How do Stakeholders Perceive the Sustainability and Resilience of EU Farming Systems?

Comment les parties prenantes perçoivent-elles la durabilité et la résilience des systèmes agricoles dans l'Union européenne ?

Wie nehmen Akteure die Nachhaltigkeit und Resilienz der landwirtschaftlichen Systeme in der EU wahr?

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Sustainability and resilience of EU farming systems

With further liberalisation of markets, a changing policy context and climate change, agriculture in the EU is increasingly subject to a variety of stresses and shocks. These disturbances provide challenges and opportunities for farming systems and affect their ability to deliver private and public goods. The recent Covid-19 outbreak provides an additional challenge. Farming systems in the EU vary widely in terms of characteristics, production, actors involved and challenges faced. Dependent on the context, they function differently and show different degrees of sustainability and resilience, two complementary concepts (see Box 1 for definitions and concepts). Sustainability can be defined as an adequate performance of all system functions across the environmental, economic and social domains (Morris *et al.*, 2011). We define resilience of a farming system as its ability to ensure the provision of the system functions in the face of increasingly complex and accumulating economic, social, environmental and institutional shocks and stresses, through capacities of robustness, adaptability and transformability (Meuwissen *et al.*, 2019). A proper understanding of the local context and underlying mechanisms of resilience is essential for designing adequate and relevant strategies and policies (Biesbroek *et al.*, 2017). In the case of EU farming systems, these strategies and policies should help to improve the system functions to 1) deliver healthy and affordable food products, 2) deliver other bio-based resources for the processing sector, 3) ensure a reasonable livelihood for people involved in farming, 4) improve quality of life in farming areas by providing employment and decent working conditions, 5) maintain natural resources in good condition, 6) protect biodiversity of habitats, genes and species, 7) ensure that rural areas are attractive places for residence and tourism with a balanced social structure, and 8) ensure animal health and welfare (Figure 1). Not every farming system needs a high performance level on all functions and attributes that support those functions. Stakeholders can provide insights into requirements of particular farming systems and indicate where adjustments in systems and policy incentives are needed.

Hence, in this article, we assess stakeholder perceptions regarding



Hazelnut trees around Viterbo Lake, Italy.

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Box 1: Concepts used to assess sustainability and resilience of farming systems (based on Meuwissen *et al.*, 2019)

Concept	Explanation
Farming system	The basis of a farming system consists of farms producing the main products of interest in a regional context. Farming system actors included in the farming systems are the producers of main products and other actors that mutually influence one another.
Functions	Delivery of public and private goods from the farming system to society: production of food and bio-based resources, economic viability, quality of life, maintenance of natural resources, biodiversity & habitat, attractiveness of the area, and animal health & welfare.
Indicators	Indicators that represent farming system functions in the absence of a unique metric for these functions.
Sustainability	An adequate performance of all system functions across the environmental, economic and social domain. Obviously adequate is normative and depends on environmental thresholds and societal constraints and objectives.
Resilience capacities	Robustness, adaptability and transformability potential of systems in the face of shocks and stresses. The explanation of the resilience capacities follows below.
Robustness	The capacity to resist to and endure shocks and stresses.
Adaptability	The capacity to actively respond to shock and stresses without changing farming system structures and feedback mechanisms.
Transformability	The capacity of a system to reorganise its structure and feedback mechanisms in response to shocks and stresses.
Specific resilience	Resilience specified with regard to answering the questions 'resilience of what, to what and for what purpose?'
General resilience	General resilience is related to a system's robustness, adaptability and transformability, regardless of the type of challenge or shock.
Strategies	Strategies implemented to counteract impact of shocks and stresses on the farming system.
Resilience principles	Generic system characteristics that are associated with general resilience: diversity, modularity, openness, tightness of feedbacks, system reserves. The explanation of the principles follows below. These principles were translated to more specific attributes.
Diversity	Diversity in the system with regard to functioning of sub-components and their response to shocks and stresses.
Modularity	The degree of independence of connected sub-components in the system.
Openness	Connectivity within the farming system and with systems beyond the farming system.
Tightness of feedbacks	The degree to which the farming system and its sub-components and processes can create signals and interact in reaction to these internal signals as well as external signals from other (overarching) systems. Included are signals from slow variables and feedbacks.
System reserves	Natural, economic and social capital that the farming system can access to use as a buffer to compensate for losses or changes in the system during and after a disturbance.
Resilience attributes	Specific system characteristics that are supposedly contributing to general resilience of farming systems. In this article, resilience attributes are associated with the more generic resilience principles (see Paas *et al.*, 2019). The resilience attributes as used in this article are explained in Table 1.

sustainability and resilience across EU farming systems (see Box 2 for methods and case studies), focusing on:

- the importance and performance of the farming system functions, which we interpreted as aspects that determine sustainability levels;
- resilience-enhancing strategies based on historical dynamics, and perceived contribution to robustness, adaptability and transformability;
- presence of attributes that enhance resilience and their perceived contribution to robustness, adaptability and transformability.

This leads to conclusions regarding overall perceived resilience of the farming systems and policy implications.

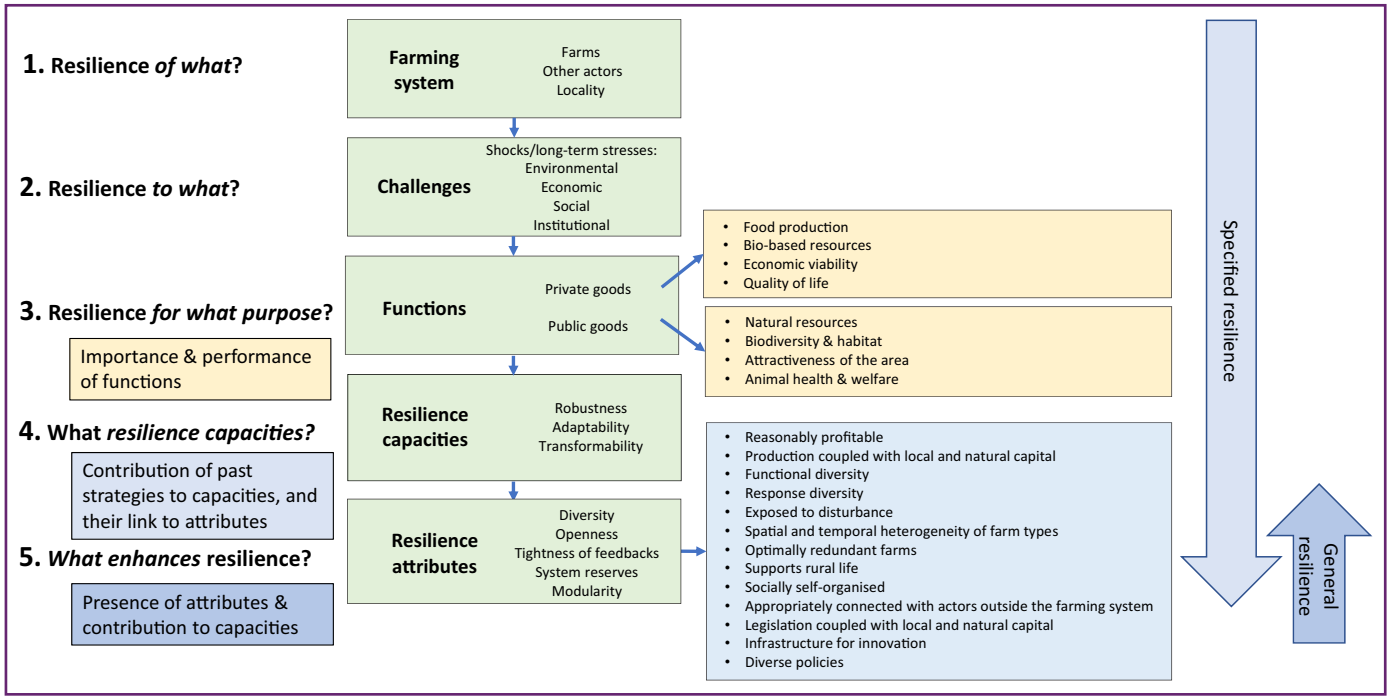
Farming system functions

According to stakeholders, the main functions of the studied farming systems related to food production, economic viability and the maintenance of natural resources (Figure 2). Most studied farming systems were perceived to perform moderately for most functions, indicating moderate levels of economic, social and environmental sustainability. Often there was cause for concern for at least one function with low performance. For example, the attractiveness of the area scored relatively low in terms of performance across case studies.

Clearly, there were differences in perceived function performance among farming systems. The level of food production was considered moderate to high in all case studies, except ES-Sheep and PL-Horticulture (see Box 2 for country codes). In the latter countries, also the performance of farming systems with regard to other functions was perceived as low. This related to recent policy changes (decoupled payments in ES-Sheep and accession to the EU in PL-Horticulture) affecting economic viability (less net subsidies, as farmers have to rent land to keep the payment rights in ES-Sheep and lower product prices in PL-Horticulture) and consequently other functions. Performance of private functions including economic viability was particularly high in

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Figure 1: Framework to assess resilience of farming systems



Note: The three boxes under steps 3, 4 and 5 indicate assessments presented in this article. The complete description of the functions is provided in the first section of the text, in the same order. Explanation statements of resilience attributes are provided in Table 1.
Source: Adapted from Meuwissen *et al.* (2019).

IT-Hazelnut and RO-Mixed. The hazelnut production system in IT-Hazelnut was very profitable and expanding, while in RO-Mixed the presence of EU subsidies, of various selling channels and a large agricultural employment drove the positive assessment.

In RO-Mixed the high performance of private functions was accompanied by a high performance of public functions. While there had been some decline in environmental sustainability in the past, the accession of Romania to the EU and cross-compliance policies have increased awareness of the need to maintain natural resources and biodiversity. In IT-Hazelnut on the other hand, the expansion of monoculture hazelnut production caused environmental concerns (Nera *et al.*, 2020). The increased awareness for environmental sustainability observed in RO-Mixed after accession to the EU was less visible and not explicitly mentioned in BG-Arable, where larger farms dominate. Perceived performance of public functions was on average moderate, but perceptions differed per stakeholder type. Specifically in more intensive or intensifying systems (e.g. NL-Arable, BE-Dairy, BG-Arable), farmers perceived the performance as better compared to other stakeholders. Perceived performance of public functions was particularly high in FR-Beef, and generally scored higher for livestock systems compared to arable, horticultural and perennial systems.

> “Dans la plupart des études de cas, la robustesse était perçue comme supérieure à l’adaptabilité et à la transformabilité.”

Interestingly, functions that represent the social domain (quality of life, attractiveness of the area) were not given much importance. These functions were considered to perform low to moderately in most systems. For the studied farming systems, we found an imbalance in the importance given to the economic, environmental and social domains. This imbalance could be caused by more or less conscious trade-offs encountered by farming system actors, who, facing direct, immediate challenges in the economic and environmental domains, might pay less attention to the social domain.

Resilience-enhancing strategies

Strategies applied in the past 20 years suggest that farming systems were generally resilient, but mainly in terms of robustness. Still, participants in workshops often perceived positive contributions of past strategies to adaptability and transformability.

In all case studies, the most frequently mentioned strategies related to reducing costs, technology implementation and increasing farm size, in order to increase production and/or cost efficiency and make the farming system ‘reasonably profitable’ (Table 1). These strategies were emphasised in BE-Dairy, BG-Arable and ES-Sheep. In BE-Dairy, these strategies were seen as enhancing robustness while constraining transformability. This was explained

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Box 2: Participatory assessment

- The FoPIA-SURE-Farm 1 methodology for participatory impact assessment of sustainable and resilient farming systems (Nera *et al.*, 2020; Paas *et al.*, 2019) has been used in this study. It builds on the framework developed by Meuwissen *et al.* (2019; Figure 1), integrates elements from previous frameworks (Morris *et al.*, 2011; Resilience Alliance, 2010), and includes resilience-enhancing system attributes adapted from the list of Cabell and Oelofse (2012). The central component of FoPIA-SURE-Farm 1 is a workshop, for which stakeholders from the farming system, i.e. farmers, industry, governments and NGOs, are invited. Both individual scoring sheets and group discussions are part of the assessment.
- Assessing the sustainability and resilience of a farming system requires 1) identifying the resilience of what (farming system), 2) to what (challenges), and 3) for what purpose (functions and their sustainable performance level); 4) assessing the resilience capacities of robustness, adaptability and transformability; and 5) assessing attributes that contribute to the general resilience of a farming system, i.e. the system's capacity to appropriately respond to any kind of stress or shock (Figure 1; Meuwissen *et al.*, 2019). By distinguishing three resilience capacities, we acknowledge that a system can respond to challenges in different ways: by coping with shocks and stresses (robustness), by actively responding to shocks and stresses without changing the system structure (adaptability), or by reorganising its structure (transformability).
- The FoPIA-SURE-Farm 1 workshops were held during the winter of 2018/2019 in 11 case studies across the EU (surefarmproject.eu). They covered different sectors, farm types, products and challenges, and included large-scale arable farming in Bulgaria (BG-Arable), intensive arable farming in the Veenkoloniën region in the Netherlands (NL-Arable), arable farming in the East of England, United Kingdom (UK-Arable), large-scale corporate arable farming with additional livestock activities in East Germany (DE-Arable&Mixed), small-scale mixed farming in North-East Romania (RO-Mixed), intensive dairy farming in Flanders, Belgium (BE-Dairy), extensive beef cattle systems in the Massif Central, France (FR-Beef), extensive sheep farming in northeast Spain (ES-Sheep), high-value egg and broiler systems in southern Sweden (SE-Poultry), small-scale hazelnut production in central Italy (IT-Hazelnut), and fruit and vegetable farming in the Mazovian region, Poland (PL-Horticulture).
- The assessment focused on the current situation. In this article, not all results are presented in detail (see Paas *et al.*, 2019); instead we discuss those parts of the assessment that analyse the functions, capacities and attributes of the investigated farming systems.
- Regarding the functions, stakeholders were firstly asked to individually score the importance and performance of four private functions and four public functions (Figure 1). Importance was assessed by dividing 100 points over eight functions. Performance scores are from 1 to 5, where 1 is very low, 2 is low, 3 is moderate, 4 is good and 5 is very good performance.
- Secondly, only the most important functions (according to the stakeholders) were assessed in more detail. In small groups, stakeholders identified what strategies had been applied by farmers and other actors during the past 20 years to respond to challenges. Subsequently, individuals of these groups assessed the implementation level (from 1 to 5) and contribution of these strategies to robustness, adaptability and transformability, with –3 being a strong negative and +3 a strong positive contribution.
- Lastly, the general resilience was evaluated based on 13 resilience attributes (Figure 1; Table 1). Individuals assessed their presence (from 1 to 5) and contribution to robustness, adaptability and transformability (again from –3 to +3).

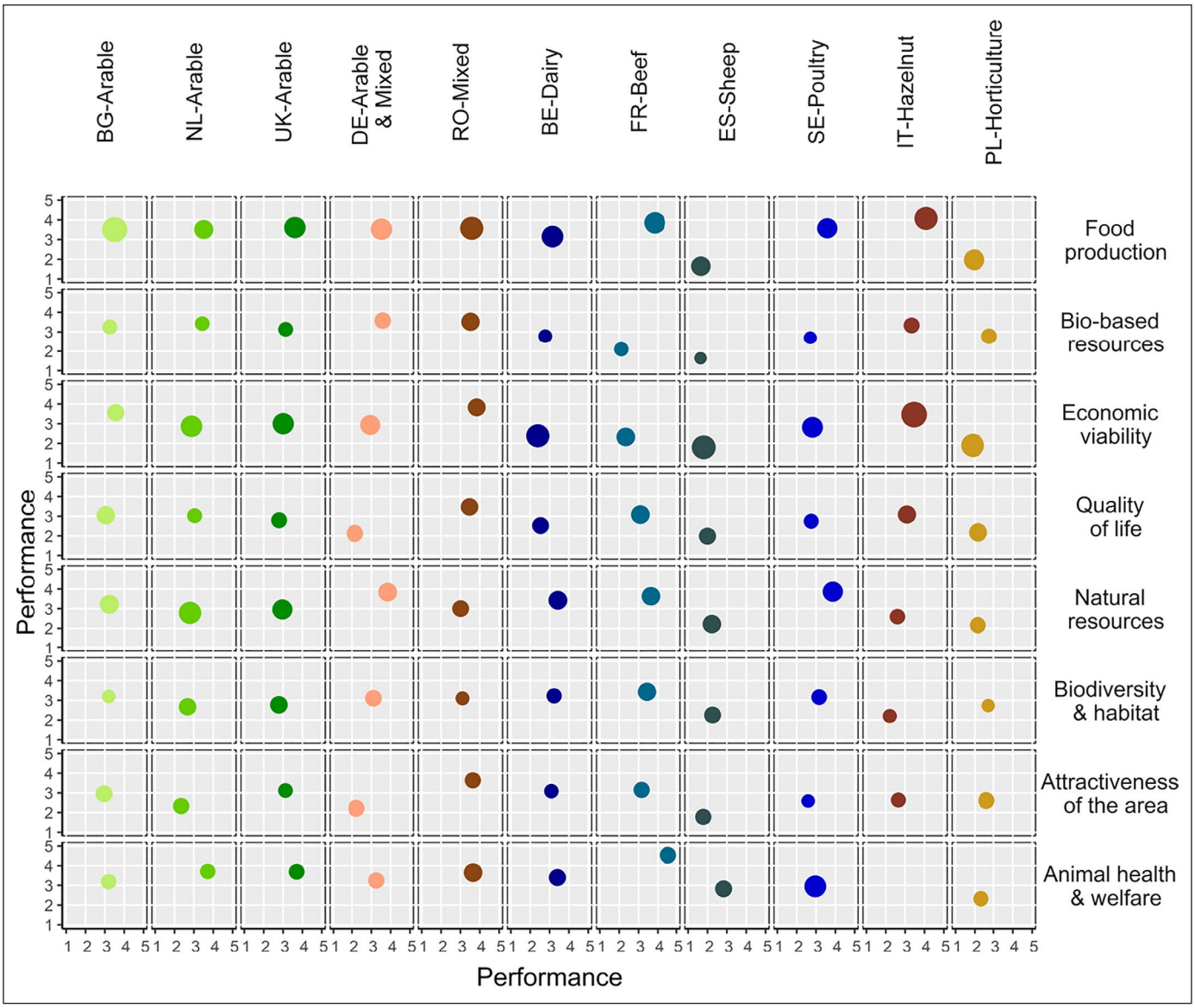
by the relative high investment costs which cause a lock-in on the pathway to higher efficiency. In ES-Sheep and BG-Arable, these strategies were considered to enhance adaptability, but also transformability. Specifically, in a more extensive system like ES-Sheep, increasing efficiency could also improve transformability, as increased efficiency was needed for the reorganisation of the system.

Strategies that have coupled production with local and natural capital (e.g. manure recycling in BE-Dairy) were mentioned quite frequently, but less than half as often as the ones above. Stakeholders perceived the contribution to robustness, but less to adaptability and transformability. As an example, agri-environmental schemes in UK-Arable tend to tie farmers into fixed approaches: new schemes need to be flexible to allow farmers to react to external stresses.

Only in a few case studies have stakeholders mentioned that strategies related to diversification (at different levels) had been applied in the past (BE-Dairy, ES-Sheep, UK-Arable, PL-Horticulture). Such strategies were perceived to have high and (relatively) balanced contributions to all three resilience

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Figure 2: Relative importance and performance of functions of all case studies



Note: Relative importance indicated by size of bubbles (100 points could be distributed among 8 functions). Performance scores are from 1 to 5, where 1 is very low, 2 is low, 3 is moderate, 4 is good and 5 is very good performance. Performance is presented on both axes to allow comparison of case studies and/or functions.

capacities, although in PL-Horticulture participants saw a negative effect in the short term.

In 7 out of 11 case studies, stakeholders indicated that strategies related to the organisational forms of farming system actors (social self-organisation; e.g. cooperatives) were applied; mainly to improve the production and economic functions. These strategies were perceived to enhance robustness and adaptability, while the contribution to transformability differed depending on the strategy and case study. For example, cooperatives and producer organisations in IT-Hazelnut were perceived to have a moderate to strong positive contribution to transformability, while vertical cooperation was perceived to have a strongly negative contribution in PL-Horticulture.

Six case studies emphasised strategies that focus on infrastructure for innovation (e.g. mechanisation, improved varieties). Similar to strategies that aimed to improve profitability, these were often seen to enhance robustness and adaptability, but when investment costs were large, to constrain transformability. One of the few transformability-enhancing strategies was to extend knowledge on soil and varieties in NL-Arable, i.e. a strategy that also addressed public functions instead of only food production and economic viability.

Resilience attributes

In general, resilience attributes were perceived to be weakly to moderately present in the case studies (Table 1; see Paas *et al.*, 2019, for details). IT-Hazelnut and SE-Poultry were an exception with multiple resilience attributes that were assessed to have a moderate to good presence. PL-Horticulture often received the lowest scores. 'Diverse policies' was scored low in all case studies. Except for IT-Hazelnut, 'reasonably profitable' was also assessed to have a low to

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Table 1: Resilience attributes with explanation, and results from the assessment

				Contribution of linked strategies to[3]				Contribution of attribute to[5]		
Resilience attribute	**Explanatory statement**	number of strategies linked to attribute[1]	Implementation level of strategies[2]	robustness	adaptability	transformability	Presence[4]	robustness	adaptability	transformability
Reasonably profitable	Farmers and farm workers earn a liveable wage while not depending heavily on subsidies.	54	3.4	1.5	1.5	0.3	2.2	1.8	1.5	0.9
Coupled with local and natural capital (production)	Soil fertility, water resources and existing nature are maintained well.	22	2.5	1.4	1.0	0.7	2.9	1.8	1.6	1.1
Functional diversity	There is a high variety of inputs, outputs, income sources and markets.	15	2.6	1.7	1.7	1.2	2.2	1.4	1.3	1.2
Response diversity	There is a high diversity of risk management strategies, e.g. different pest controls, weather insurance, flexible payment arrangements.	8	3.1	2.1	1.5	0.7	2.4	1.3	1.4	1.0
Exposed to disturbance	The amount of year to year economic, environmental, social or institutional disturbance is small (well dosaged) in order to adapt to a changing environment in a timely manner.	4	3.8	2.6	1.2	0.3	2.5	0.6	0.7	0.3
Spatial and temporal heterogeneity (farm types)	There is a high diversity of farm types with regard to economic size, intensity, orientation and degree of specialisation.	3	2.2	1.8	1.9	1.9	3.1	1.5	1.4	1.2
Optimally redundant (farms)	Farmers can stop without endangering continuation of the farming system and new farmers can enter the farming system easily.	1	n.a.	n.a.	n.a.	n.a.	2.5	1.0	1.1	0.9
Supports rural life	Rural life is supported by the presence of people from all generations, and also supported by enough facilities in the nearby area (e.g. supermarkets, hospital, shops).	12	4.5	2.3	1.0	0.5	2.6	1.2	1.1	0.8
Socially self-organised	Farmers are able to organise themselves into networks and institutions such as co-ops, community associations, advisory networks and clusters with the processing industry.	21	2.81	1.9	1.9	1.0	3.0	1.6	1.6	1.2
Appropriately connected with actors outside the farming system	Farmers and other actors in the farming system are able to reach out to policy makers, suppliers and markets that operate at the national and EU level.	5	4.2	1.7	1.8	1.3	2.3	1.1	1.0	0.8
Coupled with local and natural capital (legislation)	Norms, legislation and regulatory frameworks are well adapted to the local conditions.	12	3.9	1.1	1. 5	1.2	2.8	0.7	0.6	0.4
Infrastructure for innovation	Existing infrastructure facilitates knowledge and adoption of cutting-edge technologies (e.g. digital).	13	3.5	1.7	1.8	0.3	2.1	1.6	1.6	1.7
Diverse policies	Policies stimulate all three capacities of resilience, i.e. robustness, adaptability, transformability.	3	2.6	1.0	1.2	1.2	2.1	1.2	1.1	0.9

[1] Past strategies to cope with challenges are linked to attributes (one strategy can be linked to multiple attributes). Attributes with more linkages are coloured in darker blue.

[2] Implementation level of strategies was scored from 1–5 and averaged across case studies, with 2–2.5 in light blue (poor), 2.5–3 in blue (towards moderate), 3–3.5 in dark blue (above moderate), 3.5–4 in darker blue (towards good) and 4–5 in darkest blue (good to very good).

[3] The perceived contribution of strategies to resilience capacities was averaged across strategies, with yellow representing a score between 0–1 (very weak to weak), light green 1–1.5 (weak), green 1.5–2 (towards moderate), and dark green 2–3 (moderate to strong). In FR-Beef, strategies were not scored.

[4] The perceived presence of attributes was averaged across case studies, with 2–2.5 in light blue (poor), 2.5–3 in blue (towards moderate) and 3–3.5 in dark blue (above moderate).

[5] The average assessed contribution of attributes to capacities, with a similar colour scheme as for strategies. In FR-Beef and ES-Sheep, attributes were not scored.

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Cooperation Avebe presenting innovative products from starch potato, The Netherlands. ***Source:*** **www.avebe.nl.**

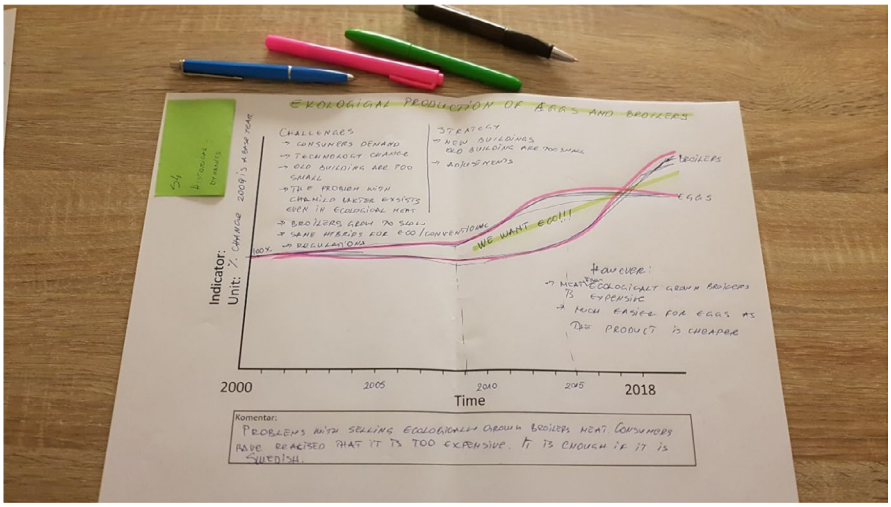
very low presence. Surprisingly, the mixed systems RO-Mixed and DE-Arable&Mixed did not score higher for perceived presence of 'functional diversity' compared to other case studies. However, for 'response diversity', RO-Mixed and DE-Arable&Mixed were among the higher scoring case studies. 'Spatial and temporal heterogeneity of farms' (similar to previous attributes related to diversity) scored relatively high in all case studies, compared to other attributes. The related attribute 'optimal redundancy of farms', however, scored lower. The low score for NL-Arable was mainly related to the difficulties for potential farm successors to take over the farm. In ES-Sheep, participants emphasised that each farmer dropping out created a problem for the system, indicating that redundancy was low.

Although scores for the contribution of resilience attributes to resilience capacities were generally positive (Table 1) – which is in line with previous research – they are generally low. The contribution to robustness was generally considered higher than to adaptability and transformability. Sometimes trade-offs between resilience capacities were observed. For example, in some case studies the attribute 'reasonably profitable' was perceived to be the most important for robustness, while it was seen as a negative contributor to transformability. The reasoning was that as long as economic returns were above a certain level, other incentives needed to be very convincing before change would be considered. However, in some cases the contribution to both robustness and transformability scored high, as profitability was seen as essential for building up economic reserves that could help to support system transformations.

On average, 'production coupled to local and natural capital', 'reasonably profitable', 'socially self-organised' and 'infrastructure for innovation' were seen as contributing mostly to robustness and adaptability, while 'infrastructure for innovation' was seen as specifically important for transformability. Hence, while strategies implemented in the past related to 'infrastructure for innovation' (e.g. mechanisation in IT-Hazelnut and investment in buildings and technology in SE-Poultry) were seen as constraining transformability, stakeholders perceive the role of infrastructure that facilitates diffusion of knowledge and adoption of cutting-edge technologies as important to allow for transformability.

> "In den meisten Fallstudien wurde die Stabilität höher eingeschätzt als die Anpassungs- und Transformierbarkeit."

Participants concluded that 'diverse policies' that equally aim at robustness and adaptability as well as transformability would contribute weakly to all three capacities. As strategies in the past mainly contributed to robustness, specific policies will be needed to improve adaptability and transformability.



Stakeholder's sketch of the development of organic poultry production in Sweden, followed by a discussion on challenges and strategies.

Overall resilience

Taking into account the assessed contribution of resilience attributes to each capacity, resilience was considered to be low. The arable systems and the horticulture system were among the lower-scoring case studies regarding resilience attributes. SE-Poultry and IT-Hazelnut

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Orchards in Mazowieckie, Poland.

scored higher. In most case studies, robustness was perceived to be higher than adaptability and transformability. In case studies with immediate challenges, however, the capacity to adapt and transform was more similar to the capacity to remain robust. In UK-Arable, it was specifically argued that adaptability and transformability of the farming system were likely to be essential in the future, driven by new agricultural policies (focusing on environmental land management) and future trade deals, following the UK's exit from the EU.

The relatively high presence of robustness was also observed when assessing historical dynamics of main indicators and strategies applied to deal with challenges (Table 1). Despite fluctuations and some declining functions, most functions were seen as still being viable. However, when evaluating results from a variety of methods used in SURE-Farm (Reidsma *et al.*, 2019), it was concluded that in all case studies, adaptation – and in some transformation – is required. For many of the intensive or intensifying production systems (e.g. NL-Arable, UK-Arable, BG-Arable, SE-Poultry, BE-Dairy), strategies to increase efficiency are losing their positive impact on private functions, while having accumulated negative impacts on public functions. This implies that alternative strategies are needed to improve sustainability and resilience. On the other hand, more extensive small-scale systems (e.g. RO-Mixed, ES-Sheep) may still benefit from increased efficiency to improve both private and public functions. In IT-Hazelnut and PL-Horticulture there is still room for growth, mainly because of expanding markets for hazelnuts and fruits, but also here the delivery of public goods is a concern.

Policy implications

The observed preference for functions related to food production and economic viability resulted in a trade-off with functions related to the environment and society. Many stakeholders were primarily concerned with the more immediate stress signals from the faster processes in the farming system (e.g. year-to-year variation of income or production levels) compared to slower processes (e.g. development of soil quality and social well-being of the population in the farming system). This preference induces myopia among farming system actors, at least as long as performance in the environmental and social domain is considered to be acceptable. In other words, when biodiversity decline is not clearly visible and social infrastructure is still available, little action is taken.

Options to shift focus towards slower processes consist of policies that reduce stress signals from faster processes (e.g. through insurance), while improving noticeability of feedback signals from the slower processes (e.g. monitoring adapted to the scale of the process of, for instance, biodiversity). Improving noticeability of these signals will help to assess and communicate long-term impacts of developments in farming systems.

> "In most case studies, robustness was perceived to be higher than adaptability and transformability."

Moreover, policies should be designed to safeguard the presence of resilience-enhancing attributes, especially in the light of ongoing trends of intensification and scale-enlargement that could diminish these attributes in EU farming systems. Currently, attributes that mostly contribute to all three resilience capacities relate to having appropriate infrastructure for innovation, self-organisation of actors in the farming system, the coupling of agricultural production with local and natural capital, and different aspects of diversity. Concluding, technological innovation is required to enhance sustainability and resilience, but should be accompanied with structural, social, agro-ecological and institutional changes (see also Mann, 2019). Farmers can change, but they cannot do it alone.

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Summary

How do stakeholders perceive the sustainability and resilience of EU farming systems?

An increasing variety of stresses and shocks provides challenges and opportunities for EU farming systems. This article presents findings of a participatory assessment on the sustainability and resilience of eleven EU farming systems, to inform the design of adequate and relevant strategies and policies. According to stakeholders that participated in workshops, the main functions of farming systems are related to food production, economic viability and maintenance of natural resources. Performance of farming systems assessed with regard to these and five other functions was perceived to be moderate. Past strategies were often geared towards making the system more profitable, and to a lesser extent towards coupling production with local and natural resources, social self-organisation, enhancing functional diversity, and facilitating infrastructure for innovation. Overall, the resilience of the studied farming systems was perceived as low to moderate, with robustness and adaptability often dominant over transformability. To allow for transformability, being reasonably profitable and having access to infrastructure for innovation were viewed as essential. To improve sustainability and resilience of EU farming systems, responses to short-term processes should better consider long-term processes. Technological innovation is required, but it should be accompanied with structural, social, agro-ecological and institutional changes.

Comment les parties prenantes perçoivent-elles la durabilité et la résilience des systèmes agricoles dans l'Union européenne ?

La diversité croissante des stress et des chocs crée des défis et des opportunités pour les systèmes agricoles de l'Union européenne. Cet article présente les résultats d'une évaluation participative sur la durabilité et la résilience de onze systèmes agricoles dans l'Union européenne, pour éclairer la conception de stratégies et de politiques adéquates et pertinentes. Selon les parties prenantes qui ont participé aux ateliers, les principales fonctions des systèmes agricoles sont liées à la production alimentaire, la viabilité économique et le maintien des ressources naturelles. La performance des systèmes agricoles évalués par rapport à ces cinq fonctions et à cinq autres a été jugée modérée. Les stratégies passées visaient souvent à augmenter la rentabilité du système et, dans une moindre mesure, à coupler la production avec les ressources locales et naturelles, développer l'auto-organisation sociale, améliorer la diversité fonctionnelle et faciliter des infrastructures d'innovation. Dans l'ensemble, la résilience des systèmes agricoles étudiés a été perçue comme faible à modérée, la robustesse et l'adaptabilité étant souvent dominantes par rapport à la transformabilité. Une rentabilité raisonnable et un accès à des infrastructures d'innovation ont été considérés comme essentiels au développement de la transformabilité. Pour améliorer la durabilité et la résilience des systèmes agricoles de l'Union européenne, les réponses aux processus de court terme devraient mieux prendre en compte les processus de long terme. L'innovation technologique est nécessaire, mais elle doit s'accompagner de changements structurels, sociaux, agro-écologiques et institutionnels.

Wie nehmen Akteure die Nachhaltigkeit und Resilienz der landwirtschaftlichen Systeme in der EU wahr?

Zunehmend vielfältige Belastungen und Krisen stellen für die landwirtschaftlichen Systeme in der EU eine Herausforderung und zugleich eine Chance dar. In diesem Artikel werden die Ergebnisse einer partizipativen Bewertung der Nachhaltigkeit und Resilienz von elf landwirtschaftlichen Systemen in der EU vorgestellt. Die Ergebnisse sollen die Entwicklung angemessener und relevanter Strategien und Politikmaßnahmen unterstützen. Laut den Beteiligten, die an den Workshops teilgenommen haben, bestehen die Hauptfunktionen der landwirtschaftlichen Systeme in der Nahrungsmittelproduktion, der Wirtschaftlichkeit und der Erhaltung der natürlichen Ressourcen. Die Leistungen der landwirtschaftlichen Systeme, die im Hinblick auf diese und fünf weitere Funktionen bewertet wurden, wurden nur als mäßig empfunden. In der Vergangenheit waren Strategien oft darauf ausgerichtet, das System rentabler zu machen. Sie waren jedoch weniger darauf ausgerichtet, die landwirtschaftliche Produktion mit lokalen und natürlichen Ressourcen, sozialer Selbstorganisation, der Stärkung der funktionalen Vielfalt und der Erleichterung des Zugangs zu Infrastrukturen für Innovationen zu koppeln. Insgesamt wurde die Resilienz der untersuchten landwirtschaftlichen Systeme als gering bis mäßig eingeschätzt, wobei Stabilität und Anpassungsfähigkeit oft die Transformierbarkeit dominierten. Um Transformierbarkeit zu ermöglichen, wurde es als wesentlich angesehen, hinreichend rentabel zu sein und Zugang zu Infrastrukturen für Innovationen zu haben. Um die Nachhaltigkeit und Resilienz der landwirtschaftlichen Systeme in der EU zu verbessern, sollten bei Reaktionen auf kurzfristige Prozesse langfristige Prozesse besser berücksichtigt werden. Technologische Innovationen sind zwar erforderlich, sollten aber mit strukturellen, sozialen, agrarökologischen und institutionellen Veränderungen einhergehen.

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