enfasys

WP3 – Understanding behavioural factors in the decision making of farmers and the buying behaviour of products from SFS

D3.1: Selecting interventions for sustainable and climate-friendly European farming systems based on behavioural research on consumers and farmers

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Table of Contents

Table of Figures

Table of Tables

List of abbreviations

CAP – Common Agriculture Policy

CAP-AECM – Common Agricultural Policy Agri-Environment Climate Measures

CS – Case Study

EC – European Commission

GA – Grant Agreement

PBC – Perceived Behavioural Control

RRI – Responsible Research and Innovation

TPB – Theory of Planned Behaviour

TTM – Transtheoretical Model

WP – Work Package

1 Executive summary

This deliverable examines the behavioural dynamics underpinning the transition to sustainable food systems (SFS) in Europe, with a dual focus on farmers and consumers. It investigates systemic and behavioural barriers and proposes interventions informed by theoretical frameworks, including the Theory of Planned Behaviour (TPB), the Transtheoretical Model (TTM), and the RESET model. Drawing on extensive surveys and behavioural experiments conducted across diverse European contexts, the report provides an evidence-based exploration of readiness for SFS interventions.

For farmers, the findings suggest that emotional, normative, and practical factors are associated with intentions to adopt sustainable practices. Positive emotional engagement was observed in case studies such as regenerative farming in Serbia and protein autonomy in French livestock systems. Personal norms appeared to coincide with intentions to promote biodiversity in Switzerland. The report recommends interventions such as demonstration farms, peer-to-peer learning, and educational campaigns, which may align with these behavioural patterns. Practical measures, including financial incentives and streamlined administrative processes, are posited to enhance perceived behavioural control, which could support the adoption of sustainable practices.

For consumers, the survey findings indicate that attitudes and perceived behavioural control are key correlates of sustainable food purchasing intentions. Consumers who viewed sustainable options as beneficial and accessible reported higher intentions to engage in sustainable purchasing. Interventions such as subsidies, clear labelling, and public awareness campaigns are suggested as strategies that could facilitate sustainable choices. The results also highlight regional and cultural variations, with lower purchasing intentions reported in countries such as the UK and Italy. These variations point to the importance of context-sensitive approaches to intervention design.

The acceptability of proposed interventions varied, with supportive and empowering measures generally viewed more favourably than punitive approaches. Financial assistance, education, and collaborative initiatives were associated with higher levels of acceptability, while measures perceived as coercive, such as increased taxation, tended to receive lower acceptance. These findings emphasise the significance of designing interventions that resonate with stakeholder values and preferences, thereby fostering engagement and voluntary participation.

The report underscores the need for an integrated and context-specific approach to achieving sustainable European farming systems. Reducing structural barriers for farmers through accessible resources and supportive networks may facilitate behavioural changes. For consumers, a combination of educational initiatives and economic incentives could promote sustainable purchasing behaviours. Importantly, aligning production and consumption strategies is posited as a key pathway for fostering synergies between these domains. The report calls for adaptive, iterative policymaking that incorporates behavioural insights and stakeholder input, ensuring that interventions remain relevant and effective in diverse socio-economic and cultural contexts. This approach not only supports environmental sustainability but also contributes to the socio-economic resilience of farming communities and consumer engagement across Europe.

2 Introduction

The ENFASYS project is designed to stimulate a just and robust transition to sustainable, productive, climate-neutral, biodiversity-friendly, and resilient farming systems. This goal is pursued by understanding the systemic and behavioural lock ins and levers, and through the development of improved policies and business strategies that actively encourage farmers to shift their production systems towards sustainability. The project recognizes the complexity of agricultural systems and the need for comprehensive approaches that address the economic, environmental, and social dimensions of farming. The deliverable provides an understanding of farmer and consumer readiness to support sustainable food system (SFS) interventions and advises on an evidence-based approach, informed by behavioural science, for selecting interventions for sustainable and climate-friendly European farming systems.

2.1 Aims and scope of the deliverable

The primary objective of this deliverable is to identify and analyse the behavioural factors at consumer and farmer level that lead to support for various interventions aimed at facilitating the transition to a SFS in Europe.

This deliverable results from the integration of findings from Tasks 3.1, 3.2 and 3.3

- Task 3.1: Participatory exploration of behavioural factors influencing readiness for interventions for SFS.
- Task 3.2: Surveys to identify behavioural factors towards interventions
- Task 3.3: Behavioural survey and behavioural experiments with citizen-consumers to identify end-markets and opportunities for interventions.

3 Theoretical framework

Sustainable and climate-friendly farming systems are pivotal in addressing the dual challenges of global food security and environmental degradation. Within Europe, the agricultural sector is both a significant contributor to and a potential mitigator of climate change. As such, fostering sustainable practices among farmers and encouraging sustainable consumption behaviours among consumers are critical to achieving a resilient food system. This report, divided into two distinct analyses, investigates these interconnected dimensions, focusing on farmers and consumers. By drawing on behavioural insights and employing robust theoretical frameworks, it aims to identify and evaluate interventions that promote sustainability. Central to this endeavour is the concept of treatment acceptability and its implications for designing effective and context-sensitive strategies. Against the backdrop of intervention selection aimed at societal behaviour change, is the theoretical framework of Responsible Research and Innovation (RRI) (Stilgoe, Lock, & Wilsdon, 2014; Von Schomberg, 2013). RRI is a principle and value-driven good governance framework that aims to align the global demand for technological and scientific advancements with society's moral, social, and ethical expectations (Stilgoe et al., 2014). Rather than obstructing innovation, RRI seeks to guide innovation in a way that is mindful of and responsive to the concerns, needs, and aspirations of society (Asveld, Ganzevles, & Osseweijer, 2015). A key principle driven through RRI is ensuring that key actors are engaged and their values understood, acknowledged and integrated into the governance decisions undertaken; for example, in the current deliverable - the work undertaken aims to ensure that key target audiences of behaviour – farmers and consumers – are consulted in order to understand their behavioural readiness and their level of acceptability with regard to interventions that could be implemented at a societal level to bring about effective and fair change for SFS.

Such interventions aim to bring about positive change for society, ensuring an agricultural sector that is more sustainable, resilient, safe and secure. At the same time, interventions, by their change-oriented nature, can lead to social disruption and unintended consequences. Farmers and consumer-citizens represent a key behavioural requisite for systematic change in the food system: for example, farmers may or may not adopt new farm-level innovations or policies; and consumer-citizens may or may not purchase and/or accept new products or processes. Interventions designed without understanding context-specific needs and value-driven concerns and behaviours can lead to low adoption/rejection at farm level and at market and societal level. Historically, farmers and consumer-citizens have had limited decision-making power within agricultural research and innovation. Representing opposite ends of the traditional value chain, farmers and consumer-citizens reflect much of the diversity that exists with respect to (sometimes conflicting) needs, values and behaviours. Decisions that are made based on an understanding of the needs, views and behaviours of the end-user are better informed and more democratic and have more legitimacy, resulting in increased trust and acceptance.

The current deliverable focuses on research from the behavioural sciences and uses theoretical frameworks of behaviour change to explore the behavioural readiness of farmers and consumers for SFS.

3.1 Behavioural Readiness

Treatment acceptability, a cornerstone in behavioural and psychological intervention research, pertains to the degree to which stakeholders perceive a proposed intervention as appropriate, fair, and beneficial (Wilczynski, 2017; Carter, 2010). In this report, we investigate the acceptability of interventions that encourage farmers to change their behaviours towards sustainable practices and that help consumers shift towards sustainable food purchasing. This concept is particularly vital, as these interventions often necessitate both behavioural and structural changes. Farmers may be required to adopt novel practices, invest in new technologies, or adhere to evolving policy measures, while consumers might need to adjust their purchasing habits and food preferences. The success of such interventions hinges not only on their theoretical efficacy but also on their acceptability to the target populations (Marteau, 2017). High treatment acceptability ensures better uptake, sustained engagement, and more meaningful outcomes, while low acceptability risks resistance and failure, regardless of the intervention's potential benefits (Massfeller et al,. 2022).

Understanding treatment acceptability requires examining various dimensions, such as alignment with personal values and social norms. For farmers, interventions like financial subsidies, technical support, and knowledge-sharing platforms often enjoy high acceptability due to their perceived fairness and practicality (Dessart et al., 2019). Conversely, punitive measures, such as higher taxes, are less acceptable as they may be seen as coercive and

misaligned with farmers' autonomy. Similarly, for consumers, interventions that empower, such as subsidies for sustainable foods or clear labelling systems, are generally well-received, while those perceived as restrictive or punitive, such as taxes on unsustainable options, face greater resistance (Wielicka-Regulska, A., 2020). This nuanced understanding of acceptability underscores the need for participatory and inclusive approaches in intervention design, ensuring alignment with stakeholder preferences and values.

Interventions developed using behaviour-change frameworks have demonstrated significant success. This approach, rooted in behavioural science, aims to assist policymakers, intervention designers, and practitioners in understanding how to foster behavioural change using evidence-based methods. To guide this investigation into farmer and consumer acceptance of SFS interventions, and to inform the selection of intervention recommendations, the Theory of Planned Behaviour (Ajzen, 1991) and the Transtheoretical Model (Prochaska and DiClemente, 1983; Prochaska and Velicer, 1997) were applied. By examining the factors influencing behaviour, these models help identify and analyse the roles and connections of various psychological and social constructs in shaping actions, as illustrated in Figure 1 and Figure 2.

The Theory of Planned Behaviour (TPB) (Ajzen, 1991) is widely used in psychology and social sciences to predict and understand human behaviour based on attitudes, subjective norms, and perceived behavioural control. Attitudes reflect an individual's positive or negative evaluation of performing the behaviour, subjective norms capture the perceived social pressure to engage or not engage in the behaviour, and perceived behavioural control refers to the individual's belief in their ability to perform the behaviour, accounting for factors outside their control. Together, these components shape behavioural intentions, which are the strongest predictors of actual behaviour. By integrating both personal and social influences, TPB provides a comprehensive approach to understanding behaviour and is widely applied in fields like health, environment, and consumer decision-making to design evidence-based interventions that promote behavioural change.

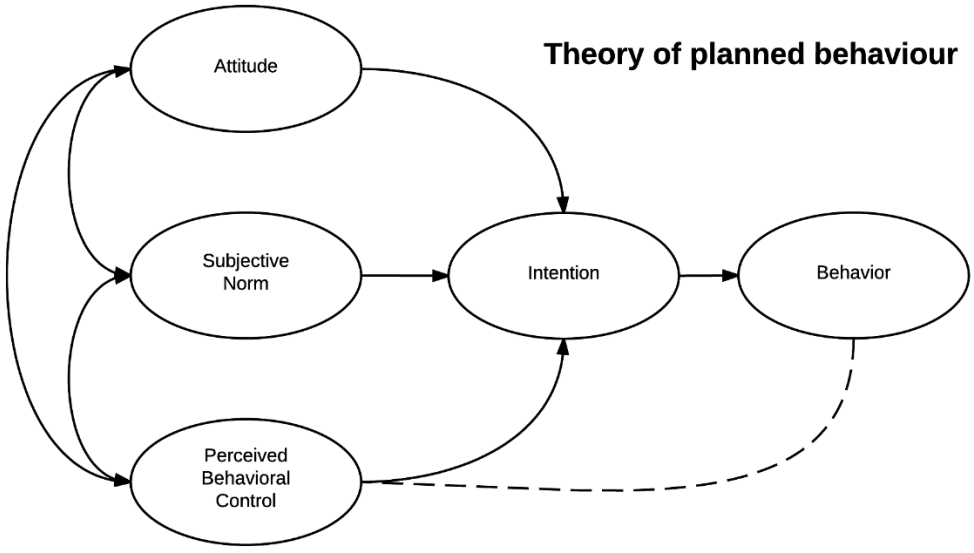

Figure 1: The Theory of Planned Behavior (Ajzen, 1991)

The Transtheoretical Model (TTM) (Wang et al., 2023; Prochaska and DiClemente, 1983; Prochaska and Velicer, 1997) is a behavioural science framework that explains how individuals progress through stages of change when modifying behaviour. It identifies five core stages: Precontemplation (no intention to change behaviour), Contemplation (considering change), Preparation (planning and taking initial steps), Action (actively making changes), and Maintenance (sustaining the change over time). TTM also highlights processes of change, such as self-re-evaluation and social support, which facilitate progression through these stages. Additionally, it emphasizes the importance of decisional balance (weighing pros and cons) and self-efficacy (confidence in maintaining behaviour change). The model is widely applied in health promotion, addiction recovery, and organizational

change, offering a structured, stage-based approach to designing interventions tailored to an individual's readiness to change.

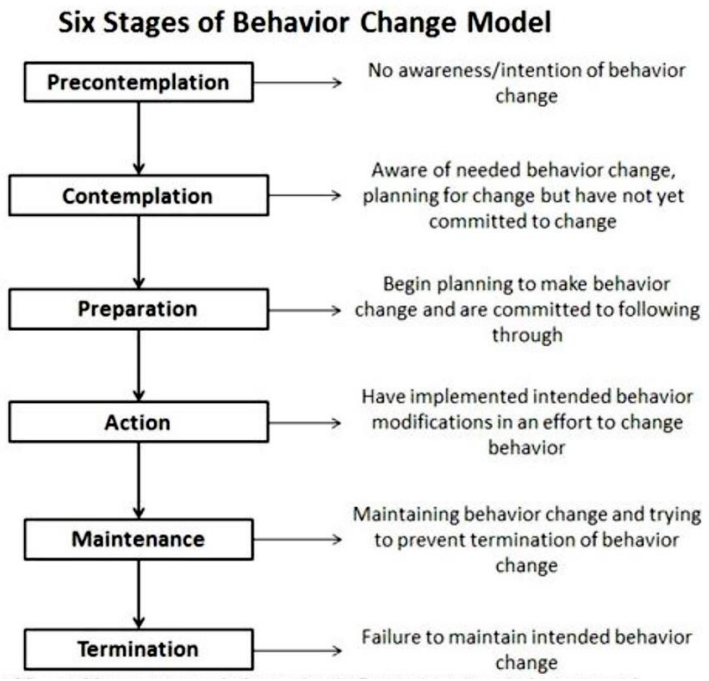

Figure 2: The Transtheoretical Model (Prochaska and DiClemente, 1983; Prochaska and Velicer, 1997)

Using adapted versions of the theoretical models (Wang et al., 2023), two large pan-European surveys were carried out with farmers and citizen-consumers to explore behavioural readiness for sustainable food systems, informing an evidence-based approach in selecting interventions for sustainable and climate-friendly European farming systems.

Finally, the selection of interventions for investigation in the current surveys was informed by the RESET model (Lam et al., 2017); this was to ensure that a diverse range of interventions were selected and explored in the survey. The RESET model argues that five types of intervention - rules, economics, social norms, education, and tools - work together to create the conditions for change (Lam et al., 2017). This model argues that in order to bring about effective and sustainable behaviour change, it is necessary to ensure a range of interventions are considered and integrated; for this reason, the survey wanted to explore behavioural readiness with respect to a diversity of interventions and the use of the RESET model as a framework for selecting example interventions ensured this.

4 Methods

The methodological approach in WP3 is designed to examine the role of farmer and citizen-consumer behaviour in transitioning to a SFS, including behavioural readiness to support SFS interventions, consumer willingness to purchase SFS products, and citizen preferences for SFS polices. In D3.1, we examine farmer and consumer readiness to support SFS interventions.

4.1 Pan-EU Farmer Behaviour Survey

A pan-European farmer survey was carried out across the 10 ENFASYS case studies. A master survey was designed, in English, informed by the theoretical frameworks of TPB, TTM and RESET. The survey was then adapted to suit the context of each case study; while the survey items remained generally the same across all surveys, case study coordinators adapted the wording to the behavioural context under study in their case study. The general format of the survey was: (1) socio-demographics; (2) behavioural intentions – informed by TTM; (3) behavioural predictors – informed by TPB and TTM; (3) acceptability of interventions – informed by RESET Model. Surveys were translated by project partners using a back-translation method.

With respect to data collection, a market research agency was used to administer the survey to farmers in 9 of the 10 case studies, with the final case study (CS10) undertaking data collection via an email list provided by Agency of Agriculture and Fisheries in Flanders. Data collection took place during the time period of September to November 2024 and involved a combination of online and telephone surveys. A target sample size of 200 per case study was indicated. For the current deliverable, the data analysis undertaken included an ordinal logistic regression analysis for understanding goal, behavioural, and implementation intentions for each case study. Ethical clearance for this research was approved by University of Bologna Bioethics Committee. Details of the survey sample's characteristics for each case study can be found in Table 26 in the Appendix.

4.2 Pan-EU Consumer Behaviour Survey

A pan-European consumer survey was carried out across 12 countries, including the countries involved in the 10 ENFASYS case studies. A master survey was designed, informed by the theoretical frameworks of TPB, TTM and RESET. The general format of the survey was: (1) socio-demographics; (2) behavioural intentions – informed by TTM; (3) behavioural predictors – informed by TPB; (3) acceptability of interventions – informed by RESET Model. Surveys were translated by a market research agency using a back-translation method. With respect to data collection, a market research agency was used to administer the survey across the 12 countries (Belgium, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Serbia, Slovenia, Switzerland, and the United Kingdom). Data collection took place online from November 2024 to January 2025. A quota sampling procedure was employed, with quotas set for age, gender, income (adjusted for each country), and region to ensure a balanced and representative sample. A target sample size of 800 participants per country was indicated. Informed consent was obtained from all participants at the start of the survey. For the current deliverable, the data analysis undertaken included a linear regression of intention to buy sustainable food products. The study received full ethical approach from the Teagasc Social Science Research Ethics Committee. Details of the survey sample's characteristics for each country can be found in Table 27 in the Appendix. Information on data quality control measures, including attention checks and systematic screening for inconsistent responses, is provided in the data integrity report, also included in the Appendix.

Below we present the results from the analysis of farmer and consumer readiness. In section five we provide the results from the farmer survey in each of the 10 ENFASYS case studies. In section six we present the results from the consumer survey examining societal interventions in 12 European countries.

5 Results: Farmer Readiness

In the following sections, we present each of the ten case studies and the results from their farmer surveys. These descriptions are important for understanding the context of the interventions presented to farmers and help to ensure that ENFASYS outputs are firmly rooted in the diverse realities of European agricultural systems, exemplified through the 10 case studies under study in ENFASYS.

5.1 Case Study 1: Wallonia, Belgium - Facilitating Uptake of Agri-Environment Climate Measures

This case study investigates the behavioural intentions of farmers in Wallonia, Belgium, regarding their enrolment in Common Agricultural Policy Agri-Environment Climate Measures (CAP-AECM) contracts. The primary aim is to promote the adoption of CAP-AECM among farmers to enhance environmental sustainability and biodiversity within the region's agricultural practices. By understanding the factors that influence farmers' plans and intentions to sign up for these contracts, the study seeks to identify effective interventions that can facilitate this transition. The behaviour under examination focuses on farmers' intentions to enrol in CAP-AECM contracts within the next three years, adopt selected agri-environmental practices, and implement these practices by informing themselves about the necessary details. This initiative addresses key challenges faced by farmers in Wallonia, including low adoption rates of sustainable practices, reliance on intensive farming methods, and the degradation of natural capital. By collaborating with local stakeholders such as DRAAF and Regional Councils, the case study aims to provide the necessary resources and guidance to support farmers in adopting environmentally sustainable measures, thereby contributing to the region’s overall ecological and economic resilience. Based on interviews and a review of the grey literature, the study identified key interventions relevant to the region, which were included in the survey using the RESET model (Lam et al., 2017) as a framework (see Table 1):

Table 1: CS01 Interventions for Facilitating Uptake of Agri-Environment Climate Measures

RESET Category	Intervention
Regulation 1	Making important AECMs mandatory instead of voluntary, while keeping the same financial incentives. For example, measures to protect endangered species or habitats could become mandatory but rewarded by a dedicated financial compensation.
Regulation 2	Revising regulations (specifications) to make AECM schemes more flexible. For example, allowing flexible timing for mowing grass strips and natural meadows to accommodate farm-specific issues like early droughts or floods.
Economic 1	Changing AECM payments to offer different payment levels based on ecological results. For example, providing a basic payment for meeting requirements and a bonus proportional to the resulting ecological value.
Economic 2	Increasing the level of financial compensations for AECMs by 10% (€/ha).
Social Norm 1	Developing and encouraging participation in "Collective AECM's" programs: sharing equipment, knowledge and expertise between farmers around AECM implementation.
Social Norm 2	Developing pilot projects and further promoting regional success stories, communicating the tools for successful transposition to other farms.
Education 1	Through information campaigns, increasing awareness of farmers about the environmental long-term benefits and farm-level technical implications associated with the implementation of AECM's.
Education 2	Ensuring free access to independent technical advice and agri-environmental expertise
Tool 1	Using digital tools to reduce the time and effort of field inspections. For example, create an app for farmers to submit photos of their plots to monitor agri-environmental developments.
Tool 2	Simplifying administrative procedures and allow for correction of encoding errors. For example, when applying for payments online, receiving an alert if an error can lead to a loss of subsidies.

Results from analysis of the behavioural factors

205 farmers were surveyed in Wallonia, Belgium, about their intentions to participate in CAP-AECM contracts. Of the respondents, 49% indicated they did not see any value in signing up, 30% felt it was not feasible for them, 12% were considering participation but were unsure how to start the process, 6% were planning to sign up but had not yet done so, and 3% had already signed up.

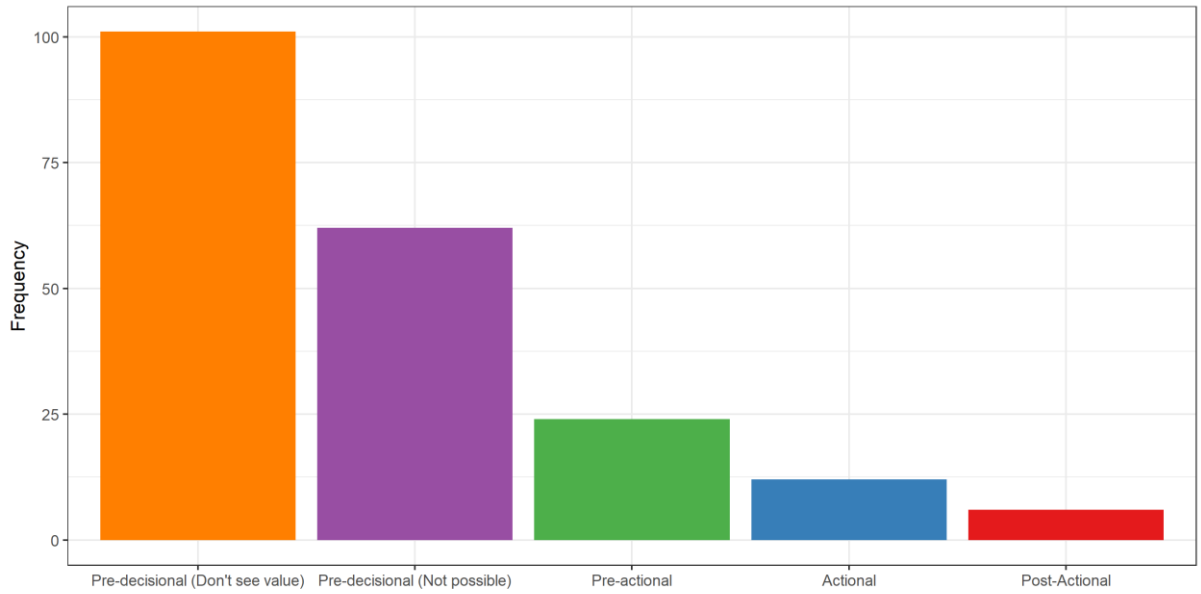

Figure 3: CS01 Farmers' current stage of change in their plan to sign up to the CAP-AECM contracts.

Table 2 presents the results of the ordinal logistic regression analysis used to explain intentions. The results indicate that several factors significantly influence farmers' intentions at different stages of adopting agri-environmental practices under the CAP-AECM framework. These findings highlight the importance of emotions, norms, and planning in shaping intentions.

Goal intention

The ordinal logistic regression analysis for goal intention revealed that positive emotion significantly influences farmers' plans to enrol in CAP-AECM contracts within the next three years, with a coefficient of 1.745 ($p<0.001$). Additionally, social norm ($\beta = 1.257$, $p<0.05$) and personal norm ($\beta = 1.321$, $p<0.05$) also positively impact goal intention. Goal feasibility further enhances the likelihood of intention ($\beta = 1.379$, $p<0.05$). Negative emotion, however, did not show a statistically significant effect ($\beta = 1.026$).

These results indicate that positive emotional responses, social and personal norms, and the perceived feasibility of enrolling in CAP-AECM contracts are key drivers in farmers' intentions to commit to these environmental measures.

Behavioural Intention

In examining behavioural intention, the analysis identified that attitude regarding the advantageousness of CAP-AECM contracts ($\beta = 1.319$, $p<0.05$) and perceived behavioural control, specifically the ease of adoption ($\beta = 1.342$, $p<0.05$) and the belief that adoption does not depend on others ($\beta = 1.602$, $p<0.001$), are significant predictors of farmers' intentions to adopt their chosen agri-environmental practices within the next three years.

These findings suggest that farmers are more likely to intend to adopt sustainable practices if they perceive clear advantages and feel confident in their ability to implement these practices independently. Attitude concerning the

importance of the practices and the general goal intention did not significantly influence behavioural intention in this model.

Implementation Intention

The regression analysis for implementation intention indicated that action planning is a significant predictor (β = 1.507, p<0.01), while coping planning (β = 1.210), maintenance self-efficacy (β = 0.975), and behavioural intention (β = 1.173) did not reach statistical significance.

This suggests that farmers who actively engage in planning the steps required to implement their chosen agri-environmental practices are more likely to have already informed themselves about the necessary details to commence adoption. Effective action planning appears crucial for the transition from intention to implementation, highlighting the importance of structured planning processes in facilitating the adoption of CAP-AECM contracts.

Table 2: CS01 ordinal logistic regression results for explaining goal intention; behavioural intention; and implementation intention (PBC = Perceived behavioural control; Coeff. = Coefficient; SE = standard error.).

	Goal Intention Coeff. (SE)		Behavioural Intention Coeff. (SE)		Implementation Intention Coeff. (SE)
Positive emotion	1.745*** (0.149)	**Attitude (Advantageous)**	1.319* (0.132)	**Action planning**	1.507** (0.127)
Negative emotion	1.026 (0.114)	**Attitude (Important)**	0.972 (0.124)	**Coping planning**	1.210 (0.135)
Social Norm	1.257* (0.114)	**PBC (Easy for me)**	1.342* (0.149)	**Maintenance self-efficacy**	0.975 (0.123)
Personal Norm	1.321* (0.140)	**PBC (Don't depend on anyone)**	1.602*** (0.136)	**Behavioural intention**	1.173 (0.114)
Goal Feasibility	1.379* (0.128)	**Goal Intention**	1.033 (0.124)		
Pseudo-R2 (Nagelkerke)	0.216		0.143		0.0911
Observations	205		203		205
Log Likelihood	-260.079		-262.952		-299.080

Note: *p<0.05; **p<0.01; ***p<0.001

Acceptability of Behaviour Change Interventions

Figure 4 shows farmers' acceptability of CS01 behavioural interventions. The analysis of farmer acceptability for various interventions aimed at facilitating the enrolment in CAP-AECM contracts revealed diverse preferences. The highest acceptability was observed for the simplification of administrative procedures and the allowance for correction of encoding errors, with 58% of farmers rating this intervention favourably. Following closely, flexible AECMs received a 54% acceptability rating, indicating a strong preference for more adaptable regulatory frameworks that can accommodate farm-specific challenges such as droughts or floods. Information campaigns were also well-received, with 50% of farmers supporting increased awareness efforts regarding the environmental benefits and technical implications of implementing AECMs. Other interventions, such as promoting regional success stories (51%) and ensuring free access to independent technical advice (48%), garnered moderate support. Interventions like digital inspection tools (45%) and developing collective AECM programmes (44%) had lower but still notable acceptability ratings. Measures involving mandatory AECMs and results-based payments each received a 42% acceptability rating, reflecting a more cautious stance towards compulsory and performance-linked financial incentives. Overall, the findings suggest that interventions offering flexibility, administrative ease, and enhanced information and support are generally more acceptable to farmers.

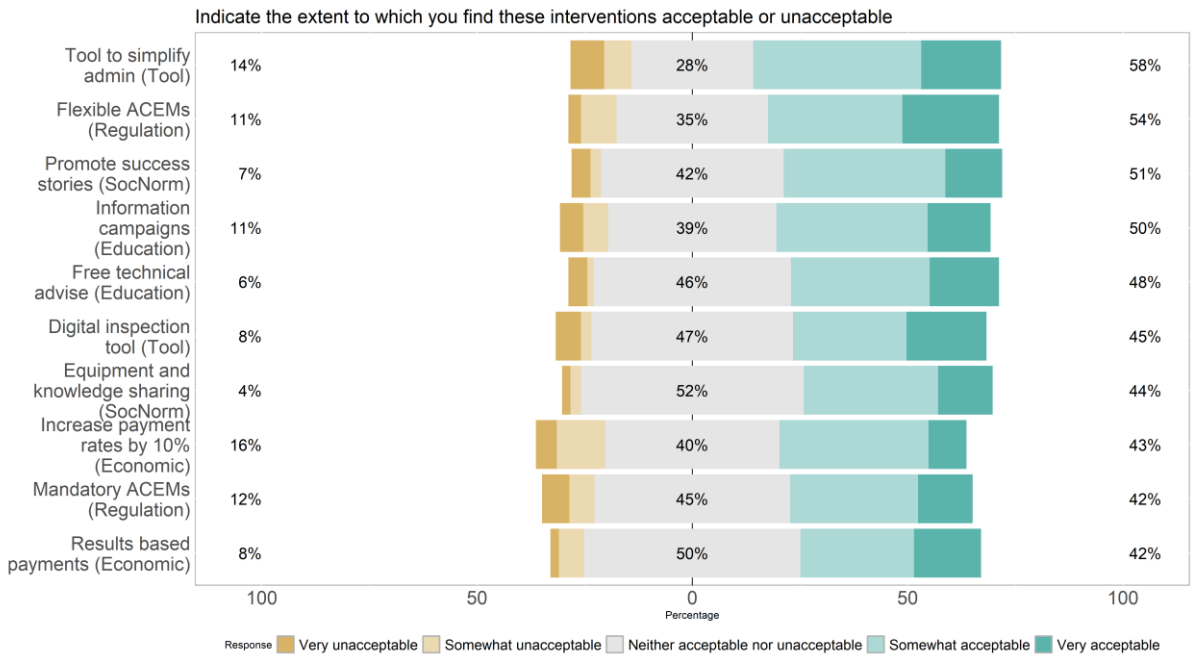

Figure 4: Acceptability of CS01 behavioural interventions

Recommendations for Intervention Selection in Case Study 1

Based on the behavioural analyses and the acceptability of interventions, it is recommended to implement the simplification of administrative procedures and the promotion of flexible AECMs. Simplifying administrative processes, which received the highest acceptability rating of 58%, directly addresses the significant predictor of action planning in implementation intention. By reducing bureaucratic barriers, farmers can more easily transition from planning to actual enrolment in CAP-AECM contracts. Additionally, promoting flexible AECMs, rated at 54% acceptability, targets the significant variables of perceived behavioural control and goal feasibility identified in the behavioural intention analysis. Flexible AECMs allow farmers to tailor environmental measures to their specific circumstances, thereby enhancing their confidence in the feasibility and ease of adoption. Together, these interventions not only align with farmers' preferences but also effectively target the key behavioural factors influencing their intentions to adopt sustainable agricultural practices. Implementing these measures is likely to foster a supportive environment that facilitates the uptake of CAP-AECM contracts, ultimately contributing to enhanced environmental sustainability in Wallonia's agricultural sector.

5.2 Case Study 2: Serbia - Facilitating Uptake of Regenerative Farming

This case study focuses on farmers in Serbia, and examines their plans and intentions to implement regenerative agriculture practices. Serbia's rich soils and favourable climatic conditions make it well suited to arable farming, yet conventional methods have contributed to soil degradation and biodiversity loss. The case study's primary aim is to align Serbian agriculture with EU Common Agricultural Policy objectives by promoting regenerative methods that reduce pesticide use, improve soil health, and enhance biodiversity. By involving a pioneering movement of regenerative farmers, the initiative seeks to demonstrate that sustainable methods can improve profitability and long-term resilience.

The behaviour examined in this case study is farmers' decision-making regarding the adoption of regenerative practices, such as no-till farming, intercropping, and cover crops. Understanding farmers' intentions and the factors that influence these intentions will help design interventions that accelerate the transition from conventional to regenerative systems. Socio-economic challenges, including an ageing population, small average farm sizes, and limited governance capacities, create barriers to this shift. Economic pressures, subsidies that have yet to fully incentivise regenerative methods, and a lack of clear national policies further complicate progress.

The case study aims to understand the drivers of farmers' intentions and identify interventions to facilitate the uptake of regenerative agriculture. It seeks to provide evidence-based recommendations that can support better-informed farmers and more effective knowledge-sharing networks, ultimately improving environmental outcomes, farm profitability, and the region's agricultural sustainability. Based on interviews and a review of the grey literature, the study identified key interventions relevant to the region, which were included in the survey, using the RESET model (Lam et al., 2017) as a framework (see Table 3):

Table 3: CS02 Interventions for facilitating uptake of regenerative practices

RESET Category	Intervention
Regulation 1	To introduce mandatory education courses for farmers about sustainable and regenerative agricultural practices, if they are applying for sustainable agriculture subsidies
Regulation 2	To highlight the environmental benefits of sustainable produce, it should be introduced the mandatory carbon footprint labels for all agricultural products produced in Serbia. This labelling would reveal the carbon footprint of regenerative products compared with conventional products.
Economic 1	Ranking of farms based on the implemented regenerative practices and subsidies provided based on the points collected. The categorized list of all regenerative practices, along with implementation guidelines and corresponding points for each practice, should be presented and provided to farmers applying for subsidies.
Economic 2	To incentivise converting to regenerative farming system, the Serbian government should establish special payments for farmers converting to this system, especially in the beginning. This payment should support farmers with per hectare payments as well as a participation payment to cover additional administrative costs annually.
Social Norm 1	Regenerative demonstration farms have been selected throughout the country to illustrate best practice and monitor key financial and environmental metrics. Farm walks are often held on these farms as an opportunity for anyone considering entering regenerative production to see first-hand the differences in operating a regenerative system.
Social Norm 2	Discussion groups and gatherings organized for farmers who want to explore regenerative farming further, are in conversion, or have recently been fully regenerative. These meetings will give farmers an opportunity to learn about best practices and challenges in becoming regenerative.
Education 1	To help farmers understand the steps needed to convert to regenerative farming and the potential profitability for their farm if they were to convert, free courses, trainings and workshops should be organized by the group formed of regenerative farmers and advisors.

RESET Category	Intervention
Education 2	Standardized education for regenerative (more sustainable agricultural) advisors – each National Advisory Service Station should have at least one certified and/or well-educated and trained professional.
Tool 1	To support the development of these beneficial tools, the establishment of the network of regenerative farms is essential. Farmers can greatly benefit from reliable results and insights into the productivity levels of regenerative farms under various scenarios (type of soil, microclimate, etc). It can help farmers to accurately assess how productive their farms would be if they converted to regenerative farming. By having access to this information, farmers can make informed decisions about adopting regenerative practices, leading to potentially higher yields, better soil health, and more sustainable farming methods.
Tool 2	Educational materials on regenerative farming (including videos and written content) should be distributed through a website that acts as a central hub for all educational resources on regenerative agriculture, as well as for news pertaining to regenerative farming events.

Results from analysis of the behavioural factors

208 farmers were surveyed in Serbia about their intentions to implement regenerative agriculture practises. Of the respondents, 7% indicated they did not see any value in implementing regenerative practices, 11% felt it was not feasible for them, 59% were considering implementation but were unsure how to start the process, 18% were planning to implement practices but had not yet done so, and 5% had already implemented some regenerative practices.

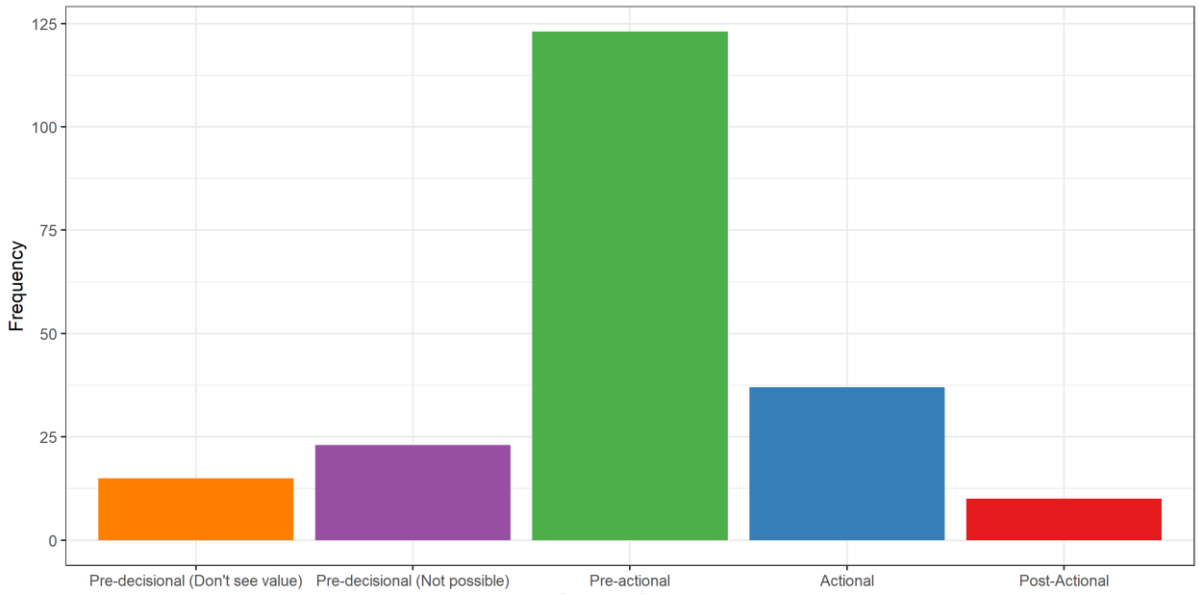

Figure 5: CS02 Farmers' current stage of change in their uptake of regenerative practices.

Table 4 presents the results of the ordinal logistic regression analysis used to explain intentions. The results indicate that several factors significantly influence farmers' intentions at different stages of adopting regenerative practices.

Goal intention

The results show that positive emotion is a highly significant and strong predictor of farmers' goal intention to adopt regenerative agriculture practices ($\beta = 2.723$, $p<0.001$). In other words, farmers who feel positively about these changes are more likely to plan to implement them. Goal feasibility also plays a significant role ($\beta = 1.687$, $p<0.01$), suggesting that when farmers perceive these practices as achievable, they become more inclined to form intentions. Negative emotion, social norm, and personal norm do not reach statistical significance, indicating that these factors do not have a strong or reliable effect on shaping goal intention in this sample.

Behavioural Intention

The analysis reveals that the belief in the importance of regenerative agriculture practices (Attitude: Important) significantly increases farmers' behavioural intention ($\beta = 1.811$, $p<0.01$). Additionally, a strong goal intention further boosts this behavioural intention ($\beta = 2.571$, $p<0.001$). These findings suggest that farmers who value regenerative methods and have already set clear goals are more likely to intend to adopt a specific practice. The other factors, including attitude regarding advantage and perceived behavioural control, do not show a statistically significant effect, indicating that the crucial drivers here are farmers' sense of importance and well-formed goals.

Implementation Intention

The results indicate that farmers' action planning significantly influences their implementation intention to begin regenerative practices ($\beta = 1.349$, $p<0.05$). More notably, their overall behavioural intention strongly predicts actual steps towards implementation ($\beta = 1.668$, $p<0.001$). Coping planning and maintenance self-efficacy do not achieve statistical significance, suggesting that while problem-solving and sustained confidence matter, they are less critical than the direct impact of having a solid action plan and a firm behavioural intention.

Table 4: CS02 ordinal logistic regression results for explaining goal intention; behavioural intention; and implementation intention (PBC = Perceived behavioural control; Coeff. = Coefficient; SE = standard error.).

	Goal Intention Coeff. (SE)		Behavioural Intention Coeff. (SE)		Implementation Intention Coeff. (SE)
Positive emotion	2.723*** (0.179)	**Attitude (Advantageous)**	1.433 (0.185)	**Action planning**	1.349* (0.141)
Negative emotion	0.965 (0.134)	**Attitude (Important)**	1.811** (0.192)	**Coping planning**	1.268 (0.148)
Social Norm	1.272 (0.142)	**PBC (Easy for me)**	1.383 (0.170)	**Maintenance self-efficacy**	1.010 (0.149)
Personal Norm	1.020 (0.146)	**PBC (Don't depend on anyone)**	1.027 (0.136)	**Behavioural intention**	1.668*** (0.153)
Goal Feasibility	1.687** (0.182)	**Goal Intention**	2.571*** (0.187)		
Pseudo-R2 (Nagelkerke)	0.336		0.367		0.143
Observations	208		208		208
Log Likelihood	-219.023		-226.028		-267.890

Note: *p<0.05; **p<0.01; ***p<0.001

Acceptability of Behaviour Change Interventions

Figure 6 shows farmers' acceptability of CS02 behavioural interventions. The interventions proposed to facilitate the uptake of regenerative agriculture practices receive varying levels of acceptability among farmers. Participation payments stand out, with 85% acceptability, indicating that financial incentives can strongly encourage adoption. Discussion groups (83%) and free courses (81%) also score highly, suggesting that farmers value opportunities to learn, share experiences, and enhance their understanding of regenerative methods. Other proposals, such as regenerative advisors (79%), a decision support tool (77%), demonstration farms (77%), and online resources (75%), reflect the importance of knowledge exchange, technical guidance, and accessible information. Carbon footprint labels (73%), payment for regenerative practices (69%), and mandatory education (67%) rank somewhat lower, indicating that while transparency and knowledge development are important, farmers may prefer more flexible approaches over strict requirements.

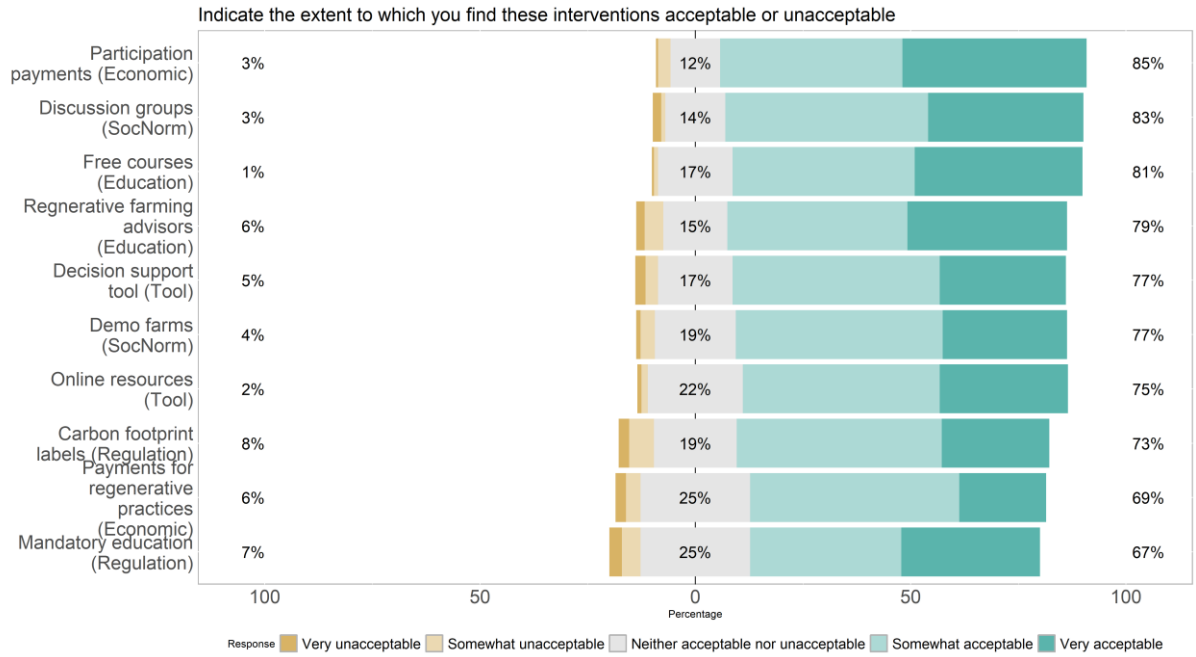

Figure 6: Acceptability of CS02 behavioural interventions

Recommendations for intervention selection for Case Study 2

Considering the regression results and the acceptability of interventions, it is clear that farmers' intentions to adopt regenerative practices hinge on factors such as positive emotion, the perceived importance and feasibility of these methods, and the formation of concrete plans. Interventions that reduce uncertainty, reinforce the value of regenerative farming, and build farmers' confidence can help move them from intentions to action.

Participation payments could be implemented, as they may improve the perceived feasibility of regenerative methods by easing the economic burden and instilling optimism. When farmers see that adopting regenerative practices does not threaten their livelihoods, it may foster positive emotion and strengthens their goal intentions. Discussion groups could also be prioritised, as they support farmers in understanding the relevance and importance of regenerative methods. By exchanging experiences and successes, farmers may be more likely to consider these methods essential and achieve a stronger behavioural intention.

Regenerative advisors and demonstration farms could further complement these interventions. Expert guidance and visible examples of successful regenerative operations may enhance action planning and reinforce the sense that

these goals are both worthwhile and attainable. Together, these interventions address the key variables identified, by improving positive emotion through financial security and knowledge-sharing, increasing perceived feasibility and importance through expert support and tangible evidence, and thereby nurturing goal and behavioural intentions that translate into actual implementation.

5.3 Case Study 3: Switzerland - Biodiversity Promotion Using Locally Adapted Practices

This case study examines the behavioural intentions of Swiss farmers to enhance their knowledge and skills in biodiversity promotion on their farms. With the objective of promoting biodiversity through locally adapted agricultural practices, the study seeks to understand the factors influencing farmers' plans and intentions over the next two years. Conducted on a national scale, the survey encompasses a diverse range of farmers across Switzerland, reflecting various farming systems and regional characteristics. Challenges in promoting biodiversity on farms include rigid regulations, administrative burdens, and a need for enhanced knowledge and skills related to biodiversity promotion. Additionally, public perceptions of biodiversity-promoting areas and the inconsistency of agricultural policies hinder long-term planning and commitment. The case study aims to identify the key behavioural factors that drive farmers' intentions to increase their biodiversity-related knowledge and skills. By analysing these intentions, the study seeks to inform the development of targeted interventions that support sustainable and resilient farming practices tailored to the specific needs of Swiss farmers. Ultimately, the goal is to facilitate the adoption of biodiversity-enhancing measures that are both effective and acceptable to the farming community, thereby contributing to the broader objective of sustaining Switzerland's diverse agricultural and natural ecosystems. Based on case study interviews and a stakeholder workshop, the following interventions were identified as relevant, and included in the survey using the RESET model (Lam et al., 2017) as a framework (see Table 5):

Table 5: CS03 Interventions to support farmers in increasing their knowledge of biodiversity promotion

RESET Category	Intervention
Regulation 1	Training on the topic of biodiversity promotion as a prerequisite for fulfilling the ÖLN.
Regulation 2	Mandatory modules on biodiversity in the EFZ (or equivalent) training at agricultural schools.
Economic 1	Financial support from the federal government/canton/municipality for farmers' further training on the topic of biodiversity.
Economic 2	Financial support of farmer associations/label organizations for farmers' further training on the topic of biodiversity.
Social Norm 1	Farmers' associations motivate farmers to take part in training courses on biodiversity.
Social Norm 2	Increased exchange in local working groups on the topic of biodiversity promotion.
Education 1	Visit field tours on other farms, where you can see biodiversity promotion in practice and discuss it with colleagues.
Education 2	Receive biodiversity advice from trained advisors that is specific to my farm and deals with ecology as well as production.
Tool 1	Availability of apps for smartphones to identify plant and animal species more easily. These would support and empower farmers to identify and report valuable species and make decisions for further biodiversity promotion.
Tool 2	Tools that support the self-assessment of biodiversity on my farm and its development potential (e.g. mapping keys, etc.).

Results from analysis of the behavioural factors

203 farmers were surveyed in Switzerland, about their plan to increase their knowledge and skills of biodiversity promotion on the farm. Of the respondents, 16% indicated they did not see any value in increasing their knowledge, 17% felt it was not feasible for them, 36% were considering increasing their knowledge but were unsure how to start the process, 20% were planning to increase their knowledge but had not yet done so, and 11% had already attended courses.

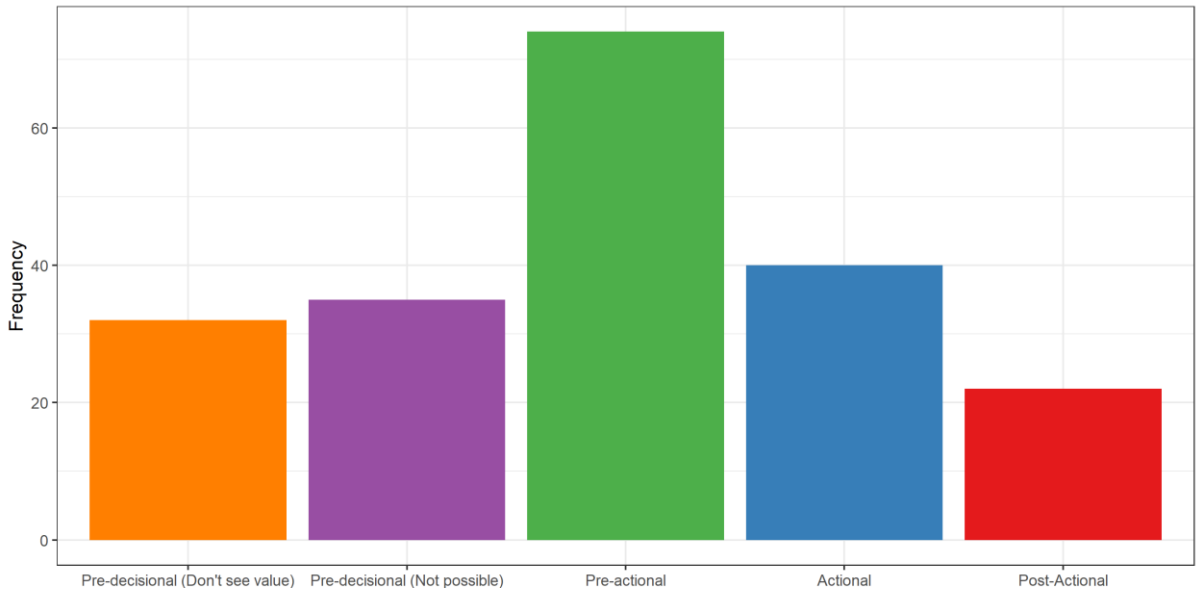

Figure 7: Farmers' current stage of change in their plan to increase their knowledge and skills of biodiversity promotion on the farm.

Table 6 presents the results of the ordinal logistic regression analysis used to explain intentions. The results indicate that several factors significantly influence farmers' intentions at different stages of increasing their knowledge of biodiversity promotion.

Goal Intention

The ordinal logistic regression analysis results, for explaining farmers' goal intention to increase their knowledge and skills in biodiversity promotion within the next two years, reveals that positive emotion has a significant positive effect ($\beta = 1.337$, $p < 0.01$), indicating that farmers who experience more positive emotions towards increasing their knowledge are more likely to intend to enhance their knowledge and skills. Negative emotion also shows a positive association ($\beta = 1.300$, $p < 0.05$), suggesting that concerns or negative feelings may similarly motivate intention to improve knowledge. Personal norm is another significant predictor ($\beta = 1.335$, $p < 0.05$), highlighting the role of personal ethical standards and responsibility in shaping farmers' intentions. In contrast, social norm ($\beta = 0.985$) and goal feasibility ($\beta = 1.106$) do not significantly influence goal intention in this model.

Behavioural Intention

The results in Table 6 illustrate the factors influencing behavioural intention to use selected supports for increasing biodiversity-related knowledge and skills within the coming two years. Attitude regarding the advantageousness of biodiversity courses significantly impacts behavioural intention ($\beta = 1.294$, $p < 0.05$), suggesting that farmers who perceive greater personal benefits are more inclined to increase their knowledge. Furthermore, attitude regarding the importance of using a support to increase knowledge is a strong predictor ($\beta = 1.520$, $p < 0.001$), indicating that attitudes are a motivator of behavioural intentions. Perceived behavioural control, specifically the belief increasing knowledge does not depend on others ($\beta = 1.286$, $p < 0.05$), also positively influences behavioural intention. However, perceived ease ($\beta = 1.153$) and goal intention ($\beta = 1.089$) do not have significant effects in this context.

Implementation Intention

In examining implementation intention, defined as farmers having already informed themselves about the necessary details to use supports for biodiversity promotion, both action planning ($\beta = 1.315$, $p < 0.01$) and coping planning ($\beta = 1.644$, $p < 0.001$) are significant positive predictors. This indicates that farmers who engage in detailed planning and anticipate potential obstacles are more likely to have taken steps towards implementing biodiversity measures. Additionally, behavioural intention itself is a significant predictor ($\beta = 1.280$, $p < 0.05$), reinforcing the

connection between intention and actual preparatory actions. Maintenance self-efficacy (β = 0.900), however, does not significantly affect implementation intention.

Table 6: CS03 ordinal logistic regression results for explaining goal intention; behavioural intention; and implementation intention (PBC = Perceived behavioural control; Coeff. = Coefficient; SE = standard error.).

	Goal Intention Coeff. (SE)		Behavioural Intention Coeff. (SE)		Implementation Intention Coeff. (SE)
Positive emotion	1.337** (0.110)	**Attitude (Advantageous)**	1.294* (0.111)	**Action planning**	1.315** (0.098)
Negative emotion	1.300* (0.105)	**Attitude (Important)**	1.520*** (0.116)	**Coping planning**	1.644*** (0.109)
Social Norm	0.985 (0.114)	**PBC (Easy for me)**	1.153 (0.106)	**Maintenance self-efficacy**	0.900 (0.113)
Personal Norm	1.335* (0.118)	**PBC (Don't depend on anyone)**	1.286* (0.108)	**Behavioural intention**	1.280* (0.115)
Goal Feasibility	1.106 (0.111)	**Goal Intention**	1.089 (0.115)		
Pseudo-R2 (Nagelkerke)	0.125		0.188		0.196
Observations	203		203		203
Log Likelihood	-294.215		-265.039		-304.374
					Note: *p<0.05; **p<0.01; ***p<0.001

Acceptability of Behaviour Change Interventions

Figure 8 presents farmers' acceptability ratings for various interventions aimed at increasing their knowledge of biodiversity promotion. The highest acceptability is observed for farmers' associations campaigns (74%), followed by farmers' associations training (73%) and mandatory school courses on biodiversity in agricultural education (71%). Working groups that facilitate increased exchange on biodiversity promotion also receive a 71% acceptability rating. Financial support from farmer associations or label organisations for further training garners a 73% approval, indicating strong support for association-led initiatives. Other interventions, such as government-funded training (66%), ecological farm advisors (66%), and smartphone apps for species identification (68%) show moderate acceptability. Demonstration farms (65%) and self-assessment tools (68%) are also reasonably well-received, while the ÖLN training requirement receives the lowest acceptability at 63%.

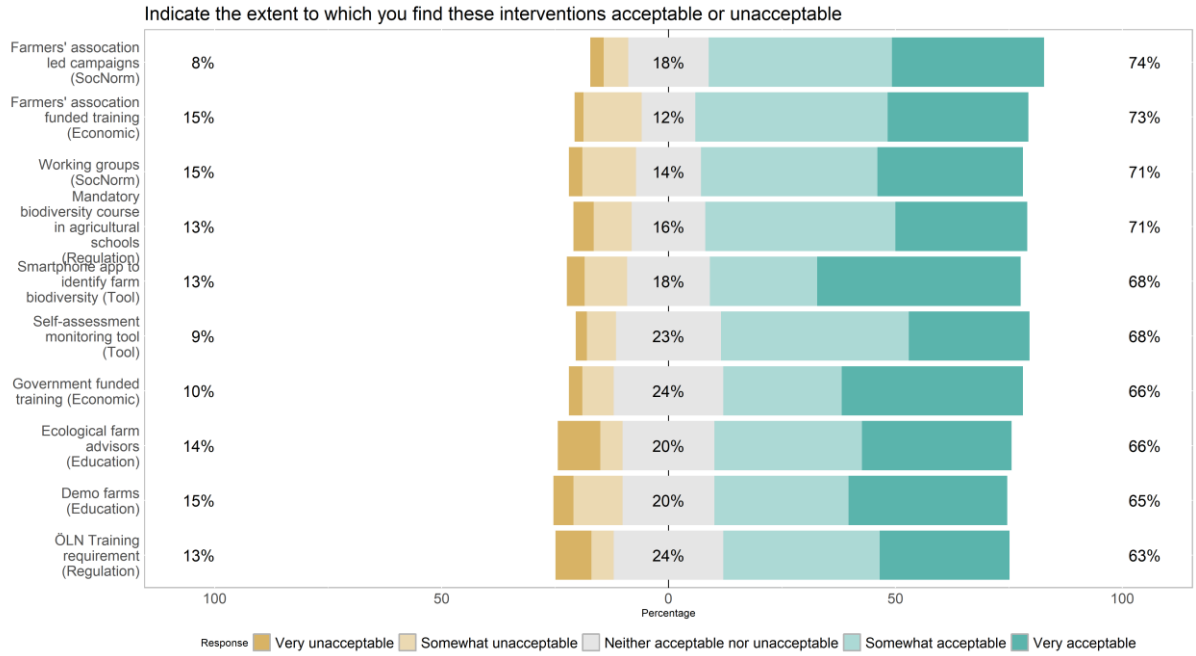

Figure 8: Acceptability of CS03 behavioural interventions

Recommendations for intervention selection for Case Study 3

Based on the regression analyses and the acceptability ratings of interventions, it is recommended to implement farmers' association campaigns and farmers' association training. These interventions received the highest acceptability ratings (74% and 73%, respectively) and align closely with the significant predictors identified in the behavioural analyses. Farmers' association campaigns can effectively target the significant personal norm and positive emotion variables by fostering a sense of community responsibility and highlighting the benefits of biodiversity promotion. Additionally, farmers' associations training can enhance attitudes regarding the advantageousness and importance of biodiversity, as well as support action and coping planning by providing tailored knowledge and skills. By leveraging the trusted role of farmers' associations, these interventions can address the key factors that influence farmers' intentions and facilitate the practical adoption of biodiversity-enhancing practices. Implementing these targeted interventions is likely to increase farmers' motivation and capability to engage in sustainable biodiversity promotion, thereby contributing to the overall goals of the case study.

5.4 Case Study 4: France - Promoting Protein Autonomy in French Livestock Farms

This case study aims to enhance protein autonomy within French dairy farms, thereby reducing reliance on imported soybean meal and fostering sustainable, competitive local protein production. The primary objective is to evaluate and disseminate innovative legume varieties and best practices that increase on-farm protein self-sufficiency. By doing so, the project seeks to address environmental concerns associated with soybean imports, such as deforestation and greenhouse gas emissions, and to mitigate economic vulnerabilities linked to global market fluctuations.

The behaviour under examination involves farmers' plans and intentions to adopt practices that enhance protein self-sufficiency within the next three years. These practices include optimizing grassland use, implementing legumes in crop rotations, and increasing oilseed production. The national survey, while encompassing French dairy farmers broadly, delves into the specific intentions of these farmers to transition towards more self-sufficient protein systems. By identifying the factors influencing these intentions and assessing the acceptability of various support interventions, the study aims to facilitate the adoption of sustainable practices that align with France's broader goals of climate neutrality and biodiversity enhancement. Based on case study interviews and a stakeholder workshop, the following interventions were identified as relevant, and included in the survey using the RESET model (Lam et al., 2017) as a framework (see Table 7):

Table 7: CS04 Interventions to support farmers in increasing protein self-sufficiency

RESET Category	Intervention
Regulation 1	To encourage the use of French and European proteins, a tax, for example, of 5%, could be introduced on soya imported from South America.
Regulation 2	To highlight dairy products from animals fed with French proteins, special labelling could be introduced. This label could inform consumers about this issue and encourage them to buy these products.
Economic 1	Dairies can offer a higher milk price to encourage farmers to adopt practices fostering protein self-sufficiency. Farmers would have to comply with a set of specifications (minimum of grassland to feed the cow, no imported soy, use of legume, minimum level of protein self-sufficiency, etc.).
Economic 2	A subsidy could be awarded to encourage farmers to make the transition to more self-sufficient systems. Technical support and a financial contribution could be provided for farmers who commit to a 5-year action plan with targets for resources and results.
Social Norm 1	Discussion groups could be established with farmers who want to explore protein self-sufficiency further, are in transition, or have started the reflexion. Farmers would attend these meetings and learn about best practices and challenges regarding grassland management or legumes cropping.
Social Norm 2	The farms most committed to protein self-sufficiency could receive an award (e.g. the most autonomous and coherent systems, the best technical or economic results, the greatest efforts to become self-sufficient). Farmers could be presented with the awards at major agricultural events, providing visibility to these practices.
Education 1	Protein self-sufficient demonstration farms have been selected throughout the country to illustrate best practice and monitor key financial and environmental metrics. Farm walks are often held on these farms as an opportunity for anyone considering increasing protein self-sufficiency to see first-hand the differences in operating those systems.
Education 2	To help farmers set up new practices, farmers can access a large amount of technical information in various ways including websites, webinars, and technical days.

RESET Category	Intervention
Tool 1	To help lay the foundations for thinking about moving towards more self-sufficient systems, farmers can carry out a diagnosis of their farm using the Devautop tool. It is a tool which calculates the level of protein autonomy in relation to the animals' needs and positions it in relation to references established for comparable systems.
Tool 2	To facilitate the development of autonomous systems adapted to today's climatic challenges, references and technical information will be made available on varieties of forage, grassland and protein crops adapted to drought or severe rainfall.

Results from analysis of the behavioural factors

201 dairy farmers were surveyed in France, about their plans to increase protein self-sufficiency. Of the respondents, 24% indicated they did not see any value in increasing protein self-sufficiency, 11% felt it was not feasible for them, 36% were considering increasing protein self-sufficiency but were unsure how to start the process, 14% were planning to increasing protein self-sufficiency but had not yet done so, and 15% had already increased protein self-sufficiency.

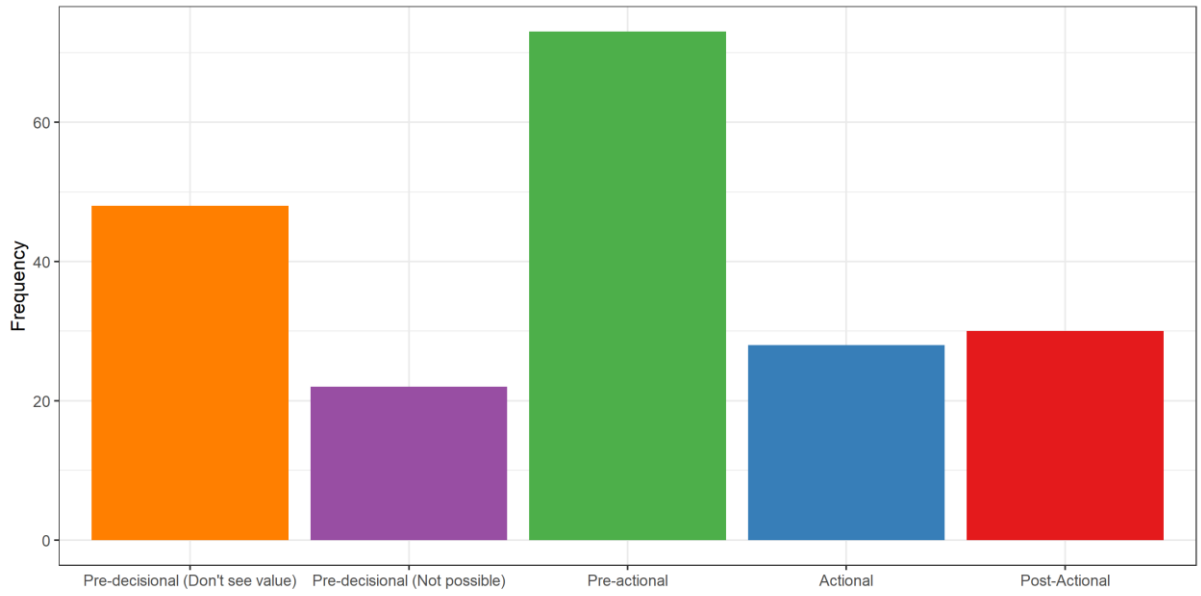

Figure 9: CS04 Farmers' current stage of change in their plan increase protein self-sufficiency.

Table 8 presents the results of the ordinal logistic regression analysis used to explain intentions. The results indicate that several factors significantly influence farmers' intentions at different stages of increasing protein self-sufficiency.

Goal Intention

The ordinal logistic regression analysis for goal intention revealed that positive emotion ($\beta = 1.558$, $p < 0.01$), social norm ($\beta = 1.449$, $p < 0.01$), and personal norm ($\beta = 1.546$, $p < 0.001$) are significant predictors of farmers' intentions to adopt protein self-sufficiency practices within the next three years. Positive emotions towards protein autonomy practices strongly increase the likelihood of farmers planning to enhance their protein self-sufficiency. Additionally, the influence of social norms and personal norms indicates that both societal expectations and

individual moral commitments play crucial roles in shaping these intentions. Negative emotion (β = 0.895) and goal feasibility (β = 1.298) did not show significant effects in this model.

Behavioural Intention

In examining behavioural intention, the analysis identified attitude (important) (β = 1.806, p < 0.001) perceived behavioural control (easy for me) (β = 0.689, p < 0.01), and goal intention (β = 1.670, p < 0.001) as significant predictors. Farmers who perceive the importance of adopting protein self-sufficiency practices are more likely to intend to implement these practices. Furthermore, those with strong goal intentions are significantly more inclined to translate these intentions into actionable plans. Surprisingly, we found that those who believe that adopting these practices is easy for them are also significantly less inclined to form behavioural intentions. While attitude (advantageous) (β = 1.252) and perceived behavioural control (Don't depend on anyone) (β = 1.209) also showed positive coefficients, only attitude (important) and goal intention reached statistical significance, underscoring the critical role of valuing the importance of protein autonomy and having clear intentions.

Implementation Intention

The analysis of implementation intention highlighted that coping planning (β = 1.604, p < 0.001), action planning (β = 1.537, p < 0.01), and maintenance self-efficacy (β = 1.474, p < 0.01) are significant predictors of farmers having already informed themselves about adopting protein self-sufficiency practices. Coping planning, in particular, shows the strongest effect, suggesting that farmers who actively plan to manage potential barriers are more likely to have commenced the adoption process. Behavioural intention (β = 1.038) did not reach statistical significance in this model, indicating that other factors beyond mere intention influence the initial steps towards implementation.

Table 8: CS04 ordinal logistic regression results for explaining goal intention; behavioural intention; and implementation intention (PBC = Perceived behavioural control; Coeff. = Coefficient; SE = standard error.).

	Goal Intention Coeff. (SE)		Behavioural Intention Coeff. (SE)		Implementation Intention Coeff. (SE)
Positive emotion	1.558** (0.150)	**Attitude (Advantageous)**	1.252 (0.133)	**Action planning**	1.537** (0.136)
Negative emotion	0.895 (0.123)	**Attitude (Important)**	1.806*** (0.136)	**Coping planning**	1.604*** (0.131)
Social Norm	1.449** (0.135)	**PBC (Easy for me)**	0.689** (0.141)	**Maintenance self-efficacy**	1.474** (0.134)
Personal Norm	1.546*** (0.122)	**PBC (Don't depend on anyone)**	1.209 (0.131)	**Behavioural intention**	1.038 (0.122)
Goal Feasibility	1.298 (0.135)	**Goal Intention**	1.670*** (0.145)		
Pseudo-R2 (Nagelkerke)	0.252		0.23		0.203
Observations	201		201		201
Log Likelihood	-254.916		-274.751		-249.448
					Note: *p<0.05; **p<0.01; ***p<0.001

Acceptability of Behaviour Change Interventions

The acceptability of various interventions designed to support farmers in increasing protein self-sufficiency was assessed (Figure 10). Discussion groups emerged as the most acceptable intervention, with 66% of farmers rating them favourably, indicating a strong preference for collaborative platforms that facilitate knowledge exchange and peer support. This was closely followed by References and technical information (65%), transition payments (63%) and special labelling (62%), indicating a strong preference for interventions that provide both informational support and financial incentives. Awards for the most committed farms received a 60% acceptability rating, highlighting the value placed on recognition and visibility of exemplary practices. Demonstration farms and the Devautop tool

were moderately accepted, with 59% each, while higher milk prices and import taxes received slightly lower acceptability ratings of 58% and 57% respectively. Online resources were the least favoured, with a 54% acceptability rating. Overall, interventions that combine informational support, financial incentives, and opportunities for peer engagement were the most acceptable to French dairy farmers.

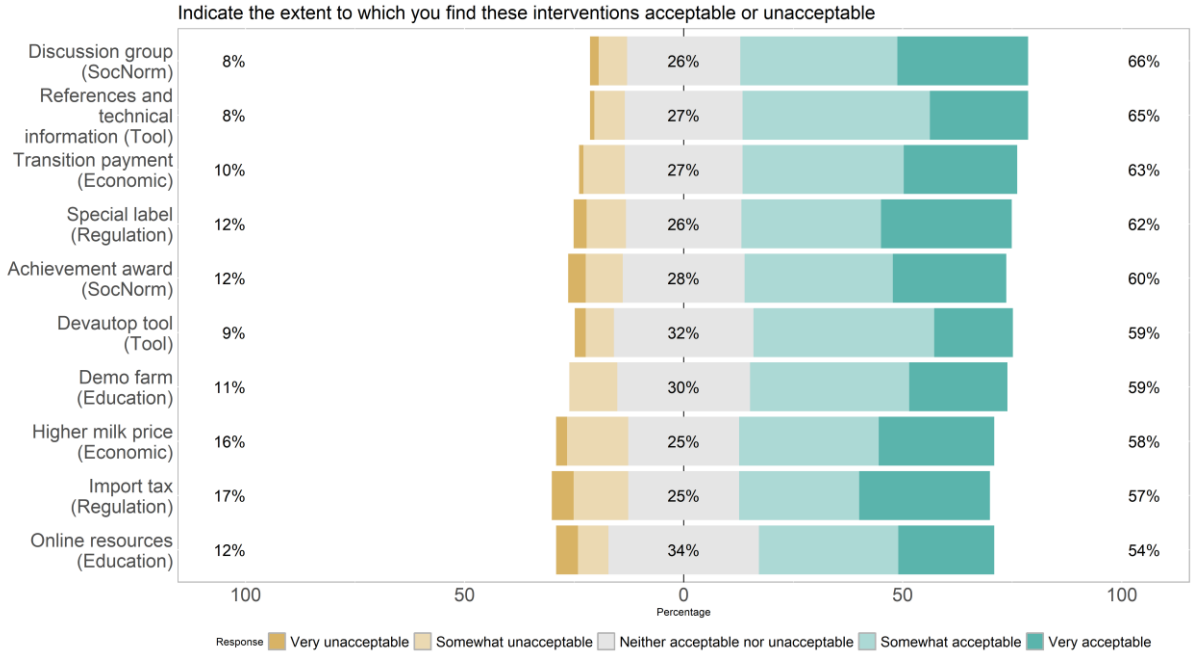

Figure 10: Acceptability of CS04 behavioural interventions

Recommendations for Intervention Selection for Case Study 4

Considering regression analyses and the acceptability ratings of interventions, it is recommended to implement discussion groups, and provide clear technical information and transition payments to effectively promote protein autonomy among French dairy farmers. Discussion groups, rated at 66% acceptability, align with the significant role of social norms and personal norms in influencing goal intention. These groups can facilitate peer support, knowledge exchange, and the establishment of a community norm around protein self-sufficiency practices, thereby targeting the key emotional and normative factors.

Additionally, technical information and transition payments, which were both highly acceptable, provide the necessary supports to reduce risks associated with adopting new practices. By offering both technical support and financial contributions, they directly address the significant variables of goal intention and implementation intention, particularly coping planning and action planning. This combination of social and financial support mechanisms is likely to enhance farmers' confidence and capability to transition towards more self-sufficient protein systems, thereby fostering the desired behavioural changes and achieving the project's sustainability objectives.

5.5 Case Study 5: Germany - Sustainable pig farming

Sustainable pig farming is increasingly vital in addressing concerns related to animal welfare, environmental impact, and feed practices. While some German pig farms excel in these areas, adopting higher welfare standards remains a challenge for many farmers. Consequently, only a limited number of farms currently exemplify best practices in sustainable pig husbandry. This case study aims to investigate the factors influencing German pig farmers' plans and intentions to convert to pig husbandry levels 3 or 4, as defined by the German Animal Husbandry Regulation. Specifically, it examines the behavioural intentions to adopt these higher welfare standards within the next three years. The study utilises a national survey targeting German pig farmers, focusing on their intentions to transition to levels 3 or 4, which encompass enhanced animal welfare measures such as increased space, access to outdoor runs, and the provision of organic and fibre-rich occupational materials. By understanding the motivations and barriers faced by farmers, the research seeks to identify effective interventions that can facilitate the widespread adoption of sustainable pig farming practices, thereby contributing to improved animal welfare and environmental sustainability within the German pig farming sector. Based on case study interviews and a stakeholder workshop, the following interventions were identified as relevant, and included in the survey using the RESET model (Lam et al., 2017) as a framework (see Table 9):

Table 9: CS05 Interventions to support farmers in converting to pig husbandry level 3 or 4

RESET Category	Intervention
Regulation 1	To grow the market for animal welfare products in Germany, the German government has set a requirement that all fresh pig meat products must be labelled according to a pre-defined 5-level system. This labelling strategy aims to ensure that products produced to higher standards are identifiable by consumers and that farmers have a fairer market for their produce.
Regulation 2	To couple the new labelling system to the development of animal welfare standards that go beyond existing legal requirements, it has been proposed to ban levels 1 and 2 and make level 3 the new legal minimum standard. The intention is to incentivise farmers to convert to higher animal welfare standards as non-conversion would mean that the farmer needs to abandon pig husbandry.
Economic 1	To offset some of the costs in converting to level 3 or higher, pig farmers that adopt a husbandry system meeting the criteria of level 3, 4 or 5 can apply for partial compensation of their ongoing additional costs ("Bundesprogramm für laufende Mehrkosten"). This compensation aims to provide an incentive for farmers to adopt higher animal welfare standards.
Economic 2	A penalty fee of 10€ per pig could be introduced for tail docking. This would require piglet producers to either stop the practice; pay the fee and bear the costs; or pass on costs to pig fatteners by increasing piglet prices.
Social Norm 1	Pig welfare demonstration farms have been selected throughout the country to illustrate best practice and monitor key financial and animal welfare metrics. Farm walks are held on these farms as an opportunity for anyone considering changing their husbandry systems to see first-hand the differences in operating a system based on higher animal welfare standards.
Social Norm 2	Discussion groups could be established with farmers who want to explore ways to convert to higher animal welfare standards. The meetings would assemble farmers from different pig husbandry systems to learn from each other. These meetings could give farmers an opportunity to learn about best practices and challenges in adopting higher animal welfare criteria.
Education 1	State-sponsored individual on-farm meetings could be organised with public animal welfare experts (i.e. veterinaries from veterinary authorities) to plan specific animal welfare measures adapted to the existing stable facilities and the farmer's financial capabilities. This could allow pig farmers to establish a

	trust relationship with an animal welfare expert and have assistance with problems they encounter.
Education 2	Voluntary, free continued training about latest developments in animal welfare good practice are organised by regional veterinary authorities and scientists to raise awareness early-on among pig farmers about additional requirements.
Tool 1	Free disposal of manipulable material for pigs could be offered at local/regional veterinary authorities. Farmers could choose all materials that they wish to implement in their stables, exchange broken items, experiment with new ones. All pig farmers would be eligible to apply regardless of their pig husbandry system. This could facilitate the experimentation with easy-to-implement, small adaptations in existing stable systems with potential positive effects on pig welfare.
Tool 2	Free installations that allow pigs to feed themselves with grass/clover silage (or other quality fodder that improves their health rather than only having fattening purpose) could be offered by regional agricultural offices. All pig farmers would be eligible to apply regardless of their pig husbandry system.

Results from analysis of the behavioural factors

205 farmers were surveyed in Germany, about their intentions to convert to pig husbandry level 3 or 4. Of the respondents, 25% indicated they did not see any value in converting to pig husbandry level three or four, 16% felt it was not feasible for them, 23% were considering converting but were unsure how to start the process, 20% were planning to convert but had not yet done so, and 16% had already adopted these practices.

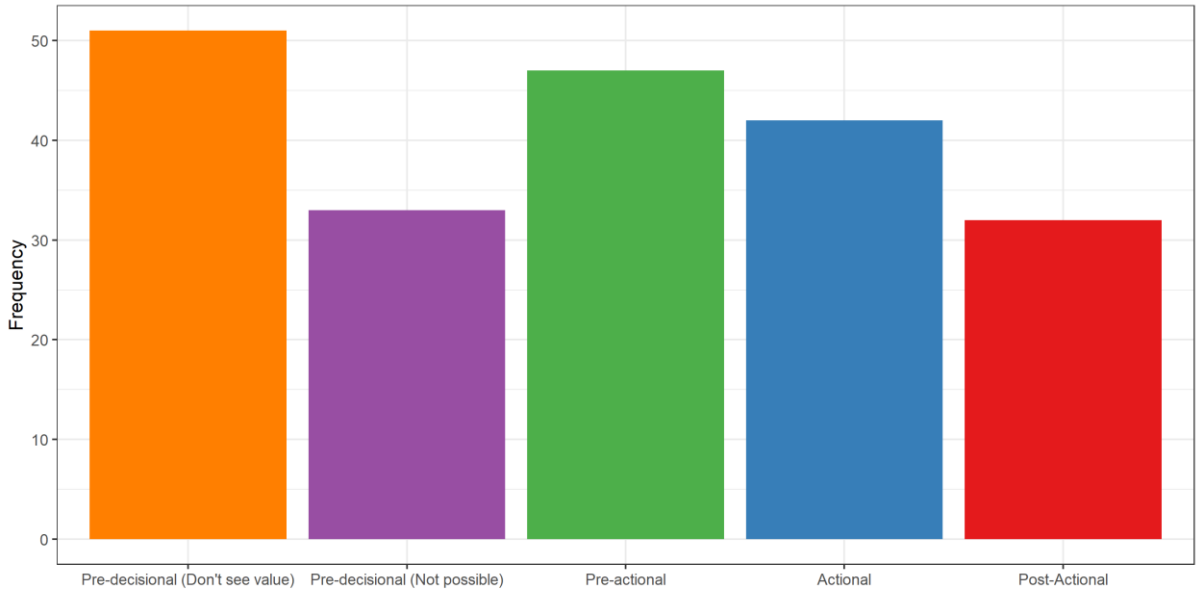

Figure 11: CS05 Farmers' current stage of change in their plan to convert to pig husbandry level three or four.

Table 10 presents the results of the ordinal logistic regression analysis used to explain intentions to convert. The results indicate that several factors significantly influence farmers' intentions at different stages of converting to higher pig welfare standards.

Goal Intention

The ordinal logistic regression analysis for goal intention reveals that social norm ($\beta = 1.259$, $p < 0.05$) and personal norm ($\beta = 1.242$, $p < 0.05$) are significant predictors of farmers' plans to convert to pig husbandry level 3 or 4 within the next three years. Positive emotion ($\beta = 1.006$) and goal feasibility ($\beta = 1.163$) did not reach

statistical significance, while negative emotion was inversely related to goal intention (β = 0.921). This indicates that the perceived social and personal obligations significantly motivate farmers to intend to adopt higher welfare standards.

Behavioural Intention

The ordinal logistic regression analysis for behavioural intention identifies that the perception of not depending on anyone (β = 1.450, p < 0.01) is the sole significant predictor of farmers' intentions to adopt pig husbandry level 3 or 4 practices within the next three years. This indicates that farmers who feel autonomous and believe that their decision to convert does not rely on others are significantly more likely to intend to implement higher welfare standards. Other factors examined in the model, including attitude towards the advantages (β = 1.035) and importance (β = 1.201) of adopting higher welfare standards, perceived behavioural control related to the ease of adoption (β = 0.954), and goal intention (β = 0.872), did not reach statistical significance. These results highlight the importance of fostering a sense of independence among farmers, as their autonomy appears to be a critical factor in their decision-making process regarding the adoption of more sustainable pig farming practices.

Implementation Intention

The analysis of implementation intention shows that behavioural intention (β = 1.383, p < 0.01) and coping planning (β = 1.262, p < 0.05) are significant predictors of farmers' readiness to implement pig husbandry level 3 or 4 practices. Action planning (β = 1.209) and maintenance self-efficacy (β = 1.173) did not achieve statistical significance. This implies that farmers who have strong behavioural intentions and have developed strategies to overcome potential barriers are more likely to move forward with implementing higher welfare standards.

Table 10: CS05 ordinal logistic regression results for explaining goal intention; behavioural intention; and implementation intention (PBC = Perceived behavioural control; Coeff. = Coefficient; SE = standard error.).

	Goal Intention Coeff. (SE)		Behavioural Intention Coeff. (SE)		Implementation Intention Coeff. (SE)
Positive emotion	1.006 (0.105)	**Attitude (Advantageous)**	1.035 (0.110)	**Action planning**	1.209 (0.131)
Negative emotion	0.921 (0.105)	**Attitude (Important)**	1.201 (0.117)	**Coping planning**	1.262* (0.108)
Social Norm	1.259* (0.109)	**PBC (Easy for me)**	0.954 (0.109)	**Maintenance self-efficacy**	1.173 (0.118)
Personal Norm	1.242* (0.109)	**PBC (Don't depend on anyone)**	1.450** (0.121)	**Behavioural intention**	1.383** (0.125)
Goal Feasibility	1.163 (0.107)	**Goal Intention**	0.872 (0.106)		
Pseudo-R2 (Nagelkerke)	0.0641		0.0687		0.0964
Observations	205		205		205
Log Likelihood	-314.237		-295.137		-270.943
					Note: *p<0.05; **p<0.01; ***p<0.001

Acceptability of Behaviour Change Interventions

Figure 12 presents farmers' acceptability ratings for various interventions designed to support the conversion to pig husbandry levels 3 or 4. The highest acceptability was observed for free continued training (47%), closely followed by compensation payments and free installations, both rated at 46%. On-farm meetings garnered a 45% acceptability rating, while free waste disposal received 44%. New legal standards and welfare labels were moderately supported, with acceptability ratings of 43% and 42%, respectively. Demonstration farms and free

equipment both achieved acceptability ratings of 40% and 46%. Conversely, tail docking fines and discussion groups were the least acceptable interventions, with ratings of 36% and 37%, respectively. These results indicate a preference among farmers for interventions that provide financial incentives, practical support, and educational opportunities. Interventions perceived as regulatory or punitive, such as tail docking fines, were less favoured, highlighting the importance of offering supportive and resource-based measures to facilitate the adoption of higher animal welfare standards.

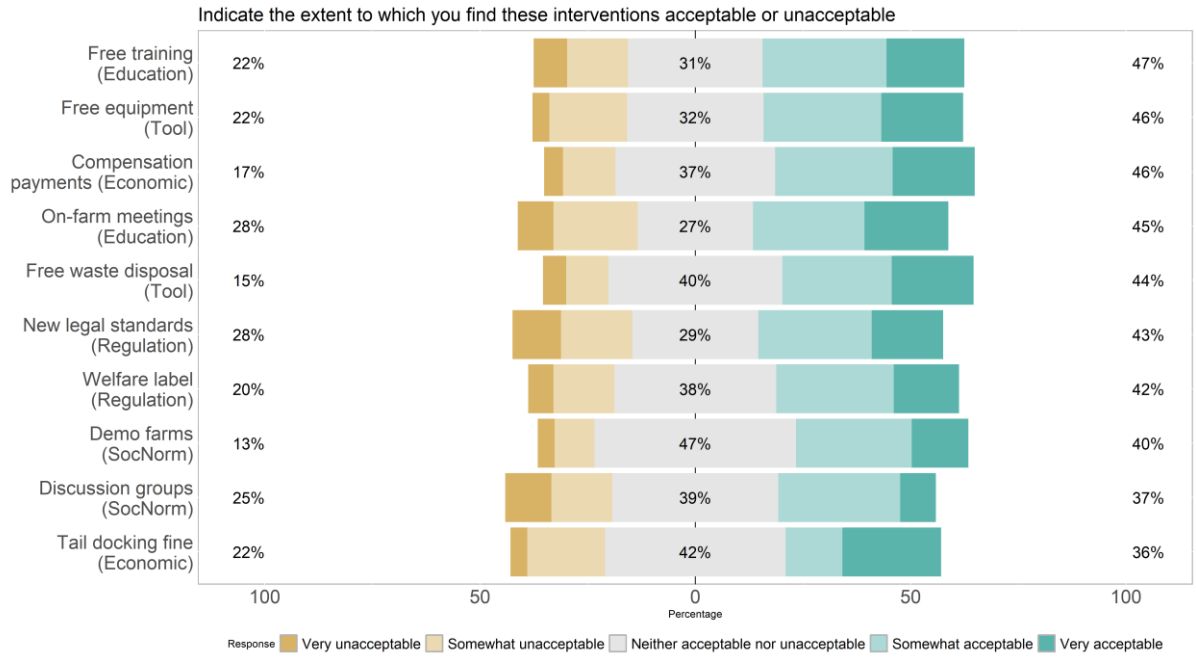

Figure 12: Acceptability of CS05 behavioural interventions

Recommendations for Intervention Selection for Case Study 5

Considering the significant predictors identified in the regression analyses and the acceptability ratings of the proposed interventions, it is recommended to implement a combination of free continued training, on-farm meetings, and free equipment to support the conversion to pig husbandry levels 3 or 4.

Free continued training, which received the highest acceptability rating of 47%, directly addresses the significant variable of coping planning. By providing farmers with up-to-date knowledge and practical skills, this intervention equips them to effectively navigate and overcome the challenges associated with adopting higher welfare standards. This educational support fosters confidence and preparedness, thereby facilitating the implementation intention to convert.

On-farm meetings, with a 45% acceptability rating, serve to strengthen both social and personal norms. These meetings provide a platform for farmers to engage with animal welfare experts, fostering a sense of community and shared responsibility. By receiving tailored advice and building trust with experts, farmers are more likely to feel supported in their decision to adopt higher welfare standards, reinforcing their personal and social motivations.

Additionally, free equipment, also rated at 46%, supports farmers' autonomy by providing the necessary tools to implement higher welfare practices independently. This intervention reduces reliance on external factors, aligning with the significant predictor of not depending on anyone. By facilitating easy access to quality equipment, farmers are empowered to make autonomous decisions that enhance animal welfare without excessive dependency on others.

5.6 Case Study 6: Greece - Adoption of Sustainable Farming Practices.

This case study explores Greek farmers' plans and intentions to adopt sustainable farming practices, aiming to enhance environmental sustainability and improve the economic viability of farming operations. Sustainable farming encompasses practices that minimise chemical use and optimise the efficient utilisation of water, soil, and other natural resources. Key practices include crop rotation, cover cropping, smart farming technologies, integrated pest management, animal welfare conditions, energy production from renewable sources, and water recycling. The overarching objective of this study is to understand the behavioural factors influencing farmers' intentions to implement these sustainable practices over the next three years. By examining national survey data, the study seeks to identify the motivations and barriers faced by farmers, thereby informing the development of targeted interventions that support the widespread adoption of sustainable farming across Greece. The insights gained will contribute to policy-making and the design of support programmes that align with farmers' needs and preferences, ultimately fostering a more sustainable and resilient agricultural sector. Based on case study interviews and a stakeholder workshop, the following interventions were identified as relevant, and included in the survey using the RESET model (Lam et al., 2017) as a framework (see Table 11):

Table 11: CS06 Interventions to support farmers in adopting sustainable farming practices

RESET Category	Intervention
Regulation 1	To grow the market for sustainable farming products, the government could introduce a certification scheme with a 'sustainable farming' logo. Farms will be regularly monitored to ensure they meet the standards. This labelling helps consumers identify sustainable products, giving farmers a fairer market.
Regulation 2	The government could set clear rules, like profit limits, for everyone in the agriculture value chain to ensure fairness and sustainability. These rules would make sure profits are shared fairly among farmers, processors, distributors, and retailers. Transparent guidelines would build trust and cooperation, improving the efficiency and stability of the agricultural sector.
Economic 1	Through national strategic plans like the Common Agricultural Policy (CAP), farmers can participate in schemes that promote sustainable farming practices to receive additional financial support or subsidies. Farmers must comply with CAP regulations and they may also need to keep detailed records and undergo inspections to ensure compliance.
Economic 2	A results-based scheme would involve farmers being given financial rewards based on measurable results like higher yields, healthier soil, efficient water use, and biodiversity protection. Farmers who achieve or exceed the targets set for certain indicators receive financial incentives or payments. Regular assessments, field inspections, and data collection would monitor and verify the results achieved by farms.
Social Norm 1	A program could be introduced to showcase farmers who have improved their fields, saved money, and made their soil and animals healthier and more productive with sustainable methods. Through visiting demonstration farms, farmers can learn from the experiences of other farmers and understand how sustainable farming practices can be applied in the real world.
Social Norm 2	A campaign could be introduced to raise awareness of climate change in the farming community and the role of farmers. These campaigns would use videos, social media, and other methods of communication to show how sustainable farming, carbon capture, and biodiversity helps fight climate

RESET Category	Intervention
	problems. This campaign would empower farmers and communities with tips and tools to handle environmental changes.
Education 1	Training sessions for farmers can teach sustainable farming skills. These sessions share the latest research and information to increase farmers' knowledge on eco-friendly methods like pest management, organic farming, and soil conservation. Farmers would attend training sessions and learn more about adopting practices that improve productivity while minimizing environmental impact
Education 2	Agricultural Advisors are trained experts that provide advice and guidance to farmers in areas such as crop management, soil health, and sustainable farming practices. The government could support a programme that certifies agricultural advisors and allows farmers to engage with certified advisors with a minimal fee involved. Farmers would become clients of advisors and engage with them on a regular basis to get advice and knowledge on implementing sustainable farming practices.
Tool 1	To grow the market for sustainable farming products, a new traceability platform could be developed that communicates, through a food label, information about the nutrition, origin, production methods and carbon footprint of agricultural products. For this tool, farmers would have to be willing to share their anonymised farm data to the platform. The label could result in more trust amongst the public and a willingness to pay more for products that have this label.
Tool 2	National innovation agencies could offer grants and funding opportunities to bring technology companies together with farmers to research and develop customised services that address farming needs. Through these programmes, farmers would be involved in the design and development of technologies that would support sustainable farming systems. Farmers would be able to suggest new ideas and provide feedback so that services can be developed and improved based on real experiences.

Results from analysis of the behavioural factors

200 farmers were surveyed in Greece about their intentions to adopt sustainable farming practices. Of the respondents, 6% indicated they did not see any value in adopting sustainable farming practices, 24% felt it was not feasible for them, 19% were considering adopting sustainable farming practices but were unsure how to start the process, 11% were planning to but had not yet done so, and 41% already implement some sustainable farming practices.

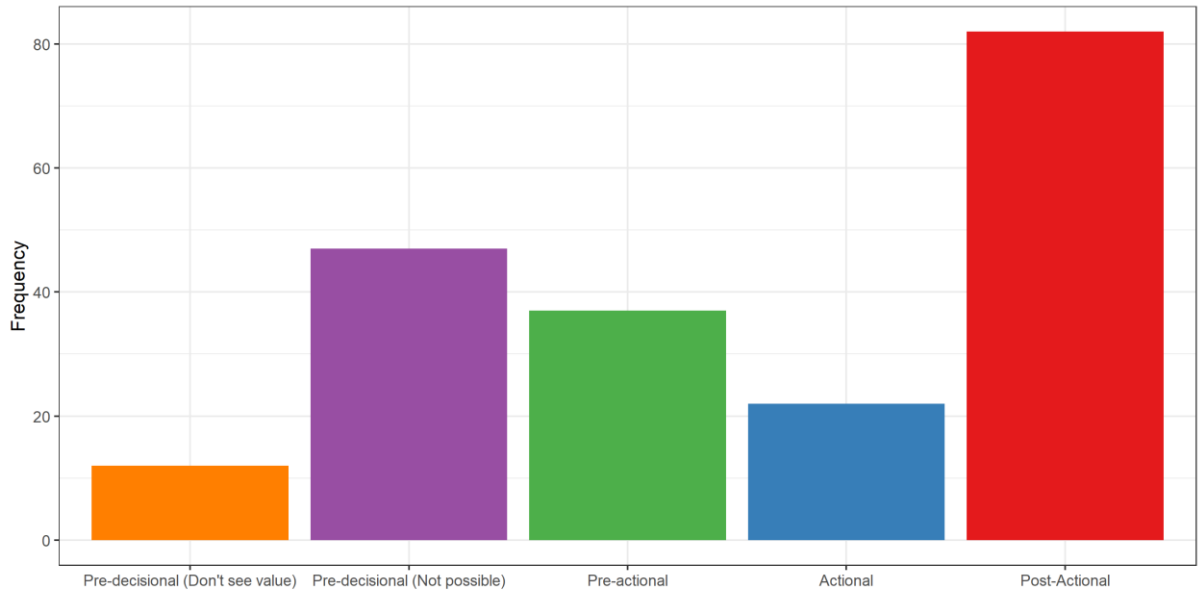

Figure 13: CS06 Farmers' current stage of change in their plan to adopt sustainable farming practices.

Table 12 presents the results of the ordinal logistic regression analysis used to explain intentions to adopt sustainable farming practises. The results indicate that several factors significantly influence farmers' intentions at different stages of adopting sustainable farming practices.

Goal Intention

The ordinal logistic regression analysis for goal intention, defined as the plan to adopt sustainable farming practices within the next three years, identified personal norm ($\beta = 1.494$, $p<0.01$) and goal feasibility ($\beta = 2.776$, $p<0.001$) as significant predictors. This indicates that farmers with a strong personal commitment to sustainability and those who perceive the adoption of sustainable practices as feasible are significantly more likely to intend to implement these practices. While positive emotion ($\beta = 1.072$) and social norm ($\beta = 1.102$) positively influenced goal intention, these effects were not statistically significant. Negative emotion ($\beta = 0.976$) also showed a non-significant impact on goal intention.

Behavioural Intention

In examining behavioural intention, defined as the plan to adopt Smart Farming practices within the coming three years, the analysis revealed that perceived behavioural control and goal intention were significant predictors. Specifically, farmers who perceive the adoption of Smart Farming as easy (PBC: Easy for me) ($\beta = 1.594$, $p<0.001$) are significantly more likely to intend to implement these practices. Additionally, a strong goal intention ($\beta = 1.520$, $p<0.001$) directly enhances the likelihood of planning to adopt Smart Farming technologies. In contrast, attitudes regarding the advantages ($\beta = 1.340$) and importance ($\beta = 1.333$) of Smart Farming, as well as the perception that farmers do not depend on others (PBC: Don't depend on anyone) ($\beta = 1.032$), did not show statistically significant effects on behavioural intention. This suggests that while ease of adoption and existing intentions are crucial, attitudes towards the benefits and independence do not significantly influence the behavioural intention to adopt Smart Farming within this context.

Implementation Intention

The ordinal logistic regression for implementation intention, defined as farmers having already informed themselves about the necessary details to adopt Smart Farming practices, revealed that behavioural intention was the only significant predictor ($\beta = 1.580$, $p<0.001$). This strong influence indicates that farmers who intend to adopt Smart Farming are significantly more likely to have taken preliminary steps towards implementation. Action planning ($\beta = 1.165$), coping planning ($\beta = 1.159$), and maintenance self-efficacy ($\beta = 1.152$) were not statistically

significant predictors, suggesting that these factors do not have a significant impact on farmers' readiness to implement Smart Farming practices based on the current data.

Table 12: CS06 ordinal logistic regression results for explaining goal intention; behavioural intention; and implementation intention (PBC = Perceived behavioural control; Coeff. = Coefficient; SE = standard error.).

	Goal Intention Coeff. (SE)		Behavioural Intention Coeff. (SE)		Implementation Intention Coeff. (SE)
Positive emotion	1.072 (0.136)	**Attitude (Advantageous)**	1.340 (0.157)	**Action planning**	1.165 (0.134)
Negative emotion	0.976 (0.118)	**Attitude (Important)**	1.333 (0.152)	**Coping planning**	1.159 (0.136)
Social Norm	1.102 (0.122)	**PBC (Easy for me)**	1.594*** (0.138)	**Maintenance self-efficacy**	1.152 (0.137)
Personal Norm	1.494** (0.140)	**PBC (Don't depend on anyone)**	1.032 (0.108)	**Behavioural intention**	1.580*** (0.124)
Goal Feasibility	2.776*** (0.131)	**Goal Intention**	1.520*** (0.108)		
Pseudo-R2 (Nagelkerke)	0.462		0.332		0.209
Observations	200		200		200
Log Likelihood	-255.190		-276.514		-276.326
					Note: *p<0.05; **p<0.01; ***p<0.001

Acceptability of Behaviour Change Interventions

The analysis of intervention acceptability revealed varying levels of support among farmers for different strategies aimed at promoting sustainable farming practices (Figure 14). Sustainable farming courses received the highest acceptability rating at 77%, closely followed by the CAP sustainability scheme (76%) and demonstration farms (74%). National innovation agency grants, results-based schemes, and profit limits all garnered a 72% acceptability rating, indicating strong support for interventions that provide financial incentives and clear regulatory frameworks. Awareness campaigns received the lowest acceptability rating of 55%, suggesting limited support for broad communication strategies. Other interventions, such as low-cost advisors (61%), a sustainable farming logo (66%), and the traceability platform (63%), received moderate levels of acceptance. Overall, interventions that offer direct support, financial incentives, and practical guidance were most favourably received by farmers.

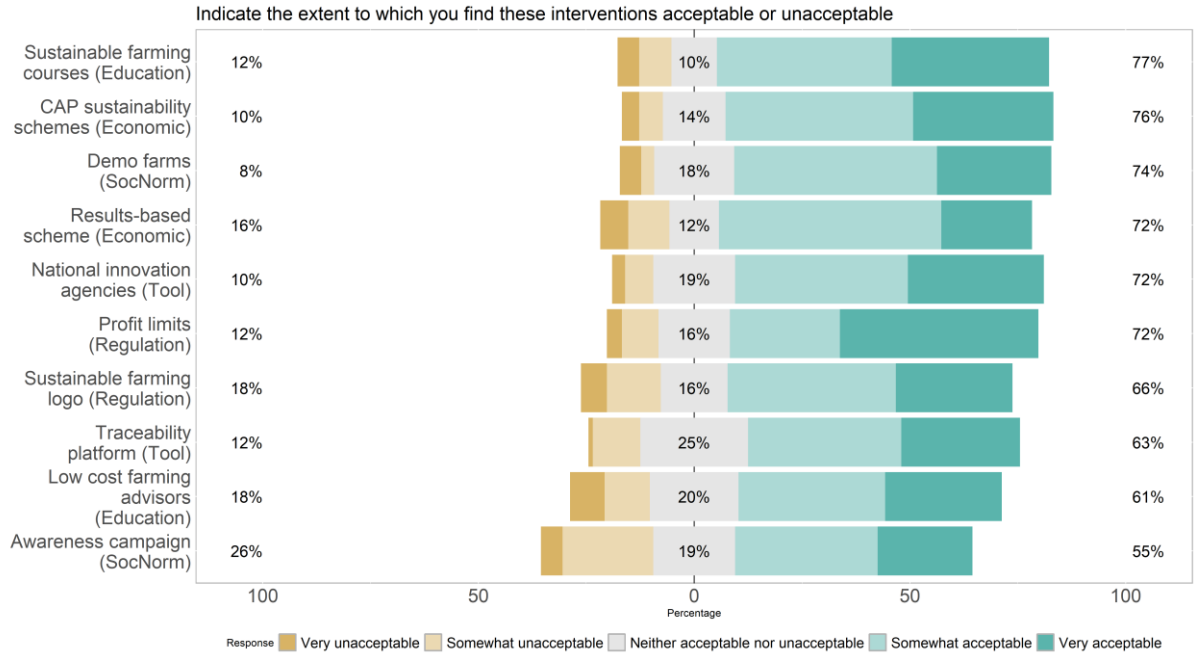

Figure 14: Acceptability of CS06 behavioural interventions

Recommendations for Intervention Selection for Case Study 6

Considering the significant predictors and the acceptability of interventions, it is recommended to implement/continue sustainable farming courses, CAP sustainability schemes, demonstration farms. Sustainable farming courses, with a 77% acceptability rating, directly address the significant variable of personal norm by enhancing farmers' knowledge and commitment to sustainable practices. These courses can strengthen personal norms by providing education on the environmental and economic benefits of sustainability, thereby encouraging farmers to adopt these practices. Additionally, CAP sustainability schemes, rated at 76% acceptability, aligns with the significant predictors of goal feasibility and behavioural intention. By offering financial support and clear guidelines, the CAP schemes could enhance the perceived feasibility of adopting sustainable practices and support farmers' behavioural intentions to implement Smart Farming technologies. Demonstration farms, with a 74% acceptability rating, provide practical examples of successful sustainable farming, thereby enhancing farmers' goal feasibility and reinforcing perceived behavioural control through peer learning and tangible evidence of benefits. These farms serve as real-world models that farmers can visit to observe sustainable practices in action, increasing their confidence in the feasibility of adoption.

Together, these interventions provide a comprehensive approach that addresses both the motivational and practical barriers to adopting sustainable farming practices. Sustainable farming courses and CAP sustainability schemes offer the necessary educational and financial support, while demonstration farms provide practical examples. This multifaceted strategy ensures that Greek farmers are well-equipped, motivated, and financially supported to transition towards more sustainable agricultural practices, thereby fostering a conducive environment for widespread adoption.

5.7 Case Study 7: Slovenia - Boosting Direct Selling in Slovenia

This case study explores the factors influencing Slovenian farmers' plans and intentions to engage in direct selling with consumers, particularly through online platforms. As part of a broader European initiative aimed at enhancing the sustainability and economic viability of agricultural practices, the primary objective is to promote the adoption and scaling of direct selling among small and medium-sized farms across Slovenia. Direct selling enables farmers to bypass traditional intermediaries, thereby increasing their revenue share and fostering more resilient and profitable operations.

The research aims to understand the behavioural intentions of farmers regarding direct selling, focusing on their willingness to use direct selling online platforms within the next three years. By identifying key behavioural determinants and assessing the acceptability of various interventions, the project seeks to facilitate the broader adoption of direct selling practices. Ultimately, the goal is to enhance the profitability-to-income ratio for Slovenian farmers engaged in direct selling, ensuring the long-term sustainability of their operations within the competitive agricultural landscape. Based on case study interviews and a stakeholder workshop, the following interventions were identified as relevant, and included in the survey using the RESET model (Lam et al., 2017) as a framework (see Table 13):

Table 13: CS06 Interventions to support farmers in engaging in direct selling with consumers.

RESET Category	Intervention
Regulation 1	The government makes regulatory exceptions aimed at reducing administrative burdens for direct selling farmers. For example, reduced paperwork, granting exemptions, and use of single declaration systems. Direct selling farmers would face less stringent labelling and food safety reporting requirements compared to large industrial producers.
Regulation 2	New laws allow farmers to register with a Direct Selling Producer Organization, similar to agricultural cooperatives. This organization helps with labelling, selling to public buyers, and provides training and regulatory updates. Government-endorsed, it serves as the main link for direct-selling farmers, promoting unity and better market access for their products.
Economic 1	Start a financial assistance program to help farmers invest in the infrastructure required for direct selling. Through this program farmers would be able to avail of grants, low-interest loans, and technical support for buying processing equipment and storage facilities needed to engage in direct selling.
Economic 2	Set up a co-financed marketing agency specifically for Slovenian farms engaged in direct selling, supported by the Slovenian State and the EU. This agency helps farmers with business support and marketing, allowing them to focus on production. Farmers engaged in direct selling can outsource tasks such as bookkeeping, product marketing, and sales.
Social Norm 1	The farmers' association organises working groups and training to encourage and educate about small-scale cooperatives. Farmers can attend events like a Cooperation Hackathon and enter competitions for outstanding cooperatives.
Social Norm 2	Farmers participate in discussion groups specifically for direct selling to share annual assessments and practices with peers, guided by an advisor. During these group sessions, farmers can learn from each other and become part of a supportive and social community.
Education 1	The Chamber of Agriculture advisory service could offer courses on digital marketing to enhance the direct selling strategies of farm products. These courses would cover key areas such as effective online sales channels,

RESET Category	Intervention
	marketing automation, collaborative strategies, and outsourcing opportunities. Farmers can attend these courses and gain modern digital marketing skills
Education 2	An educational program is offered to farmers which gives training on the complexities of local procurement demands, certification schemes, and existing legislation. With a strong emphasis on direct selling, the program would provide farmers the practical knowledge and tools for meeting regulatory requirements and leveraging certification for market advantage.
Tool 1	A tool is developed to assist farmers in calculating inputs, including workforce, to establish fairer prices and effective pricing strategies for direct selling products. This tool would ensure comprehensive cost analysis provided in a user-friendly way. By providing a more accurate financial picture, the tool helps farmers set prices that reflect true production costs.
Tool 2	An app is developed which facilitates arrangements for farmers needing holiday cover or additional workforce support, particularly for direct selling activities. Farmers can use the app to connect with a pool of vetted, available workers and find reliable temporary help needed during peak times or personal absences.

Results from analysis of the behavioural factors

201 farmers were surveyed in Slovenia about their intentions to engage in direct selling with consumers. Of the respondents, 12% indicated they did not see any value in engaging in direct selling, 25% felt it was not feasible for them, 44% were considering direct selling but were unsure how to start the process, 11% were planning to direct sell but had not yet done so, and 8% already sell to consumers.

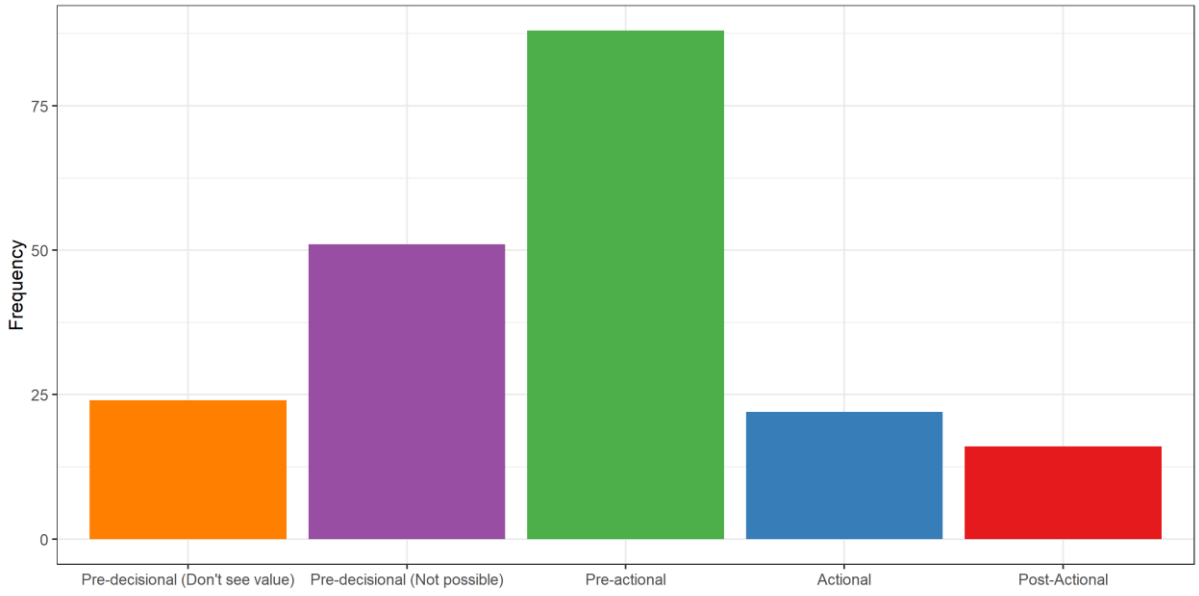

Figure 15: CS07 Farmers' current stage of change in their plan to engage in direct selling with consumers.

Table 14 presents the results of the ordinal logistic regression analysis used to explain intentions to engage in direct selling. The results indicate that several factors significantly influence farmers' intentions at different stages of engaging in direct selling.

Goal Intention

The ordinal logistic regression analysis for goal intention to engage in direct selling within the next three years revealed that both positive emotion and personal norm are significant predictors. Positive emotion had a substantial

positive effect (β = 1.592, p < 0.001), indicating that farmers who experience more positive emotions towards direct selling are significantly more likely to plan to adopt this behaviour. Additionally, personal norm exhibited an even stronger association (β = 2.709, p < 0.001), suggesting that farmers' intrinsic sense of obligation or personal commitment to direct selling greatly influences their intention to engage in such practices. Other factors, including negative emotion (β = 1.042), social norm (β = 0.910), and goal feasibility (β = 1.088), did not show statistically significant effects in predicting goal intention.

Behavioural Intention

The regression analysis for behavioural intention to use online platforms for direct selling within the coming three years identified several significant factors. Farmers' perceptions of the advantageousness of direct selling significantly influenced their behavioural intention (β = 1.432, p < 0.05), as did their view of its importance (β = 1.603, p < 0.01). Additionally, perceived behavioural control regarding the ease of using online platforms was a significant predictor (β = 1.541, p < 0.01), indicating that farmers who find it easy to utilise these platforms are more likely to intend to do so. Furthermore, goal intention to engage in direct selling was also a significant predictor (β = 1.274, p < 0.05). In contrast, perceived behavioural control related to not depending on others did not significantly impact behavioural intention (β = 1.320).

Implementation Intention

The analysis of implementation intention, defined as farmers having already informed themselves about the necessary details to start using online platforms for direct selling, identified behavioural intention as the sole significant predictor. The coefficient for behavioural intention was highly significant (β = 2.522, p < 0.001), indicating that farmers who have a strong behavioural intention to use online platforms are markedly more likely to have taken active steps towards implementation. Other factors, including action planning (β = 0.915), coping planning (β = 1.245), and maintenance self-efficacy (β = 1.180), did not exhibit significant effects in predicting implementation intention.

Table 14: CS07 ordinal logistic regression results for explaining goal intention; behavioural intention; and implementation intention (PBC = Perceived behavioural control; Coeff. = Coefficient; SE = standard error.).

	Goal Intention Coeff. (SE)		Behavioural Intention Coeff. (SE)		Implementation Intention Coeff. (SE)
Positive emotion	1.592*** (0.140)	**Attitude (Advantageous)**	1.432* (0.151)	**Action planning**	0.915 (0.139)
Negative emotion	1.042 (0.121)	**Attitude (Important)**	1.603** (0.169)	**Coping planning**	1.245 (0.140)
Social Norm	0.910 (0.136)	**PBC (Easy for me)**	1.541** (0.151)	**Maintenance self-efficacy**	1.180 (0.141)
Personal Norm	2.709*** (0.173)	**PBC (Don't depend on anyone)**	1.320 (0.158)	**Behavioural intention**	2.522*** (0.166)
Goal Feasibility	1.088 (0.131)	**Goal Intention**	1.274* (0.116)		
Pseudo-R2 (Nagelkerke)	0.276		0.266		0.248
Observations	201		201		201
Log Likelihood	-278.743		-250.334		-272.687
					Note: *p<0.05; **p<0.01; ***p<0.001

Acceptability of Behaviour Change Interventions

The analysis of farmers' acceptability of various interventions to support direct selling revealed a range of preferences (Figure 16). The most acceptable interventions included the financial assistance program and the establishment of working groups, each receiving a 70% acceptability rating. These initiatives, which provide

grants, low-interest loans, and technical support, as well as foster collaborative learning and cooperative efforts among farmers, were highly endorsed by the majority of respondents. Additionally, interventions aimed at reducing administrative burdens garnered strong support, with 69% of farmers approving measures such as reduced paperwork and simplified regulatory requirements. Public procurement courses and farm labour apps also received favourable ratings, at 66% each, suggesting that farmers value education on procurement processes and tools facilitating workforce management. Other interventions, such as the Direct Selling Producer Organization and co-financed marketing agency, were moderately accepted, with 62% of farmers indicating approval. Less favoured were discussion groups and digital marketing courses, both receiving 59% acceptability. Overall, the results indicate a preference for interventions that provide financial support, reduce administrative complexity, and promote collaborative practices among farmers.

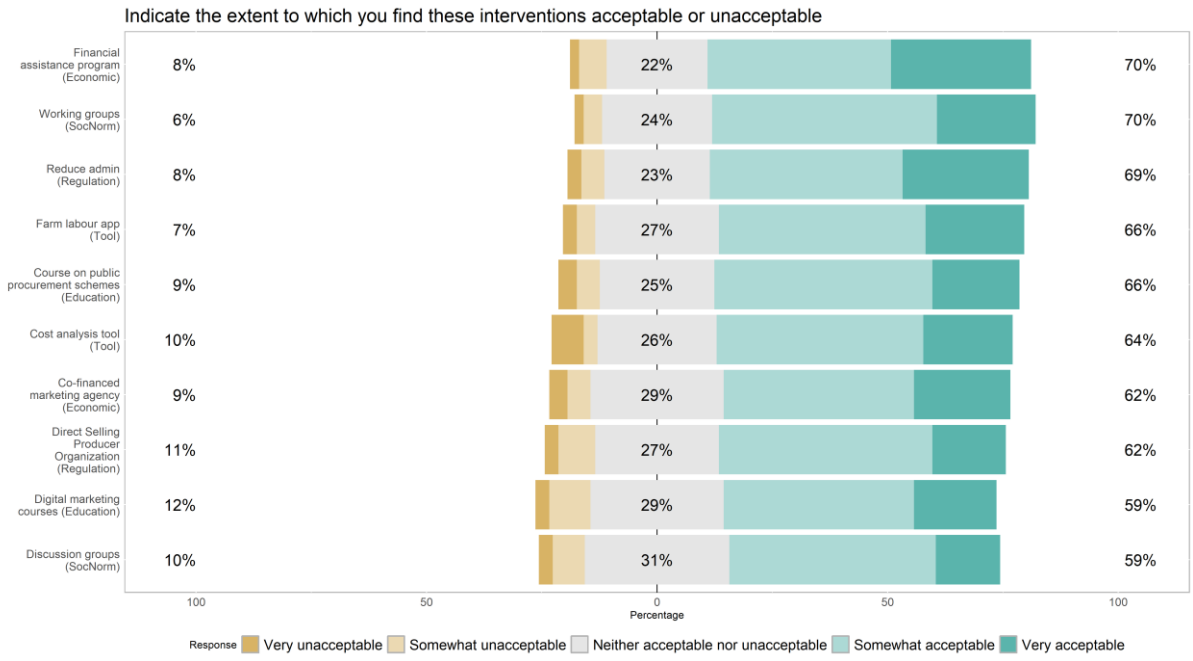

Figure 16: Acceptability of CS07 behavioural interventions

Recommendations for Intervention Selection for Case Study 7

Considering the acceptability of interventions and the significant predictors identified in the regression analyses, it is recommended to implement the financial assistance program, working groups, and the reduction of administrative burdens.

The financial assistance program, which offers grants, low-interest loans, and technical support, directly addresses farmers' perceived behavioural control (PBC) by making it easier for farmers to invest in the necessary infrastructure for direct selling. Additionally, providing financial support can evoke positive emotions by reducing stress related to investment risks and fostering a sense of security and optimism about the future profitability of direct selling.

Establishing working groups with dedicated training and cooperative initiatives targets personal norm and positive emotion. By fostering a collaborative environment, these groups strengthen farmers' intrinsic motivations and sense of obligation to adopt direct selling practices. Engaging in peer discussions and cooperative activities can enhance positive emotions by creating a supportive community and reducing feelings of isolation. Moreover, working groups encourage the development of a shared commitment to direct selling, reinforcing personal norms and making farmers more likely to adhere to their intentions.

Reducing administrative burdens by simplifying regulatory processes and easing paperwork requirements addresses both perceived behavioural control and attitudes towards direct selling. Simplified regulations make direct selling more accessible and less time-consuming, thereby enhancing farmers' perception that it is easy to engage in this practice. This improvement in PBC can lead to more favourable attitudes towards direct selling, as the reduced complexity makes the process appear more manageable and appealing. Consequently, farmers are more likely to develop positive attitudes, further strengthening their behavioural intentions.

Together, these interventions—financial assistance, working groups, and reduction of administrative burdens — address key factors such as positive emotion, personal norm, attitudes, and perceived behavioural control. By targeting these significant variables, the recommended interventions create a supportive environment that enhances farmers' intentions and capabilities to adopt direct selling practices, thereby facilitating the broader implementation of direct selling among Slovenian farmers.

5.8 Case Study 8: Italy – Reducing Farmer Pesticide and Herbicide Use

The utilisation of synthetic pesticides and herbicides is widespread among Italian farmers, primarily to achieve high crop yields and ensure consistent food production. However, growing concerns about the adverse effects of these chemicals on human health and the environment have necessitated a critical evaluation of their use. Issues such as soil and water contamination, detrimental impacts on non-target organisms, and the development of resistant pest strains highlight the urgent need for more sustainable agricultural practices. Reducing reliance on synthetic agrochemicals is essential not only for environmental preservation but also aligns with global trends towards sustainable and organic farming.

This case study aims to examine the behavioural intentions of Italian farmers regarding the reduction of synthetic pesticide and herbicide use. Specifically, it investigates the factors influencing farmers' plans and commitments to decrease their dependence on these chemicals within the next three years. Through a comprehensive survey conducted among farmers in Italy, the study collects data on their goal intentions, behavioural intentions, and implementation intentions related to adopting alternative pest management strategies. Additionally, the case study assesses the acceptability of various interventions designed to support farmers in this transition. The primary objective is to identify effective strategies and interventions that can facilitate the shift towards more sustainable farming practices, thereby mitigating the negative impacts associated with synthetic pesticide and herbicide use. Based on case study interviews and a stakeholder workshop, the following interventions were identified as relevant, and included in the survey using the RESET model (Lam et al., 2017) as a framework (see Table 15):

Table 15: CS08 Interventions to support farmers in reducing their use of synthetic pesticides and herbicides

RESET Category	Intervention
Regulation 1	The Government could reform the role of public and private certification bodies to have a mandatory requirement to provide support to farmers to reduce their synthetic pesticide and herbicide use. This could include offering mentorship programs and providing on-site technical assistance. This expanded role would require an increase in government funding for these bodies.
Regulation 2	Increase taxes on synthetic pesticides and herbicides. This would increase the overall production costs for farmers who do not reduce their synthetic pesticide and herbicide use.
Economic 1	Financial support for farmers to access advisory services on reducing synthetic pesticide and herbicide use could be provided by subsidizing or reimbursing consulting and training costs, thereby making expert guidance more affordable.
Economic 2	Subsidies for dedicating a part of a farm to experimenting with reduced or zero use of synthetic pesticides and herbicides would cover the costs of trialling sustainable farming practices. This financial support would reduce the financial risks and barriers to experimentation, promoting innovation, enhancing environmental sustainability, and supporting farm diversification.
Social Norm 1	Establish discussion groups dedicated to promoting sustainable farming practices. These groups would allow farmers to share their knowledge on topics such as minimizing synthetic pesticide and herbicide use. Additionally, they will foster a collaborative community that supports networking and joint efforts to improve market opportunities.
Social Norm 2	A program could be introduced to showcase farmers who have successfully reduced their use of synthetic pesticides and herbicides. By visiting these demonstration farms, other farmers can learn from their experiences and see first-hand how sustainable farming practices can be applied in the real world.

RESET Category	Intervention
Education 1	Distribute guides, brochures, and digital resources that outline which crops are best suited for different soil types and climate conditions. These supports would be tailored for local regions. This would help farmers to enhance yields and reduce the need for synthetic pesticides and herbicides.
Education 2	Host a farmer event to share knowledge about alternatives to synthetic pesticide and herbicide use, featuring experts and farmers from various EU regions. This event will educate participants on sustainable farming practices, showcase effective alternatives, and encourage collaboration across diverse agricultural contexts to improve overall farming practices and environmental outcomes.
Tool 1	Provide low-cost, easy to use crop protection facilities such as greenhouses, insect nets, and shade covers. Financial assistance and expert guidance will be provided ensure the effective construction and use of these protective structures. These facilities will help farmers improve crop yields and protect plants from pests and environmental factors.
Tool 2	National agencies could offer grants and funding opportunities to bring technology companies together with farmers to research and develop customised services that address farming needs. Through these programmes, farmers would be involved in the design and development of technologies that would support reduction of synthetic pesticide and herbicide use. Farmers would be able to suggest new ideas and provide feedback so that services can be developed and improved based on real experiences.

Results from analysis of the behavioural factors

209 farmers were surveyed in Italy about their intentions to reduce their use of synthetic pesticides and herbicides. Of the respondents, 6% indicated they did not see any value in reducing synthetic pesticide and herbicide use, 9% felt it was not feasible for them, 24% were considering reducing their use but were unsure how to start the process, 27% were planning to reduce but had not yet done so, and 33% had already taken steps to reduce synthetic pesticide and herbicide use.

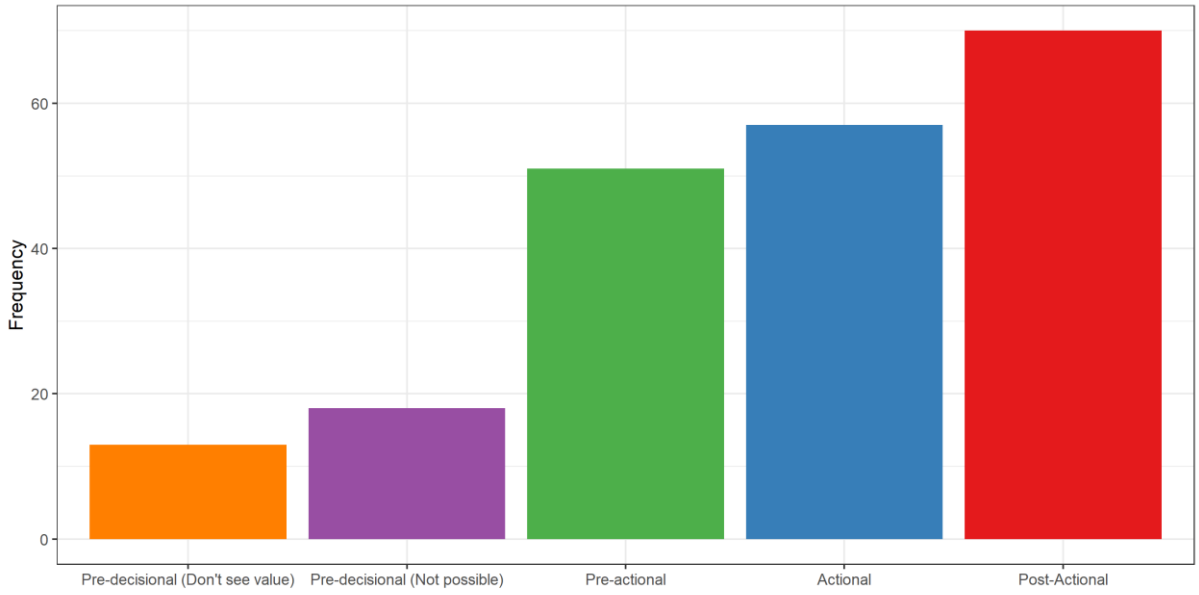

Figure 17: CS08 Farmers' current stage of change in their plan to reduce their use of synthetic pesticides and herbicides.

Table 16 presents the results of the ordinal logistic regression analysis used to explain intentions to reduce the use of synthetic pesticides and herbicides. The results indicate that several factors significantly influence farmers' intentions at different stages of reducing synthetic pesticide and herbicide use.

Goal Intention

The analysis of goal intention reveals that personal norm is a significant predictor of farmers' plans to reduce their use of synthetic pesticides and herbicides within the next three years ($\beta = 1.518$, $p<0.01$). This indicates that farmers who feel a strong personal obligation or moral duty to engage in environmentally friendly practices are more likely to intend to decrease their reliance on these chemicals. While positive emotion ($\beta = 1.315$) and social norm ($\beta = 1.219$) showed positive associations with goal intention, they did not reach statistical significance. Similarly, negative emotion ($\beta = 0.913$) and goal feasibility ($\beta = 1.161$) were not significant predictors in this model.

Behavioural Intention

In examining behavioural intention, both attitude towards the advantageousness of reducing synthetic pesticide and herbicide use ($\beta = 1.355$, $p<0.05$) and the perception of the behaviour as important ($\beta = 1.730$, $p<0.001$) were significant predictors. Additionally, goal intention itself was a strong predictor of behavioural intention ($\beta = 1.386$, $p<0.01$). These findings suggest that farmers who recognise the benefits and importance of reducing chemical use are more likely to intend to adopt specific measures within the next three years. Other factors, such as perceived behavioural control related to ease of implementation ($\beta = 1.096$) and independence from others ($\beta = 1.084$), did not significantly influence behavioural intention.

Implementation Intention

The analysis of implementation intention indicates that action planning ($\beta = 1.542$, $p<0.01$), coping planning ($\beta = 1.363$, $p<0.05$), and maintenance self-efficacy ($\beta = 1.466$, $p<0.01$) are significant predictors of farmers having already informed themselves about the necessary details to implement their chosen measures. Behavioural intention also significantly influences implementation intention ($\beta = 1.371$, $p<0.05$). These results highlight the importance of proactive planning and confidence in maintaining new practices as key factors in the early stages of adopting sustainable farming measures.

Table 16: CS08 ordinal logistic regression results for explaining goal intention; behavioural intention; and implementation intention (PBC = Perceived behavioural control; Coeff. = Coefficient; SE = standard error.).

	Goal Intention Coeff. (SE)		Behavioural Intention Coeff. (SE)		Implementation Intention Coeff. (SE)
Positive emotion	1.315 (0.149)	**Attitude (Advantageous)**	1.355* (0.135)	**Action planning**	1.542** (0.137)
Negative emotion	0.913 (0.099)	**Attitude (Important)**	1.730*** (0.156)	**Coping planning**	1.363* (0.131)
Social Norm	1.219 (0.140)	**PBC (Easy for me)**	1.096 (0.143)	**Maintenance self-efficacy**	1.466** (0.140)
Personal Norm	1.518** (0.127)	**PBC (Don't depend on anyone)**	1.084 (0.122)	**Behavioural intention**	1.371* (0.145)
Goal Feasibility	1.161 (0.144)	**Goal Intention**	1.386** (0.119)		

	Goal Intention Coeff. (SE)	Behavioural Intention Coeff. (SE)	Implementation Intention Coeff. (SE)
Pseudo-R2 (Nagelkerke)	0.165	0.236	0.228
Observations	209	209	209
Log Likelihood	-257.466	-246.086	-255.620

Note: *p<0.05; **p<0.01; ***p<0.001

Results from the analysis of the acceptability of behaviour change interventions

The acceptability of various interventions designed to support farmers in reducing their use of synthetic pesticides and herbicides was assessed (Figure 18). The most acceptable interventions were international events and the provision of crop protection facilities, each attaining a 76% approval rating. These initiatives provide valuable opportunities for knowledge exchange, practical demonstrations, and the implementation of effective pest management solutions. Following these, research collaborations between technology companies and farmers received a 73% acceptability rating, highlighting the farmers' interest in tailored technological innovations that address their specific needs. Financial support for accessing advisory services and the distribution of online resources both garnered a 69% acceptability rating, indicating strong support for expert guidance and easily accessible information. Demonstration farms were also well-received with a 68% approval.

Further down the acceptability scale, government support for certification bodies and subsidies for farm experiments each achieved a 67% approval rating, reflecting a favourable attitude towards institutional backing and financial incentives for sustainable practices. Discussion groups received a 60% acceptability rating, suggesting a moderate interest in collaborative and peer-supported approaches. The least acceptable intervention was increasing taxes on synthetic pesticides and herbicides, with only 47% of farmers in favour, indicating significant resistance to financial penalties. Overall, the results indicate a strong preference for interventions that offer direct support, practical resources, and opportunities for collaboration, while measures imposing additional financial burdens are less favoured. These insights suggest that successful interventions should prioritise providing tangible assistance and fostering a supportive community environment to effectively encourage farmers to reduce their use of synthetic pesticides and herbicides.

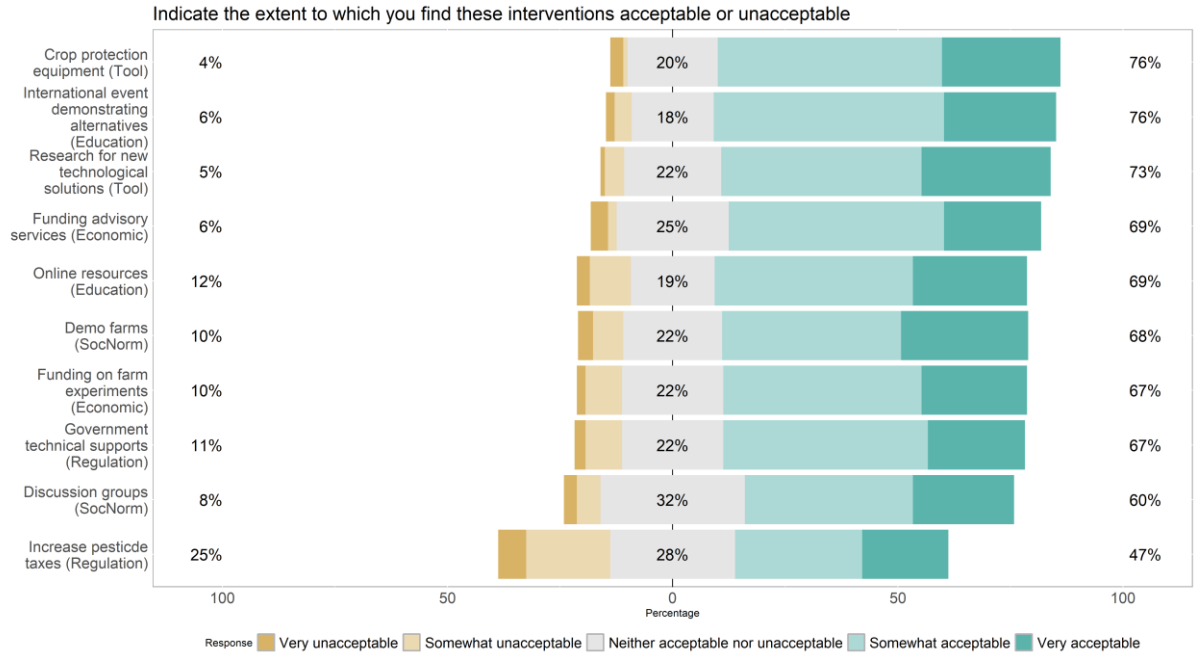

Figure 18: Acceptability of CS08 behavioural interventions

Recommendations for Intervention Selection in Case Study 8

Considering the acceptability of interventions and the significant predictors identified in the regression analyses, it is recommended to implement international events, the provision of crop protection facilities, research collaborations with technology companies, and financial support for accessing advisory services.

International events, which received a 76% acceptability rating, offer a valuable platform for farmers to engage with experts and peers. These events can enhance personal norms and positive attitudes by showcasing successful strategies for reducing synthetic pesticide and herbicide use. By facilitating knowledge exchange and demonstrating the benefits of sustainable practices, international events directly target the significant variables of personal norm and attitude (advantageous and important), thereby strengthening farmers' intentions to adopt more sustainable practices.

The provision of crop protection facilities, also rated at 76%, provides practical solutions that help farmers reduce their reliance on synthetic chemicals. These facilities enhance maintenance self-efficacy and support action planning by offering easy-to-use alternatives such as greenhouses, insect nets, and shade covers. By making it simpler for farmers to implement effective pest management strategies, crop protection facilities address the significant variables associated with implementation intention, thereby facilitating the practical adoption of sustainable measures.

Research collaborations between technology companies and farmers, with a 73% acceptability rating, encourage the development of customised technological solutions tailored to farmers' specific needs. These collaborations target action planning and maintenance self-efficacy by involving farmers in the design and implementation of technologies that support the reduction of synthetic pesticide and herbicide use. By fostering innovation and ensuring that technological advancements are relevant and effective, research collaborations enhance farmers' confidence and capability to adopt sustainable practices.

Additionally, financial support for accessing advisory services, which received a 69% acceptability rating, provides farmers with expert guidance and easily accessible information. This intervention enhances perceived behavioural control and enables effective coping planning by subsidising consulting and training costs, making expert advice more affordable. By reducing financial barriers and providing tailored support, financial assistance for advisory services addresses key variables influencing both behavioural and implementation intentions, thereby promoting the adoption of sustainable farming practices.

Together, these interventions—international events, crop protection facilities, research collaborations, and financial support for accessing advisory services—address critical factors such as personal norm, attitudes, self-efficacy, and planning. By targeting these significant variables, the recommended interventions create a supportive environment that enhances farmers' intentions and capabilities to adopt sustainable practices, thereby facilitating the reduction of synthetic pesticide and herbicide use among Italian farmers.

5.9 Case Study 9: Ireland – Facilitating Uptake of Organic Livestock Farming

This case study focuses on understanding and influencing Irish livestock farmers' intentions and plans to adopt organic farming practices. The Irish government aims to increase organic production from 2% to 7.5% of the utilisable agricultural area by 2027. Currently at 5%, progress is encouraging, but achieving the target will require more farmers to convert their conventional farms. This transition is seen as a route towards enhanced environmental sustainability, better animal welfare, and improved long-term financial prospects. The climate and geography of Ireland support grass-based systems, making it well suited to producing the high-quality feed necessary for organic livestock.

The aim of this case study is to examine the factors shaping farmers' intentions to convert to organic farming, specifically their longer-term plans and commitments. It seeks to identify interventions to facilitate the uptake of organic practices. Based a stakeholder workshop and a review of the grey literature, the study identified key interventions relevant to the organic farming, which were included in the survey using the RESET model (Lam et al., 2017) as a framework (see Table 17):

Table 17: CS09 Interventions for facilitating uptake of organic farming

RESET Category	Intervention
Regulation 1	The Irish government has set a target that 10% of food and drink bought by the state must be certified organic. This procurement strategy will ensure that organic farmers have a reliable market for their produce.
Regulation 2	Mandatory carbon footprint labels for all agricultural products produced in Ireland could be introduced. This would reveal the carbon footprint of organic products compared with conventional products. This label would help incentivise consumers to purchase organic produce over conventional produce.
Economic 1	A €5,000 tax credit could be introduced for registered organic farmers. This means that farmers signed up to an organics scheme would be able to reduce the amount of tax they owe to the government by up to €5,000 each year.
Economic 2	A 50% increase in the Organic Framing Scheme per hectare payments could be introduced.
Social Norm 1	A farmer mentoring scheme could be introduced. A farmer wishing to learn more about organic farming would get to visit another organic farmer for half a day on a one-to-one basis. Farmers can make new contacts and get hands-on, practical knowledge.
Social Norm 2	More discussion groups could be established with farmers who want to explore organic farming further, are in conversion, or have recently been fully certified organic. These meetings will give farmers an opportunity to learn from other farmers about best practices and challenges in becoming certified organic.
Education 1	Organic demonstration farms have been selected throughout the country to show best practice and monitor key financial and environmental metrics. Farm walks are often held on these farms as an opportunity for anyone considering entering organic production to see first-hand the differences in operating an organic system.
Education 2	A free one-to-one meeting with an organic advisor could be set up to help a farmer to discuss steps to convert to organic farming and potential profitability for their farm.
Tool 1	A decision support tool could be created which allows farmers to understand how productive their farm would be if they converted to organic farming.

RESET Category	Intervention
	This tool would be supported by research on trial organic farms and would therefore provide accurate information to support decision making.
Tool 2	An organic online sales platform could be created for farmers to sell their produce directly to customers (e.g. consumers, catering and restaurant industry). This would give organic farmers greater access to markets for their organic produce.

Results from analysis of the behavioural factors

213 farmers were surveyed in Ireland about their intentions to convert to organic farming. Of the respondents, 23% indicated they did not see any value in converting, 10% felt it was not feasible for them, 33% were considering converting but were unsure how to start the process, 24% were planning to convert but had not yet done so, and 10% had already converted or are in conversion.

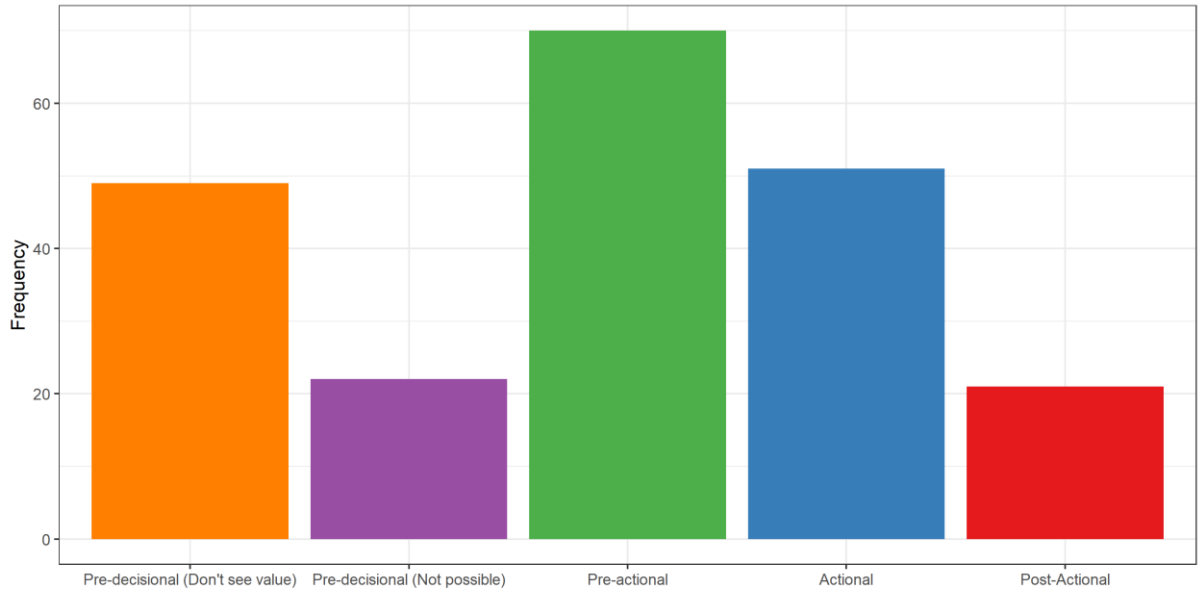

Figure 19: CS09 Farmers' current stage of change in their conversion to organic livestock farming.

Table 18 presents the results of the ordinal logistic regression analysis used to explain intentions. The results indicate that several factors significantly influence farmers' intentions at different stages of converting to organic farming.

Goal intention

Only positive emotion showed a statistically significant association with farmers' intentions to farm organically within the next five years ($\beta = 1.325$, $p<0.01$). This positive effect suggests that farmers who experience more positive emotions regarding organic farming are significantly more likely to plan a future organic conversion. Other variables, including negative emotion ($\beta = 1.056$), social norm ($\beta = 1.072$), personal norm ($\beta = 0.802$), and goal feasibility ($\beta = 1.213$), were not statistically significant predictors in this model.

Behavioural Intention

For farmers' plans to join the Organic Farming Scheme in the next five years, attitude (advantageous) and goal intention emerged as significant predictors. Having a more favourable view of organic farming's advantages was associated with greater behavioural intention ($\beta = 1.344$, $p<0.05$). Similarly, farmers with stronger pre-existing goal intentions were also more inclined to take the next step ($\beta = 1.312$, $p<0.05$). Other factors, including attitude

(important) (β = 0.962), perceived ease of converting (β = 1.165), and not depending on others (β = 1.106), were not significant predictors in the current model.

Implementation Intention

When considering the extent to which farmers had already taken active steps, such as informing themselves about joining the Organic Farming Scheme, coping planning was the only significant predictor (β = 1.253, p<0.05). This suggests that farmers who actively plan to overcome potential barriers are more likely to have progressed towards implementation. Other factors—action planning (β = 1.162), maintenance self-efficacy (β = 0.958), and behavioural intention (β = 1.048)—did not show statistically significant effects.

Table 18: CS09 ordinal logistic regression results for explaining goal intention; behavioural intention; and implementation intention (PBC = Perceived behavioural control; Coeff. = Coefficient; SE = standard error.).

	Goal Intention Coeff. (SE)		Behavioural Intention Coeff. (SE)		Implementation Intention Coeff. (SE)
Positive emotion	1.325** (0.099)	**Attitude (Advantageous)**	1.344* (0.121)	**Action planning**	1.162 (0.127)
Negative emotion	1.056 (0.115)	**Attitude (Important)**	0.962 (0.106)	**Coping planning**	1.253* (0.112)
Social Norm	1.072 (0.109)	**PBC (Easy for me)**	1.165 (0.103)	**Maintenance self-efficacy**	0.958 (0.112)
Personal Norm	0.802 (0.115)	**PBC (Don't depend on anyone)**	1.106 (0.112)	**Behavioural intention**	1.048 (0.101)
Goal Feasibility	1.213 (0.102)	**Goal Intention**	1.312* (0.106)		
Pseudo-R2 (Nagelkerke)	0.0821		0.0839		0.0321
Observations	213		213		213
Log Likelihood	-306.966		-320.342		-281.053

Note: *p<0.05; **p<0.01; ***p<0.001

Acceptability of Behaviour Change Interventions

Figure 20 shows farmers' acceptability of CS09 behavioural interventions. Farmers rated a range of potential interventions designed to facilitate organic conversion. The highest acceptability was found for organic demonstration farms (78%), followed closely by organic public procurement (77%), one-to-one meetings with organic advisors (74%), and a 50% increase in Organic Farming Scheme (OFS) payments (74%). A decision support tool (71%) and an organic online sales platform (71%) also received strong support. The farmer mentoring scheme (69%), carbon footprint labels (66%), discussion groups (59%), and a tax credit (59%) were somewhat less popular, but still favoured by a majority or a substantial minority. Overall, most proposed measures appear

acceptable, with particular enthusiasm for interventions that provide tangible support, direct guidance, and reliable markets

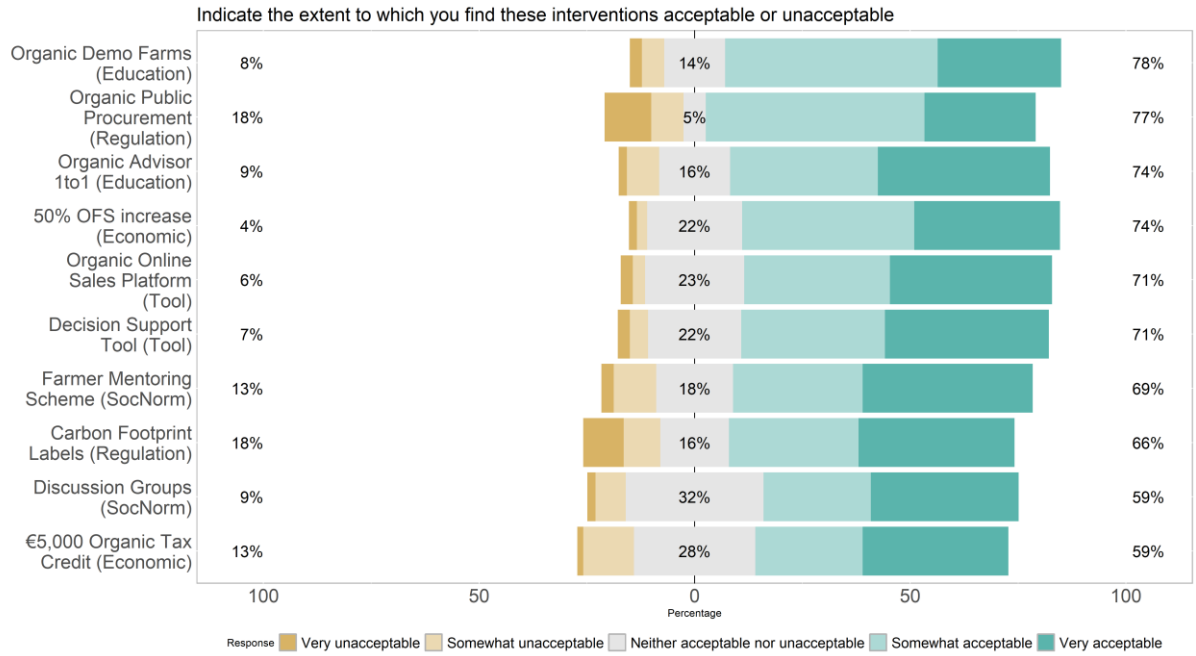

Figure 20: Acceptability of CS09 behavioural interventions

Recommendations for intervention selection in Case Study 9

Considering the significant predictors and acceptability ratings, introducing organic demonstration farms and offering one-to-one meetings with organic advisors would be beneficial. Farmers' intentions are strongly shaped by positive emotions, their perception of advantages from converting, and their ability to cope with obstacles. Organic demonstration farms would likely enhance positive emotions and advantageous attitudes by showcasing successful conversions, practical solutions, and economic benefits. These visits could help farmers see organic farming as more attractive, thereby targeting the significant positive emotion and attitude factors identified in the analyses.

Meanwhile, one-to-one meetings with organic advisors could strengthen coping planning by providing tailored guidance and reassurance to farmers who are uncertain about the steps involved. This direct support would help them develop strategies to overcome perceived barriers, thereby addressing the key significant variable (coping planning) associated with implementation intention. Together, these interventions can foster both favourable perceptions and practical support, thereby encouraging more farmers to commit to organic conversion.

5.10 Case Study 10: Flanders, Belgium – Biodiversity friendly pest management

This case study examines farmers' plans and intentions to adopt biodiversity friendly pest management practices in Flanders, Belgium, with a focus on natural pest control. The adoption of such practices among vegetable growers in this region remains low, and reliance on pesticides continues to be high. By capturing farmers' goals and intentions, the study seeks to shed light on the motivations and perceived barriers that either encourage or hinder the transition away from conventional pesticide use. It also explores how interventions can be better targeted and designed to support the uptake of environmentally sustainable farming methods. This examination is intended to provide practical insights for policymakers and extension services to foster a more widespread shift towards practices that preserve local ecosystems, reduce chemical inputs, and maintain profitable crop production. Based on case study interviews and a stakeholder workshop, the following interventions were identified as relevant, and included in the survey (see Table 19):

Table 19: CS10 Interventions for adoptions of more biodiversity friendly practices for natural pest

RESET Category	Intervention
Regulation 1	Increasing Non-Productive Area: What: 10% of your area must be dedicated must consist of non-productive elements such as hedges or flower strips. 5% is required by law and the other 5% is part of the conditions for direct payments under the CAP.
Regulation 2	A ban on the most harmful plant protection products What: A ban on pesticides containing active substances such as chlorortoluron, ipconazole, 8-hydroxyquinoline; already banned in the European Union or on the list of substances for which substitution is being considered. No derogations to this ban are not allowed.
Economic 1	Hybrid payments: What: You receive a basic subsidy for practices such as establishing flower strips. You get more money if you achieve additional goals, such as more pollinating insects. Example: Sowing flowers earns a base payment; more bees or a high diversity of flowers earn additional payments.
Economic 2	A voluntary consumer label What: Introduce a voluntary consumer label that rewards farmers for adopting biodiversity-friendly practices (including organic farming). The label would provide higher returns for the farmer.
Social Norm 1	Collective environmental efforts: What: Join an agricultural collective for better spatial planning of biodiversity-friendly measures and receive bonuses for coordinated efforts. Example: If you and your neighbours set aside pesticide-free land/buffer strips next to each other, you both get extra payments.
Social Norm 2	Information events and demo farms: What: Organize more events and demo farms to learn more about ecological pest management.
Education 1	Subsidized business advice: What: Get subsidized, independent advice on pest management.
Education 2	Training Courses: What: Organize courses on ecological pest management that focus on biodiversity deployment.
Tool 1	Smart decision support tools: What: The government is having smart decision support tools developed that incorporate sensors that help you decide when and how to use crop protection products, improving soil and biodiversity and reducing costs. The tools may also allow timely monitoring of pest populations and beneficial pest controllers. Example: Sensors measure pests, moisture and other farm parameters, allowing much more precise control of crop protection product use.

RESET Category	Intervention
Tool 2	Biodiversity measurement tools: What:A tool to measure how your farm supports biodiversity and shows improvements over time. This allows you to track the biodiversity benefits of your farming practices yourself. Furthermore, it allows you to demonstrate to actors in the chain (such as supermarkets, processors, etc.), consumers, neighbors, friends and family, that, through your sustainable business practices, you are making a positive contribution to biodiversity.

Results from analysis of the behavioural factors

We surveyed 105 farmers in Flanders, Belgium, about their intentions to adopt more biodiversity friendly practices for natural pest control. Of the respondents, 18% indicated they did not see any value in adopting these practices, 6% felt it was not feasible for them, 21% were considering adopting these practices but were unsure how to start the process, 3% were planning to adopt these practices but had not yet done so, and 50% had already adopted these practices.

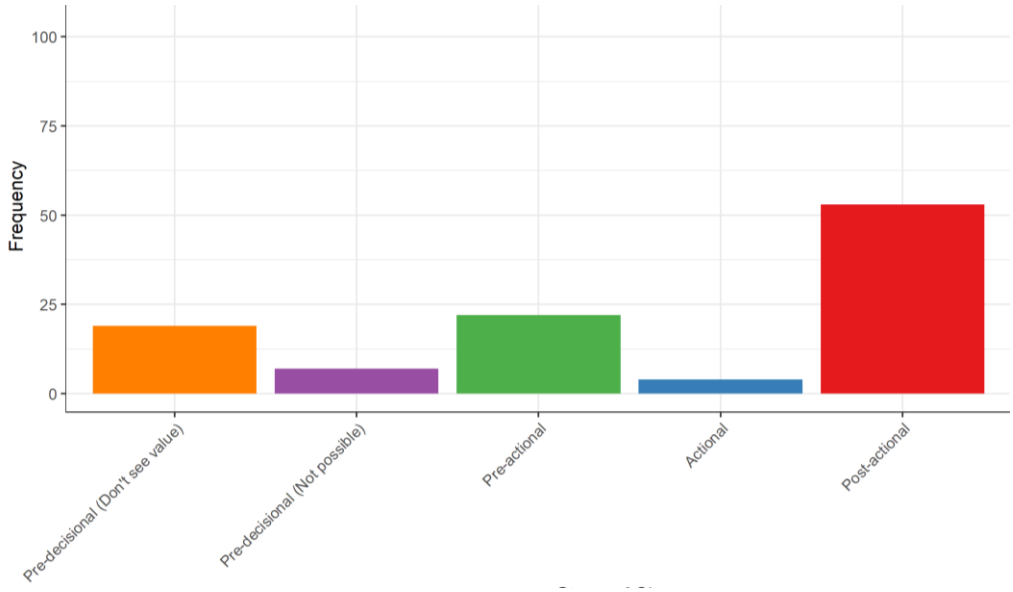

Figure 21: Farmers' current stage of change in their adoption of biodiversity friendly practices for natural pest management.

Table 20 presents the results of the ordinal logistic regression analysis used to explain intentions. The results indicate that several factors significantly influence farmers' intentions at different stages of adopting biodiversity friendly practices for natural pest management.

Goal intention

Goal Intention refers to farmers' plans to adopt biodiversity friendly practices for natural pest control within the next three years. Personal norm ($\beta = 5.545$, $p<0.001$) and goal feasibility ($\beta = 3.979$, $p<0.001$) emerged as the strongest predictors of such intentions, indicating that farmers who feel a personal obligation and perceive the goal as achievable are much more likely to plan adopting these practices. Positive emotion ($\beta = 1.870$), negative emotion ($\beta = 0.939$), and social norm ($\beta = 1.326$) did not show statistically significant effects, suggesting that neither emotional responses nor perceived social pressure play as substantial a role as personal obligation and feasibility in shaping farmers' future plans.

Behavioural Intention

Behavioural Intention refers to farmers' plans to adopt their chosen measure within the coming three years. Attitude (important) ($\beta = 5.931$, $p<0.001$) and goal intention ($\beta = 2.967$, $p<0.001$) were both significant. The strong

positive effects suggest that farmers who believe biodiversity friendly pest management is important, and who already have a clear goal to adopt it, are more inclined to follow through with concrete plans. Other variables—attitude (advantageous) (β = 1.280), perceived behavioural control (easy for me) (β = 1.277), and perceived behavioural control (do not depend on anyone) (β = 0.964)—were not statistically significant predictors.

Implementation Intention

Implementation Intention refers to whether farmers have already informed themselves about the necessary details to begin implementing their chosen measure. Coping planning (β = 5.476, p<0.001) and behavioural intention (β = 2.841, p<0.01) were significant, indicating that farmers who proactively plan how to overcome potential obstacles and who are already committed to adopting these practices are further along in the process. Action planning (β = 1.695) and maintenance self-efficacy (β = 0.881) were not significant in predicting whether farmers had taken the practical steps needed to initiate implementation.

Table 20: CS10 ordinal logistic regression results for explaining goal intention; behavioural intention; and implementation intention (PBC = Perceived behavioural control; Coeff. = Coefficient; SE = standard error.).

	Goal Intention Coeff. (SE)		Behavioural Intention Coeff. (SE)		Implementation Intention Coeff. (SE)
Positive emotion	1.870 (0.345)	**Attitude (Advantageous)**	1.280 (0.334)	**Action planning**	1.695 (0.350)
Negative emotion	0.939 (0.255)	**Attitude (Important)**	5.931*** (0.435)	**Coping planning**	5.476*** (0.458)
Social Norm	1.326 (0.254)	**PBC (Easy for me)**	1.277 (0.341)	**Maintenance self-efficacy**	0.881 (0.358)
Personal Norm	5.545*** (0.386)	**PBC (Don't depend on anyone)**	0.964 (0.269)	**Behavioural intention**	2.841** (0.339)
Goal Feasibility	3.979*** (0.374)	**Goal Intention**	2.967*** (0.265)		
Pseudo-R2 (Nagelkerke)	0.828		0.718		0.717
Observations	103		88		88
Log Likelihood	-76.837		-72.172		-82.632
					Note: *p<0.05; **p<0.01; ***p<0.001

Acceptability of Behaviour Change Interventions

Figure 22 shows farmers' acceptability of a range of interventions designed to encourage adoption of biodiversity-friendly practices for natural pest management. The highest acceptability was found for information events and demonstration farms (72%), followed closely by training courses (70%), subsidised advice (68%), and a hybrid payment scheme (63%). Smart decision support tools (56%) also attracted relatively strong support. More moderate ratings were recorded for a consumer label (46%), biodiversity measuring tools (42%), and a ban on pesticides

(41%), while collective bonuses (35%) received less positive endorsement. Increasing the non-productive area (14%) garnered the lowest level of acceptability among farmers.

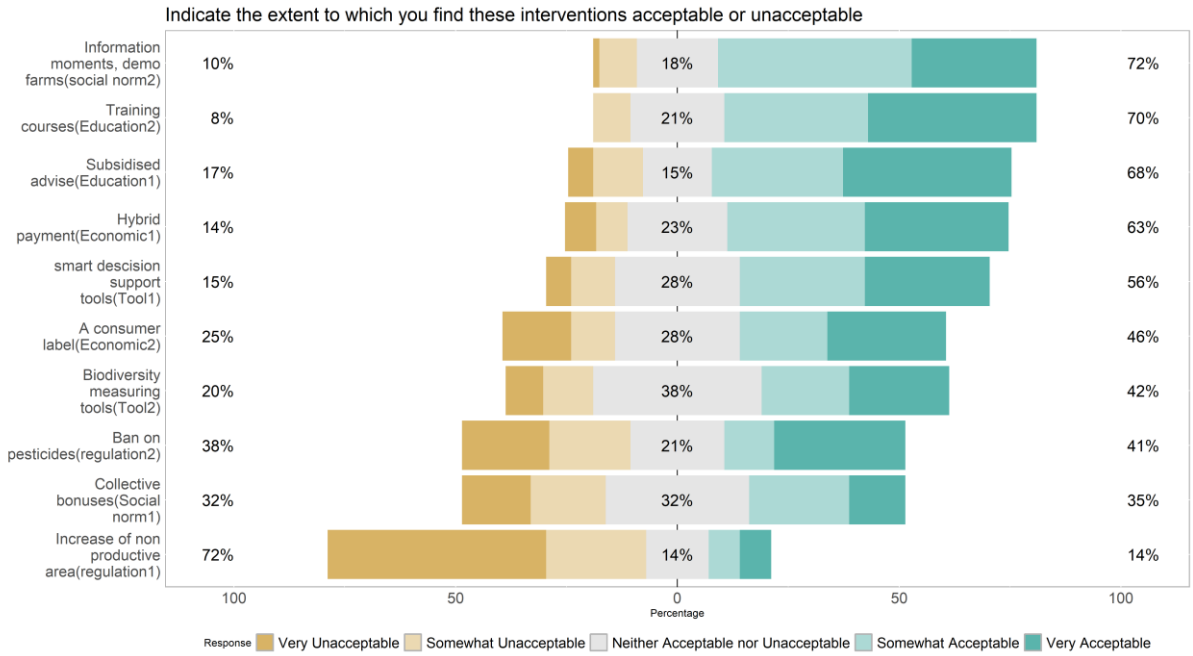

Figure 22: Acceptability of CS10 behavioural interventions

Recommendations for intervention implementation

Considering the large influence of personal norm and goal feasibility on goal intention, strategies that foster a sense of moral responsibility and highlight the achievability of biodiversity-friendly practices are likely to be especially effective. Demonstration farms and information events could help farmers see that adopting these practices is both worthwhile and practical by providing first-hand examples of successful implementation. This would address the critical role that personal obligation plays in motivating farmers, while also reinforcing perceptions that the goal is feasible.

Emphasising the importance of biodiversity-friendly pest management would similarly strengthen behavioural intention, given that attitude (important) emerged as a significant predictor. Training courses or subsidised advice could be used to bolster understanding of why these measures matter, thus reinforcing farmers' convictions that improving biodiversity is relevant and beneficial. Strengthening behavioural intentions in this way would also increase the likelihood that farmers inform themselves about implementation details, particularly when combined with guidance on coping planning. According to the results, coping planning is important for moving from intention to practical action. Direct, personalised support to anticipate and navigate potential hurdles would therefore be invaluable, since the ability to handle obstacles is linked to taking more concrete steps toward implementation.

Farmers' acceptability ratings indicate a preference for interventions that offer visible, hands-on learning opportunities, such as information events, demonstration farms, and training courses. These interventions would address the significant predictors by helping farmers feel more equipped to act, while still taking into account their strong sense of personal obligation and the importance they place on biodiversity-friendly pest management. Offering subsidised advice alongside these formats could further cement farmers' readiness to try new methods by reducing some of the financial uncertainties, thereby fortifying their commitment to adopt these practices in the near term and beyond.

6 Results: Consumer Readiness

The primary objective of the consumer survey was to investigate the behavioural factors shaping purchasing intentions for sustainable foods and to identify interventions deemed acceptable by consumers to support the transition to sustainable food systems. This research aimed to provide insights into how consumer behaviour can align with food sustainability goals.

The survey encompassed consumers from twelve European countries: Belgium, France, Germany, Greece, Italy, Ireland, the Netherlands, Norway, Serbia, Slovenia, Switzerland, and the United Kingdom. Each country's sample was nationally representative, ensuring a balanced stratification based on gender, age, income, and region, thereby capturing diverse perspectives and experiences.

The survey explored consumers' intentions to purchase sustainable foods, aiming to understand the motivations and barriers influencing their choices. The survey design was informed by a collaborative process, incorporating input from ENFASYS project partners and a review of relevant grey literature. This comprehensive approach identified a range of interventions relevant to the promotion of sustainable food purchasing, which were subsequently included in the survey for evaluation (detailed in Table 21).

By examining these factors and interventions, the study provides a robust foundation for understanding how consumer attitudes and behaviours can be influenced to foster sustainable food systems, offering practical recommendations for policymakers and businesses striving to meet sustainability objectives.

Table 21: Consumer interventions for facilitating purchasing of sustainable food systems products

RESET Category	Intervention
Regulation 1	A ban on food production methods that have negative environmental and/or social impacts.
Regulation 2	Mandatory labelling scheme where environmental and social impact information is displayed on the front of all food products.
Economic 1	A higher tax on foods that have negative environmental and social impacts making them more expensive.
Economic 2	A subsidy on foods that have positive environmental and social impacts making them less expensive to buy.
Social Norm 1	On certain days of the week, only sustainable food choices are offered in workplace, schools or university cafeterias.
Social Norm 2	Posters encouraging sustainable food choices are displayed on supermarket shelves.
Education 1	Material on sustainable food choices in primary and secondary school education curricula.
Education 2	Public information campaigns raising awareness amongst the public about sustainable food choices.
Tool 1	An app which allows consumers to scan product bar codes to see the environmental and social impact of the production of this product.
Tool 2	Menus in food outlets and restaurants are re-designed to provide information on the environmental and social impact of their meal choice.

6.1 Results from consumer survey

We surveyed 800 consumers in each of the 12 countries (n = 9,600) about their plans and intentions to buy sustainable foods. Of the respondents, 11% indicated they did not see any value in changing their shopping habits, 9% felt it was not feasible for them buy more sustainable foods, 36% were considering changing what they buy but

were unsure how to start the process, 16% were planning to change what they buy but had not yet done so, and 28% already mostly buy sustainable foods.

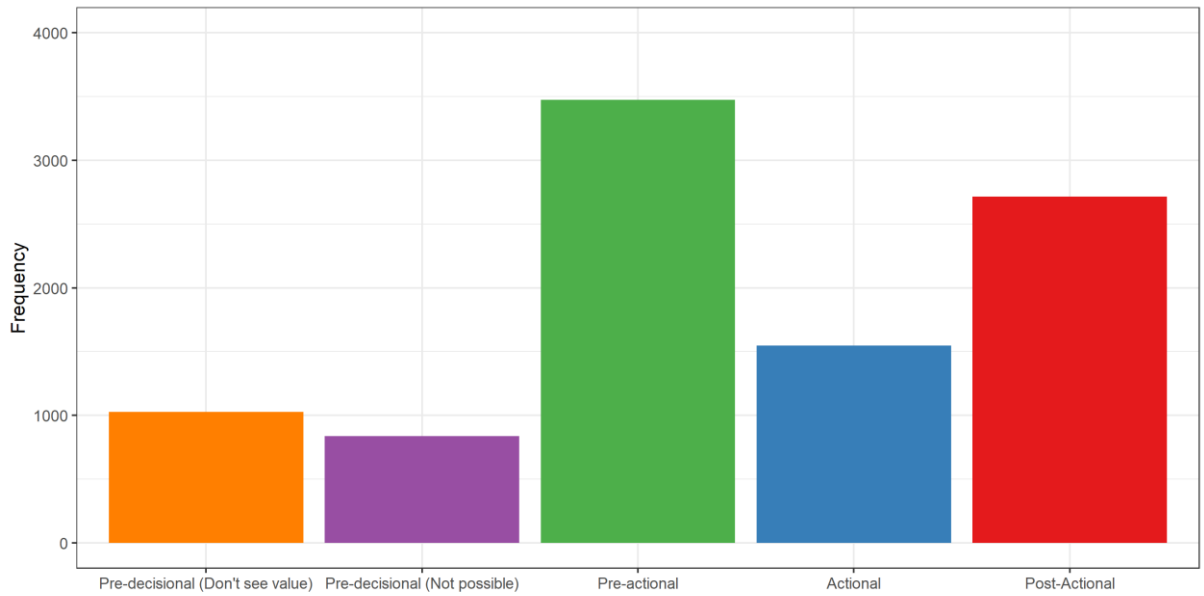

Figure 23: European consumers' current stage of change in their plan to buy mostly sustainable foods (n = 9,600).

Table 22 presents the results of the linear regression analysis used to explain intentions to 'buy some sustainable foods within the next week'. Before conducting regression analysis a scale was created from the three intentions items (Cronbach's alpha = 0.87). Due to low reliability, scales for attitudes, norms, and perceived behaviour control could not be created and therefore these items were included as individual variables in the model. The regression analysis highlights several significant predictors of consumers' intention to purchase sustainable foods. Among the attitudinal factors, viewing sustainable food as important ($\beta = 0.289$, $p < 0.001$) is the strongest driver of intention, followed by perceiving it as advantageous ($\beta = 0.109$, $p < 0.001$). Negative perceptions of sustainable food, as reflected by the negative effect of the "unpleasant" attitude ($\beta = -0.104$, $p < 0.001$), significantly decreases behavioural intention. These findings emphasise the importance of positively framing sustainable food to enhance consumer motivation.

Social norms play a smaller but notable role. Both encouraging social norms ($\beta = 0.068$, $p < 0.001$) and discouraging norms ($\beta = -0.064$, $p < 0.001$) significantly predict intention. However, social pressure ($\beta = -0.004$) does not significantly predict intention, suggesting that direct pressure from others may not be an effective motivator for sustainable food purchases.

Among the perceived behavioural control factors, confidence in one's ability to make sustainable choices ($\beta = 0.353$, $p < 0.001$) emerges as the strongest overall predictor of intention. Additionally, having limited control over purchasing decisions ($\beta = 0.031$, $p < 0.001$) negatively contributes to intention, highlighting the importance of empowering consumers. In contrast, self-reliance ($\beta = -0.002$) does not significantly predict intention.

Demographic factors show limited explanatory power. Income ($\beta = 0.008$), gender (male, $\beta = -0.021$), and age ($\beta = 0.004$) do not significantly predict intention. Conversely, country-specific effects reveal notable variations. Consumers in the United Kingdom ($\beta = -0.213$, $p < 0.001$), Italy ($\beta = -0.142$, $p < 0.001$), Ireland ($\beta = -0.105$, $p < 0.05$), and Norway ($\beta = -0.083$, $p < 0.05$) exhibit significantly lower intentions to buy sustainable foods compared to the reference country (Belgium). However, no significant differences are observed for other countries, indicating that cultural or systemic factors in the above nations may dampen or neutralise intentions.

Overall, the model explains a considerable proportion of the variance in consumer intention ($R^2 = 0.723$), underlining the critical roles of attitudes, confidence, and supportive social norms in driving sustainable food

choices. The findings suggest that interventions aiming to increase intention should focus on boosting confidence, framing sustainable food positively, and fostering supportive social environments.

Table 22: Consumer survey linear regression results for explaining intention to buy some sustainable foods within the next week (PBC = Perceived behavioural control; Coeff. = Coefficient; SE = standard error.).

	Dependent variable: Intention (Scale)
	Coefficients (SE)
Attitude:Advantageous	0.109*** (0.007)
Attitude:Important	0.289*** (0.008)
Attitude:Unpleasant	-0.104*** (0.006)
Norm:Encourage	0.068*** (0.006)
Norm:Social pressure	-0.004 (0.005)
Norm:Discourage	-0.064*** (0.006)
PBC:Self-reliance	-0.002 (0.005)
PBC:Confident	0.353*** (0.007)
PBC:Limited Control	-0.031*** (0.005)
Gender:Male	-0.021 (0.017)
Age	0.0004 (0.001)
Income	0.008 (0.006)
Country:France	-0.066 (0.042)
Country:Germany	0.046 (0.042)
Country:Greece	-0.052 (0.042)
Country:Italy	-0.142*** (0.042)
Country:Netherlands	0.040 (0.042)
Country:Norway	-0.083* (0.042)
Country:Ireland	-0.105* (0.042)
Country: Serbia	0.015 (0.043)
Country:Slovenia	-0.030 (0.042)
Country:Switzerland	0.018 (0.042)
Country:UK	-0.213*** (0.042)
Constant	1.558*** (0.069)
Observations	9,438
R^2	0.723
Adjusted R^2	0.723
Residual Std. Error	0.826 (df = 9414)
F Statistic	1,069.789*** (df = 23; 9414)
Note:	*p<0.05; **p<0.01; ***p<0.001

Results from the analysis of the acceptability of behaviour change interventions

Figure 24 illustrates consumer acceptability of various interventions aimed at facilitating the transition to a sustainable food system. Overall, interventions promoting education and subsidies are the most widely accepted, while interventions perceived as restrictive or punitive are less favoured.

The most acceptable intervention is food subsidies (76%), reflecting strong consumer support for economic measures that lower the cost of sustainable foods. Similarly, public information campaigns (72%) and food

education programmes (71%) were both highly favoured. These results suggest that consumers appreciate initiatives that inform and empower them to make sustainable choices without restricting their freedom.

Interventions such as supermarket posters (70%), mandatory labelling (69%), and a sustainable food app (67%) also receive relatively high acceptance. These interventions, which rely on providing information and fostering social norms, appear to strike a balance between encouraging sustainable behaviour and preserving consumer autonomy.

Interventions involving greater regulatory or economic restrictions are less acceptable. For instance, including a sustainability score on menus (63%), banning certain foods (62%), limiting food choice (61%), and imposing a higher tax on unsustainable foods (54%) are among the least accepted. The latter's low acceptance indicates that consumers may resist measures perceived as punitive or limiting their dietary freedom.

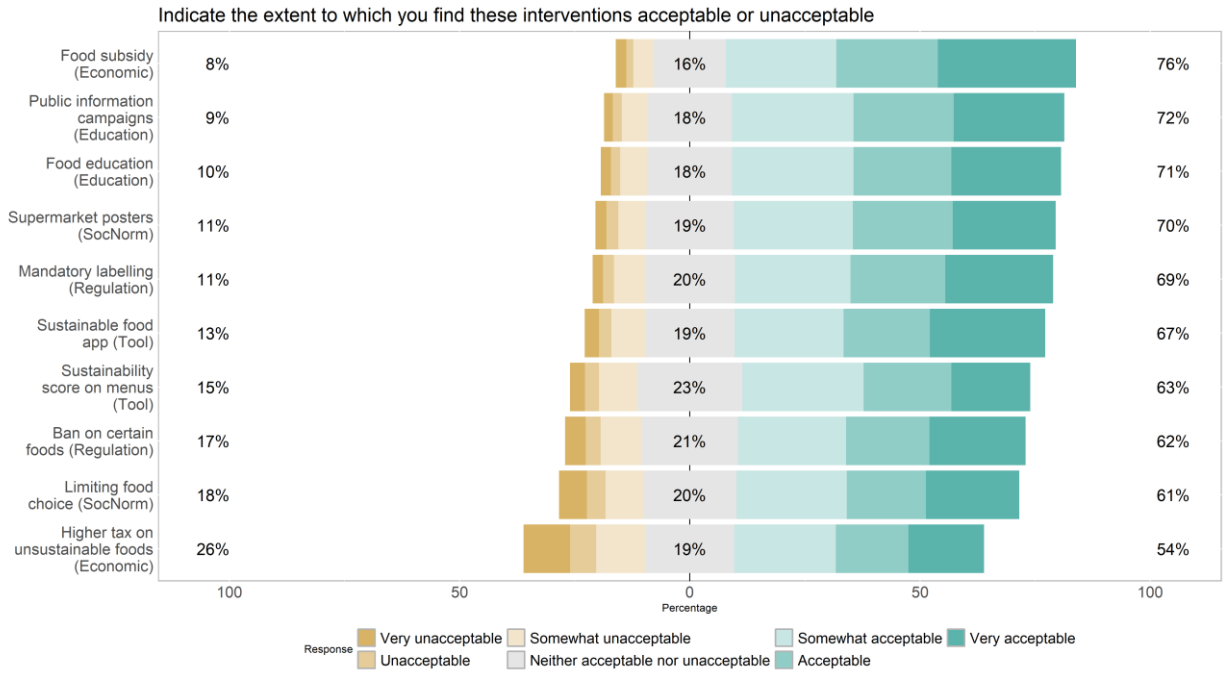

Figure 24: Acceptability of consumer behavioural interventions

7 Discussion

7.1 Farmer Readiness

The findings across the ten case studies provide nuanced insights into the behavioural determinants influencing farmers' intentions and actions toward adopting sustainable agricultural practices. These results underscore the pivotal roles of emotional, normative, and planning-related factors, alongside the perceived feasibility of implementation, in shaping behavioural intentions and subsequent actions. Importantly, the variability in predictive factors across contexts reinforces the need for context-specific strategies tailored to the unique socio-economic, cultural, and environmental conditions of each setting.

Emotional and Normative Influences

Positive emotional engagement emerged as a significant driver of goal intentions in several case studies, including regenerative farming in Serbia and protein autonomy in French livestock systems. This finding highlights the importance of fostering optimism and enthusiasm among farmers, particularly through interventions that effectively communicate the tangible and long-term benefits of adopting sustainable practices. Demonstration farms and discussion groups were generally acceptable to farmers and may be effective in eliciting positive emotional responses. These interventions not only provide credible, real-world examples of success but also create supportive peer networks, enabling farmers to visualise the practical advantages of sustainability.

Personal norms also played a critical role in shaping intentions, as observed in contexts such as biodiversity promotion in Switzerland and direct selling in Slovenia. Farmers who perceived a moral obligation to contribute to sustainability exhibited stronger commitments to adopting sustainable practices. Interventions that bolster personal norms—such as targeted educational campaigns, association-led initiatives, and peer-to-peer knowledge sharing—can significantly enhance these intrinsic motivations. By fostering a sense of ethical responsibility, these strategies can bridge the gap between awareness and concrete action, even in settings with limited external incentives or structural support.

Perceived Feasibility and Behavioural Control

Goal feasibility and perceived behavioural control were significant predictors of intentions in various contexts, such as the adoption of sustainable farming practices in Greece and adopting Agri-Environment Climate Measures in Wallonia. These findings highlight the necessity of reducing perceived barriers to feasibility and control. Simplifying bureaucratic processes, providing robust technical support, and offering financial incentives are critical strategies. For instance, interventions such as streamlined administration in Wallonia, Belgium and the provision of low-cost equipment in Italy, were both the most acceptable interventions in each case study. Moreover, the role of autonomy—farmers' belief that their actions are independent of external constraints—was particularly salient in cases like sustainable pig farming in Germany, further emphasising the need to empower farmers through accessible resources and flexible policies.

Planning and Implementation

The effective translation of intentions into actions relies heavily on robust planning mechanisms. In various contexts, action and coping planning have emerged as significant predictors of implementation intentions, as evidenced in case studies like Swiss Biodiversity Promotion and French protein self-sufficiency initiatives. Personalized interventions, such as the Devautop decision-support tool, demonstrate potential in helping farmers overcome challenges and adopt sustainable practices. Additionally, digital tools designed with user-friendliness and specificity in mind—such as those implemented in Greece and Slovenia—can empower farmers to make informed choices while easing logistical burdens. These tools serve a dual purpose: they bridge informational gaps while alleviating the cognitive demands of navigating complex transitions.

Acceptability of Interventions

The acceptability of proposed interventions varied significantly across contexts, reflecting diverse farmer preferences and priorities. For example, financial assistance programmes and collaborative working groups were

particularly favoured for promoting direct selling in Slovenia, while education was highly rated for supporting sustainable farming practices in Greece. Conversely, interventions perceived as punitive or overly regulatory, such as increased taxation on synthetic pesticides in Italy, were less acceptable. These findings underscore the importance of framing interventions as supportive and farmer-centred rather than restrictive or coercive.

Policy and Practical Implications

The findings unequivocally demonstrate that a uniform approach to promoting sustainable agricultural practices is insufficient. The absence of consistent predictors across all case studies highlights the inherent complexity and variability of behavioural drivers. Policies and interventions must, therefore, be highly context-specific, addressing the distinct behavioural, structural, and cultural factors in each setting. By addressing the unique challenges and motivations inherent to each context, policymakers and practitioners can foster enabling environments that facilitate the widespread adoption of sustainable practices. This approach not only contributes to environmental sustainability but also bolsters the resilience and economic viability of farming communities. Moreover, the findings underscore the need for iterative, evidence-based approaches that adapt to evolving conditions. Such adaptive strategies ensure the continued relevance and effectiveness of interventions, ultimately advancing the dual goals of agricultural sustainability and socio-economic resilience across diverse European landscapes.

Table 23: Summary of significant predictors of goal intention across farmers

Goal Intention										
	CS1	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**CS9**	**CS10**
Positive emotion	***	***	**	**	n.s.	n.s.	***	n.s.	**	n.s.
Negative emotion	n.s.	n.s.	*	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Social norm	*	n.s.	n.s.	**	*	n.s.	n.s.	n.s.	n.s.	n.s.
Personal norm	*	n.s.	*	***	*	**	***	**	n.s.	***
Goal Feasibility	*	**	n.s.	n.s.	n.s.	***	n.s.	n.s.	n.s.	***

Note: "n.s." = not significant. Significance codes: *p<0.05; **p<0.01; ***p<0.001

Table 24: summary of significant predictors of behavioural intention across farmers

Behavioural Intention										
	CS1	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**CS9**	**CS10**
Attitude (Advantageous)	*	n.s.	*	n.s.	n.s.	n.s.	*	*	*	n.s.
Attitude (Important)	n.s.	**	***	***	n.s.	n.s.	**	***	n.s.	***
Perceived behavioural control (Easy for me)	*	n.s.	n.s.	**	n.s.	***	**	n.s.	n.s.	n.s.

Behavioural Intention										
Perceived behavioural control (Don't depend on anyone)	***	n.s.	*	n.s.	**	n.s.	n.s.	n.s.	n.s.	n.s.
Goal Intention	n.s.	***	n.s.	***	n.s.	***	*	**	*	***

Note: "n.s." = not significant. Significance codes: *p<0.05; **p<0.01; ***p<0.001

Table 25: summary of significant predictors of implementation intention across farmers

Implementation Intention										
	CS1	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**	**CS9**	**CS10**
Action planning	**	*	**	**	n.s.	n.s.	n.s.	**	n.s.	n.s.
Coping planning	n.s.	n.s.	***	***	*	n.s.	n.s.	*	*	***
Maintenance self-efficacy	n.s.	n.s.	n.s.	**	n.s.	n.s.	n.s.	**	n.s.	n.s.
Behavioural intention	n.s.	***	*	n.s.	**	***	***	*	n.s.	**

Note: "n.s." = not significant. Significance codes: *p<0.05; **p<0.01; ***p<0.001

7.2 Consumer Readiness

The consumer survey conducted across 12 European countries provides critical insights into the behavioural factors influencing the intention to purchase sustainable foods, as well as the acceptability of various interventions aimed at facilitating this shift. The results underscore the importance of attitudes, perceived behavioural control, and supportive social norms in shaping consumer behaviour, while also highlighting significant regional and demographic variations.

Behavioural Determinants of Sustainable Food Purchases

The analysis reveals that attitudes, particularly perceiving sustainable foods as important and advantageous, are among the strongest predictors of intention. The significant negative effect of attitudes, such as finding buying sustainable foods unpleasant, further underscores the need to frame sustainable options positively to enhance consumer motivation. These findings suggest that effective interventions should emphasise the benefits and desirability of sustainable foods, making them more appealing and accessible to consumers.

Perceived behavioural control, specifically confidence in one's ability to make sustainable choices, emerges as the most significant predictor of intention. This highlights the need for tools and interventions that empower consumers by reducing perceived barriers and enhancing their sense of agency. Interventions that simplify the process of identifying sustainable products, such as apps or clear labelling systems, can play a pivotal role in bolstering consumer confidence and facilitating behavioural change.

Social norms also play a role, albeit less prominently. Encouraging social norms and reducing discouraging norms positively influence intention, whereas direct social pressure does not. This suggests that interventions should focus on creating an environment that normalises sustainable choices through subtle cues and positive reinforcement, rather than relying on overt or coercive social pressure.

Regional and Demographic Insights

The results indicate notable country-specific variations in consumer intentions. For instance, consumers in the United Kingdom, Italy, Ireland, and Norway exhibit significantly lower intentions to buy sustainable foods compared to Belgium, the reference country. These differences may reflect cultural, systemic, or market-specific barriers that require tailored interventions. Demographically, income, gender and age do not significantly predict behaviour. This suggests that while cultural and local conditions may impact consumer behaviour other demographic factors are less relevant.

Acceptability of Interventions

Consumer preferences for interventions vary considerably, with educational and economic measures receiving the highest levels of acceptance. Subsidies for sustainable foods are the most favoured, indicating strong public support for financial incentives that reduce the cost of sustainable options. Public information campaigns and food education programmes are also highly acceptable, reflecting a preference for interventions that inform and empower consumers without imposing restrictions.

Information-based measures, such as mandatory labelling and supermarket posters, receive moderate acceptance, suggesting that consumers appreciate transparency and guidance. However, interventions perceived as punitive or restrictive, such as taxes on unsustainable foods or limitations on food choices, are less acceptable. These findings highlight the importance of framing interventions as supportive rather than coercive, ensuring they align with consumer preferences for autonomy and empowerment.

Implications for Policy and Practice

The findings emphasise the need for interventions that address key behavioural determinants, particularly attitudes and perceived behavioural control. Policymakers should prioritise educational initiatives, such as integrating sustainable food topics into school curricula and launching public awareness campaigns. These measures not only align with consumer preferences but also address the critical role of attitudes in shaping intention.

To enhance confidence, tools such as a sustainable food app or well-designed labelling systems should be implemented. These interventions empower consumers by providing accessible and actionable information, enabling them to make informed choices with greater ease. Economic measures, such as subsidies for sustainable foods, should complement these efforts, addressing financial barriers and increasing the affordability of sustainable options.

Conversely, punitive measures like higher taxes on unsustainable foods should be approached cautiously, given their low acceptability. Instead, a combination of subsidies and educational campaigns can create a positive feedback loop, fostering favourable attitudes and increasing consumer engagement without alienating key segments of the population.

In conclusion, a multifaceted approach that combines empowerment, education, and economic incentives is essential for driving the transition to sustainable food systems. By aligning interventions with behavioural insights and consumer preferences, policymakers and practitioners can create a supportive environment that facilitates widespread adoption of sustainable purchasing behaviours across Europe.

8 Conclusions

The findings from the analyses of both farmer and consumer readiness provide complementary insights that highlight the behavioural complexities and strategic imperatives for advancing sustainable and climate-friendly European farming systems. Together, these analyses underscore the need for nuanced, context-sensitive approaches that integrate behavioural insights into policy and intervention design, fostering both the production and consumption of sustainable food.

Farmers play a pivotal role in the transition to sustainable agriculture, with their behavioural determinants deeply intertwined with socio-economic, cultural, and environmental contexts. The case studies reveal that emotional and normative factors significantly predicted farmers' intentions in many contexts, suggesting that fostering optimism and a sense of ethical responsibility can be powerful drivers of behavioural change. Tailored interventions such as demonstration farms, peer-to-peer learning, and targeted educational campaigns could effectively harness these motivators, creating an environment where sustainability is not just an obligation but an aspirational goal. Similarly, addressing perceived barriers to feasibility and behavioural control through streamlined administrative processes, financial incentives, and accessible resources may enhance farmers' autonomy and capacity to act. This combination of emotional, normative, and practical support is essential to bridging the gap between intention and action.

The consumer-focused survey complements this perspective by highlighting the behavioural factors that drive sustainable purchasing behaviours. Attitudes and perceived behavioural control emerged as dominant predictors, emphasising the importance of framing sustainable food options as desirable, accessible, and beneficial. This aligns with the farmer findings, where positive emotional engagement and perceived feasibility were often key determinants. For consumers, interventions such as clear labelling, user-friendly apps, and public awareness campaigns can simplify decision-making and bolster confidence, enabling informed and sustainable choices. The role of social norms, though less pronounced, suggests opportunities for leveraging subtle cues and community-driven narratives to normalise sustainable consumption patterns without resorting to overt pressure.

A critical takeaway from both analyses is the variability in behavioural drivers and intervention acceptability across contexts. Farmers in Serbia and Switzerland, for example, respond differently to normative and emotional influences, just as consumer intentions vary significantly between countries like Belgium and the United Kingdom. This variability necessitates highly context-specific strategies that account for the diverse socio-economic, cultural, and market conditions shaping behaviour. Policies must be adaptable and iterative, incorporating ongoing feedback to remain effective amidst evolving challenges and opportunities.

The acceptability of interventions also highlights a shared preference for supportive, empowering measures over coercive or punitive approaches. Farmers often favoured financial assistance, technical support, and collaborative networks, while consumers showed strong support for subsidies and educational programmes. Conversely, interventions perceived as restrictive—such as increased taxes on pesticides for farmers or unsustainable foods for consumers—were met with resistance. This shared aversion to coercion underscores the importance of designing interventions that align with stakeholders’ preferences and values, ensuring widespread acceptance and engagement.

Policy implications from these findings are clear: the transition to sustainable and climate-friendly farming systems requires a multifaceted approach that integrates behavioural insights into both agricultural and consumer domains. For farmers, policies should prioritise reducing structural barriers, enhancing access to resources, and fostering supportive peer networks. For consumers, a combination of educational initiatives, economic incentives, and informational tools can drive sustainable purchasing behaviours. Importantly, these approaches must be harmonised to create synergies between production and consumption, ensuring that sustainable practices in farming are matched by corresponding shifts in consumer demand.

In conclusion, the behavioural research on farmers and consumers offers valuable guidance for shaping interventions that advance sustainable European farming systems. By addressing the unique motivations and barriers faced by each group, and by aligning interventions with their preferences and values, policymakers and practitioners can foster a cohesive and inclusive transition. This not only enhances environmental sustainability but

also strengthens the socio-economic resilience of farming communities and empowers consumers to actively participate in the shift towards a more sustainable future.

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10 Appendix

10.1 Example farmer survey

CS9 – Organic Farming Survey

Informed consent

You are invited to complete a survey about **organic farming** that will take 7-10 minutes to complete. It is being conducted as part of the EU Horizon project ENFASYS, which aims to highlight effective policy interventions and business strategies to support farmers in their move towards more sustainable farming systems.
Your answers will be completely anonymous. All data is collected and used in a way that cannot identify you. Data storage and handling procedures are set in full compliance with the EU GDPR law (Regulation (EU) 2016/679). The data will be treated in a confidential manner and will exclusively be used for scientific purpose. The information collected in the survey will be used for data analysis at an aggregated and anonymized level. The anonymized data may be shared on data repositories for future research and learning. Anonymized research data collected from this study may be deposited in a recognized repository. Open data sharing in research enhances collaboration, accelerates discoveries, improves reproducibility, validates findings, reduces duplication, and fosters interdisciplinary innovation, leading to robust, generalizable results.
Participation in this study is entirely voluntary. You can stop at any time without explanation, or any negative consequences or penalties. This research is approved by University of Bologna Bioethics Committee (Ethics number: 0133096). If you have questions or concerns regarding this study, please feel free to contact Niall Hammond on Niall.Hammond@teagasc.ie.

As you read the questions, please remember that there are no right or wrong answers. Select the answer that most closely represents your view or experience.

Please tick below if you consent and wish to participate in this survey, and complete the survey that follows.

[IC1]	I understand these issues & would like to participate in this study	Yes **[1]** No **[2]**
[IC2]	I give permission for the anonymised data I provide to be deposited in an open data repository so it can be shared and used for learning and potentially reused for future research	Yes **[1]** No **[2]**
[Sample_check]	I am a livestock farmer	Yes **[1]** No **[2]**

Current behaviour

A key difference between organic farming and other sustainable practices is the established international standards and certification processes. **Farms must undergo a two-year conversion period to achieve organic status.** Organic farming can be profitable by maintaining strong output levels through specific production methods, while also benefiting from lower costs and higher market prices.
Requirements for farming organically include:

- Not using synthetic fertilisers and pesticides
- Maintain a stocking rate below 2 livestock units per Ha
- Modify animal housing to incorporate a bedded lying area
- Source organic feed and livestock
- Manage animal health within organic regulations

This survey aims to understand your views on organic farming.

[Behaviour1]. Please tick one of the following options that represents your current situation the best.

I am not planning to convert to organic farming because I don't see any value in it.	**[1]**
I am not planning to convert to organic farming because it would be impossible for me to do so currently.	**[2]**
I would like to convert to organic farming, but I am not sure what I need to do and/or how to go about making changes to my farm.	**[3]**
I plan to convert to organic farming. I know what I need to do, but, I have not put this into practice yet.	**[4]**
I have already converted/am in conversion to organic farming on my farm.	**[5]**

[Behaviour2]. Do you plan to continue organic farming in the future?

Yes	**[1]**
No	**[2]**

Behavioural factors

[Behav_Factors1]. Please indicate how strongly you agree or disagree with each of these statements, using a scale from 1 to 5, where 1 means you 'strongly disagree' and 5 means you 'strongly agree'

[Pos_Emot]	Converting to organics would make/makes me feel positive about my environmental impact.	Strongly disagree [1] Disagree [2] Neither agree or disagree [3] Agree [4] Strongly agree [5]
[Neg_Emot]	Converting to organics would/does cause me stress.	Strongly disagree [1] Disagree [2] Neither agree or disagree [3] Agree [4] Strongly agree [5]
[Soc_Norm]	People who are important to me (farmers, advisers, family, friends) encourage me to farm organically.	Strongly disagree [1] Disagree [2] Neither agree or disagree [3] Agree [4] Strongly agree [5]
[Per_Norm]	I think that farming organically is the right thing for me to do.	Strongly disagree [1] Disagree [2] Neither agree or disagree [3] Agree [4] Strongly agree [5]
[Risk]	I am cautious about adopting new ideas and practices.	Strongly disagree [1] Disagree [2] Neither agree or disagree [3] Agree [4] Strongly agree [5]
[Goal_Int]	My goal is to farm organically within the next 5 years.	Strongly disagree [1] Disagree [2] Neither agree or disagree [3] Agree [4] Strongly agree [5]
[Goal_Feas]	It is feasible for me to farm organically within the coming 5 years.	Strongly disagree [1] Disagree [2] Neither agree or disagree [3] Agree [4]

		Strongly agree [5]

[Behav_Factors2]. The **Organic Farming Scheme (OFS)** provides financial support to farmers to encourage them to farm organically.

The scheme runs for 5 years. To be eligible for payment you must:

- farm according to European Union organic standards
- complete an approved training course
- register with, and be approved as, an organic operator by a private inspection body
- have a minimum farm area of 3 hectares

The amount you get is based on the amount of land you farm organically and what you produce.

Type of farming	**Year 1-2 (converting to organics)**		**Year 3-5 (fully converted to organics)**	
	1-70 hectares (per hectare)	**Over 70 hectares (per hectare)**	**1-70 hectares (per hectare)**	**Over 70 hectares (per hectare)**
Dairy	€350	€60	€300	€30
Drystock	€300	€60	€250	€30

We would like to know to what extent do you agree or disagree with the following statements regarding the Organic Farming Scheme.

[Behav_Int]	I plan to join the Organic Farming Scheme within the coming 5 years.	Strongly disagree [1] Disagree [2] Neither agree or disagree [3] Agree [4] Strongly agree [5]
[Imp_Int]	I have already informed myself about the necessary details for joining the Organic Farming Scheme.	Strongly disagree [1] Disagree [2] Neither agree or disagree [3] Agree [4] Strongly agree [5]
[Attitude1]	Joining the Organic Farming Scheme is advantageous for me.	Strongly disagree [1] Disagree [2] Neither agree or disagree [3] Agree [4] Strongly agree [5]
[Attitude2]	It is important to me that I join the Organic Farming Scheme.	Strongly disagree [1] Disagree [2] Neither agree or disagree [3] Agree [4] Strongly agree [5]
[PBC1]	Joining the Organic Farming Scheme would be very easy for me**.**	Strongly disagree [1] Disagree [2] Neither agree or disagree [3] Agree [4] Strongly agree [5]
[PBC2]	I do not depend on anyone to join the Organic Farming Scheme.	Strongly disagree [1] Disagree [2] Neither agree or disagree [3] Agree [4] Strongly agree [5]

[Act_Plan]	I have already thought through what joining the Organic Farming Scheme would involve for my farm.	Strongly disagree [1] Disagree [2] Neither agree or disagree [3] Agree [4] Strongly agree [5]
[Cop_Plan]	I have already figured out how I will solve potential problems and obstacles when joining or enrolled in the organic farming scheme.	Strongly disagree [1] Disagree [2] Neither agree or disagree [3] Agree [4] Strongly agree [5]
[M_Self_Eff]	I am capable of remaining in the organic farming scheme for 5 years despite potential barriers.	Strongly disagree [1] Disagree [2] Neither agree or disagree [3] Agree [4] Strongly agree [5]
[R_Self_Eff]	In the event of problems, I am able to still successfully remain in the organic farming scheme.	Strongly disagree [1] Disagree [2] Neither agree or disagree [3] Agree [4] Strongly agree [5]

Interventions

[InterventionsAcc]. There are several interventions underway or that could be proposed to support farmers in adopting organic farming practices. **Some of these interventions are only ideas or hypothetical at this point. We are interested in getting your views on all these ideas**. For each intervention, please indicate the extent to which you find this intervention acceptable or unacceptable, using a scale 1 to 5, where 1 means 'highly unacceptable' and 5 means 'highly acceptable'.

[Reg1_Acc]	The Irish government has set a target that 10% of food and drink bought by the state must be certified organic. This procurement strategy will ensure that organic farmers have a reliable market for their produce.	Highly unacceptable [1] Unacceptable [2] Neither unacceptable or acceptable [3] Acceptable [4] Highly acceptable [5]
[Reg2_Acc]	Mandatory carbon footprint labels for all agricultural products produced in Ireland could be introduced. This would reveal the carbon footprint of organic products compared with conventional products. This label would help incentivise consumers to purchase organic produce over conventional produce.	Highly unacceptable [1] Unacceptable [2] Neither unacceptable or acceptable [3] Acceptable [4] Highly acceptable [5]
[Econ1_Acc]	A €5,000 tax credit could be introduced for registered organic farmers. This means that farmers signed up to an organics scheme would be able to reduce the amount of tax they owe to the government by up to €5,000 each year.	Highly unacceptable [1] Unacceptable [2] Neither unacceptable or acceptable [3] Acceptable [4] Highly acceptable [5]
[Econ2_Acc]	A 50% increase in the Organic Framing Scheme per hectare payments could be introduced.	Highly unacceptable [1] Unacceptable [2] Neither unacceptable or acceptable [3]

		Acceptable [4] Highly acceptable [5]
[SocNor1_Acc]	A farmer mentoring scheme could be introduced. A farmer wishing to learn more about organic farming would get to visit another organic farmer for half a day on a one-to-one basis. Farmers can make new contacts and get hands-on, practical knowledge.	Highly unacceptable [1] Unacceptable [2] Neither unacceptable or acceptable [3] Acceptable [4] Highly acceptable [5]
[SocNor2_Acc]	More discussion groups could be established with farmers who want to explore organic farming further, are in conversion, or have recently been fully certified organic. These meetings will give farmers an opportunity to learn from other farmers about best practices and challenges in becoming certified organic.	Highly unacceptable [1] Unacceptable [2] Neither unacceptable or acceptable [3] Acceptable [4] Highly acceptable [5]
[Edu1_Acc]	Organic demonstration farms have been selected throughout the country to show best practice and monitor key financial and environmental metrics. Farm walks are often held on these farms as an opportunity for anyone considering entering organic production to see first-hand the differences in operating an organic system.	Highly unacceptable [1] Unacceptable [2] Neither unacceptable or acceptable [3] Acceptable [4] Highly acceptable [5]
[Edu2_Acc]	A free one-to-one meeting with an organic advisor could be set up to help a farmer to discuss steps to convert to organic farming and potential profitability for their farm.	Highly unacceptable [1] Unacceptable [2] Neither unacceptable or acceptable [3] Acceptable [4] Highly acceptable [5]
[Tool1_Acc]	A decision support tool could be created which allows farmers to understand how productive their farm would be if they converted to organic farming. This tool would be supported by research on trial organic farms and would therefore provide accurate information to support decision making.	Highly unacceptable [1] Unacceptable [2] Neither unacceptable or acceptable [3] Acceptable [4] Highly acceptable [5]
[Tool2_Acc]	An organic online sales platform could be created for farmers to sell their produce directly to customers (e.g. consumers, catering and restaurant industry). This would give organic farmers greater access to markets for their organic produce.	Highly unacceptable [1] Unacceptable [2] Neither unacceptable or acceptable [3] Acceptable [4] Highly acceptable [5]

10.2 Farmer survey response rate

Country	Web Completes	Phone Completes	Web Attempts	Phone Attempts	Ratio (Web – Phone)	Total Attempts
Greece	156	44	274	262	51%	536
Italy	197	12	269	79	77%	348
France	186	15	326	90	78%	416
Switzerland	189	14	259	85	75%	344
Germany	188	17	271	106	72%	377
Serbia	191	17	211	102	67%	313
Slovenia	189	12	285	75	79%	360
Ireland	199	14	302	92	77%	394
Belgium (Wallonia)	189	16	266	108	71%	374

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Figure 25: Panorama of communication attempts per country for the farmer surveys

10.3 Farmer survey sample characteristics

Table 26: Characteristics of respondents in the ENFASYS Farmer Behaviour Survey

Characteristic Total sample size	CS01 - Wallonia 205	CS02 - Serbia 208	CS03 - Switzerland 203	CS04 - France 201	CS05 - Germany 205	CS06 - Greece 200	CS07 - Slovenia 201	CS08 - Italy 209	CS09 - Ireland 213	CS10 – Flanders* 105
Gender										
Male	62 (30%)	127 (61%)	139 (68%)	107 (53%)	92 (45%)	109 (55%)	111 (55%)	133 (64%)	132 (62%)	49
Female	143 (70%)	80 (38%)	55 (27%)	65 (42%)	103 (50%)	89 (44%)	88 (44%)	76 (36%)	75 (35%)	7
Prefer to self-describe	0 (0.0%)	1 (0%)	9 (4%)	8 (4%)	10 (5%)	2 (1%)	2 (1%)	0 (0%)	6 (3%)	0
Prefer not to say	0 (0.0%)	0 (0%)	0 (0%)	1 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1
Age Bracket										
18-24	34 (17%)	19 (9%)	25 (12%)	41 (20%)	61 (30%)	0 (0%)	40 (20%)	23 (11%)	28 (13%)	0
25-34	38 (19%)	52 (25%)	63 (31%)	33 (16%)	54 (26%)	6 (3%)	56 (28%)	40 (19%)	29 (14%)	3
35-44	33 (16%)	59 (28%)	59 (29%)	48 (24%)	38 (19%)	34 (17%)	65 (32%)	52 (25%)	84 (39%)	18
45-54	26 (13%)	50 (24%)	38 (19%)	57 (28%)	35 (17%)	66 (33%)	28 (14%)	49 (23%)	54 (25%)	16
55-64	44 (22%)	23 (11%)	11 (5%)	19 (9%)	4 (2%)	61 (30%)	10 (5%)	35 (17%)	12 (6%)	16
65+	30 (15%)	5 (2%)	7 (3%)	3 (1%)	14 (6%)	33 (16%)	2 (1%)	10 (5%)	6 (3%)	4
Income Bracket										
Low1	33 (16%)	36 (17%)	14 (7%)	12 (6%)	28 (14%)	9 (4%)	22 (11%)	14 (7%)	23 (11%)	1
Low2	18 (9%)	26 (13%)	15 (7%)	19 (9%)	13 (6%)	16 (8%)	32 (16%)	26 (12%)	10 (5%)	2
Low3	5 (2%)	18 (9%)	20 (10%)	31 (15%)	49 (24%)	20 (10%)	23 (11%)	24 (11%)	29 (14%)	8
Mid1	21 (10%))	27 (13%)	37 (18%)	42 (21%)	20 (10%)	26 (13%)	10 (5%)	46 (22%)	34 (16%)	19

Characteristic Total sample size	CS01 - Wallonia 205	CS02 - Serbia 208	CS03 - Switzerland 203	CS04 - France 201	CS05 - Germany 205	CS06 - Greece 200	CS07 - Slovenia 201	CS08 - Italy 209	CS09 - Ireland 213	CS10 – Flanders* 105
Mid2	32 (16%)	26 (13%)	12 (6%)	34 (17%)	42 (20%)	28 (14%)	8 (4%)	33 (16%)	31 (15%)	7
Mid3	26 (13%)	18 (9%)	35 (17%)	19 (9%)	8 (4%)	33 (16%)	12 (6%)	20 (10%)	25 (12%)	3
Mid4	13 (6%)	15 (7%)	29 (14%)	14 (7%)	16 (8%)	25 (12%)	28 (14%)	16 (8%)	38 (18%)	2
High1	4 (2%)	4 (2%)	10 (5%)	8 (4%)	4 (2%)	16 (8%)	26 (13%)	5 (2%)	6 (3%)	1
High2	0 (0%)	6 (3%)	16 (8%)	7 (3%)	0 (0%)	12 (6%)	12 (6%)	12 (6%)	6 (3%)	2
High3	0 (0%)	3 (1%)	11 (5%)	4 (2%)	0 (0%)	8 (4%)	8 (4%)	2 (1%)	0 (0%)	3
Prefer not to say	53 (26%)	29 (14%)	4 (2%)	11 (5%)	25 (12%)	7 (4%)	20 (10%)	11 (5%)	11 (5%)	9

* Note: For CS10, not all farmers who began the survey completed every section. As a result, some demographic information is missing for certain respondents.

10.4 Consumer survey

Informed Consent

Dear Participant,

As a citizen in Europe, I would like to invite you to take part in a study for a European Project called ENFASYS. The ENFASYS project aims to stimulate a just and robust transition to sustainable, productive, climate-neutral, biodiversity friendly, and resilient farming systems by improved policies and business strategies that encourage farmers to change their production systems.

The purpose of the survey is to examine consumer preferences for different sustainable food system products, citizen preferences for different interventions, and end markets based on market segmentation for both.

What is ENFASYS?

The ENFASYS project is funded under the EU Horizon research and innovations actions. The goals of the project are (1) an improved understanding of lock-ins and levers in farming and food systems; (2) an improved understanding of behavioural factors of farmers, consumers and other food chain actors; (3) more and better evidence on the potential effectiveness of interventions; (4) a more structured approach to link knowledge to action. For more information on the ENFASYS project, please visit https://www.enfasysproject.eu/

What will the study involve?

We are asking you, as a citizen, to complete a short survey. The survey will take approximately 7-10 minutes.

Why I am being asked to take part?

As a citizen in Europe, we are interested in hearing your opinions on the transition towards sustainable food systems.

Do you have to take part? Participation is voluntary. Withdrawal of consent is possible up to the point at which you complete the survey. You can choose to opt out of the study by leaving the online survey. Incomplete online responses will be deleted.

Will your participation in the study be kept confidential? The data you provide will be kept confidential.

Information concerning personal data*:* It should be noted that personal data will only be used for the purpose of the study, will be stored securely by Teagasc and not shared outside of the organisation or only shared outside the organisation as specified. Only the minimum amount of personal data necessary will be collected and it will be stored for the minimum period of time required. The Teagasc Data Protection Officer may be contacted at DPO@Teagasc.ie at any stage. A copy of Teagasc's privacy policy is available at https://www.teagasc.ie/media/website/publications/2018/Data-Privacy-Notice-A5-4pp.pdf which provides further information about how Teagasc will process your personal data in connection with the study.

What will happen to the information which you give? The information collected in the survey will be used for data analysis at an aggregated and anonymized level. The data may be shared on data repositories for future research and learning.

What will happen to the results?

The results from the survey will be used to understand European citizens' preferences for sustainable food system interventions and products. These results will help inform the design of policy mixes, business strategies, and social innovations. The results may also be disseminated via academic publication, conference proceedings and internal reports. Results may be used in social media or popular press.

Future publishing, archiving and reuse of the data

Anonymized research data collected from this study may be deposited in a recognized repository so it can be shared and used for learning and potentially reused for future research – namely, the Teagasc Data Value Platform. Open data sharing in research enhances collaboration, accelerates discoveries, improves reproducibility, validates findings, reduces duplication, and fosters interdisciplinary innovation, leading to robust, generalizable results.

What are the possible risks of taking part?

There are no anticipated risks associated with taking part but if you have any concerns, you can contact niall.hammond@teagasc.ie

Who has reviewed this study?

Ethical approval has been attained by the Teagasc Social Science Ethics Committee.

Any further queries?

If you require any further information you can contact me at niall.hammond@teagasc.ie

Please read the following statements and indicate if you agree to participate in the study:

1. I have read and understood the information provided, or it has been read to me. I have been able to ask questions about the study and my questions have been answered to my satisfaction.
2. I consent voluntarily to being a participant in this study.
3. I understand that even if I agree to participate now, I can choose to end my participation in the survey, by leaving the survey platform, without having to give a reason.
4. I have been given sufficient information about this study and have read and understood this information.
5. I understand that all information I provide in this study will be treated confidentially.
6. I consent to the use of the data in this study in research and in the further development of ENFASYS educational related material.
7. I understand that personal information collected about me that can identify me will not be shared beyond the study team.
8. I give permission for the anonymised data I provide to be deposited in an open data repository so it can be shared and used for learning and potentially reused for future research.

I agree to take part in this survey
Yes (1) / No (2)

Demographics / Quotas

[Q_Gender]._- Market research agency categorisation

Are you:

- Male (1)
- Female (2)
- Prefer to self-describe: (3)
- Prefer not to say (4)

[Q_AgeRange] - Market research agency categorisation

- 18-24 years (1)
- 25-34 years (2)
- 35-44 years (3)
- 45-54 years (4)
- 55-64 years (5)
- 65+ years (6)

[Q_Region] - Market research agency categorisation

Where do you currently live?

[Q_Income]. Market research agency categorisation

In which of the following bands would you place your household's combined yearly income (before tax and other deductions)? Household income is a measure of the combined incomes of all people sharing a particular household or place of residence. It includes every form of income, e.g. salaries and wages, retirement income, investment gains etc.

Consumer Preferences for Different SFS products / consumer willingness to purchase Sustainable Food Products

A sustainable food system is one that produces food in a way that benefits people, animals, and the environment. In short, it's about growing, distributing, and consuming food in a way that's good for the earth, fair to people, and sustainable for the long term.

This survey aims to understand your views on sustainable food systems.

[Behaviour_Consumer_Generic]. Please tick one of the following options that represents your current situation the best.

I am not planning to change the food I buy to be more sustainable since I don't see a strong reason to do so.	[1]
I am not planning to change the food I buy to be more sustainable because it is currently impossible for me.	[2]
I want to buy some sustainable foods, but I'm unsure what steps to take or how to make the changes.	[3]
I plan to buy some sustainable foods. I know what to do, but I haven't changed what I buy yet.	[4]
I already make an effort to buy mostly sustainable foods.	[5]

[TPB_Consumer]. Please indicate how strongly you agree or disagree with each of these statements, using a scale from 1 to 7, where 1 means you 'strongly disagree' and 7 means you 'strongly agree'

		☐ 1 Strongly Disagree	☐ 2	☐ 3	☐ 4	☐ 5	6	☐ 7 Strongly Agree
(Intent1)	I intend to buy some sustainable foods within the next week.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6	☐ 7
(Intent2)	I want to purchase some sustainable foods within the next week.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	▯6	☐ 7
(Intent3) *reverse code	I do not plan to purchase some sustainable foods over the next week.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6	☐ 7
(Att1)	Buying sustainable foods is advantageous for me.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6	☐ 7
(Att2)	It is important to me that I purchase sustainable foods.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6	☐ 7

(Att3) *reverse code	Buying sustainable foods in the next week would be unpleasant.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6	☐ 7
(Norm1)	People who are important to me (family, friends, colleagues) have/would encourage me to buy sustainable foods.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6	☐ 7
(Norm2)	I feel under social pressure to purchase sustainable foods over the next week.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6	☐ 7
(Norm3) *reverse code	People who are important to me do not think I should purchase sustainable foods.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6	☐ 7
(PBC1)	I do not depend on anyone when buying sustainable foods.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6	☐ 7
(PBC2)	I am confident I will be able to buy some sustainable food products in the next week.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6	☐ 7
(PBC3) *reverse code	I have very little control in deciding if I buy sustainable food products.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6	☐ 7

[Citizen_Policy_Accept]. There are several interventions underway or that could be proposed to support the transition towards sustainable food systems. **Some of these interventions are only ideas or hypothetical at this point. We are interested in getting your views on all these ideas**. For each intervention, please indicate the extent to which you find this intervention acceptable or unacceptable, using a scale 1 to 7, where 1 means 'highly unacceptable' and 7 means 'highly acceptable'.

		☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6 ☐ 7
		Highly unacceptable				Highly acceptable	
(Reg1)	A ban on food production methods that have negative environmental and/or social impacts.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6 ☐ 7
(Reg2)	Mandatory labelling scheme where environmental and social impact information is displayed on the front of all food products.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6 ☐ 7
(Econ1)	A higher tax on foods that have negative environmental and social impacts making them more expensive.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6 ☐ 7
(Econ2)	A subsidy on foods that have positive environmental and social impacts making them less expensive to buy.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6 ☐ 7
(Social1)	On certain days of the week, only sustainable food choices are offered in workplace, schools or university cafeterias.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6 ☐ 7
(Social2)	Posters encouraging sustainable food choices are displayed on supermarket shelves.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6 ☐ 7

(Edu1)	Material on sustainable food choices in primary and secondary school education curricula.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6 ☐ 7
(Edu2)	Public information campaigns raising awareness amongst the public about sustainable food choices.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6 ☐ 7
(Tool1)	An app which allows consumers to scan product bar codes to see the environmental and social impact of the production of this product.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6 ☐ 7
(Tool2)	Menus in food outlets and restaurants are re-designed to provide information on the environmental and social impact of their meal choice.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	6 ☐ 7

Debriefing

Thank you for your participation!

Your contribution is deeply valued and your insights will be essential to advancing our understanding in this critical field, helping to recommend more effective strategies and policies around sustainable food systems. Should you wish to stay engaged with the outcomes of this study, the results will be published on our website https://www.enfasysproject.eu/ in early 2025.

<Survey ends>

10.5 Consumer survey data integrity report

Data integrity report

STRAT 7 Audiences

Client: Teagasc **Project:** Sustainable Food Consumption

Throughout the project the Data Integrity Team carefully carefully checked every participant, removing those whose responses we did not deem acceptable. These checks are a mixture of technological automations and human interpretation, using internal and external resources to create assurance in your final data set.

Project information:

Sample type: B2C **Markets:** UK,IT,FR,NO,NL,BE,SI,GR,DE,ROI,RS,CH

A summary of the removals can be found below:

Duplicate responses:	76	Plausibility checks:	1460
Fraudulent responses:	47	Poor verbatim:	1679
Speeders:	374	Total removals:	4316
Straightliners:	678	% Removals:	44%

Additional thoughts from the Data Integrity Team:

Removal rate per market:
United Kingdom (42%) Italia (35%) France (47%) Norge (53%) Nederlands (37%) Belgium (40%) Slovenij (52%) Greece (34%) Deutschland (36%) Republic of Ireland (38%) Srbiji (57%) Schweiz (40%)

The above has been completed in accordance with the project specific Data integrity check pro forma and the Data integrity standards charter and has been reviewed and signed by the following team members:

Completed by:	Boyan Manchev	**Date:**	1/8/2025
Reviewed by:		**Date:**	

Please contact your Client Manager for any further information.

10.6 Consumer survey sample characteristics

Table 27: Characteristics of respondents in the ENFASYS Citizen-Consumer Behaviour Survey

Characteristic	Overall N = 9,600	UK N = 800	Italy N = 800	France N = 800	Norway N = 800	Netherlands N = 800	Belgium N = 800	Slovenia N = 800	Greece N = 800	Germany N = 800	Rep. of Ireland N = 800	Serbia N = 800	Switzerland N = 800
Gender													
Male	4,866 (50.7%)	389 (48.6%)	394 (49.3%)	389 (48.6%)	411 (51.4%)	410 (51.3%)	391 (48.9%)	426 (53.3%)	428 (53.5%)	398 (49.8%)	392 (49.0%)	441 (55.1%)	397 (49.6%)
Female	4,695 (48.9%)	410 (51.3%)	401 (50.1%)	409 (51.1%)	387 (48.4%)	390 (48.8%)	408 (51.0%)	371 (46.4%)	367 (45.9%)	400 (50.0%)	408 (51.0%)	342 (42.8%)	402 (50.3%)
Prefer to self-describe	21 (0.2%)	0 (0.0%)	1 (0.1%)	2 (0.3%)	1 (0.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (0.4%)	1 (0.1%)	0 (0.0%)	13 (1.6%)	0 (0.0%)
Prefer not to say	18 (0.2%)	1 (0.1%)	4 (0.5%)	0 (0.0%)	1 (0.1%)	0 (0.0%)	1 (0.1%)	3 (0.4%)	2 (0.3%)	1 (0.1%)	0 (0.0%)	4 (0.5%)	1 (0.1%)
Age Bracket													
18-24	908 (9.5%)	71 (8.9%)	47 (5.9%)	71 (8.9%)	89 (11.1%)	83 (10.4%)	76 (9.5%)	72 (9.0%)	83 (10.4%)	73 (9.1%)	92 (11.5%)	94 (11.8%)	57 (7.1%)
25-34	1,561 (16.3%)	133 (16.6%)	107 (13.4%)	116 (14.5%)	142 (17.8%)	131 (16.4%)	120 (15.0%)	140 (17.5%)	117 (14.6%)	119 (14.9%)	144 (18.0%)	162 (20.3%)	130 (16.3%)
35-44	1,728 (18.0%)	131 (16.4%)	126 (15.8%)	130 (16.3%)	150 (18.8%)	128 (16.0%)	129 (16.1%)	164 (20.5%)	156 (19.5%)	113 (14.1%)	187 (23.4%)	169 (21.1%)	145 (18.1%)
45-54	1,819 (18.9%)	140 (17.5%)	161 (20.1%)	142 (17.8%)	158 (19.8%)	142 (17.8%)	146 (18.3%)	165 (20.6%)	167 (20.9%)	139 (17.4%)	147 (18.4%)	164 (20.5%)	148 (18.5%)
55-64	1,569 (16.3%)	126 (15.8%)	141 (17.6%)	134 (16.8%)	117 (14.6%)	128 (16.0%)	139 (17.4%)	137 (17.1%)	149 (18.6%)	144 (18.0%)	104 (13.0%)	130 (16.3%)	120 (15.0%)
65+	2,015 (21.0%)	199 (24.9%)	218 (27.3%)	207 (25.9%)	144 (18.0%)	188 (23.5%)	190 (23.8%)	122 (15.3%)	128 (16.0%)	212 (26.5%)	126 (15.8%)	81 (10.1%)	200 (25.0%)
Income Bracket													
Low1	844 (8.8%)	86 (10.8%)	70 (8.8%)	70 (8.8%)	35 (4.4%)	41 (5.1%)	41 (5.1%)	57 (7.1%)	83 (10.4%)	93 (11.6%)	48 (6.0%)	133 (16.6%)	87 (10.9%)
Low2	1,902 (19.8%)	181 (22.6%)	134 (16.8%)	142 (17.8%)	184 (23.0%)	155 (19.4%)	202 (25.3%)	137 (17.1%)	108 (13.5%)	196 (24.5%)	147 (18.4%)	110 (13.8%)	206 (25.8%)
Mid1	2,340 (24.4%)	195 (24.4%)	197 (24.6%)	195 (24.4%)	213 (26.6%)	197 (24.6%)	206 (25.8%)	179 (22.4%)	213 (26.6%)	196 (24.5%)	202 (25.3%)	148 (18.5%)	199 (24.9%)
Mid2	2,285 (23.8%)	172 (21.5%)	196 (24.5%)	197 (24.6%)	202 (25.3%)	200 (25.0%)	199 (24.9%)	212 (26.5%)	205 (25.6%)	163 (20.4%)	206 (25.8%)	152 (19.0%)	181 (22.6%)

Characteristic	Overall N = 9,600	UK N = 800	Italy N = 800	France N = 800	Norway N = 800	Netherlands N = 800	Belgium N = 800	Slovenia N = 800	Greece N = 800	Germany N = 800	Rep. of Ireland N = 800	Serbia N = 800	Switzerland N = 800
Mid3	1,249 (13.0%)	85 (10.6%)	119 (14.9%)	117 (14.6%)	104 (13.0%)	119 (14.9%)	72 (9.0%)	127 (15.9%)	103 (12.9%)	91 (11.4%)	121 (15.1%)	123 (15.4%)	68 (8.5%)
High1	596 (6.2%)	51 (6.4%)	65 (8.1%)	56 (7.0%)	33 (4.1%)	58 (7.3%)	41 (5.1%)	56 (7.0%)	46 (5.8%)	36 (4.5%)	43 (5.4%)	81 (10.1%)	30 (3.8%)
High2	260 (2.7%)	20 (2.5%)	9 (1.1%)	13 (1.6%)	18 (2.3%)	20 (2.5%)	28 (3.5%)	22 (2.8%)	33 (4.1%)	15 (1.9%)	22 (2.8%)	42 (5.3%)	18 (2.3%)
Prefer not to say	124 (1.3%)	10 (1.3%)	10 (1.3%)	10 (1.3%)	11 (1.4%)	10 (1.3%)	11 (1.4%)	10 (1.3%)	9 (1.1%)	10 (1.3%)	11 (1.4%)	11 (1.4%)	11 (1.4%)
Education Level **European Qualifications Framework (EQF)**													
EQF 1	247 (2.6%)	2 (0.3%)	7 (0.9%)	20 (2.5%)	22 (2.8%)	76 (9.5%)	27 (3.4%)	11 (1.4%)	8 (1.0%)	17 (2.1%)	4 (0.5%)	11 (1.4%)	42 (5.3%)
EQF 2	1,266 (13.2%)	38 (4.8%)	82 (10.3%)	354 (44.3%)	59 (7.4%)	179 (22.4%)	146 (18.3%)	32 (4.0%)	66 (8.3%)	91 (11.4%)	49 (6.1%)	127 (15.9%)	43 (5.4%)
EQF 3	1,483 (15.4%)	197 (24.6%)	36 (4.5%)	0 (0.0%)	165 (20.6%)	0 (0.0%)	159 (19.9%)	278 (34.8%)	72 (9.0%)	266 (33.3%)	8 (1.0%)	162 (20.3%)	140 (17.5%)
EQF 4	233 (2.4%)	81 (10.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	152 (19.0%)	0 (0.0%)	0 (0.0%)
EQF 5	1,921 (20.0%)	139 (17.4%)	331 (41.4%)	180 (22.5%)	151 (18.9%)	110 (13.8%)	50 (6.3%)	201 (25.1%)	126 (15.8%)	151 (18.9%)	150 (18.8%)	78 (9.8%)	254 (31.8%)
EQF 6	2,589 (27.0%)	205 (25.6%)	98 (12.3%)	132 (16.5%)	258 (32.3%)	234 (29.3%)	252 (31.5%)	185 (23.1%)	342 (42.8%)	128 (16.0%)	318 (39.8%)	274 (34.3%)	163 (20.4%)
EQF 7	1,379 (14.4%)	110 (13.8%)	170 (21.3%)	88 (11.0%)	119 (14.9%)	119 (14.9%)	116 (14.5%)	55 (6.9%)	131 (16.4%)	114 (14.3%)	103 (12.9%)	132 (16.5%)	122 (15.3%)
EQF 8	186 (1.9%)	22 (2.8%)	25 (3.1%)	14 (1.8%)	14 (1.8%)	7 (0.9%)	15 (1.9%)	10 (1.3%)	26 (3.3%)	15 (1.9%)	11 (1.4%)	10 (1.3%)	17 (2.1%)
Other please specify	296 (3.1%)	6 (0.8%)	51 (6.4%)	12 (1.5%)	12 (1.5%)	75 (9.4%)	35 (4.4%)	28 (3.5%)	29 (3.6%)	18 (2.3%)	5 (0.6%)	6 (0.8%)	19 (2.4%)
Location: Rural/Urban													
Urban City	3,413 (35.6%)	180 (22.5%)	341 (42.6%)	257 (32.1%)	308 (38.5%)	271 (33.9%)	186 (23.3%)	326 (40.8%)	489 (61.1%)	198 (24.8%)	172 (21.5%)	501 (62.6%)	184 (23.0%)

Characteristic	Overall N = 9,600	UK N = 800	Italy N = 800	France N = 800	Norway N = 800	Netherlands N = 800	Belgium N = 800	Slovenia N = 800	Greece N = 800	Germany N = 800	Rep. of Ireland N = 800	Serbia N = 800	Switzerland N = 800
Urban Town	1,986 (20.7%)	188 (23.5%)	301 (37.6%)	142 (17.8%)	91 (11.4%)	166 (20.8%)	134 (16.8%)	113 (14.1%)	153 (19.1%)	221 (27.6%)	195 (24.4%)	125 (15.6%)	157 (19.6%)
Suburban	1,787 (18.6%)	272 (34.0%)	42 (5.3%)	123 (15.4%)	163 (20.4%)	160 (20.0%)	187 (23.4%)	105 (13.1%)	105 (13.1%)	180 (22.5%)	185 (23.1%)	113 (14.1%)	152 (19.0%)
Rural Village	1,817 (18.9%)	133 (16.6%)	84 (10.5%)	223 (27.9%)	133 (16.6%)	177 (22.1%)	247 (30.9%)	173 (21.6%)	47 (5.9%)	154 (19.3%)	130 (16.3%)	56 (7.0%)	260 (32.5%)
Rural Countryside	597 (6.2%)	27 (3.4%)	32 (4.0%)	55 (6.9%)	105 (13.1%)	26 (3.3%)	46 (5.8%)	83 (10.4%)	6 (0.8%)	47 (5.9%)	118 (14.8%)	5 (0.6%)	47 (5.9%)

End of Document

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