sustainability

MDPI

Article

Improving the Education and Training Policies of the Agri-Food and Forestry Sectors: Identifying New Strategies to Meet the Needs of the Sector and Farm-to-Fork Priorities

Yaprak Kurtsal [1,*], Giacomo Maria Rinaldi [1], Federica Savini [2], Rubina Sirri [3], Martin Melin [4,†], Elena Pacetti [5], Alessandra De Cesare [2], Marialetizia Fioravanti [2], Elena Luppi [5], Gerardo Manfreda [1] and Davide Viaggi [1]

[1] Department of Agricultural and Food Sciences, University of Bologna, Viale Fanin 40-50, 40127 Bologna, Italy; giacomomaria.rinald2@unibo.it (G.M.R.); gerardo.manfreda@unibo.it (G.M.); davide.viaggi@unibo.it (D.V.)
[2] Department of Veterinary Medical Sciences, University of Bologna, Via Tolara di Sopra 50, 40064 Ozzano dell'Emilia, Italy; federica.savini3@unibo.it (F.S.); alessandra.decesare@unibo.it (A.D.C.); marialeti.fioravanti@unibo.it (M.F.)
[3] Emilia-Romagna Region—Directorate General for Agriculture, Hunting and Fisheries, Viale Della Fiera, 8, 40127 Bologna, Italy; rubina.sirri@regione.emilia-romagna.it
[4] Department of People and Society, Swedish University of Agricultural Sciences, Box 190, 234 22 Lomma, Sweden; martin.melin@hh.se
[5] Department of Education Studies "Giovanni Maria Bertin", University of Bologna, Via Filippo Re 6, 40126 Bologna, Italy; elena.pacetti@unibo.it (E.P.); elena.luppi@unibo.it (E.L.)
* Correspondence: yaprak.kurtsal2@unibo.it
† Current address: Environmental and Biosciences Department, School of Business, Innovation and Sustainability, Halmstad University, Kristian IV:s väg 3, 301 18 Halmstad, Sweden.

Abstract: The current European agri-food and forestry (AFF) systems are perceived to be moving too slowly towards more sustainable agriculture, forestry, food and bio-based value chains. The European Green Deal and Farm to Fork (FtF) Strategy stress the importance of the sustainable transition of food systems that emphasize resilience and justice along food chains. In this direction, education and training (ET) are given a major role, constituting one of the pillars of the Agricultural Knowledge and Innovation Systems (AKIS) framework. This study aims to propose an extended version of the AKIS framework to focus on the transition of policies concerning the ET pillar and to use this framework as a conceptual background with which to identify strategies for the improvement of ET policies in the AFF sectors. Data collection was undertaken through a round of workshops, and the data were analyzed using a thematic analysis approach. The results revealed that the need for a high-quality educational policy and the need to enhance collaboration, entrepreneurship and innovative learning methods were among the most important for the sector, where urgent changes in pace and an approach in ET are necessary for the entire value chain, from farm to fork. These results emphasize that pivoting the transition of ET systems toward achieving the Green Deal, FtF and new CAP objectives requires the development of policies that support student-centered and interdisciplinary education, while also being flexible and supported by non-formal and lifelong learning approaches.

Keywords: agri-food and forestry; education and training; AKIS; Farm to Fork Strategy; innovative learning approaches

Citation: Kurtsal, Y.; Rinaldi, G.M.; Savini, F.; Sirri, R.; Melin, M.; Pacetti, E.; De Cesare, A.; Fioravanti, M.; Luppi, E.; Manfreda, G.; et al. Improving the Education and Training Policies of the Agri-Food and Forestry Sectors: Identifying New Strategies to Meet the Needs of the Sector and Farm-to-Fork Priorities. *Sustainability* **2024**, *16*, 1267. https://doi.org/10.3390/su16031267

Academic Editor: Francesco Sottile

Received: 3 October 2023
Revised: 2 January 2024
Accepted: 10 January 2024
Published: 2 February 2024

1. Introduction

The current European agri-food and forestry (AFF) sectors and innovations are perceived to be moving too slowly toward more sustainable agriculture, forestry, food and bio-based value chains [1]. The need to speed up and enhance innovation has been repeatedly emphasized in recent years and is now a core element of the European Commission's

approach to the future of food and farming. The European Green Deal and the Farm to Fork (FtF) Strategy, as well as the new Common Agricultural Policy (CAP) objectives, stress the importance of a sustainable transition of food systems that also emphasizes resilience and justice along food chains [1].

Toward this goal, education and training (ET) can play a key role. In fact, ET, one of the key dimensions of human capital, is regarded as one of the most powerful and proven vehicles for accelerating the transition to sustainable agricultural systems [2]. To be successful contributors to the resolution of contemporary and future global food and agricultural crises, professionals working in the food system will need to be competent in making decisions to address problems by using system approaches and engaging with diverse stakeholders [3]. While education and skill levels in the agri-food sector widely vary across countries and depend on the age, gender and farm structures of farmers, enhancing education will play an increasingly critical role in the capacity of farmers to participate in interactive innovation systems and networks [4].

Due to the paramount importance of ET in innovating for solutions in AFF systems, ET constitutes one of the three pillars of the Agricultural Knowledge and Innovations Systems (AKIS), which is among the most accepted and visible concepts across the Member States for describing a system of innovation in agriculture. According to the AKIS [5], it is critical to share knowledge and innovation to promote mutual learning through the involvement of farmers, advisors, trainers, researchers, media and other agricultural experts operating at EU, national, regional and local levels.

Over the years, in parallel to the transformation of knowledge transfer models, the AKIS framework has also experienced a transformation. In this regard, the linear knowledge transfer model—where researchers, trainers and technical experts develop solutions to agricultural problems and then pass them down to farmers—has been challenged considerably by the movement toward stricter coordination and integration between the components of the "knowledge triangle" (research, education and extension) [6].

Although the AKIS concept has been evolving over the years to represent the intricate network of actors and collaboration among them, the new challenges and paradigms faced today and a further need to reform the learning approaches utilized in AFF sectors demand a re-conceptualization of the AKIS. To this end, numerous studies have proposed revisions or improvements to the conceptualization of the AKIS [6–10]. While these studies propose plausible solutions to align the AKIS with the needs and challenges of our day, there remains a necessity to update the ET pillar of the AKIS to move away from the traditional learning approach, in which formal education is considered in isolation, and toward integrating formal, non-formal and informal learning approaches; to focus on providing skills and competencies that are much needed in the sector; and to co-create knowledge and interactive methodologies through student-centered, action-oriented, collaborative and social learning approaches [4].

In light of this goal, this study, which was conducted as part of the H2020 Project NextFOOD (this project received funding from the European Union's Horizon 2020 research and innovation programme (grant agreement number: 771738 (Educating the Next Generation of Professionals in the Agri-food and Forestry System (NEXTFOOD)))), aims to firstly propose an extended version of the AKIS to focus on the policy transition of the ET pillar using the Theory of Change (ToC) approach to describe change; secondly, we aim to identify strategies for the improvement of ET policies in line with FtF objectives in order to address the needs of AFF sectors. In this study, data collection was undertaken through a round of workshops carried out in 10 countries and summarized with the help of an international workshop.

The novelty of this study lies in its empirical contribution, from the identification of strategies to improving the ET system of AFF sectors (from its current state toward desired outcomes) and satisfying the current policy agenda by proposing the integration of an educational policy aspect into the AKIS framework. In the literature, the AKIS framework has largely been used by researchers as a lens for analyzing national knowledge

and innovation structures [1] and as a starting point for a deeper analysis of the sector. However, it has not been used before as a blueprint for a systematic analysis of educational policy gaps or policy improvement from a European perspective.

The rest of this paper is structured as follows: in Section 2, we present a literature review and the conceptual framework on which we have based this study; Section 3 presents the research methodology; Section 4 details the main findings of this study; Section 5 provides a discussion of the results; and, finally, we finish off with the conclusions in Section 6.

2. Literature Review and the Conceptual Framework

In this section, we review the main fields of research that build the background of our study and illustrate how we combined them in a consistent research framework for the purposes of this study.

The starting point is the AKIS framework. AKIS, which is defined as a concept that seeks to encompass and influence the complexity of knowledge and innovation processes in the rural sphere [11], is used to describe the whole knowledge exchange system: the ways in which people and organizations come together and interact to promote mutual learning, as well as generate, share and use agriculture-related knowledge and information within a country or a region [1].

The importance of this conceptual framework has increased over the years in line with a changed policy context in Europe: the financial and economic crisis, the EU2020 strategy and the CAP reform. More recently, the New Green Deal and the pandemic have strongly reinforced the idea that a systemic and collaborative approach is fundamental to facing the challenges of the future [12]. Along this line, the concept has evolved to reflect the needs of the AFF sectors and the everchanging necessities and challenges of today. Numerous studies have proposed adaptations of the AKIS to address these urgent needs.

Toward this goal, several studies have highlighted the importance of switching from a strictly agricultural perspective of the AKIS to a system open to all traditional sectors—now converging into the Bioeconomy [6,7,13]. Some studies, however, have addressed the necessity to extend the "knowledge triangle" that is central to the AKIS (consisting of research, education and extension) to a "knowledge rectangle", in the context of which "the community" aspect is also integrated to represent the involvement of society and citizens in decision-making processes [1]. Moreover, some researchers have used it as a starting point for a deeper analysis of sectoral aspects. Moschitz et al. [7] argue that with a view of the necessary transformation of the agri-food system, the AKIS should also be extended to a Food and Agricultural Knowledge and Innovation System. Fieldsend et al. [8] introduced the idea of ARKIS: Agricultural and Rural Knowledge and Information Systems, which can work as a multi-stakeholder platform of civil society networks and organizations that are pushing for a CAP reform to encompass an integrated rural agenda. Lawrence et al. [9] proposed the concept of a Forestry Knowledge and Innovation System (FOKIS) to better fit the forestry context. Klerkx and Begemann [10] developed the concept of a Mission-oriented Agricultural Innovation System (MAIS), and Sutherland et al. [14] proposed the use of a Micro-AKIS to capture the knowledge and innovation systems at the farm level. The adaptation that this study proposes, which is to integrate a "policy transition" aspect into the AKIS framework, arises from the need to improve the ET ecosystems in the AFF sectors that are not able to innovate a sustainable transition of these sectors and do not reflect their needs.

Education, as a cross-cutting theme, is often involved in the AKIS literature [11,14–16] but is rarely the main focus of research [17]. Moreover, even less emphasis is placed on vocational education and training (VET) and lifelong learning (LLL). In addition, a precise policy framework boosting the development of ET in this sector is lacking or insufficient. Furthermore, the studies that attempt to discuss existing policies in the area of agricultural education and skill development are mostly conducted at a regional or national level through specific case studies, while studies that can give a more complete picture at a

larger (e.g., European) level are almost non-existent. Although fewer in number, among the studies that aim to link agri-food educational needs and policy, one branch focuses on the gaps in the CAP, suggesting ways to integrate better development of human capital, agricultural education and farmer LLL. Galli et al. [18] identify weaknesses or gaps in educational policies in pursuing their goals and gaps or missing links with other policy areas or tools. Hulsink et al. [19] argue that there is a large gap between policy and practice in school organizations. Caskie [20] proposes, as part of a policy action, placing a share of the future EU agriculture budget in a Knowledge Fund to be allocated in the form of Knowledge Vouchers, to finance the training, skills and competency development of farmers.

Although these studies can have important implications for driving policymaking in the agri-food sector, the need for further research that can inform the broader policy environment as well as the design of youth-targeted policies, projects and programs in the dynamic agri-food sector is significant [21,22]. As a result, a deeper analysis to find the key points for a European strategy in the field of ET in the AFF context is seen as fundamental to achieving the FtF objectives and reaching the targets set by the EU Green Deal, which has been the departure point of this study in proposing an adaptation to the AKIS framework.

In this study, by focusing on the ET component of the AKIS framework in the AFF sectors, we propose the integration of the policy aspect into the framework to explain the transition process of current ET policies toward desired outcomes. To explain this transition, we further adopt the theory of change (ToC) approach and integrate it into our conceptual framework.

ToC is a theory-based approach to planning, implementing and evaluating change at an individual, organizational or community level [23]. By using a ToC approach, one can articulate how desired outcomes can be achieved. This is performed by exploring the real-world setting in which a project or an action or intervention is being implemented, the starting situation, risks or opportunities that may influence achieving change, the actions to be taken and the steps of change expected to take place [23]. A ToC approach is focused, in particular, on mapping out or "filling in" what has been described as the "missing middle" between what a program or change initiative does (its activities or interventions) and how these lead to the desired goals being achieved [24]. It accomplishes this by first identifying the desired long-term goals and subsequently working backward to identify all the conditions (outcomes) that must be in place (and how these are causally related to one another) for these goals to occur. French et al. [24] and Reinholz and Andrews [25] are among the researchers who have used a ToC approach to address gaps in the higher education system.

In this direction, the conceptual framework on which we base our study comprises three main components: (1) the current policies and gaps in the current ET policy framework, (2) the strategies for improvement and (3) the desired outcomes. Our conceptual framework proposes that the strategies for improvement (or transition) allow for the policy framework to move from the current situation (and gaps) to a desired set of outcomes. Within this scope, the first component, "the Current Policies and the gaps", was informed by the results of previous research conducted as part of the NextFOOD project, which aimed to identify the gaps in the current educational policy context using an online survey [17]. The third component of the conceptual framework, "the desired outcomes", was specified as the six target strategies of the FtF strategy published by the European Commission [26]. The second component, "Strategies for improvement (from the current state to the desired outcomes)", the subject of this study, aimed to identify the strategies that are needed to achieve new skills and educational policy interventions and instruments that align with the FtF strategy objectives (detailed in the Results section).

Figure 1 shows the proposed conceptual framework, which integrates the theory of change in the policy framework into the AKIS concept. The framework presents the current situation and gaps in the ET system of the AFF sectors as well as the desired

outcomes (as already filled out), and it also proposes completing the pillar of "strategies for improvement" using the research methodology detailed in the following section.

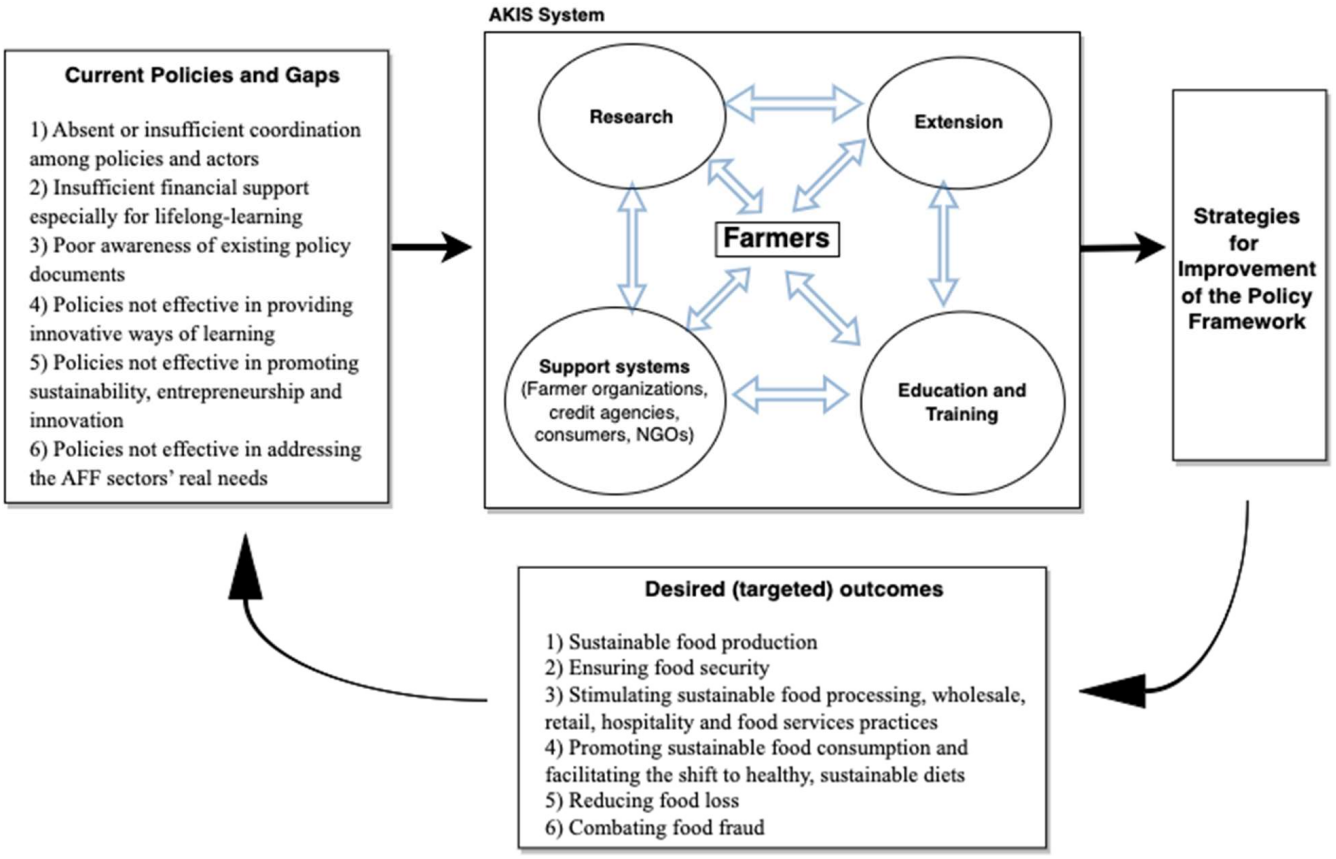

Figure 1. The proposed framework for the educational policy transition process in the agri-food and forestry sector in relation to AKIS. Sources: AKIS framework adapted by the Standing Committee of Agricultural Research (SCAR) [2].

The conceptual framework suggests that when the strategies for improvement are identified, these would then feed into the current educational policy system. This cycle is proposed to identify current gaps and co-create policies for the improvement of ET systems in an iterative and circular way. This would facilitate the provision of up-to-date ET opportunities that meet the rapidly evolving and wide-ranging needs of the sector.

3. Research Methodology

This section consists of three sub-sections: 1—the selection of the data collection methodology and the preparation phase, 2—the data collection approach and 3—an analysis.

3.1. The Selection of the Data Collection Methodology and the Preparation Phase

In order to identify the strategies for the improvement of the education policy framework, the data collection methodology consisted of a round of stakeholder workshops. Stakeholders play a key role in designing policies and providing strategies to improve them; thus, stakeholder workshops are crucial for collecting the perspectives of different actors and arriving at multi-actor solutions in order to address the sustainability challenges within the scope of the AFF sectors. Stakeholder workshops were the chosen methodology for data collection for several reasons. Firstly, they provide a structured environment wherein key stakeholders can openly discuss specific topics in a more informed setting; secondly, workshops allow a high level of participation by the stakeholders in decision making and initiating action [27]. Last but not least, workshops are well adapted for pursuing a theory of change approach in which stakeholders are asked to define a desired long-term impact

and engage in backward mapping to identify actions that can lead to the desired impact. The workshop methodology, by bringing key stakeholders together, created a safe space for the discussion and co-creation of solutions aimed at providing strategies to enhance the ET systems of the AFF sectors in question. As complex problems require collaborative solutions, these workshops provided a participatory and collaborative opportunity to identify policy options.

During the planning phase of the workshops, a guideline document was prepared to provide clear instructions to the workshop facilitators (consisting of the NextFOOD Project Consortium Partners). This document aimed to provide uniformity in data collection during the workshops across different local contexts, accompanied by a standard presentation. The guidelines provided a standard agenda, including a presentation of the Green Deal, FtF objectives and the modified AKIS framework, in order to encourage participants to keep in mind the relevant categories (e.g., connection with research or different components of the education system). In this regard, clear topics of discussion as well as follow-up questions were proposed to the workshop facilitators. Moreover, a pilot workshop was conducted to test the workshop methodology in the Italian context. The results of this workshop were shared with the partners to provide them with guidance, including issues to pay attention to and instructions for reporting the results.

3.2. The Data Collection Approach

The round of workshops took place between August and March 2021. A total of 11 workshops were organized (10 country-level workshops and one final workshop conducted at the EU level). The country-level workshops were conducted in different country contexts involving the consortium partners of the NextFOOD project, namely, Italy, Germany, Norway, Sweden, Denmark, Czechia, Chile, India and Greece. The workshops were conducted in the local language of the country in question; then, the discussions were translated into English by the facilitators. The participants were selected among local-, regional-, national- or EU-level authorities and policymakers responsible for or informed about the policies in research and education in their respective countries. Special attention was given to having balanced participation of stakeholders with different roles and levels of expertise. Country-level workshops were then followed by an EU-level workshop, which aimed at gathering the outputs from the national workshops and discussing the strategies proposed at the EU level to determine an overall perspective. For this task, stakeholders with experience and knowledge of EU-level policies were targeted, including policymakers, researchers and representatives of relevant associations or unions.

Altogether, a total of 80 stakeholders participated in the workshops, including academicians, policymakers, ET managers, advisors and experts (see Appendix A for the participating institutions and a list of stakeholders).

With regard to the themes addressed in the workshops, the participants were asked to frame the problem as well as the policy needs and strategies, referring to the FtF strategy objectives, raised by the European Commission, which included the following:

1. Ensuring sustainable food production (in line with a circular, bio-based economy).
2. Ensuring food security.
3. Stimulating sustainable food processing, wholesale, retail, hospitality and food service practices.
4. Promoting sustainable food consumption and facilitating the shift to healthy, sustainable diets.
5. Reducing food loss and waste.
6. Combating food fraud along the food supply chain.

In this way, the current issues and challenges in the agri-food and forestry sectors were directly addressed. For each of the above FtF objectives, the participants were asked to provide answers to the following questions to guide the discussions of the workshops:

1. Which specific skills and competencies are needed to achieve these objectives?
2. How can ET policies contribute?
3. What (changes in) education policy instruments are needed?
4. What roles can different AKIS (and other) actors play?
5. Which skills, competencies and policy instruments are needed, and by which AKIS actor(s), to improve gender equality in each of the FtF topics?

The workshop results were collected in the form of workshop reports, consisting of a detailed summary of discussion points as well as matrices filled by participants, and then translated into English by all workshop facilitators.

3.3. Analysis

Following the collection of the data, a qualitative data analysis was conducted to interpret the workshop outputs. A thematic analysis approach was used to analyze the workshop outputs. Thematic analysis is a qualitative descriptive approach primarily used for identifying, analyzing and reporting patterns (themes) within data [28]. Within the scope of this analysis, the six steps proposed by Braun and Clarke [28] were used, namely, (1) familiarization, (2) coding, (3) generating themes, (4) reviewing themes, (5) naming themes and (6) recording the results.

The first step, familiarization, consisted of studying the workshop reports, taking initial notes and analyzing the data to become familiar with them. In the second step, coding was undertaken by highlighting sections of the text, including phrases and sentences. The outputs were then distinguished according to each of discussed the FtF objectives and in terms of answers provided to each of the questions posed during the workshops.

Following coding, patterns were identified among these answers, and the themes that came up were evaluated. During the analysis of the text, differing themes were identified and then grouped together (e.g., skill gaps, skills needed, strategies related to curricula, practical skills, learning approaches and so on).

Once the themes were identified and grouped, we returned to the data to ensure discussions were not overlooked and to determine if grouping or merging was necessary.

Thematic analysis was the preferred method as it allows for identifying, organizing, describing and reporting themes found within a qualitative dataset [28]. Moreover, it enables the examination of various different participants' perspectives, highlighting both similarities and differences and revealing unanticipated insights [29].

4. Results

Table 1 presents the main themes addressed in the workshops and the topics discussed under each theme. The first column shows the number of workshops in the context of the topic discussed (the color coding aims to distinguish between topics that were discussed more widely across different workshops), while the second column shows the country contexts in which the topic was discussed.

The results of the workshops showed that the main themes could be categorized into four major categories: (1) adopting a new approach to ET, (2) improving and updating the curricula and learning programs, (3) enhancing collaboration and multi-actor approaches and (4) changing the approach of policymaking.

Table 1. Main themes addressed in the workshops and topics discussed under the main themes.

Main Themes Addressed	Topics Discussed under the Main Themes	The Number of Workshops in Which the Topic Was Discussed	In Which Countries the Topic Was Addressed
New approaches to education and training need to be adopted	Collaboration to enable a link between theory and practice in ET and to enhance practical experiences	10	Czechia, Italy, Denmark, Germany, Chile, Norway, Greece, Sweden, India
	Integrating formal, non-formal, informal learning opportunities	8	Czechia, Italy, Denmark, Norway, Greece, Sweden, European level
	Adopting a holistic approach	3	Germany, India, Italy
	Transition from traditional to flexible forms of education (e.g., modular, tailor-made)	3	Sweden, Italy, Norway
	Avoiding "more of everything" approach and compartmentalization	3	Sweden, Germany, India
	Innovative learning methods: problem-based, cross-sectoral, interdisciplinary, inductive, experiential, cyclical	6	Norway, Germany, India, Czechia, Italy, Chile
	Storytelling as a way to communicate with the target audience (students)	1	Sweden
	Making future job opportunities and future job profiles visible to the public	4	Italy, Czechia, Germany, India
	Emphasizing lifelong learning	5	Italy, Denmark, Chile, Norway, Czechia
	Supporting learning through local food networks	1	Chile
	Introducing the concept of apprenticeship	3	Sweden, Germany, India
	Emphasizing informal learning, e.g., peer-to-peer learning, learning hubs/spaces	1	European level
How can curricula be improved/updated?	Integrating sustainability, circular economy, ecological footprints, etc., into the curricula	5	Chile, Czechia, Denmark, Italy, Sweden
	Introducing obligatory sustainability courses/certificates	1	Chile
	Analyzing case studies and real examples	2	Norway, Chile
	Increasing understanding of sustainability and how it is linked to production methods	1	Chile
	Integrating soft skills (holistic thinking, problem solving, communication skills, marketing) into the curricula	9	Sweden, Italy, Norway, Italy, Germany, India, Chile, European level
	Technical knowledge of environmental issues (e.g., climate change adaptation, risk prevention measures, standards, norms)	5	Norway, Chile, Czechia, Italy, Denmark
	Technical knowledge of food technologies (e.g., processing, storage, distribution, procurement, value chains, waste practices)	4	Germany, India, Czechia, Chile
	Importance of local food practices	2	Czechia, Chile
	Knowledge in the area of sustainable food consumption and awareness about shifting to healthy and sustainable diets	5	Czechia, Chile, Germany, India, Denmark
	More knowledge and awareness of social networks	2	Germany, India
	Ethics, morality	1	Chile

Table 1. *Cont.*

Main Themes Addressed	Topics Discussed under the Main Themes	The Number of Workshops in Which the Topic Was Discussed	In Which Countries the Topic Was Addressed
Enhancing collaboration, networks and dialogue between actors	Making gender inequality an integral part of the curricula	5	Denmark, Germany, India, Chile, Norway
	Including businesses/industry in the education and training systems	4	Italy, Greece, Sweden
	Integrating the views of society in the decision-making processes in education and training	5	Norway, Chile, Germany, India, Czechia
	The need to increase collaboration in policymaking	6	Greece, Chile, Germany, India, Sweden, European level
	Internationalization through collaboration between different countries through exchange programs, internships	3	Italy, Greece, Sweden
	More dialogue between academics and stakeholders	2	Greece, Italy
	Including incubation centers, consumers, entrepreneurs, researchers, ministries, small- and medium-sized enterprises in the creation of curricula and courses/modules/programs	8	Czechia, Italy, Germany, India, Chile, Italy, Norway
New approaches to policymaking needed and which AKIS actors can play a role	Harmonization/coordination of policies	3	Italy, Norway, European level
	Reducing bureaucracy	2	Italy, Czechia
	Better understanding of terms	2	Sweden, Norway
	The importance of incorporating gender equality into educational policymaking	4	Denmark, Germany, Chile, India
	Making the AKIS less static, emphasizing the importance of all actors, strengthening advisory services	4	Denmark, Norway, Italy, European level

4.1. Adopting New Approaches to Education and Training

Skill generation in the AFF sectors necessitates the implementation of new and innovative learning approaches. With regard to this topic, one of the issues underlined with utmost importance was the need to establish links between formal, non-formal and informal ET. In other words, combining formal education with learning provided through NGOs, associations and communities, as well as extracurricular activities outside of school, was largely recognized as a way forward. To allow this, the importance of efficient accreditation of learning acquired through non-formal and informal ET, not only for learners but also for educators and trainers, was stressed. Another suggestion was to mobilize innovative hubs, spaces and incubation centers where formal, non-formal and informal ET systems can be systematically connected. It has also been argued that students at all levels of the ET system lack practical knowledge and are unable to face the realities of the sector and their professional requirements on the ground upon graduation. In this regard, recommendations on how to balance theory and practice in the ET system were extensively discussed in the workshops. In this direction, the critical importance of establishing links between academic and non-academic institutions was stressed, which can lead to an ET system that is not only focused on theory but is also more concrete, operational and able to provide practical skills that are needed in the sector. In this context, incentivizing private businesses to cooperate with schools and lifting the bureaucratic and financial burdens that sometimes penalize actors who accept trainees, as well as incentivizing internships and field trips that can allow for interactions between students and professionals, were underlined. Learners appreciate direct connections with the actors in the field, and they would benefit significantly from a hands-on approach. In this way, they are able to listen to territorial actors, see what the real problems are and, consequently, transfer these into their skill sets.

Adopting more flexible forms of ET is another aspect stressed in this study. Until now, the traditional approaches adopted by the ET systems have been criticized, arguing that this static approach to ET not only renders innovation and change difficult for the sector but also makes it hard for learners from different backgrounds to go through the LLL system to keep their skills and competencies up to date. Hence, designing more flexible education routes, allowing people to cross disciplinary boundaries more easily and offering access to shorter or modular education tracks were proposed to not only help professionals maintain their skills in line with the needs of the sector but also to make the sector attractive to students/learners.

This study also revealed the importance of making LLL and VET programs more accessible. In fact, LLL is no longer regarded as a voluntary choice in many sectors. Professionals now need to continuously update their skills and knowledge to survive in the labor market. Therefore, it is crucial to take the necessary steps to make LLL a fundamental human right and provide it to all individuals from different backgrounds, profiles or demographics (rural/urban and/or employed/unemployed) who look forward to learning about the topic. In this regard, designing affordable and free-of-charge courses is an important step toward extending their reach. The aspect discussed above, with regard to adopting flexible and modular approaches to learning, can also contribute to this, as well as offering digital modules and programs to a wide range of learners. Additionally, another topic that was discussed was the importance of training trainers and educators. This can be achieved by designing LLL modules that keep teachers' and educators' skills continuously up to date, supporting the education of agricultural advisors and implementing tailor-made solutions at the national/local levels.

With regard to VET, the flexibility offered by this educational level makes it a strategic element to include citizens in the ET system, especially young people who are not in education, employment or training (NEETs). In order to facilitate this, a policy objective, perceived as urgent, is to enable the recognition of diplomas, which can be achieved with a unified certification scheme valid throughout the EU. Another important objective is to integrate new learning approaches and introduce new programs in VET, stimulating

the integration of new approaches to education (e.g., action learning) and new content in programs (e.g., multi-disciplinarity).

4.2. Improving and Updating Curricula and Learning Programs

One of the issues widely discussed was the need to integrate topics such as sustainability, the circular economy and ecological footprints into the curricula, starting from an early age. These topics need to be considered as a fundamental pillar of education. Moreover, raising awareness about sustainability among the public, as well as among students and future farmers, in addition to integrating it into technical practices across the whole sector, was noted many times by the participants. In this regard, the participants emphasized the crucial role of pre-university education in equipping students with skills and basic knowledge, especially on issues fundamental to facing today's challenges.

Another topic that was seen as critical for the curricula (as well as the whole educational system), starting at an early age, was that of gender. It was argued that to ensure that gender equality is an integral part of the whole value chain—and not only a topic to be separately considered in certain courses or specialization subjects (e.g., gender studies)—the entire approach of the sector needs to be changed. In this direction, it is important to guarantee the same opportunities to girls and women as well as increase their effective participation in AFF sectors, utilizing several actions—such as enhancing digital skills to close the gender gap, empowering women entrepreneurs, adopting distance learning approaches, introducing distance learning programs at formal institutions and introducing more flexible learning approaches, rather than rigid programs with prerequisites, fixed semesters and limited or no work placement during these programs—as a way forward.

Another area widely addressed, in terms of updating curricula, concerned the skills and competencies needed in the sector and, hence, those that need to be provided to students throughout their education. Within this scope, while the proposed necessary technical skills differed according to the different FtF strategies in question, the importance of integrating soft skills into the curricula (starting from an early age) was mentioned in all workshops. Soft skills, such as critical and systems thinking, communication, entrepreneurship, marketing, holistic knowledge, digital skills, teamwork, interpersonal skills and communication and networking, are critical skills and competencies that need to be acquired more widely by students. Digitalization came across as one of the main cross-cutting themes, being a new frontier for all AKIS actors. Consequently, introducing and extending courses to improve the digital skills and digital literacy of students at all levels came across as a topic of significant importance. Developing digital skills is important to ensure the use of new and advanced technologies and digital learning platforms by farmers (or future farmers). Moreover, it provides an opportunity for students (and farmers) in remote or disadvantaged areas to access (digital) learning activities.

4.3. Enhancing Collaboration and Multi-Actor Approaches

Greater collaboration, dialogue and coordination among actors and enhancing participatory and multi-actor approaches are necessary across the whole ET system. Collaboration between educational bodies and industry, NGOs and local communities was regarded as necessary to establish a dialogue between a wide series of AKIS actors and implement a more interdisciplinary approach to achieve FtF objectives. It was suggested that programs or modules provided directly by farmers, sector professionals or entrepreneurs can inspire, engage and educate young people and offer a practical understanding of the crucial role that agriculture plays.

The establishment of a permanent panel was also proposed, where representatives of higher education organizations, industry, public institutions, farmers and local communities can come together and express their requests and viewpoints. This can facilitate integrating the voices of those who are directly affected by the sector, thus ensuring real needs on the ground are addressed and providing tailor-made solutions for local contexts. On the

industry side, there is a need to involve private companies in the design of new courses and increase the chances for traineeships.

Other strategies to foster dialogue and networks between AKIS actors included mobilizing community learning centers, or regional innovation hubs, which may serve as a tool by which effective multi-stakeholder partnerships can be built. Legal and policy frameworks, therefore, must support and promote this partnership building. Another step can be to implement experimental multidisciplinary courses, involving a wide range of actors, facilitating the application of new and innovative learning approaches that develop the skills and competencies of learners toward the needs of the job market. Moreover, joint efforts to develop work placement and applied projects may also be useful. This would allow for closer collaboration between different actors and educational levels. Last but not least, establishing connections between VET and entrepreneurs through the provision of internships and mentorship opportunities can contribute to advancing the skills and careers of learners.

4.4. Changing the Approach of Policymaking

Furthermore, a need to change the approach to policymaking was stressed. One of the topics that arose in relation to this was the need for the harmonization of policies across all education levels, as well as more systematic and integrated policymaking, coordination and quick response mechanisms and procedures across the EU. Moreover, it was stressed that the process of coordinating and harmonizing policies in ET is a particularly fundamental step for improving VET throughout Europe. The aim should be the harmonization of national laws with European guidelines in terms of VET. Moreover, the need to have a common language, common goals and shared knowledge in policymaking was underlined, which could also facilitate the coordination and harmonization of policies.

Another important issue discussed was the inclusion of stakeholders in policy and decision-making processes. The inclusion of farmers, food system entrepreneurs, NGOs, associations, industry, enterprises and the third sector in curriculum making is critical. It was argued that improving information sharing mechanisms among actors and across the educational system would also facilitate this. Overall, it was argued that only through collaborative policymaking could the needs of the sector and the realities on the ground be addressed.

The need to simplify administrative procedures to allow for better coordination of policies and smoother adaptation processes mentioned above was highlighted. Policies need to be designed in a collaborative way that produces synergy and reduces conflicts. Adaptation and flexibility in facing new challenges and the emerging needs of the sector require a simplification of bureaucracy in the ET system or at least a revision of procedures.

Last but not least, the need to revise the role of education in the AKIS framework was widely discussed. The results of this study revealed that the AKIS framework is currently regarded as more of a list of actors rather than a system to be internalized and owned by its actors; hence, some changes are required. These changes include making it less static to capture the process of change in the sector; highlighting students and farmers not only as "needers" of knowledge but also as "creators" of knowledge, which means making the AKIS framework less linear and lean more toward knowledge sharing; and reinforcing the role of advisory services and rethinking the role of advisors, making them more central to the AKIS, supporting their training and reconnecting them to tackle current challenges.

5. Discussion

This study identified strategies for improving the educational policy of the AFF sectors by designing a framework connecting the Green Deal, the FtF strategy and the AKIS and using this framework as the rationale for a round of workshops—from local and EU perspectives—conducted with the participation of farmers, value chain actors, innovation brokers, ET managers, teachers, researchers, experts, advisors and policymakers. The results revealed cross-cutting themes and policies for pivoting the ET system toward more

innovative and sustainable AFF sectors. These cross-cutting themes were grouped into four main categories: adopting new approaches to ET; improving and updating curricula and learning programs; enhancing collaboration and multi-actor approaches; and revising and changing the approach of policymaking.

Our study revealed that multidisciplinary, student-centered and tailor-made approaches to ET would be necessary to address the evolving challenges of today and meet the needs of the sector. Consistent with this idea, other research in this area has argued that a linear knowledge transfer model—wherein researchers, trainers and technical experts develop solutions to agricultural problems and then pass them down to farmers—is becoming increasingly outdated; instead, system approaches as well as multidisciplinary and multi-organizational approaches to learning and education should be adopted [30]. In light of this goal, Moschitz et al. [7] address reflective learning as an important component of participatory action research, which can enable the co-creation of knowledge in the agri-food sector. Home and Rump [30] discuss the importance of mutual trust, commitment and social learning, which can contribute to successful collaboration in efforts to implement these new approaches, tools and methods. Jack et. al. [31] suggest that strong intermediate levels of educational attainment, in addition to the acquisition of work-related generic skills for creating a more "flexible" and multi-skilled workforce, are necessary for firms operating in the agri-food sector. However, in recent literature reviews on the topic of university–industry collaboration, the focus is on research collaboration and general barriers to knowledge exchange, while a discussion on the role of education in knowledge creation and co-learning is often overlooked [32,33].

Within this scope, digital skills as well as digital educational programs (e.g., remote and free-standing LLL programs) have also proven to have critical importance. Our results revealed that digital skills not only allow for innovativeness in the agri-food sector but can also diminish the gender gap in LLL by increasing the inclusion of people who would otherwise not have the chance (e.g., women who are mostly eliminated from learning activities due to domestic unpaid care-taking tasks). This confirms several contributions in the area of new technologies. Lubell et al. [34] discuss ICT use among extension professionals working on sustainable agriculture in California and emphasize the role of social media tools and platforms in building knowledge, networks, coordination, communication, outreach and education. It is also important to pay attention to the digital competencies of teachers at all levels of education: an analysis of the scientific literature from 2011 to 2021 using the DigCompEdu framework [35] shows that university teachers predominantly develop digital competencies with a didactic function, as opposed to other areas, such as facilitating students' digital competencies, empowering them or promoting their active participation, inclusion and personalization using digital environments.

The plea for a revision of curricula arising from our workshops is consistent with research exploring the impact of university curricula and proposing ways to improve them. These studies that focus on university settings and educational curricula mainly argue that the current system has a fragmented approach, in which food system challenges are being addressed separately, and that the disconnection of the issues being addressed poses a key barrier to food system transformation [3]. Our research also revealed general fragmentation in the overall education system, which lacks functional coordination and harmonization. Thus, this encompasses a shared view of curriculum making, from an early age (i.e., pre-university) until LLL is proposed. From this perspective, an important role is played by educators who are enrolled in teaching and training and should always remain updated with the evolving needs of the sector.

The results of our study, in terms of the need for collaboration among multiple actors, are also consistent with numerous papers that explore the educational setting at universities and propose ways to adopt multi-stakeholder approaches to innovation. Dias et al. [36], in a systematic literature review on agricultural entrepreneurship, focus on the assessment of entrepreneurship programs targeted at agricultural students in higher education, in addition to women and young farmers. They propose that entrepreneurship programs

should not only target farmers but also agricultural students in higher education institutes. Moreover, government training programs are essential to promoting youth involvement in agricultural businesses and improving their entrepreneurial skills; while there are entrepreneurship programs for young farmers in less developed countries that provide both entrepreneurial and technological capacities with positive results, it is necessary to expand those programs to other farmers and other countries. Valley et al. [3], who investigate four undergraduate sustainable food system education (SFSE) programs in four different well-known universities in Northern America, identify common pedagogical themes evident in these programs (collective action, systems thinking, experiential learning, communication and collaboration skills, research skills, interdisciplinarity and critical reflection). The authors argue that by making these themes and their function explicit within a pedagogical framework, it would be possible to spur critical and creative thought regarding the challenges of professional education in the field of sustainable food systems. Migliorini and Lieblein [37] note that bringing university students closer to stakeholders in society as part of their learning process is highly important because of its applied approach, which is necessary for a transition to sustainable agriculture. Moreover, although university programs based on experiential and action-oriented learning have been developed over the past decades, more knowledge is needed about the impact of these educational activities. Our study stressed the importance of linking education with the realities on the ground starting from the early years of education. It was argued that education should not only focus on knowledge transfer but also convey local cultures and stories behind food, taking the local context into account. This would require better integration of farmers and farming and food system entrepreneurs in the development of courses that could provide students with all the necessary tools for familiarization with farming systems, not just on paper but in real life. To this end, a methodological proposal was made to shift the current understanding of the "knowledge triangle", based on "education, research and business", to a rectangle, incorporating "education, research, business and local society", where local society is regarded as a new dimension, fundamental for new projects, to prosper the sector.

This study has some limitations. Firstly, the education issues are very much context-specific and linked to the country or even local legal framework. The (purposeful) attempt to generalize common issues, may provide results that could be perceived as not concrete enough or, at least, requiring adaptation to local needs. Secondly, the policy, market and political contexts have been changing quite dramatically since the outset of the project, with sudden changes in contingent policy priorities. This is an expected problem in a setup based on actual policy strategies. However, it also highlights the importance of the continuous evaluation of ET needs over time and emphasizes the importance of organizational solutions to promptly detect these needs. Another limitation concerned the data collection methodology. In this study, the in-depth discussions with stakeholders, within the scope of the conducted workshops, took place in numerous different national and regional contexts. Although necessary measures were taken to ensure each workshop was similarly executed by aligning the discussion points and follow-up questions, the fact that they were conducted in different country contexts made it challenging to bring the results together. Consequently, this study concentrated more on the overarching results that are consistent across the countries studied in this research, rather than assessing the data at a specific case level. A related limitation is that of the number and representativeness of the participants. Clearly, a wider set of stakeholders would have guaranteed higher robustness; however, the interactive approach during the workshops yielded good comprehensiveness of views, providing an "efficient" understanding of potential policy improvements.

6. Conclusions

ET is one of the most powerful and proven vehicles to trigger innovation and skill generation in the AFF sectors, supporting the transition toward more resilient and sustainable food systems [38]. In order to address the variety of complex "wicked" global challenges of our time, ranging from the climate crisis and resource depletion to pandemics

and economic inequality, there is an imperative need to establish robust and innovative ET systems. These systems can then effectively educate and train learners, practitioners and professionals in the AFF sectors.

This study identified strategies for improving the educational policy framework, aiming to meet the requirements of the AFF sectors. The results revealed the need to integrate the topic of sustainability and practical ways of applying it in the AFF sectors throughout the whole ET system, especially starting from the early stages of education. The need to enhance networking and collaboration across all actors of the ET system was also underscored, particularly the importance of partnerships and coordination among educational institutions and industry, entrepreneurs, civil society and communities involved in decision- and curriculum-making processes. Thanks to these collaborative processes, balancing theory and practice in curricula, as well as integrating formal, non-formal and informal learning mechanisms into the ET system, is also possible. This study also highlighted the importance of supporting, financing and improving LLL programs, extending their reach and making them accessible to all who wish to continue learning and updating their knowledge in this field, as well as changing careers later in life. Moreover, educational policies that support initiatives for learner-centered and multi- and interdisciplinary education that is flexible and tailor-made to the needs of the learners are needed. Last but not least, stakeholders in the AFF sectors addressed the need for a better and more common understanding of terms in the policymaking processes. This includes the need for governmental institutions to set clear definitions and establish a common understanding of the New Green Deal and FtF goals, as well as a better understanding of terms and objectives at different levels in the AKIS systems.

This study provided a background for proposing new policy instruments and concrete policy tools for future challenges in the AFF sectors. While cross-cutting knowledge and efforts at the European level have proven to be essential, the differences among regional contexts, highlighted in this study, call for a need to design tailor-made solutions specific to regional or national needs. This requires knowledge and experience acquired at local, national and EU levels, and the need for stakeholders in the sector to collaborate across all of these levels to find mutual solutions and to share good practices. Moreover, while this study reveals the roles and responsibilities of a range of AKIS actors in updating and improving the ET system as a pillar of the AKIS framework, it is clear that all actors, including students, educators, policymakers, entrepreneurs, advisors, industries, professionals, research bodies and educational managers, have crucial roles to play. Furthermore, the coordination of policies and the harmonization of administrative and regulatory frameworks will also be required to operationalize this transition process. In addition, the complex challenges and needs of the sector underscore that a collaborative and participatory approach to educational policymaking and implementation will be the key approach to aligning ET systems with these needs and facilitating transitions within the AFF sectors. At the same time, the continuously changing and emerging global challenges and priorities, as well as the EU context, highlight the importance of resilience, flexibility and adaptation capacity of the education system as key features.

Future research should focus on case studies and best practices in the governance of ET systems, including the coordination, collaboration, regulation and management of educational content, policies, institutions and resources. Action research could offer a systematic approach to testing pilot courses, programs and curricula for innovative learning methods, while flexible and modular teaching and learning programs, as well as LLL modules, could also play important roles in leading this transition. It is also crucial for future research to establish connections between needs, tools and implementation paths within and across countries and regions, with the overarching objective of providing attractive, remunerative and sustainable skills and jobs for youth in the agri-food sector. Last but not least, policies should focus on creating opportunities to establish permanent platforms with diverse representatives, where discussions and the co-creation of ET policies can take place; establishing a network of national centers for curriculum design and skills

development; strengthening coordination among member states to harmonize policies in LLL through necessary regulations; and supporting community agricultural practices and innovative hubs or spaces, where informal learning is triggered.

Author Contributions: Conceptualization, Y.K. and D.V.; formal analysis, Y.K., G.M.R. and F.S.; methodology, Y.K.; project administration, Y.K., G.M.R., F.S., R.S. and M.M.; supervision, D.V.; writing—original draft, Y.K.; writing—review and editing, G.M.R., F.S., R.S., M.M., E.P., A.D.C., M.F., E.L. and G.M. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by the European Union's Horizon 2020 research and innovation programme (grant agreement no.: 771738; Educating the Next Generation of Professionals in the Agri-food and Forestry System (NEXTFOOD)).

Institutional Review Board Statement: Ethical review and approval were waived for this study due to its anonymized data collection and non-interventional approach.

Informed Consent Statement: Informed consent was obtained from all subjects involved in this study.

Data Availability Statement: All data collected during the execution of the workshops can be found in detail in the publicly available deliverables: https://www.nextfood-project.eu/wp-content/uploads/2020/01/lw3mnxswz-uk0umqqrm.pdf (accessed on 31 October 2019); https://www.nextfood-project.eu/wp-content/uploads/2022/02/d4.2-identification-of-strategies-for-improvement.pdf (accessed on 29 April 2021); and https://www.nextfood-project.eu/wp-content/uploads/2022/06/d4.4.pdf (accessed on 28 April 2022).

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Participants of the workshops.

The Organized Workshop	Organization That Planned the Workshop	Country/Countries of Discussion	The Participants of the Workshops	Affiliation/Institution of Participants
The pilot workshop	University of Bologna	Italy	Participant 1	DISTAL, University of Bologna
			Participant 2	DIMEVET, University of Bologna
			Participant 3	DINAMICA
			Participant 4	Regione Emilia-Romagna
			Participant 5	PWC
Country Workshop 1	Co-organized by Agronutritional Cooperation of the Region Central Macedonia and American Farm School (AFS)	Greece	Participant 1	Ministry of Agricultural Development
			Participant 2	Chamber of small-scale industry
			Participant 3	Chalkidiki Chamber
			Participant 4	Hellenic-Italian Chamber
			Participant 5	Municipality of Oreokastro, Thessaloniki
			Participant 6	Ministry of Agricultural Development and the Hellenic Agricultural Organisation "DEMETRA" (ELGO- DEMETRA).
			Participant 7	Agricultural and stoc-farmer cooperative "MENIKIO"
			Participant 8	Agricultural cooperative "ELASSONA UNION"
			Participant 9	Agricultural Cooperative "MESSINIA UNION"
			Participant 10	International Hellenic University, Agricultural Department

Table A1. *Cont.*

The Organized Workshop	Organization That Planned the Workshop	Country/Countries of Discussion	The Participants of the Workshops	Affiliation/Institution of Participants
			Participant 11	Organization for payments and regulation of Union reinforcements, guidance and assurance.
			Participant 12	Organization for Agro-economy in the Central Macedonia District
			Participant 13	Agricultural Department of Aristotle University of Thessaloniki
Country Workshop 2	ISEKI-FOOD Association	Austria	Participant 1	CONFAGRICOLTURA
			Participant 2	CONFAGRICOLTURA
			Participant 3	ABDN
			Participant 4	Life Long Learning Platform
			Participant 5	EQAS-Food
			Participant 6	ASIIN
			Participant 7	ASIIN
Country Workshop 3	Norwegian University of Life Sciences-NMBU	Norway	Participant 1	AgriAnalyse (research community)
			Participant 2	Norwegian Agency for International Cooperation and Quality Enhancement in Higher Education
			Participant 3	The Norwegian Farmer's Union
			Participant 4	Norwegian Agricultural Cooperatives
Country Workshop 4	Roskilde University	Denmark	Participant 1	University professor, educator, agronomist
			Participant 2	Vocational educator, agro production, primary producer
			Participant 3	Danish Veterinary and Food Administration, Sustainable food and health
			Participant 4	Educational committee of vocational gastronomic educations
			Participant 5	Vocational education of food and gastro fields
			Participant 6	University professor, educator, food studies
			Participant 7	Ph.D. fellow, modern food systems
Country Workshop 5	Skogforsk and Lund University	Sweden	Participant 1	Lecturer at Bachelor of forestry program
			Participant 2	Head of department and senior lecturer
			Participant 3	Committee of gender equality and equal opportunities at Faculty of Forest Sciences
			Participant 4	Faculty of Forest Sciences
			Participant 5	Skogforsk University
			Participant 6	Researcher
			Participant 7	Director Research and Innovation
			Participant 8	Associate Professor, senior lecturer, researcher
			Participant 9	HR Manager
			Participant 10	Expert
Country Workshop 6	University of South Bohemia	Czech Republic	Participant 1	University of South Bohemia in České Budějovice
			Participant 2	The National Institute of Public Health
			Participant 3	Institute of Agricultural Economics and Information

Table A1. *Cont.*

The Organized Workshop	Organization That Planned the Workshop	Country/Countries of Discussion	The Participants of the Workshops	Affiliation/Institution of Participants
Country Workshop 7	CIHEAM	Italy	Participant 4	Ministry of Agriculture
			Participant 1	GAL, president, agronomist
			Participant 2	Farmer/public officer
			Participant 3	Professor at Bari University, agronomist
			Participant 4	High school teacher, agronomist and researcher
			Participant 5	CIHEAM Bari
			Participant 6	CIHEAM Bari
			Participant 7	CIHEAM Bari
Country Workshop 8	University of Chile	Chile	Participant 1	Fundación Biodiversidad Alimentaria (Food biodiversity foundation)
			Participant 2	Faculty of Medicine, University of Chile
			Participant 3	FAO Regional Office for Latin America and the Caribbean
			Participant 4	Office of Agrarian Studies and Policies, Ministry of Agriculture, Chilean Government
			Participant 5	Department of Rural Management and Innovation, Faculty of Agricultural Sciences, University of Chile Institute of International Studies, University of Chile
			Participant 6	Faculty of Agricultural Sciences, University of Chile
Country Workshop 9	University of Calcutta	India	Participant 1	Visva Bharati University, Santiniketan
			Participant 2	State Agriculture University, West Bengal
			Participant 3	University of Calcutta
			Participant 4	State Agriculture University BCKV, West Bengal
			Participant 5	Institute for Studies in Industrial Development, New Delhi
			Participant 6	Division of Agricultural Extension, ICAR-IARI NEW DELHI
			Participant 7	University of Calcutta/Director, Centre for Pollination Studies, Kolkata
			Participant 8	Welthugerhilfe, Germany
			Participant 9	NEXTFOOD Project
EU-level Workshop	University of Bologna	EU	Participant 1	Swedish University of Agricultural Sciences
			Participant 2	Swedish University of Agricultural Sciences
			Participant 3	University of Hohenheim
			Participant 4	University of Hohenheim
			Participant 5	Copa-Cogeca
			Participant 6	University of South Bohemia
			Participant 7	University of South Bohemia
			Participant 8	Lund University
			Participant 9	European Council of Young Farmers (CEJA)

Table A1. *Cont.*

The Organized Workshop	Organization That Planned the Workshop	Country/Countries of Discussion	The Participants of the Workshops	Affiliation/Institution of Participants
			Participant 10	European Council of Young Farmers (CEJA)
			Participant 11	Council for Agricultural Research and Economics (CREA)
			Participant 12	Council for Agricultural Research and Economics (CREA)
			Participant 13	Council for Agricultural Research and Economics (CREA)
			Participant 14	American Farm School
			Participant 15	American Farm School
			Participant 16	American Farm School
			Participant 17	Norwegian University of Life Sciences
			Participant 18	Norwegian University of Life Sciences
			Participant 19	Norwegian University of Life Sciences
			Participant 29	European Commission

References

1. Viaggi, D.; Kurtsal, Y.; Rinaldi, G.M.; Sirri, R.F.; Fioravanti, M.; De Cesare, A.; Manfreda, G.; Luppi, E.; Pacetti, E. Report on Identification of Strategies for Improvement. Deliverable 4.2 of the NextFOOD Project Funded under the European Union's Horizon 2020 Research and Innovation Programme GA No: 771738. 2021. Available online: https://www.nextfood-project.eu/wp-content/uploads/2022/02/d4.2-identification-of-strategies-for-improvement.pdf (accessed on 29 April 2021).
2. Maini, E.; De Rosa, M.; Vecchio, Y. The Role of Education in the Transition towards Sustainable Agriculture: A Family Farm Learning Perspective. *Sustainability* **2021**, *13*, 8099. [CrossRef]
3. Valley, W.; Wittman, H.; Jordan, N.; Ahmed, S.; Galt, R. An Emerging Signature Pedagogy for Sustainable Food Systems Education. *Renew. Agric. Food Syst.* **2017**, *33*, 467–480. [CrossRef]
4. EU Cordis. Building a Future Science and Education System Fit to Deliver to Practice. 2018. Available online: https://cordis.europa.eu/programme/rcn/702064/en (accessed on 22 June 2020).
5. EU SCAR. Policy Brief on "New approaches on Agricultural Education Systems". 2017. Available online: https://ec.europa.eu/eip/agriculture/sites/default/files/policy_brief_on_education_systems_scar_akis_06102017.pdf (accessed on 13 August 2022).
6. Esposti, R. Knowledge, Technology and Innovations for a Bio-Based Economy: Lessons from the Past, Challenges for the Future. *Bio-Based Appl. Econ.* **2012**, *1*, 235–268.
7. Moschitz, H.; Muller, A.; Kretzschmar, U.; Haller, L.; de Porras, M.; Pfeifer, C.; Oehen, B.; Willer, H.; Stolz, H. How can the EU Farm to Fork strategy deliver on its organic promises? Some critical reflections. *EuroChoices* **2021**, *20*, 30–36. [CrossRef]
8. Fieldsend, A.F.; Cronin, E.; Varga, E.; Biró, S.; Rogge, E. Organisational innovation systems for multi-actor co-innovation in European agriculture, forestry and related sectors: Diversity and common attributes. *NJAS Wagening. J. Life Sci.* **2020**, *92*, 1–11. [CrossRef]
9. Lawrence, A.; Deuffic, P.; Hujala, T.; Nichiforel, L.; Feliciano, D.; Jodlowski, K.; Lind, T.; Marchal, D.; Talkkari, A.; Teder, M.; et al. Extension, advice and knowledge systems for private forestry: Understanding diversity and change across Europe. *Land Use Policy* **2020**, *94*, 104522. [CrossRef]
10. Klerkx, L.; Begemann, S. Supporting food systems transformation: The what, why, who, where and how of mission-oriented agricultural innovation systems. *Agric. Syst.* **2020**, *184*, 102901. [CrossRef] [PubMed]
11. Fieldsend, A.F.; Cronin, E.; Varga, E.; Biró, S.; Rogge, E. Sharing the Space' in the Agricultural Knowledge and Innovation System: Multi-Actor Innovation Partnerships with Farmers and Foresters in Europe. *J. Agric. Educ. Ext.* **2021**, *27*, 423–442. [CrossRef]
12. EU SCAR. Preparing for Future AKIS in Europe. Brussels. European Commission. 2019. Available online: https://scar-europe.org/index.php/akis-documents (accessed on 24 September 2021).
13. EU SCAR. *Agricultural Knowledge and Innovation Systems in Transition—A Reflection Paper*; EU SCAR: Brussels, Belgium, 2012.
14. Sutherland, L.-A.; Labarthe, P.; Elzen, B.; Adamsone-Fiskovica, A. AgriLink's Multi-Level Conceptual Framework. *Deliverable D1.1 of the EU H2020 Project 'AgriLink'*. 2018. Available online: https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5bedd26df&appId=PPGMS (accessed on 1 June 2022).
15. Ingram, J.; Maye, D. What Are the Implications of Digitalisation for Agricultural Knowledge? *Front. Sustain. Food Syst.* **2020**, *4*, 66. [CrossRef]

16. Knierim, A.; Kernecker, M.; Erdle, K.; Kraus, T.; Borges, F.; Wurbs, A. Smart farming technology innovations—Insights and reflections from the German Smart-AKIS hub. *NJAS Wagening. J. Life Sci.* **2019**, *90–91*, 100314. [CrossRef]
17. Viaggi, D.; Sirri, R.; Kurtsal, Y.; Fioravanti, M.; De Cesare, A.; Manfreda, G.; Luppi, E.; Pacetti, E. Report on Diagnostics of Existing Policies. Deliverable 4.1 of the NextFOOD Project Funded under the European Union's Horizon 2020 Research and Innovation Programme GA No: 771738. 2019. Available online: https://www.nextfood-project.eu/wp-content/uploads/2020/01/lw3mnxswz-uk0umqqrm.pdf (accessed on 31 October 2019).
18. Galli, F.; Favilli, E.; D'Amico, S.; Brunori, G. A transition towards sustainable food systems in Europe. In *Food Policy Blue Print Scoping Study*; Laboratorio di Studi Rurali Sismondi: Pisa, Italy, 2018; ISBN 9788890896040.
19. Hulsink, W.; Dons, H.; Lans, T.; Blok, V. *Handbook on the Entrepreneurial University*; Edward Elgar Publishing: Cheltenham, UK, 2014; pp. 248–278.
20. Caskie, P. Human capital and the CAP: The case for radical policy reform. *EuroChoices* **2018**, *17*, 31–36. [CrossRef]
21. Zahran, Y.; Kassem, H.S.; Naba, S.M.; Alotaibi, B.A. Shifting from fragmentation to integration: A proposed framework for strengthening agricultural knowledge and innovation system in Egypt. *Sustainability* **2020**, *12*, 5131. [CrossRef]
22. Coopmans, I.; Accatino, F.; Antonioli, F.; Gavrilescu, C.; Gradziuk, P.; Manevska-Tasevska, G.; Meuwissen, M.; Peneva, M.; Soriano, B.; Urquhart, J.; et al. Policy directions to support generational renewal in European farming systems. *EuroChoices* **2020**, *19*, 30–36. [CrossRef]
23. Laing, K.; Todd, L. *Theory-Based Methodology: Using Theories of Change in Educational Development, Research and Evaluation*; Research Centre for Learning and Teaching, Newcastle University: Tyne, UK, 2015. [CrossRef]
24. French, J.; Bachour, R.; Mohtar, R. Project Report. Project of Theory of Change for Transforming Higher Education, carried out in partnership of The American University of Beirut (AUB), the Global Confederation of Higher Education Associations for Agricultural and Life Sciences (GCHERA), EARTH University and the W.K. Kellogg Foundation. 2020. Available online: https://bpb-eu-w2.wpmucdn.com/sites.aub.edu.lb/dist/f/44/files/2020/07/Transforming-Higher-Education-Project-Theory-of-Change-Narrative.pdf (accessed on 3 February 2023).
25. Reinholz, D.L.; Andrews, T.C. Change theory and theory of change: What's the difference anyway? *Int. J. STEM Educ.* **2020**, *7*, 2. [CrossRef]
26. EC. Farm to Fork Strategy—For a Fair, Healthy and Environmentally-Friendly Food System. 2020. Available online: https://ec.europa.eu/food/farm2fork_en (accessed on 21 January 2021).
27. VSO. *Participatory Approaches: A Facilitator's Guide*; VSO: London, UK, 2014; Volume 175, p. 2004.
28. Braun, V.; Clarke, V. Using thematic analysis in psychology. *Qual. Res. Psychol.* **2006**, *3*, 77–101. [CrossRef]
29. King, N. Using Templates in the Thematic Analysis of Text. In *Essential Guide to Qualitative Methods in Organizational Research*; Cassell, C., Symon, G., Eds.; Sage: London, UK, 2004; pp. 257–270.
30. Home, R.; Rump, N. Evaluation of a multi-case participatory action research project: The case of SOLINSA. *J. Agric. Educ. Ext.* **2015**, *21*, 73–89. [CrossRef]
31. Jack, C.; Anderson, D.; Connolly, N. Innovation and skills: Implications for the 90 agrifood sector. *Educ. Train.* **2014**, *56*, 271–286. [CrossRef]
32. De Wit-de Vries, E.; Dolfsma, W.A.; van der Windt, H.J.; Gerkema, M.P. Knowledge Transfer in University–Industry Research Partnerships: A Review. *J. Technol. Transf.* **2019**, *44*, 1236–1255. [CrossRef]
33. Rybnicek, R.; Königsgruber, R. What Makes Industry–University Collaboration Succeed? A Systematic Review of the Literature. *J. Bus. Econ.* **2019**, *89*, 221–250. [CrossRef]
34. Lubell, M.; McRoberts, N. Closing the extension gap: Information and communication technology in sustainable agriculture. *Calif. Agric.* **2018**, *72*, 236–242. [CrossRef]
35. Colás-Bravo, P.; Conde-Jiménez, J.; Reyes-de-Cózar, S. Sustainability and digital teaching competence in higher education. *Sustainability* **2021**, *13*, 12354. [CrossRef]
36. Dias, C.S.L.; Rodrigues, R.G.; Ferreira, J.J. What's new in the research on agricultural entrepreneurship? *J. Rural Stud.* **2019**, *65*, 99–115. [CrossRef]
37. Migliorini, P.; Lieblein, G. Facilitating transformation and competence development in sustainable agriculture university education: An experiential and action oriented approach. *Sustainability* **2016**, *8*, 1243. [CrossRef]
38. FAO. Sustainable Food Systems—Concept and Framework. *Technical Brief.* 2018. Available online: http://www.fao.org/3/ca2079en/CA2079EN.pdf (accessed on 25 September 2021).