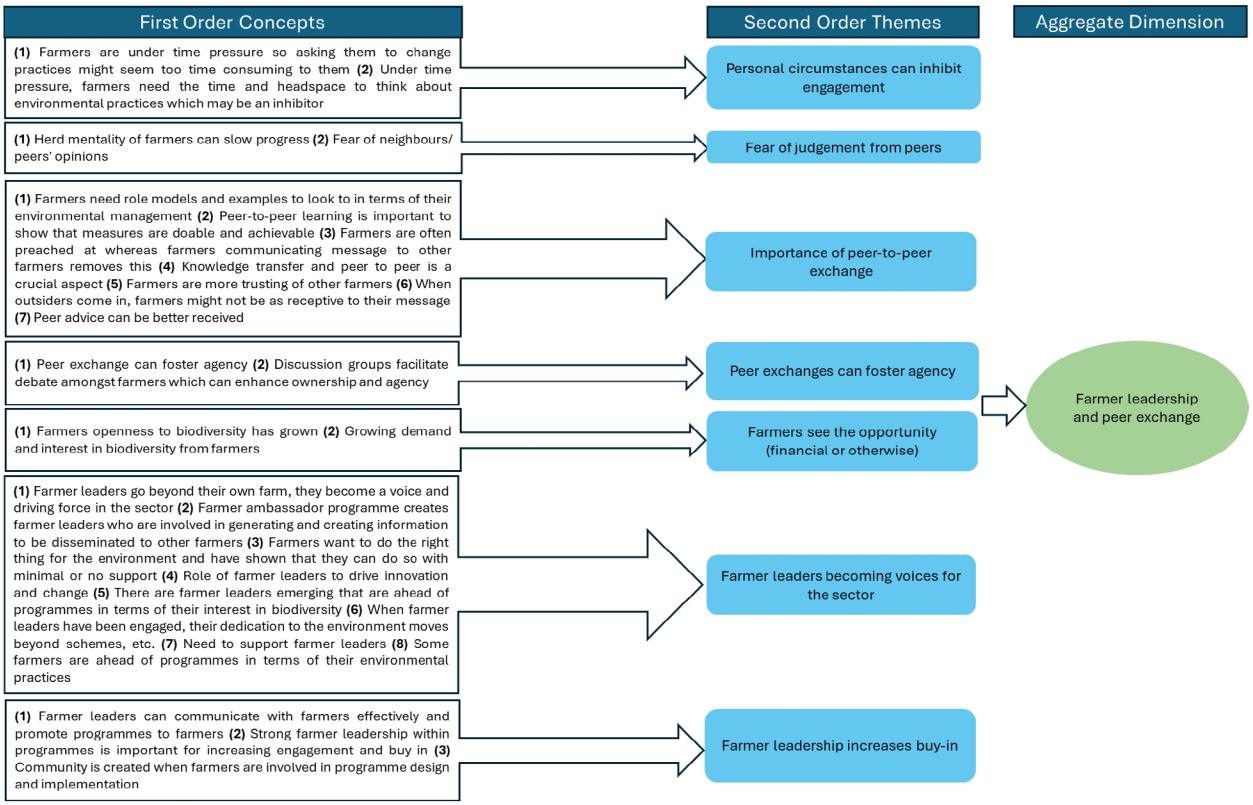


Figure C4. Data structure for 'farmer leadership and peer exchange'.

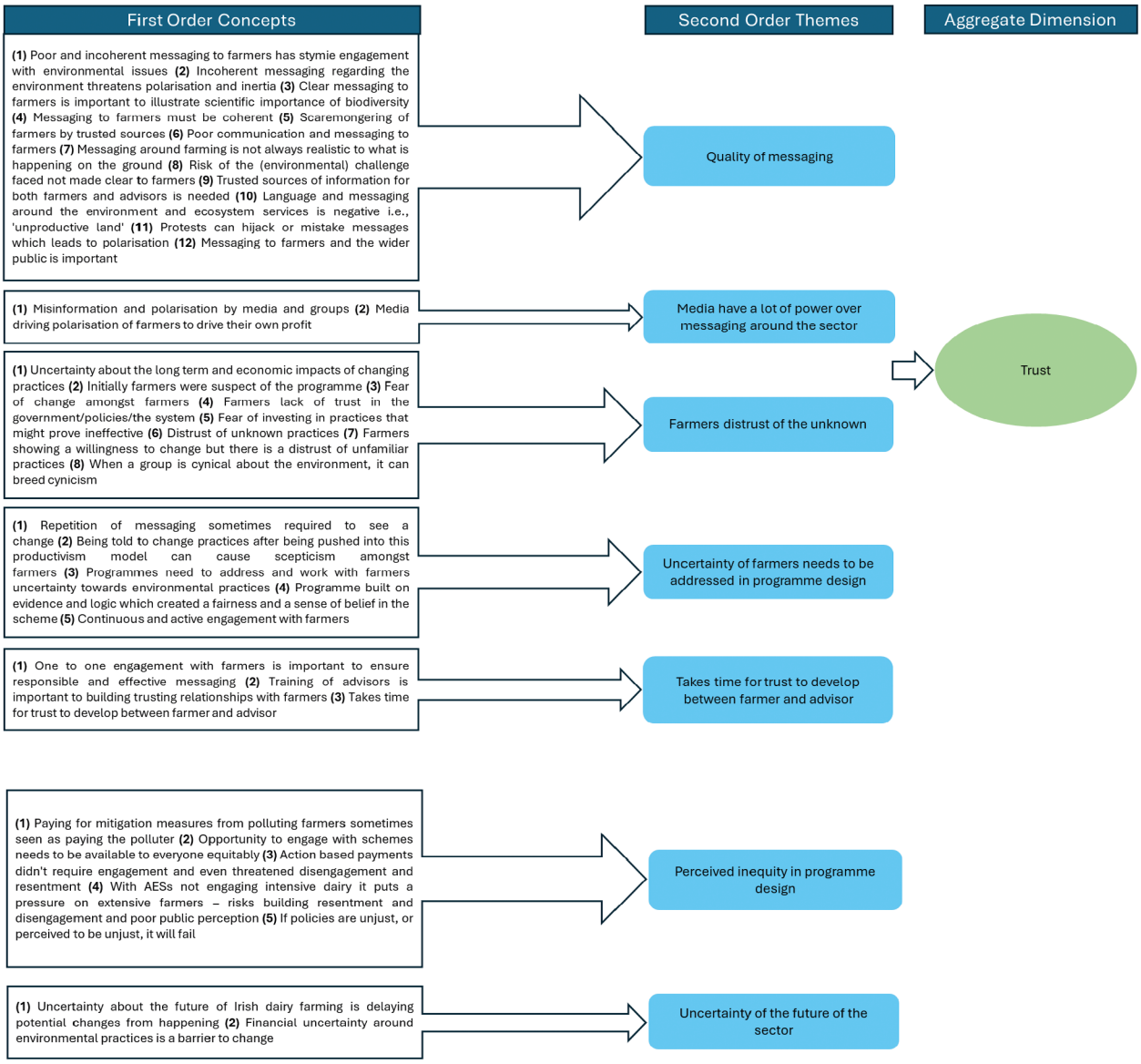


Figure C5. Data structure for 'trust'

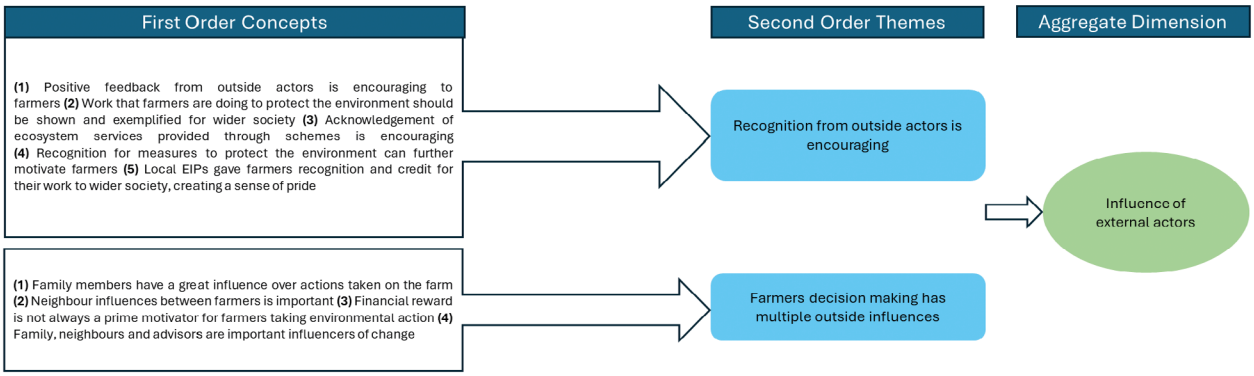


Figure C6. Data structure for 'influence of external actors'.

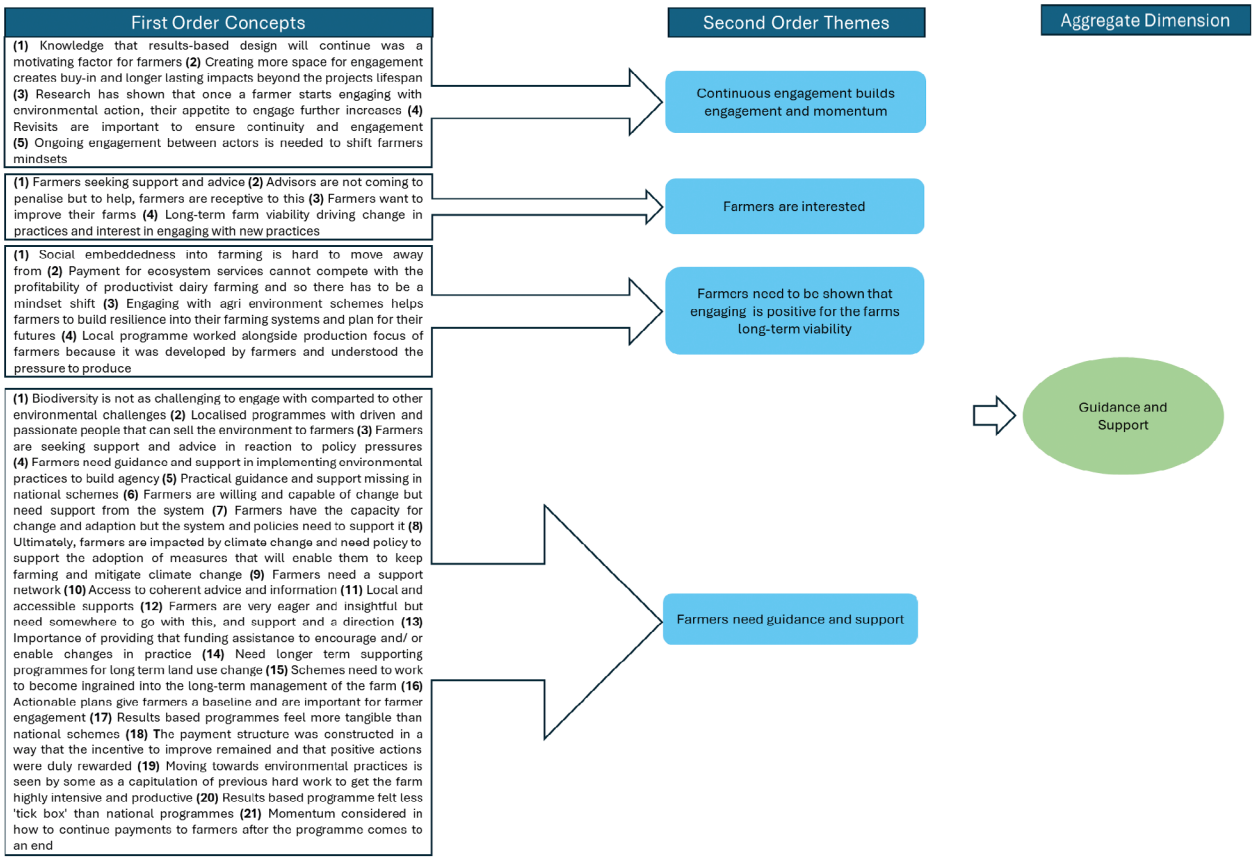


Figure C7. Data structure for 'guidance and support'.

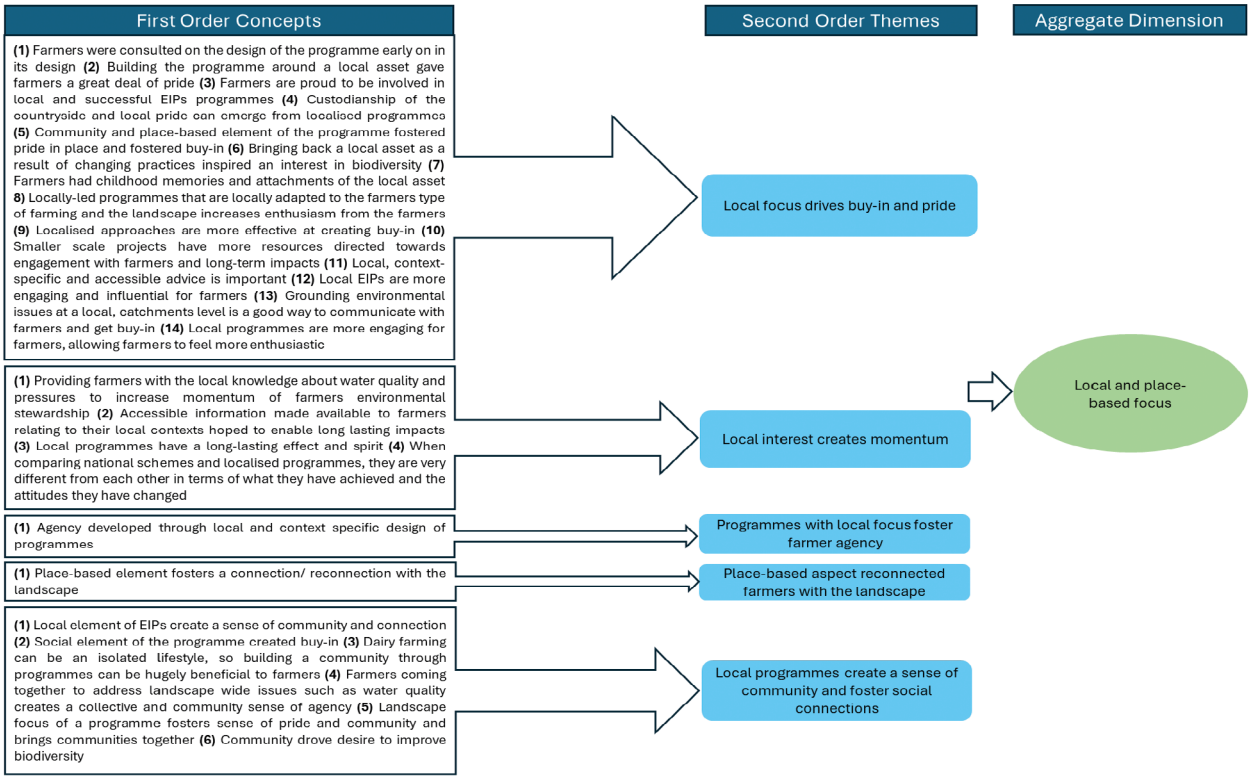


Figure C8. Data structure for 'local and place-based focus'.

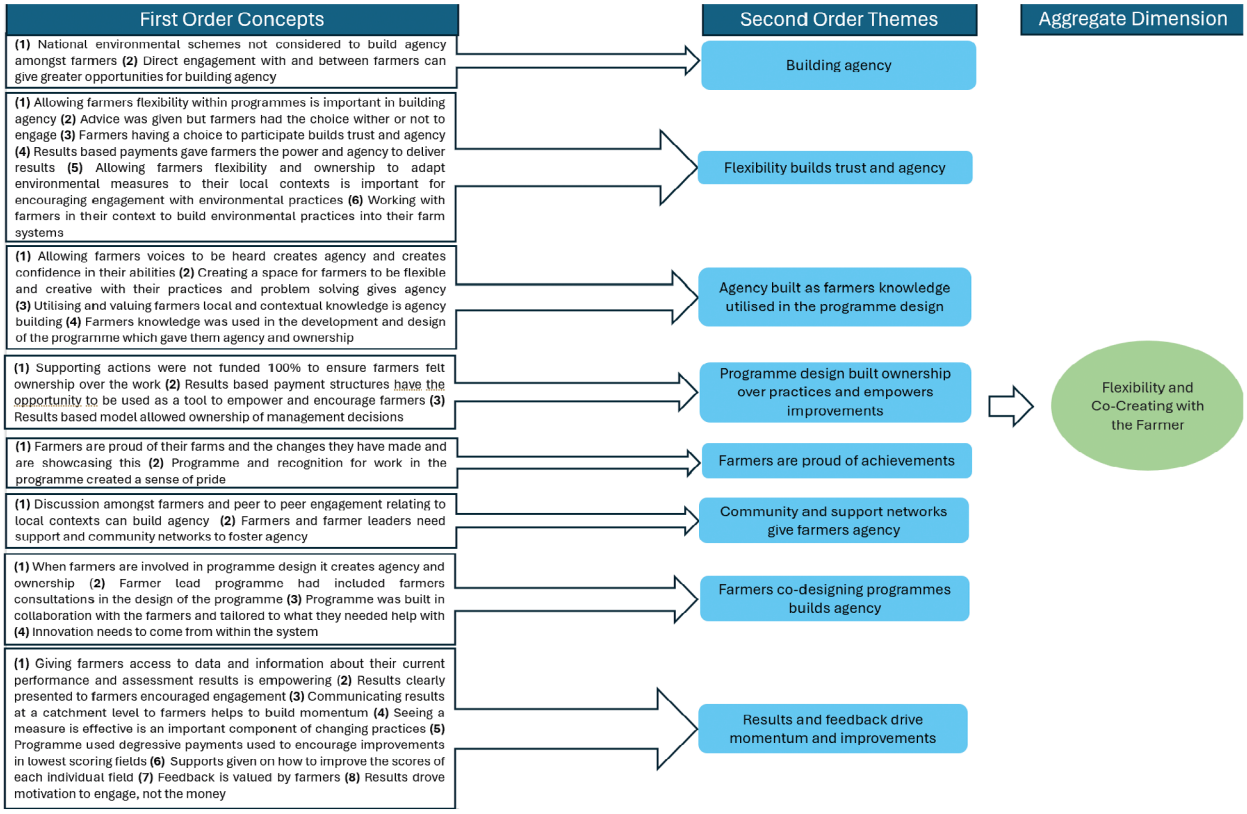


Figure C9. Data structure for 'flexibility and co-creating with the farmer'.

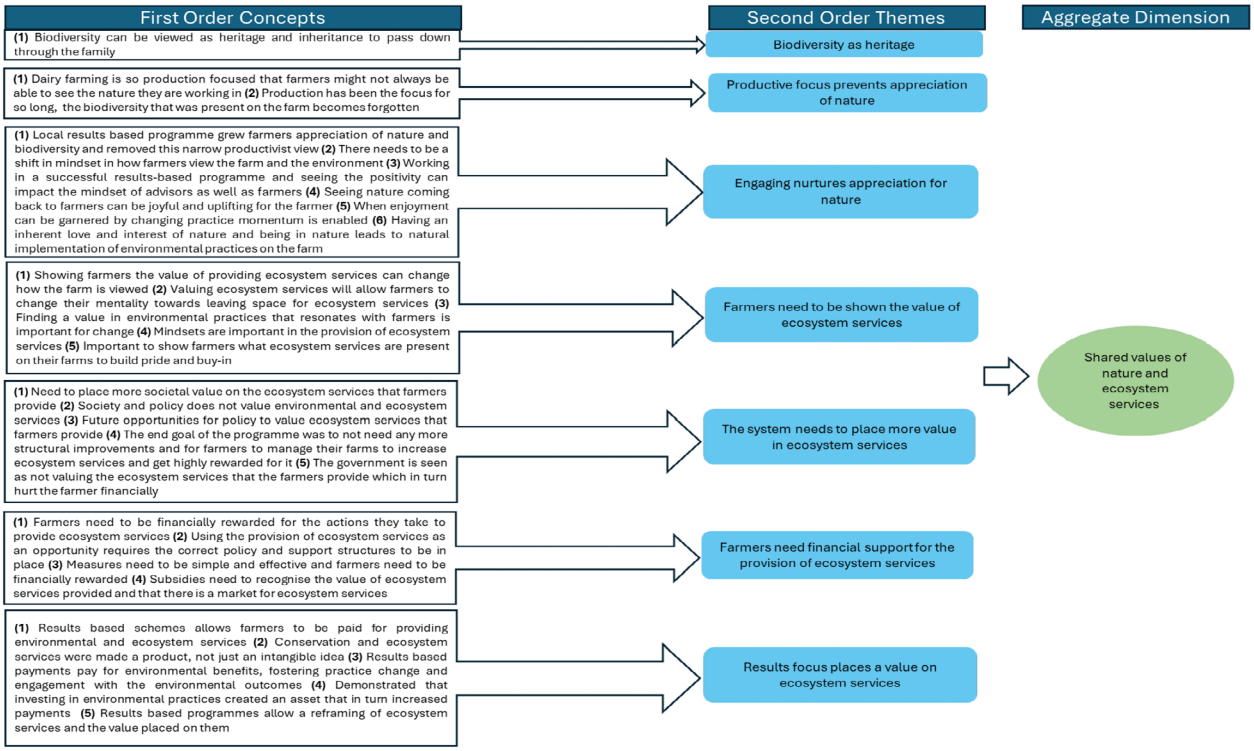
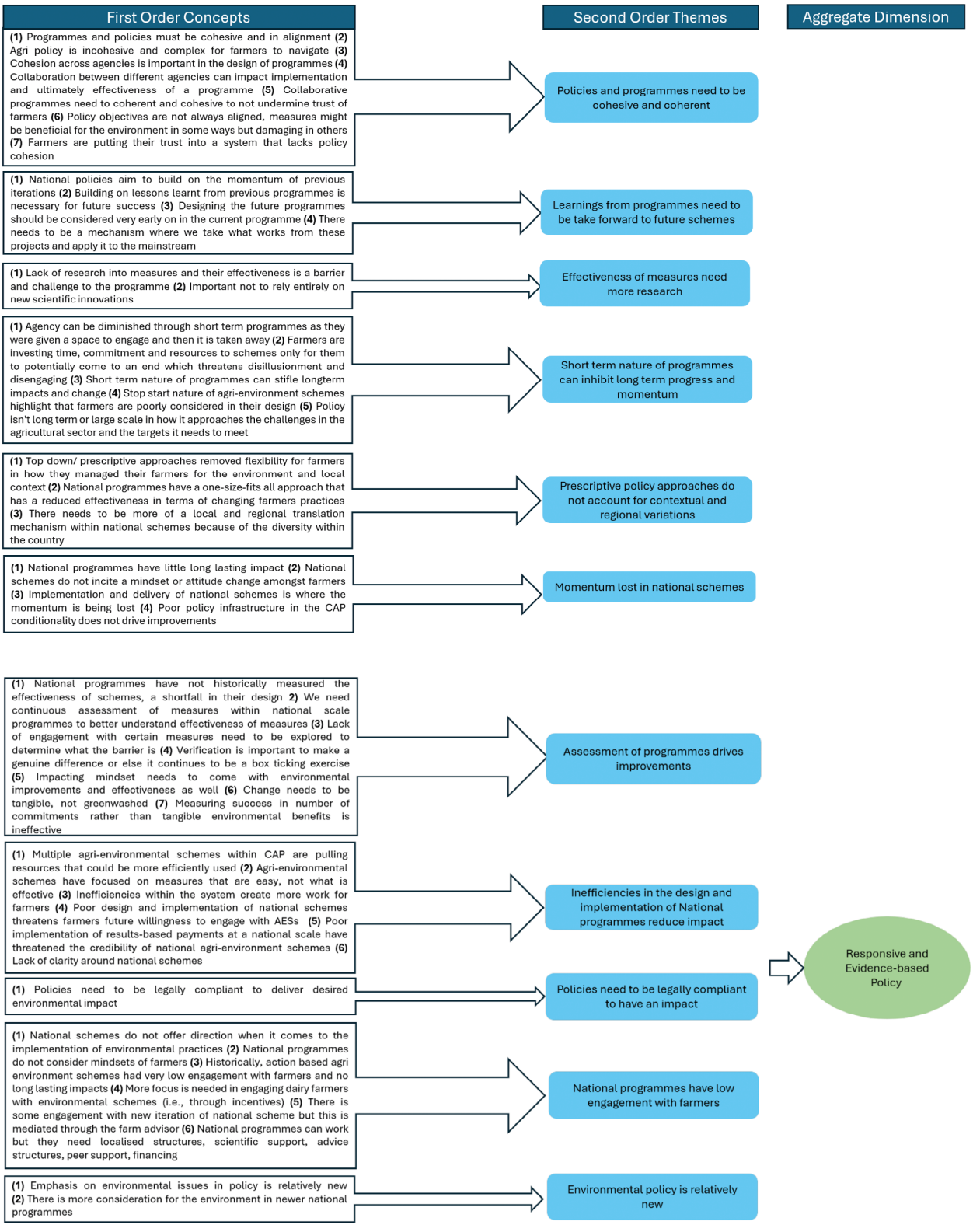


Figure C10. Data structure for 'shared values of nature and ecosystem services'.


First Order Concepts
Second Order Themes
Aggregate Dimension
(1) Programmes and policies must be cohesive and in alignment (2) Agri policy is incohesive and complex for farmers to navigate (3) Cohesion across agencies is important in the design of programmes (4) Collaboration between different agencies can impact implementation and ultimately effectiveness of a programme (5) Collaborative programmes need to coherent and cohesive to not undermine trust of farmers (6) Policy objectives are not always aligned, measures might be beneficial for the environment in some ways but damaging in others (7) Farmers are putting their trust into a system that lacks policy cohesion
Policies and programmes need to be cohesive and coherent
(1) National policies aim to build on the momentum of previous iterations (2) Building on lessons learnt from previous programmes is necessary for future success (3) Designing the future programmes should be considered very early on in the current programme (4) There needs to be a mechanism where we take what works from these projects and apply it to the mainstream
Learnings from programmes need to be take forward to future schemes
(1) Lack of research into measures and their effectiveness is a barrier and challenge to the programme (2) Important not to rely entirely on new scientific innovations
Effectiveness of measures need more research
(1) Agency can be diminished through short term programmes as they were given a space to engage and then it is taken away (2) Farmers are investing time, commitment and resources to schemes only for them to potentially come to an end which threatens disillusionment and disengaging (3) Short term nature of programmes can stifle longterm impacts and change (4) Stop start nature of agri-environment schemes highlight that farmers are poorly considered in their design (5) Policy isn't long term or large scale in how it approaches the challenges in the agricultural sector and the targets it needs to meet
Short term nature of programmes can inhibit long term progress and momentum
(1) Top down/ prescriptive approaches removed flexibility for farmers in how they managed their farmers for the environment and local context (2) National programmes have a one-size-fits all approach that has a reduced effectiveness in terms of changing farmers practices (3) There needs to be more of a local and regional translation mechanism within national schemes because of the diversity within the country
Prescriptive policy approaches do not account for contextual and regional variations
(1) National programmes have little long lasting impact (2) National schemes do not incite a mindset or attitude change amongst farmers (3) Implementation and delivery of national schemes is where the momentum is being lost (4) Poor policy infrastructure in the CAP conditionality does not drive improvements
Momentum lost in national schemes
(1) National programmes have not historically measured the effectiveness of schemes, a shortfall in their design 2) We need continuous assessment of measures within national scale programmes to better understand effectiveness of measures (3) Lack of engagement with certain measures need to be explored to determine what the barrier is (4) Verification is important to make a genuine difference or else it continues to be a box ticking exercise (5) Impacting mindset needs to come with environmental improvements and effectiveness as well (6) Change needs to be tangible, not greenwashed (7) Measuring success in number of commitments rather than tangible environmental benefits is ineffective
Assessment of programmes drives improvements
(1) Multiple agri-environmental schemes within CAP are pulling resources that could be more efficiently used (2) Agri-environmental schemes have focused on measures that are easy, not what is effective (3) Inefficiencies within the system create more work for farmers (4) Poor design and implementation of national schemes threatens farmers future willingness to engage with AESs (5) Poor implementation of results-based payments at a national scale have threatened the credibility of national agri-environment schemes (6) Lack of clarity around national schemes
Inefficiencies in the design and implementation of National programmes reduce impact
(1) Policies need to be legally compliant to deliver desired environmental impact
Policies need to be legally compliant to have an impact
Responsive and Evidence-based Policy
(1) National schemes do not offer direction when it comes to the implementation of environmental practices (2) National programmes do not consider mindsets of farmers (3) Historically, action based agri environment schemes had very low engagement with farmers and no long lasting impacts (4) More focus is needed in engaging dairy farmers with environmental schemes (i.e., through incentives) (5) There is some engagement with new iteration of national scheme but this is mediated through the farm advisor (6) National programmes can work but they need localised structures, scientific support, advice structures, peer support, financing
National programmes have low engagement with farmers
(1) Emphasis on environmental issues in policy is relatively new (2) There is more consideration for the environment in newer national programmes
Environmental policy is relatively new

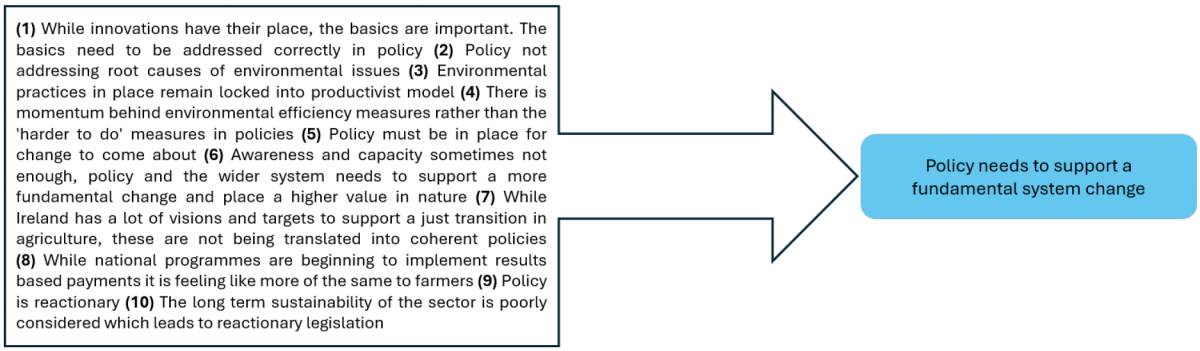


Figure C11. Data structure for ‘responsive and evidence-based policy’.

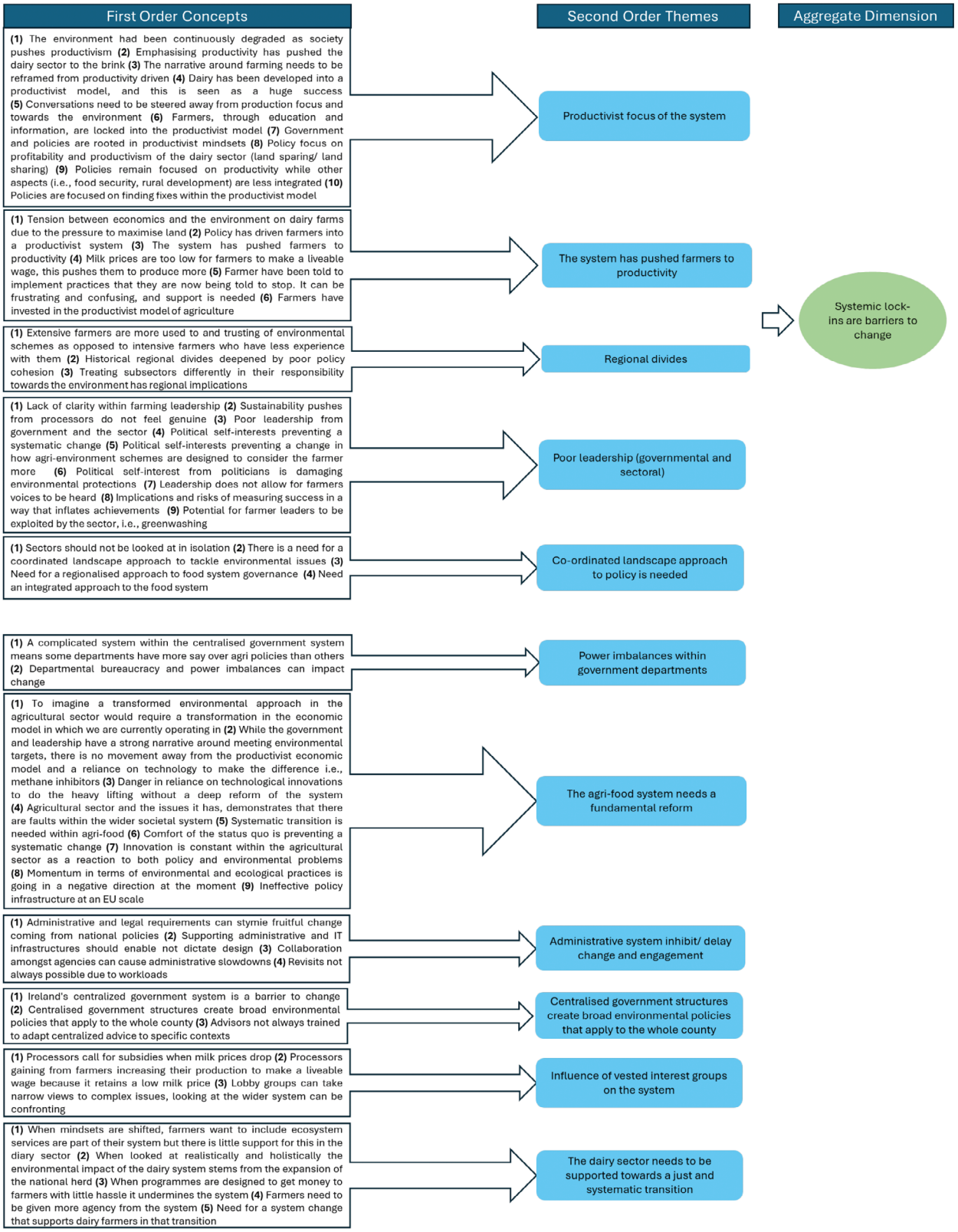


Figure C12. Data structure for 'systemic lock-ins are barriers to change'

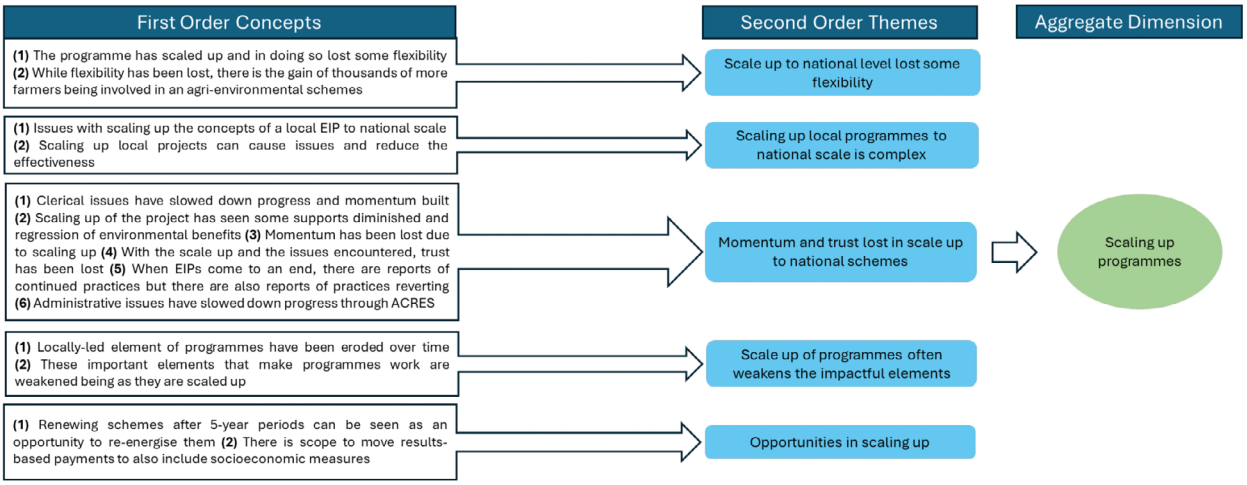


Figure C13. Data structure for 'scaling up programmes'.