D4.1: Report on Diagnostics of existing policies

WP4 – Policy assessment and recommendation

EUROPEAN UNION

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Executive summary

The agriculture and forestry sector are nowadays rapidly evolving especially with the introduction also in this field of new and innovative technologies like computing, sensor technologies and precision agriculture and farming. Agrifood and forestry professionals are thus facing new challenges to adapt to this evolving process that requires new and different approaches to innovation, starting from knowledge sharing, education and training of future professionals. Education is one of the most powerful and proven vehicles for sustainable development, as also stated as part of the Sustainable Development Goals (SDGs) that make up the 2030 Agenda for Sustainable Development. Quality education is one of the 17 SDGs, which aims to ensure inclusive and equitable quality education and promote life-long learning opportunities for all. In this context, policies are deemed necessary to support this sustainability transition and to guide the education of the next generation of professionals in the agrifood and forestry sector.

The extended literature and policies review that has been conducted within this study reveals that while education needs in the agrifood sector are widely addressed in the literature, a precise policy framework boosting the development of the education in this sector seems lacking or insufficient. Although, some of the literature studies can have important implications to drive policy-making in the agrifood sector, the need for further research that can inform the broader policy environment as well as the design of youth-targeted policies, projects and programmes in the agrifood sector is deemed necessary. Furthermore, the studies that attempt to discuss existing policies in the area of agricultural education and skills development are mostly conducted on a local or national level, through specific and fragmented case studies. For this reason, specific studies that can give a more complete picture of the actual agricultural education on a wider scale (e.g. at European level) such as the NextFOOD project are extremely necessary for a future educational perspective. This deliverable provides the results of Task 4.1., which aims to provide a diagnostic of existing policies. The report is based on the findings of a survey implemented on an array of stakeholders, including farmers (big and small-medium companies), value chain actors, innovation brokers, bachelor and master degree coordinators, PhD coordinators, teachers, researchers, experts, advisors, local and EU authorities and policymakers.

The number of respondents who have taken part at the survey was 188 and the questions addressed four different educational policy fields of the agricultural, food and forestry (AFF) systems: Pre-university education (High school), University education, Adult learning, vocational education and training, and Training measures in agricultural, food and forestry (AFF) sectors (e.g. CAP). The main findings of the survey highlighted in general the existence of policy gaps, the lack of sufficient innovation in education tools, the need of more networking, and some sustainability concerns. These findings were rather consistent across the four policy fields addressed. Some of the most interesting outcomes of the survey are provided below:

- The coordination among the four policy fields discussed in this task was judged as absent or insufficient for the large part of respondents. The argumentations/ hypotheses that support this opinion are mainly centred on the rigidity among policy-makers and national institutions, the long-time necessary for policy

changing and implementation, and the insufficient coordination among EU, national and regional levels policies.

- The policies are mostly designed on a country level, followed by regional level and university level. Thus, there is the necessity of an educational policy framework in the AFF sector at EU and international level in order to gain a better policy harmonization among countries.
- There is no or poor awareness on the availability of strategy documents that develop and implement the education in the AFF systems, and/or if they are planned to be implemented. Thus, there is also the necessity of a better communication and dissemination of policy strategy in this field among policy-makers, actors of research and education, and stakeholders.
- There is an insufficient amount of financial support provided for the development of educational policies in the AFF sector in all the four policy fields but especially for Adult learning and vocational education. The respondents also believed that policies are not providing sufficient educational opportunities for young agrifood and forestry professionals.
- The current policies seem to be only partially efficient to address AFF sector needs and to provide innovative ways of learning and there are still insufficient opportunities for young agrifood and forestry professionals to access adult training and vocational education.
- The actual policies seem not effective in providing student-centred learning, interdisciplinarity, internationalisation/mobility, networking, and finally, in providing an efficient sustainability, entrepreneurship and innovation.

For all these reasons, the quality of educational policy in the AFF sector is perceived as poor. There is a lack of long-term planning in policy-making, lack of budget allocation for this educational sector and a real policy is missing. Furthermore, there is a very low level of coherence between policies at different levels: policies need to be simplified, to be linked more to practical aspects, and national level policies to be revised to suit actual challenges and needs. Finally, the learning approaches have to be revised: the lack of participatory and practice-oriented learning is seen as an essential bottleneck, in addition to student-centred learning. It is necessary to better connect the school with practice and real-life experiences, to promote holistic thinking, and to give basic knowledge starting from the earlier stages of education (high school).

1 Introduction

1.1 WP4 aim

Sustainability in agricultural systems is viewed as a prerequisite for transition to sustainable development at the global level. Given its scale and scope, the sustainability transition is a significant challenge to the entire agrifood and forestry sector and the main question remains on how to support this transition process (Martin et al., 2018). The current European agrifood and forestry system is too slow to innovate towards more sustainable agriculture, forestry, food and bio-based value chains. Farmers need to develop their capacities to innovate: to co-create and implement new practices; to adapt to legislative, policy, market and environmental changes; to develop contemporary skills in order to market their products; and to take part in interactive innovation-based networks. Various education systems and methods can enhance farmers' capacity to innovate and thus increase the viability of a rural livelihood in a time when there is an increasing shortage of skilled agrifood system workforce, especially in rural areas. Meanwhile, integrated legal frameworks, policies and governance systems that are able to address the main gaps in the sector may provide an enabling environment supporting the transition towards more resilient and sustainable food systems, which requires urgent measures by the part of all stakeholders of the sector (FAO, 2018).

The need to speed-up innovation has been repeatedly emphasized in recent years and is now a core element of the European Commission's communication on the future of food and farming. For this reason, the necessity of a good policy framework that could drive the education of the future professionals in the agrifood and forestry sector become urgent. According to the AKIS -"Agricultural Knowledge and Innovation System"- it is mandatory to share knowledge and innovation for agriculture and rural areas development and 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. Thus, the WP4 aims to assess the existing policies related to the education in the agrifood and forestry systems by considering the interactions among different actors in the innovation process, hence having as a reference the composition and functioning of AKIS.

In fact, the analysis of existing policies in this task 4.1 is carried out on multiple scales and levels, from EU to local and non-EU countries, considering different roles in education policy. Relevant education policies and their interaction with sector innovation and training programmes, e.g. those included in the CAP are covered. Several levels of education, from high school to PhD and life-long learning are considered.

Following this assessment, policy recommendations will be delivered based on research activities through which we aim to explore what impact the present education and training systems have on the learners' knowledge on sustainability and related subjects, and skills needed to solve problems in an action-oriented and collaborative manner. Policy recommendations will be finally developed for all stakeholders affected by education and life-long learning programmes for sustainable agrifood and forestry systems, in particular for decision-makers who are working with education governance and for those who are dealing with education management at regional, national, EU-level and non–EU level education. Policy recommendations will be designed to promote gender equality in research and education, which ties into the implementation

of the gender equality dimension in the Europe 2020 strategy. The policy development will tie into the EU objectives to address challenges in education and training systems by 2020:

- Making life-long learning and mobility a reality;
- Improving the quality and efficiency of education and training;
- Promoting equity, social cohesion, and active citizenship;
- Enhancing creativity and innovation, including entrepreneurship, at all levels of education and training.

1.2 Description of work in Task 4.1 and objectives of the document

According to the project proposal, in task 4.1 we assess the existing EU and non-EU policy instruments (with main reference to existing formal education and life-long skills development programmes). As underlined above, the necessity of a good policy framework that could drive the education of the future professionals in the agrifood and forestry sector becomes urgent as farmers need to acquire the skills to innovate and to deal with the increasing sustainability challenges. For this reason, this task will analyse the gaps present in the actual educational policy framework and suggests potential improvement tools.

The task is based on a pan-EU survey of actors in the research and education system, involving judgments about the effectiveness of existing policies and their interaction as well as gaps, which has paved the way for providing a diagnostics of the existing policies, and will contribute further to the proposition of effective strategies. In this context, we surveyed the national and EU-level decision-makers and experts, considering also non-EU countries, and considering the legal framework in force as well.

A special focus was given to the role of policies in the context of information transmission among different actors in the research and education system and the role of education policies in this context. References to success stories and needs for the future are also added, in order to make the survey able to contribute to the further tasks. The work builds on synergies with the work performed in WP1 and WP3.

In the next sections, we review some background literature (section 2) to give an overview of which topics and areas are addressed by the literature and the available information on existing policies (section 3). This has provided us with a deeper understanding of the existing policies and researches on the topic and guided the process of preparation of the survey questions. In section 4, we illustrate the methodology, in section 5, we provide the findings of the survey and in Annex 3, we present the final version of the questionnaire.

2 Some background literature

This literature review aims to give a snapshot of how the link among agrifood systems, education and related policies are addressed in the literature, including the current state of educational and extension programmes, regional and country-specific efforts and gaps towards innovation fostering and skills formation that are necessary to enabling a transition towards sustainable agricultural and forestry systems. Towards this goal, this literature review also attempts to give an overview of how gaps in the existing educational policies and potential ways to overcome bottlenecks in the policy framework have been discussed. First, a summary will be provided, then some of the findings of the literature review will be presented in Table 1, while a review of actual EU policies and programmes in agrifood and forestry sector is presented in the next section.

Sustainability in agricultural systems is viewed as a prerequisite for transition to sustainable development at the global level. Given its scale and scope, the sustainability transition is a significant challenge to the entire agrifood and forestry sector, and the main question remains on how to support this transition process (Martin et al., 2018). Integrated legal frameworks, policies and governance systems that are able to address the main gaps in the sector may provide an enabling environment for supporting the transition towards more resilient and sustainable food systems (FAO, 2018).

Primarily, approaches in agriculture are rapidly evolving and all stakeholders involved in the agrifood sector are increasingly faced with challenges in order to adjust to the rapidly changing conditions (EIP-AGRI, 2018). In this context, farmer livelihoods and rural development is an extended category in the literature, as most of the rural populations depend on agriculture for their livelihoods. Research in this area tends to focus on topics including but not limited to young farmers and new entrants, small-scale farmers and place of women in the agricultural sector (Recanati et. al, 2019; EC, 2016). Resilient EU farmer livelihoods and the rural communities they support are crucial for the food system transition (Recanati et. al, 2019). Hence, new challenges pertaining to agricultural systems, require a different approach to innovation, knowledge sharing, education and learning.

Research in this area mainly argues that “business as usual” and “more of the same” cannot solve educational problems and cannot help overcome challenges associated with the lack of innovative capabilities necessary to cope with the challenges of our day (FAO and UNESCO-IIEP, 2003). While literature on general education and agricultural policy associate training with research and innovation as part of smoothing technology transfer processes and input policies (Ellis, 1992), other studies argue that the “linear knowledge transfer” model - where researchers, trainers and technical experts develop solutions to agricultural problems and then pass them down to farmers - is becoming increasingly outdated. Instead, this linear view of innovation in agricultural contexts are being replaced with systems approaches, where agricultural producers are also seen as important actors rather than merely consumers of the technologies that are generated by agricultural research and transferred by education and extension services for subsequent adoption (Home and Rump, 2015). Hence, co-creating knowledge and interactive methodologies to better support innovation and

change are urgently needed to update the knowledge systems in the agrifood sector (EU Cordis, 2018).

While the approaches towards innovation in agrifood sector are evolving, a significant skill gap is also emerging in the sector consequently. Numerous studies address the lack of education and skills in the agrifood sector as a bottleneck that is hampering innovation. 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 wicked problems by using systems approaches and engaging with diverse stakeholders (Valley et. al., 2017). One of these gaps addressed is in the area of good facilitation and mediation to manage agrifood projects, in which the focus is more on process management rather than project management (Moschitz, 2013). While currently education and skill levels in the agrifood sector vary vastly across countries and depending on farmers' age, gender and farm structures, enhancing education will play an increasing role in farmers' capacity to take part in interactive innovation systems and networks (EU Cordis, 2018). Meanwhile, fostering innovations in agrifood sector requires a multidisciplinary and multi-organizational approach to learning and education. The structural organization of research and educational institutes should reflect the multidisciplinary nature of the sector and its challenges (Anandajayasekeram, 2011).

On the other hand, numerous studies focus on the potential of specific innovative learning approaches towards filling skill gaps and a sustainable transition in the agrifood sector. Some of these studies provide examples from specific projects, programmes or country cases, discussing how these approaches may create wider impacts in the agrifood sector. Moschitz and Home (2014) address Reflective Learning as an important component of participatory action research, which has a capacity to enable co-creation of knowledge in the agrifood sector. Home and Rump (2015) discuss the importance of mutual trust, commitment and social learning which can contribute to successful collaboration in the efforts towards implementation of these new approaches, tools and methods. Jack et. al. (2014) 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 the firms that are operating in the agrifood sector. Lubell et. al. (2018) discuss the ICT use among extension professionals working on sustainable agriculture in California and emphasizes the role of social media tools and platforms for building knowledge, networks, coordination, communication, outreach and education. Meanwhile, some studies present case studies from different parts of the world, which cover the areas of peer-to-peer knowledge transfer, vocational training and skills development, and education systems and research, discussing how integrating traditional or intergenerational knowledge and the use of new technologies would be possible (FAO, 2016).

Another branch of research, on the other hand, focuses on the curriculum of education in universities and attempts to explore their impact, while proposing ways to improve. These studies that focus on the university settings and educational curricula mainly argue that the current system has mainly 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 (Valley et. al., 2017). Dias et. al. (2019), conducting a systematic literature review on agricultural entrepreneurship, focus on the assessment of entrepreneurship programmes targeted at agricultural students in higher education, in addition to women and young farmers.

Their findings suggest that entrepreneurial attitudes in the agricultural sector are determined more by education than age and gender; entrepreneurial intentions of students who had attended entrepreneurship courses are higher; and that although younger farmers are less likely to become entrepreneur in the agricultural sector, young farmers are more productive and achieve higher profitability, investment and engagement in agri-environmental schemes. They further propose that entrepreneurship programmes should target not only farmers but also agricultural students in higher education institutes. Besides, government training programmes are essential to promote youth involvement in agricultural businesses and improve their entrepreneurial skills; and while there are entrepreneurship programmes for young farmers in less developed countries that provide both entrepreneurial and technological capacities, with positive results, it is necessary to expand those programmes to other farmers and other countries. Valley et. al. (2017), who study four undergraduate sustainable food system education (SFSE) programmes in four different well known universities in Northern America, identify common pedagogical themes evident in these programmes (collective action, systems thinking, experiential learning, communication and collaboration skills, research skills, interdisciplinarity and critical reflection); and 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 challenges of professional education in the field of sustainable food systems. Migliorini and Lieblein (2016) note that bringing university students closer to stakeholders in society as part of their learning process is highly important, because of its applied approach that is necessary towards a transition to sustainable agriculture. Besides, although, university programmes 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.

While education needs in the agrifood sector is addressed widely in the literature, the need for policies boosting development is less obvious. Furthermore, the studies that attempt to discuss existing policies in the area of agricultural education and skill development are mostly conducted on a regional or national level, through specific case studies, while studies that can give a more complete picture on a larger level (e.g. European level) is almost non-existent, which also justifies further the necessity to implement projects such as NextFOOD. Although fewer in number, among those studies that aim to link agrifood educational needs and policy, one branch focus on some of the gaps in the CAP, to suggest ways towards integrating better development of human capital and agricultural education and farmer life-long learning. Galli et. al., (2018) identify weaknesses or gaps of the selected ten policies in pursuing their own goals and gaps or missing links with other policy areas or tools. Moreover, the paper underlines possible areas of alignment among the tools to better understand the evolving needs of education. Hulsink et. al. (2014) address university level policies that have put the concept of the entrepreneurial university and the promotion of entrepreneurialism on the agenda of a particular university, namely Wageningen University & Research centre (and its associated higher education institutes) through the development of a new collaborative teaching and extension program. They argue that in general, there is a large gap between policy and practice in school organizations. Caskie (2018) argues that there is a potential to apply measures on minimum practitioner competency, practitioner accreditation and continuing professional development to agriculture; arguing that minimum levels of competency can be established as a mandatory requirement for anyone operating in an industry or

can be held on a voluntary basis. The study proposes further that as part of this policy framework, a share of the future EU agriculture budget should be placed in a Knowledge Fund to be allocated in the form of Knowledge Vouchers, to finance training, skills and competency development of farmers. Although some of the findings of these studies can have important implications for policy-making in the agrifood sector, the need for further research that can inform the broader policy environment, as well as the design of youth, targeted policies, projects and programmes in the agrifood sector is clear and significant. It is also crucial for further research to make 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 agrifood sector.

	Name of Study	Year	Type	Explanation	Comments
	Studies that attempt to link agrifood education to policy				
1	**What's new in the research on agricultural entrepreneurship?**	2019	Literature Review in (Journal of Rural Studies)	- Provides an overview of entrepreneurial skills, strategies and activities in agrifood sector of both developed and developing countries - Provides assessment of programmes (agri-environmental schemes, government and NGO programmes) for agricultural students, women and young farmers.	- Able to provide a wide perspective - Overview of policy recommendations and connections to CAP - Assessment of educational programmes made / rather than existing policies in place
2	**Human Capital and the CAP: The Case for Radical Policy Reform**	2018	Article in Eurochoices (EAAE)	- Argues that a reform is required in the scope of CAP (in terms of agricultural education and farmer life-long learning) - Discusses: a. why change is necessary, b. what changes should be made, and c. How change can be implemented	- Discusses existing policies and how they can be improved - Can give a wide overview - Can be useful - Eurochoices is published by: Agricultural Economics Society and European Association of Agricultural Economists (EAAE)
3	**The challenges of innovation for sustainable agriculture and rural development: Integrating local actions into European policies with the Reflective Learning Methodology**	2014	Article in Action Research	- Examines an action research approach participatory action (Reflective Learning Methodology) by analyzing its application in a European level action research project (SOLINSA – Support of Learning and Innovation Networks for Sustainable Agriculture).	- Is written in 2014 – risk of being outdated - Advantages of having a project level lessons learnt, and recommendations that are produced - Action research methodology may have useful implications - Its links to AKIS may be useful
4	**Evaluation of a Multi-Case Participatory Action Research Project: The Case of SOLINSA**	2015	Article in Journal of Agricultural Education and Extension	- Provides evaluation of action research with 17 European networks as part of project (SOLINSA).	- Is written in 2015 – risk of being outdated - Able to provide practical implications of action research methodology
5	**Agri-Environment Scheme Design: Past Lessons and Future Suggestions**	2018	Article in Eurochoices (EAAE)	- Outputs of the 91st EAAE conference (panel on agrifood policy and agricultural extension services)	- Provides policy recommendations on professionals working as part of advisory services - Policy and knowledge transfer – and related tools
6	**New approaches on Agricultural Education Systems**	2017	Policy Document of WG SCAR-AKIS	- Discusses the evolving needs of education in agrifood sector in Europe within the interactive innovation model. - Puts forth the challenges of the sector - Studies 5 implemented projects in Europe as cases, to study innovating education	- Provides a European level overview - Provides lessons learnt and policy implications for different country cases - Highly relevant in terms of policy
7	**Developing the Knowledge, Skills and Talent of Youth to Further Food Security and Nutrition**	2016	FAO Report	- Provides case studies from different regions (Africa, Europe, Near East, Asia, Latin America), and discusses lessons learned relating to knowledge, skills and capacity for youth in agriculture.	- It is a report, covering a wide region – hence each case is rather under-studied in order to provide a bit of information from all over the world - Covers the areas of peer-to-peer knowledge transfer, vocational training and skills development which may be relevant - Attempt to include policy implications

	Studies that study outcomes, challenges and implications of programmes at specific higher education institutions				
8	**An Emerging Signature Pedagogy for Sustainable Food Systems Education**	2017	Article in Renewable Agriculture and Food Systems	- Studies four SFSE (sustainable food system education) programmes in 4 prestigious North American universities, identifies common pedagogical themes and proposes signature pedagogy (SP) for sustainable food systems education.	- The themes that are found may be relevant to us: collective action, systems thinking, experiential learning, communication and collaboration skills, research skills, interdisciplinary and critical reflection. - Attempts to make connections to policy
9	**Boosting entrepreneurship education within the knowledge network of the Dutch agrifood sciences: The new 'Wageningen' approach**	2014	Book Chapter in Handbook on the Entrepreneurial University	- Assesses impact and the lessons learned from implementing DAFNE program (Dutch Agrifood Network of Entrepreneurship) and assesses what was the impact of the programme and what were its learning experiences	- Written in 2014, risk of being outdated - May be relevant, in terms of understanding lessons learnt and challenges/gaps - Addresses politics that put the concept of entrepreneurial university on the agenda of Wageningen University
	Studies that are specific to country cases – some linking successfully to policy (while others do not)				
10	**Knowledge networks and their role in shaping the relations within the Agricultural Knowledge and Innovation System in the agroenergy sector: The case of biogas in Tuscany**	2017	Article in Journal of Rural Studies	- Aims to understand the interplay between biogas adopters and stakeholders of AKIS. - Proposes a social network analysis	- Specific to biogas sector in Tuscany - Not directly related but may be useful as it links to stakeholders of the AKIS
11	**Closing the extension gap: Information and communication technology in sustainable agriculture**	2018	Article in California Agriculture	- Examines the role of ICT as innovative extension tools for building knowledge networks and education.	- More specific to a country case (California) - Policy recommendations are provided - Important implications for higher education institutions
12	**Educational needs and perceptions of the sustainability of precision agriculture: survey evidence from Greece**	2017	Article in Precision Agriculture	- Survey is conducted to understand familiarity with Precision Agriculture (PA) among farmers (also young farmers). Educational needs are detected	- Case specific to Greece. - Attempt to link results to CAP, pillar 2
13	**Facilitating transformation and competence development in sustainable agriculture university education: An experiential and action oriented approach**	2016	Article in Sustainability	- Examines impacts of experiential and action-oriented learning on competency development on students of a short course in sustainable agriculture held at the University of Gastronomic Sciences in Bra, Italy.	- Specific to Italy but may be implemented to other countries (as the course also originated in Norway) - May provide insight to experiential and action-oriented learning - But not directly related to policy
14	**Curriculum Analysis of Food Safety Competences at Elementary and Upper-Secondary Level of Formal Education Inside Food-Related Programmes in Slovenia**	2018	Article in Journal of Food Science Education	- Analyzes existing food safety elements in the syllabi at different educational levels and student-ages in Slovenia.	- Specific to country case (Slovenia) - Implications for education needs as well as needs of educators. - Not directly linked to policy but includes policy recommendations

15	**Blurring the boundaries between vocational education, business and research in the agrifood domain**	2012	Article in Journal of Vocational Education and Training	- Discusses the emergence of new knowledge configurations within the Dutch agrifood context. - Studies arrangements between vocational education, business and research	- Written in 2012, highly outdated, may be omitted - Specific to the Dutch case - Not highly relevant
16	**Using policy discourses to open up the conceptual space of farm education: inspiration from a Belgian farm education network**	2018	Article in Environmental Education Research	- Paper uses a case study on a regional farm education network in Belgium to illustrate how farmers' educative efforts can be enrolled differently in educational practices	- Regional case in Belgium - Not relevant to policy - May be useful only in terms of getting familiar with an innovative way of teaching/learning, which also creates income for farmers (Farm education organized by farmers for students)
	Studies that are not directly linked to policy but provides insight into innovative learning/teaching concepts				
17	**Innovation Systems and Knowledge Communities in the Agriculture and Agrifood Sector: A Literature Review**	2015	Literature Review in Journal of Innovation Economics & Management	- Analyses how 4 different "knowledge communities" use the concept of Innovation Systems in agrifood systems. 4 communities are: 1-University researchers, 2-sociologists and economists of agriculture, 3-scientists, 4-agricultural actors involved in implementation of policy	- Written in 2015 – risk of being outdated - Not linked to policy - May be useful to grasp issues, theories and concepts related to Innovation Systems (IS) in agriculture, and how it is used and how it impacts different stakeholders in the agrifood sector
18	**The role of citizen science in addressing grand challenges in food and agriculture research**	2018	Article published on Royal Society Publishing	- Assesses citizen science (involvement of citizens in policy-making) as an innovative field - evaluates extension programmes in agriculture-food sector with a citizen science perspective	- Not directly relevant but may provide a different innovative method for agricultural education
19	**Innovation and skills: Implications for the agrifood sector**	2014	Article in Education and Training	- Aims to explore how firms within agrifood sector consider the way innovation and technology adoption will have impact on future skills and training needs - 30 companies are interviewed	- Written in 2014 – Outdated - Discusses education needs and implications for policy yet, less on existing policy measures or suggestions for improvement

Table 1: Results of the Literature Screening

Summaries of papers above are reported in Annex 2.

3 Review of actual EU Policies and Programmes in Agrifood and Forestry Education

In all EU Member States, agricultural education is an integral part of general education. Thus, its organisation varies widely throughout the EU according to the various national educational systems. It can be centralised or partly devolved to regions and it includes initial vocational training, apprenticeship, undergraduate and postgraduate higher education (Barbinov, 2018).

Agriculture, Food and Forestry (AFF) systems education can be taught as optional courses in some higher education institutions or provided as vocational agricultural education in specific schools. The curriculum content is also widely variable, and some agricultural education institutions have not maintained terms as “agriculture” or “agricultural” in their names. Presently, agricultural curricula may offer different disciplines as geo-informatics, biotechnology, farm management, business management, economics, sociology, consumer, food and nutrition, health and communication, environmental programmes. This is part of a broadening process over time also connected to increasing intersectoral contamination and quest for inter-, multi and trans-disciplinarity (Barbinov, 2018).

Forestry education, which is a fundamental sector in some EU countries like Sweden, seems to offer enough educational opportunities for the needs of the forestry sector. However, the policy framework makes forestry education difficult to adapt to the technical progression and the needs of the sector, as it takes time to change it at the country level. Furthermore, the big issue seems to be the recruiting of enough students to the education programmes in the forestry sector and thus, produce enough future employees for it.

In general, according to a published EU briefing on “Agricultural education and life-long training in the EU” (2017) and to Eurostat data, only 8.5% of the present generation of European farmers have received full agricultural training, and 70% have only practical experience (Augère-Granier, 2017; Eurostat, 2017). Furthermore, there is still a lack of basic agricultural education, particularly in Eastern European countries and many new EU education systems focus on technical novelties while omitting to provide basic agricultural knowledge and skills.

Also, the interaction between research, education and advisory services should be enhanced by promoting an interactive innovation model. In this context, the peer-to-peer learning between farmers and education systems should be achieved by adding in the educational programmes some practical learning projects to be performed in agricultural enterprises that enable students to learn outside the classroom (EU SCAR (2013). In fact, according to a report of EIP-AGRI Focus Group on “New entrants into farming: lessons to foster innovation and entrepreneurship”, the formal education in Central and Eastern European countries is often too theoretical and with limited studies, for example, on non-conventional approaches (e.g. organic farming). In contrast, there are well-developed ‘farming incubators’ in France, Belgium and Bulgaria, and internship programmes in Finland which enable hands-on learning (EIP-AGRI ,2016).

In the forestry sector in Sweden, the cooperation with the stakeholders is quite developed even if more practical skills are still needed. At the pre-university level (upper secondary school), in fact, there is still too little focus on forestry machines and

new technology to adequately prepare the students to be employable. Secondary, there are not enough resources within the forest technology education to promote innovation and more funding is needed to invest in new technology if innovation should be a greater part of the education at the pre-university level.
Modern forestry education must prepare students for a world that expects more than technical knowledge and skills. Graduates will need to be good professional foresters but in addition will need the capacity to contribute to rural development, food security, sustainable natural resources management and poverty reduction (FAO, 2001).
In some recent resolutions, the EU parliament also stressed the importance of education and training in agriculture, which would enable farmers and agricultural operators to deal with an evolving agricultural sector by learning new skills and diversify their activities. It has been also noted that the centres for education, training and innovation throughout the EU have declined or do not adequately prepare workers to deal with emerging fields and sustainable farming (Augère-Granier, 2017). The importance of education in the agricultural system has already emerged as a vital pillar in a published summary of the EURAGRI conference held in Brussels in 2005, where it was stressed the importance of a multidisciplinary approach and of stakeholder commitment and involvement in research and education, with the aim to match farmers' needs and disseminate adequate education and training to farmers (EC DGRI, 2018).
Important measures to sustain agricultural training and knowledge are available in the common agricultural policy (CAP) post 2013, even if its contribution to education is limited (Barbinov, 2018). For example, the CAP provides grants for the training of new operators and already active farmers on the most recent technical production methods, and from 2014 to 2020, the EU intends to make available almost 4 million places in training courses (EC, 2017). Within the EU rural development policy, the second pillar of the CAP, strong emphasis is placed on knowledge acquisition and innovation in agriculture (Barbinov, 2018). In fact, the Regulation (EU) No 1305/2013 on support for rural development by the European Agricultural Fund for Rural Development (the EAFRD regulation) indicates as Union priorities three areas of intervention:

- 1A: Fostering innovation, cooperation and the development of the knowledge base in rural areas;
- 1B: Strengthening the links between agriculture, food production and forestry and research and innovation;
- 1C: Fostering life-long learning and vocational training in the agricultural and forestry sectors.

Under these areas, some measures, such as M1 'Knowledge transfer and information actions', M2 'Advisory services, farm management and farm relief services', and M16 'Cooperation', have been used by some EU member states, to support vocational training and skills acquisition of farmers and agricultural operators (Bulgaria, Poland, Slovenia, Netherlands), to improve the link between education, research and agricultural businesses (Bulgaria, Italy and Scotland), and to improve agricultural education (Slovenia) (Regulation (EU) No 1305/2013; EC, 2016).
Furthermore, the recent Commission proposal for a regulation on the CAP Strategic Plans for the CAP 2021-2027, includes especially in the Article 72 the focus on funding for knowledge exchange, advice and information, where it is stated that "Member States may grant support for agricultural, forestry and rural business knowledge exchange and information" and "may cover costs of any relevant action to promote

innovation, access to training and advice and exchange and dissemination of knowledge and information" (EC, 2018).
Notably, in both the current and the future CAP these measures are designed at the national or even at the regional level (e.g. for Italy) and hence are further adapt at the local education and extension institutions. Also, training measures are often activated in connection with other measures through cross-compliance mechanisms, in order to provide incentives to attend training events.
In addition, education is more and more treated as connected to the research and innovation system. Alongside the CAP, the Agricultural European Innovation Partnership for Agricultural productivity and Sustainability (EIP-AGRI), that is part of the EU's growth strategy Europe 2020 for smart, sustainable and inclusive growth, aims to connect research knowledge and technology with farmers, rural communities, businesses, NGOs and advisory services. The EIP-AGRI collaborate with several actors in public and private sectors at EU, national and regional levels, different knowledge players and Operational Groups for pooling and exchanging existing policies and instruments to achieve societal benefits and a fast modernisation of the agricultural system. During the EIP-AGRI seminar on "Promoting creativity and learning through agricultural knowledge systems and interactive innovation" held in Dublin in 2015, it has been highlighted how important systems for learning and innovation are in relation to the day-to-day needs of most farmers (EIP-AGRI 2015). Also, the Agricultural Knowledge and Innovation System - AKIS is devoted to linking people and organisations to promote mutual learning, to generate, share, and utilize agriculture-related technology, knowledge, and information working at a national and regional scale. A dedicated Strategic Working Group (SWG) of the Standing Committee of Agricultural Research (SCAR) on Agricultural Knowledge and Innovation Systems (SWG SCAR AKIS) has been built to explore AKIS systems and to improve them. In a Policy Brief of this SWG on the "New approaches on Agricultural Education Systems" it has been stated that "education should be positioned as an active partner (in regional and international) ecosystems for learning and innovation". Agricultural education systems should stimulate a multi-actor approach in education to be able to dynamically reflect the trends and needs of the agricultural sector and society (SCAR-AKIS, 2017).
At EU level, also the programmes Erasmus+ and Erasmus for Young Entrepreneurs support education, international exchanges and training of students and young farmers. Under the Pilot project "Exchange programmes for young farmers", funded by the European Union and carried out by the consortium led by Ecorys, the Netherlands, the various exchange programmes of EU Member States have been assessed in order to improve the exchange schemes for young farmers according to their needs (Augère-Granier, 2017).
Some trends in recent decades include the reduced role of purely public education institutions, the increasing focus on sustainability and the parallel increasing attention to innovation management, entrepreneurship and creativity.
Examples in this direction can be found among the EU platforms, associations and projects established to improve education and training in the AFF systems:

- **EUROPEA International**, established in 1992 and based on a set of legally approved Statutes and some Internal Regulations, is an association working for the development of vocational education and training in the green sector of Europe, covering agriculture, horticulture, forestry and other. EUROPEA offers a network of European colleagues

committed to international cooperation and sharing of knowledge, an effective framework for international cooperation in projects funded by the EU and other agencies, and advocacy vis-à-vis the EU institutions. At present, EUROPEA organizes 25 national EUROPEA networks, which represent more than 1.000 vocational schools and institutions all over Europe. (https://europea.org)

- **AGRINATURA (European Alliance on Agricultural knowledge for Development)**, founded in 2009, is a grouping of European universities and research organizations with a common interest in supporting agricultural development in a sustainable manner in order to improve people's lives. AGRINATURA promotes scientific excellence through joint research, educational and training programmes and projects and advocates for greater support for agricultural research and educational programmes. (https://agrinatura-eu.eu/)

- **Agroecology Europe**, created in 2016 by 19 founders from 10 countries, supports agroecological research, education and training and aims to create an inclusive European community of professionals, practitioners and citizens engaged in agroecology. The main goals are to stimulate exchanges and collaborations between scientists, advisers, farmers, food producers, consumers, other stakeholders and citizens in Europe, to foster interdisciplinary and transdisciplinary research approaches in agroecology, to disseminate knowledge, techniques and practices among interested stakeholders. (http://agroecology-europe.org/)

- **UEAA (Union of European Academies for Sciences applied to Agriculture, Food and Nature)** was created in 2000 by 14 National Academies, both from European member and candidate countries, all committed to the advancement of science. Their main objectives are to foster comparative studies on a European scale regarding the development and dissemination of knowledge and the innovation and sustainable development of agriculture, land use and food supply. It provides the exchange of information among scientists, the dissemination of science-based information for the proper education of the public, as European citizens demand to be better and correctly informed. (https://ueaa.info/)

- **FBEN (Farm Based Education Network)** is a free member network established to strengthen and support the work of educators, farmers, and community leaders who provide access and experiences on working farms. There are currently over 2,750 FBEN members from 48 states and 28 countries from EU and extra-EU. Members are teachers and teaching assistants, farmers, ecologists, research assistants, FoodCorps and AmeriCorps services members, nutritionists, doctors, garden coordinators, and of course urban, suburban, and rural farmers. The FBEN organizes, co-hosts, and promotes professional learning opportunities for those looking to bring high-quality farm and garden-based learning to their farms, classrooms and communities. (https://www.farmbasededucation.org/)

Other examples of educational programmes and projects in some EU member states are:

- **LEAF Education**. It is a charity registered in England and Wales, which aims to inspire and educate future generations about farming, food and the countryside. It is part of LEAF (Linking Environment and Farming). They provide training and resources for teachers and help farmers navigate the world of education and support them in

working with schools, and they collaborate with agrifood organisations and businesses. (https://education.leafuk.org/ and https://leafuk.org/)

- **SAA (Suffolk Agricultural Association)**. It is a charity whose aim is to promote food, farming and the countryside. To support this aim, they deliver a wide range of education programmes for young people across the county. Over recent years, the SAA has expanded its education programme, running a number of key events that enhance agricultural education in Suffolk and are designed to complement the national curriculum. (https://suffolkshow.co.uk/suffolk-agricultural-association/membership-of-the-saa/)

- **BOGO and WURKS (Wageningen UR Knowledge Share) programmes.** The aim of the programmes is to update educational material and to innovate curricula. The main target groups are universities for applied sciences, higher vocational, secondary vocational and prevocational education. However, there were also projects that aimed at improving vocational training for current agricultural entrepreneurs. The programmes allow better connections between researchers and teachers, in particular, creating networks from different education levels, learning together. (https://www.wur.nl/nl/Onderzoek-Resultaten/Onderzoeksprojecten-LNV/Expertisegebieden/Beleidsondersteunend-onderzoek/Afgeronde-projecten/Kennis/WURKS-DLO.htm)

- **ATP (Advanced Training Partnership).** It was developed by 5 universities in Wales with the aim to provide training for advisors and farmers of a range of postgraduate qualifications and creates opportunities for combining work with education. (https://bbsrc.ukri.org/skills/enhancing-skills/supporting-skills/advanced-training/)

- **RMT (Réseaux MixtesTechnologiques) – Mixed Technological Networks**. It is a partnership supported by the French Ministry of Agriculture, Food and Forest, in order to encourage relationships between research, development, and education stakeholders on specific topics. This programme contains the participation of different actors from research, development and education with 3 qualified technical institutes or chambers of agriculture, 1 agricultural school, and 1 agricultural high school or 1 research institute. This initiative allows to develop stronger linkages among university professors, researchers and advisory services for the development of sustainable and innovative agroforestry (Mézière et al., 2014).

- **Swedish Forestry Validation (Svensk skogsvalidering - SSV)**, which aims at rating and certificating an employee's knowledge and skills in accordance with the requirements within a certain occupation. The employer, the employee, the employment officer and the education coordinators all get clear information on which skills are needed to work as a forest machine operator (harvester and forwarder). The validation takes approximately four hours and if the employee does not pass all parts, further education may be offered. When the employees have passed all parts, they get a certificate. The validation process has been reviewed by the Board of Forestry Profession (Skogsbrukets yrkesnämnd) and experienced representatives from the forestry sector. (https://www.grona.org/medlemskap/in-english/)

4 Methodology of the survey

4.1 Development of the questionnaire

The survey is based on an on-line questionnaire. The final version of the survey has been achieved by the following steps. First, a review of the existing literature on EU policies and programmes in AFF systems education has been made and a draft of the survey has been built up to be revised by partners.
The draft of the survey was sent by e-mail to all partners to be read and then discussed in a scoping workshop during the NextFOOD annual partners meeting, that was held in České Budějovice, Czech Republic, at the University of South Bohemia on 27 May 2019. During this workshop and meeting, some suggestions and comments have been gathered from partners regarding the methodology, scope and target population of the survey and more specific comments on the text has been also sent by partners by e-mail in the days immediately after the meeting.
The suggestions and amendments received allowed designing a final version of the survey that was better adapted to the scope intended with respect to what declared in the project proposal (i.e. high school contacts were decided to be interviewed along with stakeholders' contacts, and to include also non-EU countries).
The survey was sent to a pilot group consisting of selected partners, and after a revision, the final version was sent to the respondents that were selected by each partner. The questionnaire was built on-line in English using SurveyMonkey. If needed, partners were responsible for eventual translation in the local language and to report the answers received in English through the on-line questionnaire. Partners can also have considered administering the interview face to face or by phone and reporting the results using the SurveyMonkey tool.

4.2 Target population

The survey was intended to be administered to stakeholders, farmers (big and small-medium companies), value chain actors, innovation brokers, bachelor and master degree coordinators, PhD coordinators, teachers, researchers, experts, advisors, local and EU authorities and policymakers. In addition, the invitation to fill the questionnaires was diffused through a network of about ten selected EU projects in which UNIBO is partner and via professional networks on LinkedIn.
UNIBO, who led the process of questionnaire design, implementation and analysis of the results, provided to partners a link where the questionnaire was available; partners have distributed the link to their contacts without the need to collecting and transfer addresses.
Both project partners and external actors have been invited to answer (but are requested to specify it in the questionnaire). Non-partner countries have been involved by forwarding e-mails to potentially relevant actors or known colleagues.

4.3 Timing

The survey was launched at the end of June 2019 with deadline 31st August. A few questionnaires arrived slightly late.

5 Results

5.1 Demographic data of respondents

The respondents' population characteristics are shown in the graphs below. The majority of them came from the Academic field (University), which is not surprising if considering that the survey link was distributed among NextFOOD partners' contacts. Consequently, the most frequent level of education was PhD and the most frequent respondents' role was Professor, Researcher and Coordinator/Head in succession. This could be considered a bias for answer analysis, however, the majority of respondents declared not to be partner in NextFOOD project (n=83) with respect to partners (n=16), so their answers can be considered not influenced by the project purposes.

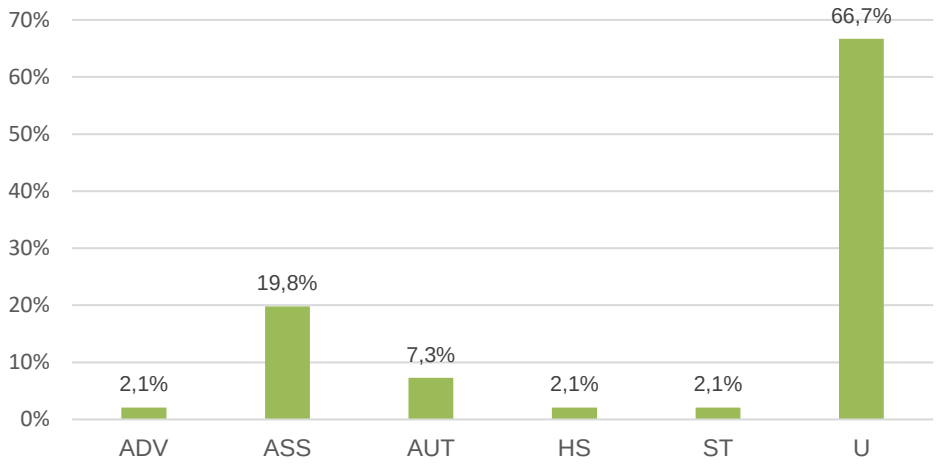

Figure 1: Affiliation/Institution/Company of Respondents
ADV=advisor company; ASS=association/research institute; AUT=authority; HS=high school; ST=stakeholder company; U=university

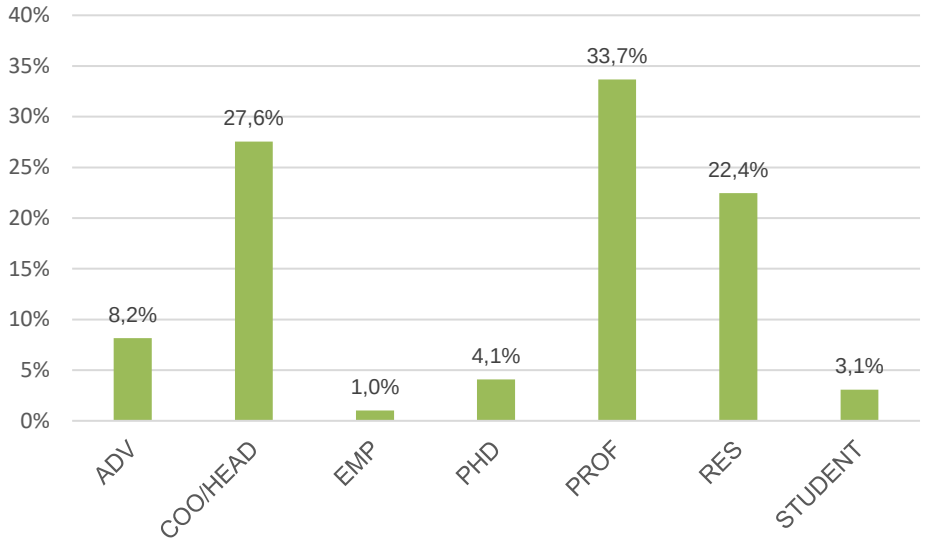

Figure 2: Role of Respondents
ADV=advisor; COO/HEAD=coordinator/head; EMP=employee; PHD=PhD student; PROF=professor/teacher; STUDENT=bachelor or master student

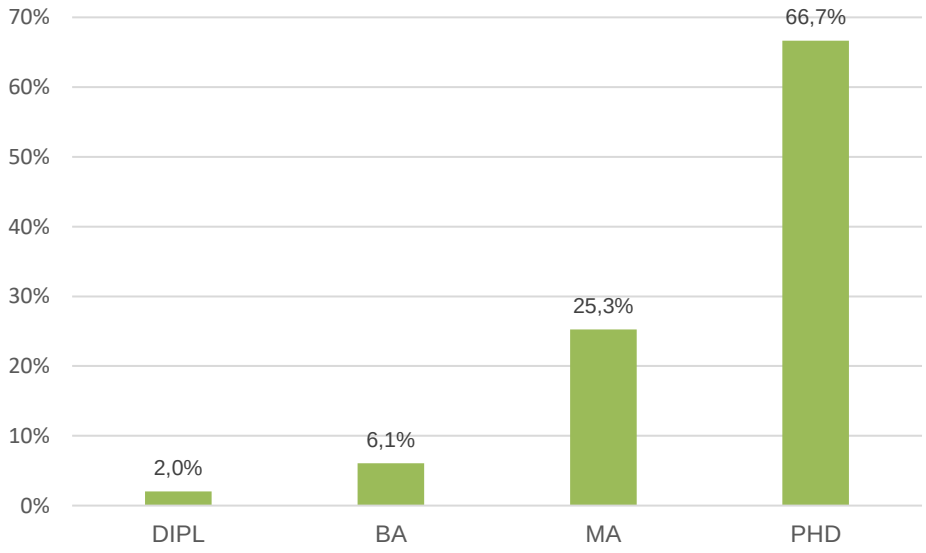

Figure 3: Level of Education of Respondents
DIPL=Diploma; BA=Bachelor degree; MA=Master degree; PHD=PhD

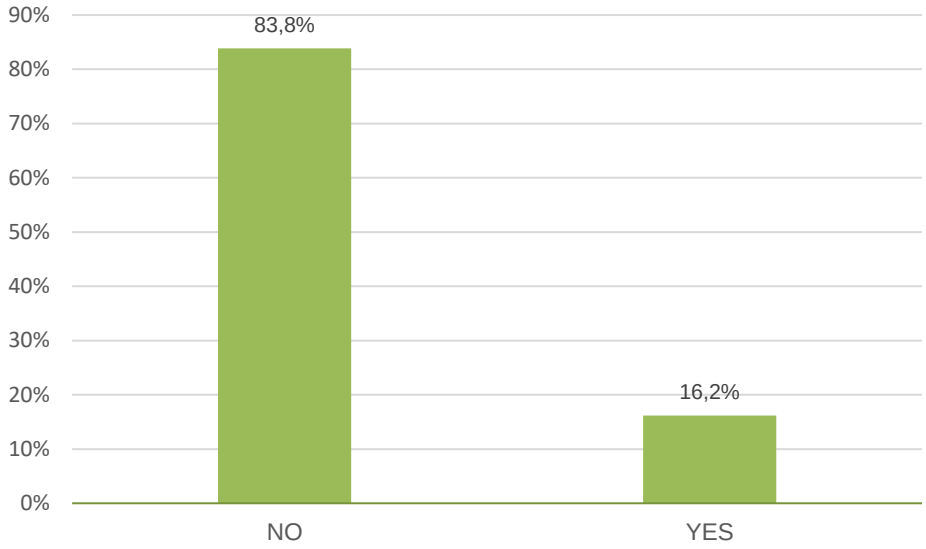

Figure 4: Whether or not respondents are partner in NextFOOD

The age of respondents was very variable and ranged from 24 to 78 with a mean of 47.6. A particular notice is that the more frequent respondents' gender was male (n=63) with respect to female (n=40), although a relatively even gender balance among our respondents, it shows that the agriculture, food and forestry work and research field involves mainly men. This result suggests the necessity to make the AFF systems more accessible to women to guarantee a better gender equality. For more details see the question Q67.

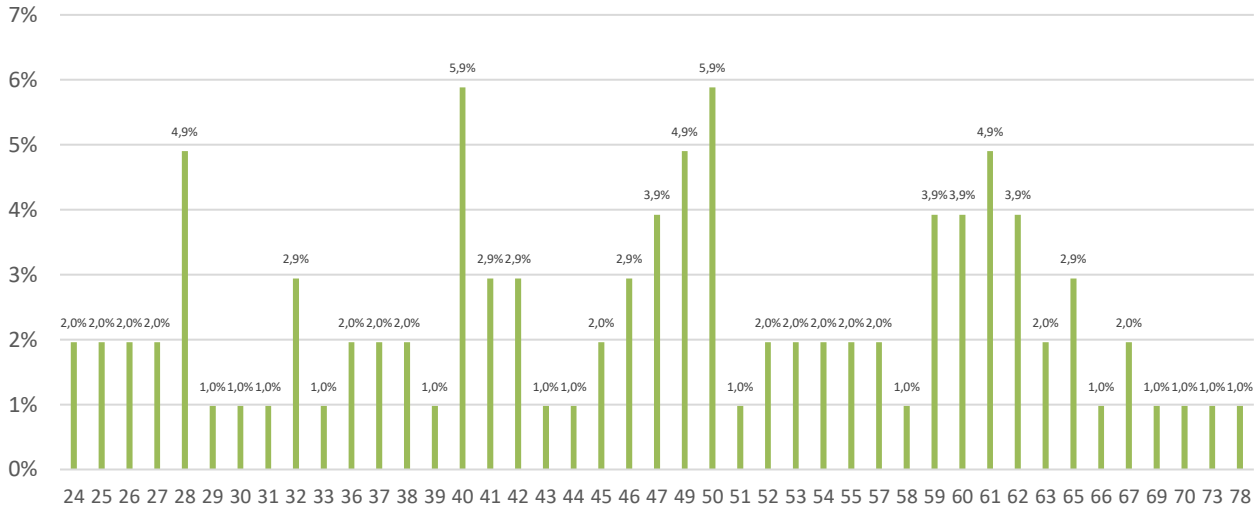

Figure 5: Age of Respondents

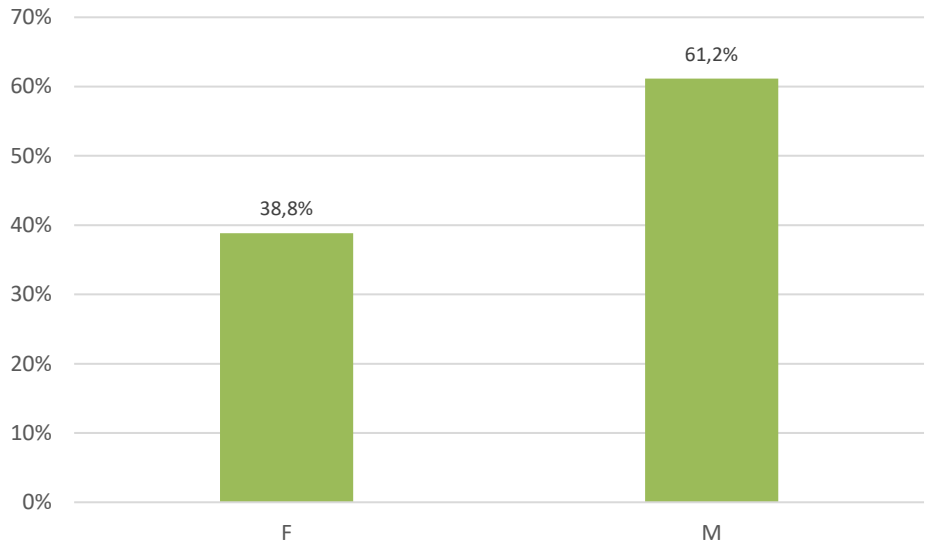

Figure 6: Gender of Respondents

Considering the level of work, the majority of respondents work at national and regional level and only a few at EU or international levels. This result reflects probably the necessity to involve more the lecturers, teachers and advisors responsible for teaching and training in the AFF fields to contribute to policy implementation at EU and International level on AFF education and by sharing objectives, methods and proposals among EU and non-EU member states, educational curricula and programming educational policies in AFF systems. Furthermore, by supporting more the international and European exchanges and networking of professionals in the AFF field, it could be possible to strengthen the educational policy interventions in these fields.

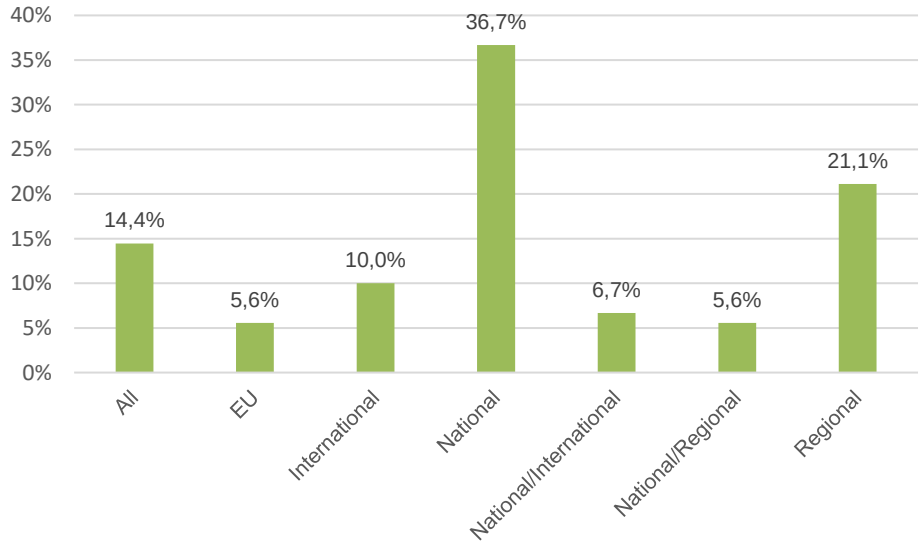

Figure 7: The level at which respondents are working (i.e. regional, national or international)
All=regional, national, EU, international

About the country of respondents, the majority of them are based in Italy, India, Greece and Sweden in succession, with Kerala and Macedonia as the most common regions of Indian and Greek respondents' respectively.

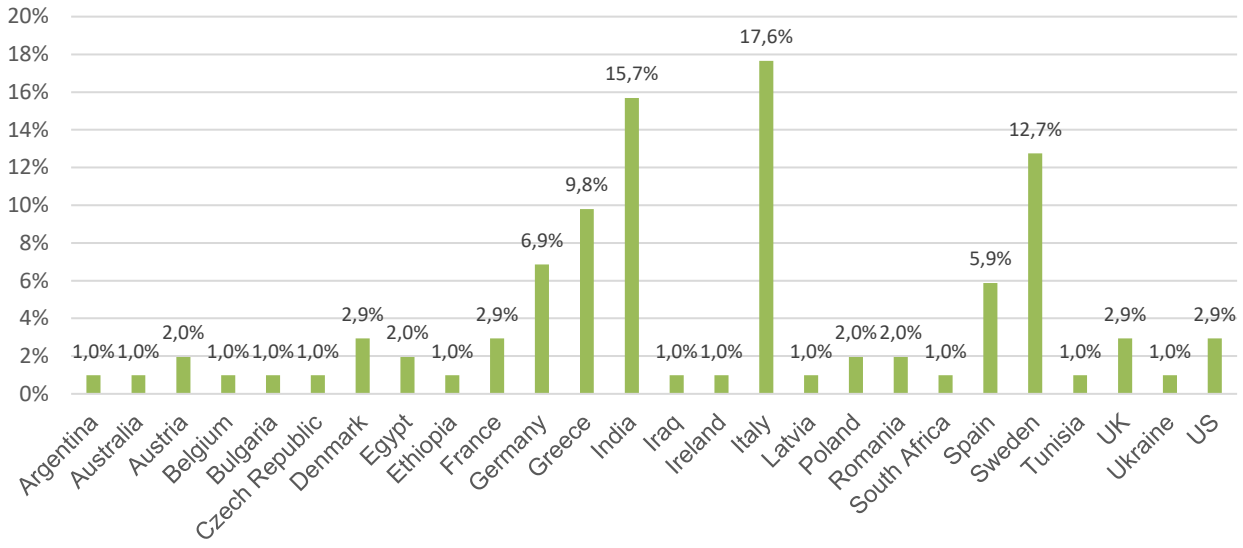

Figure 8: Country of Respondents

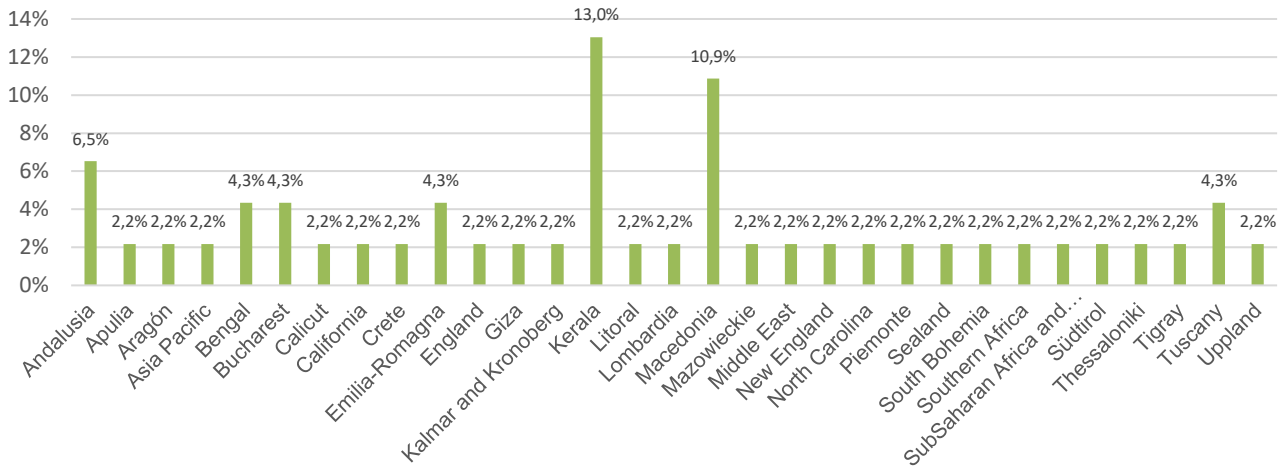

Figure 9: Region of Respondents

5.2 General questions

5.2.1 Q1. How would you rate the relevance of the following fields of public policy in affecting your sector of activity in the region/country you are mainly working?

The first question that respondents were obliged to address was “How would you rate the following fields of public policy in affecting your sector of activity in the region/country you are mainly working?”, where the four policy refers to: Pre-university education policies, University education (including PhD) policies, Adult learning, vocational education and training policies, and Training measures in agriculture/food/forestry policies (e.g. CAP).
The majority of respondents think that all the four policy types highly affect their sector of activity as shown below.

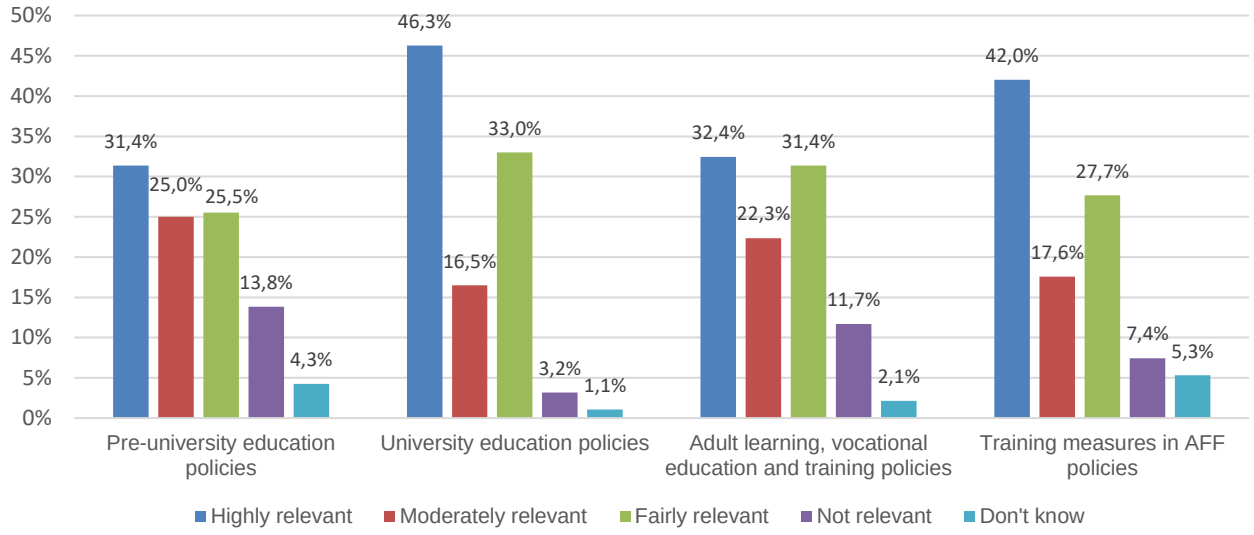

Figure 10: Q1. How would you rate the relevance of the following fields of public policy in affecting your sector of activity in the region/country you are mainly working?

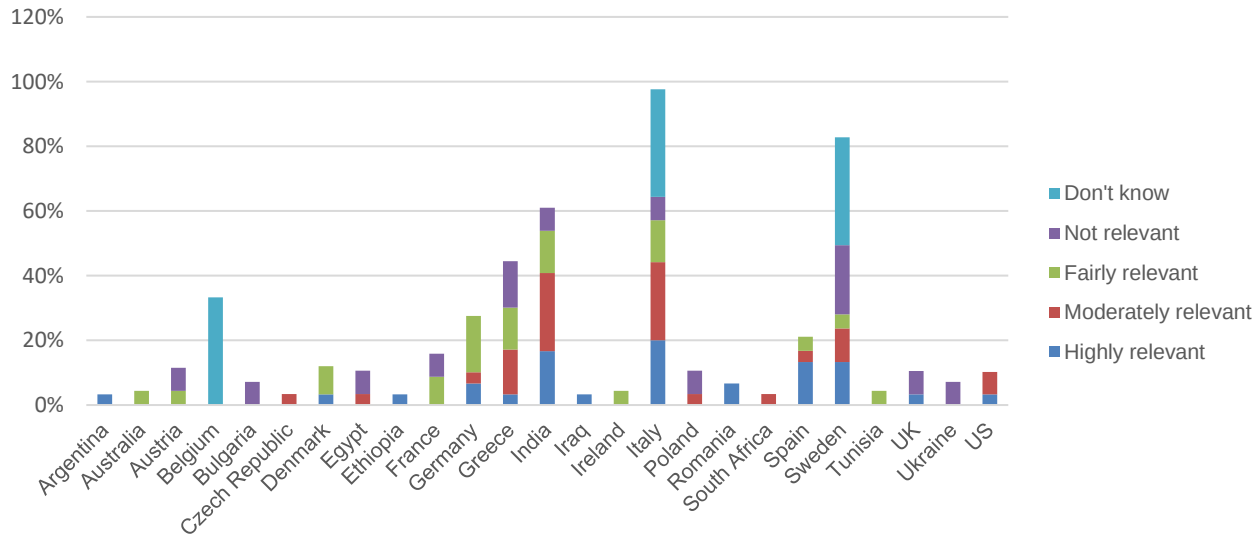

Figure 11: Relevance of Pre-university education policies in relation to respondents’ country

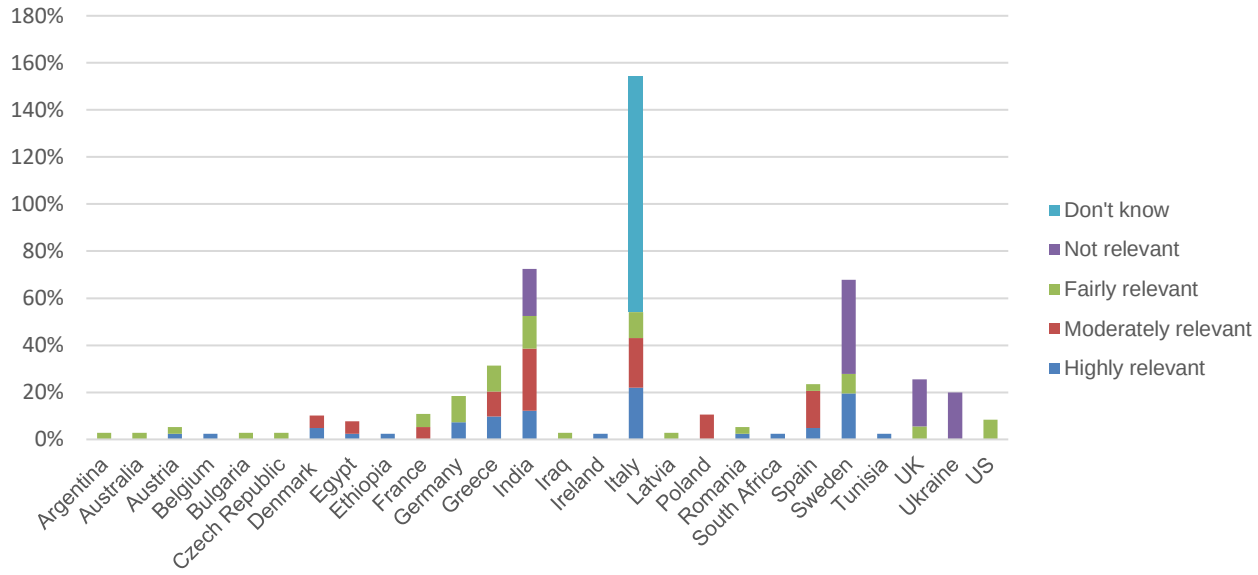

Figure 12: Relevance of University education (including PhD) policies in relation to respondents' country

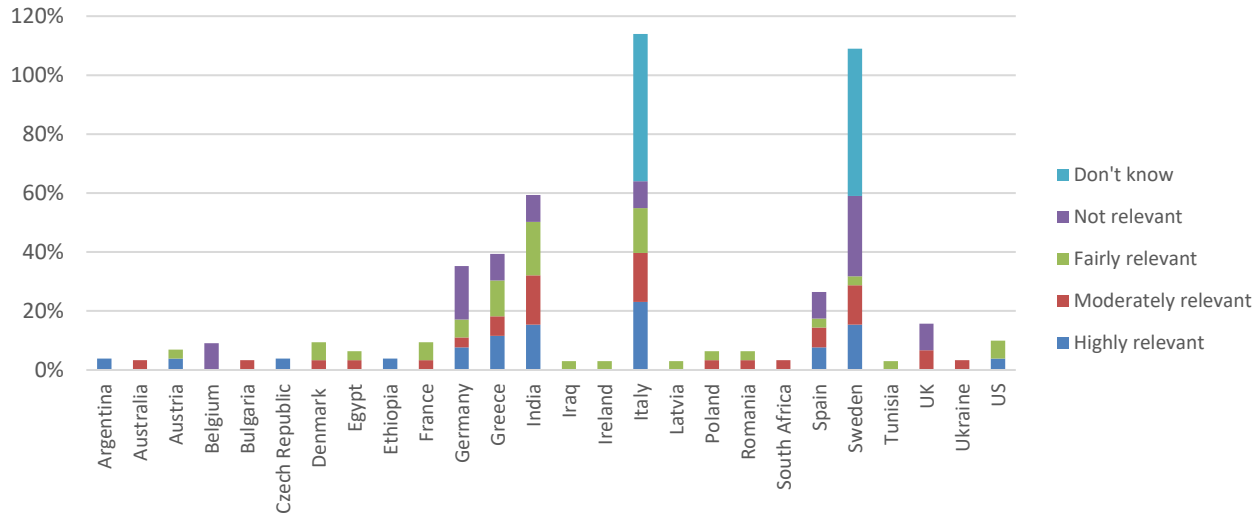

Figure 13: Relevance of Adult learning, vocational education and training policies in relation to respondents' country

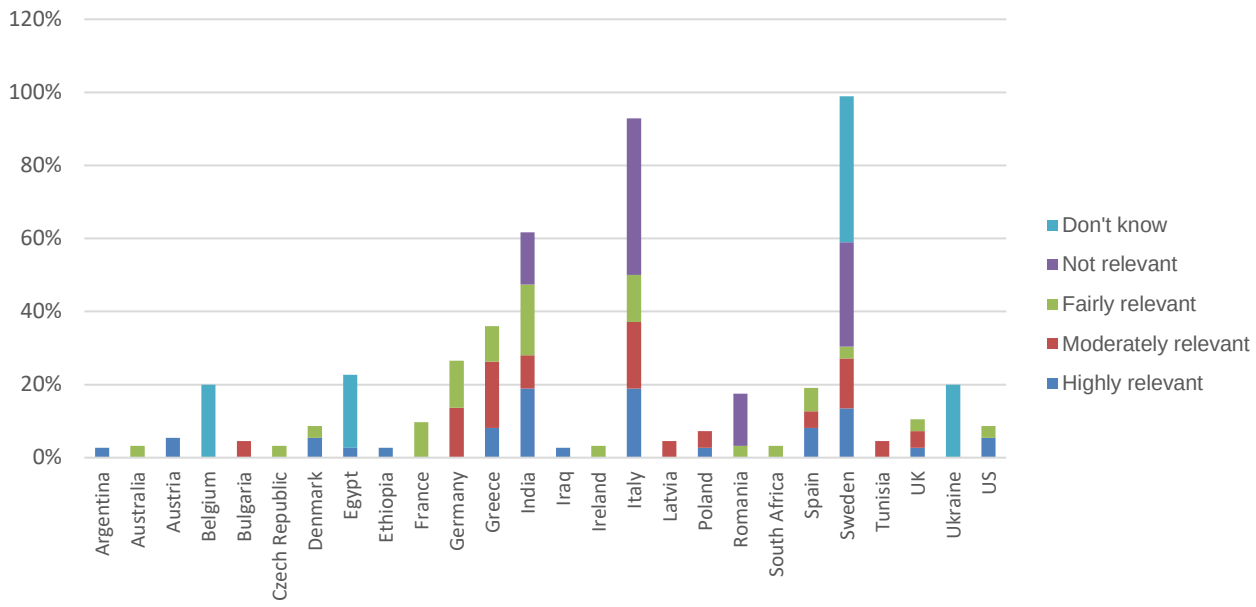

Figure 14: Relevance of Training measures in agriculture/food/forestry policies in relation to respondents' country

According to respondents' affiliation, university and research associations/institutes think that *Pre-university education policies, University education policies* and *Training measures in agriculture/food/forestry policies* are highly relevant for their sector of activity, while *Adult learning, vocational education and training policies* are less relevant for respondents from university but still highly relevant for research associations/institutes. From the point of view of authorities, only *University education policies* seem to be relevant for their sector of activity.

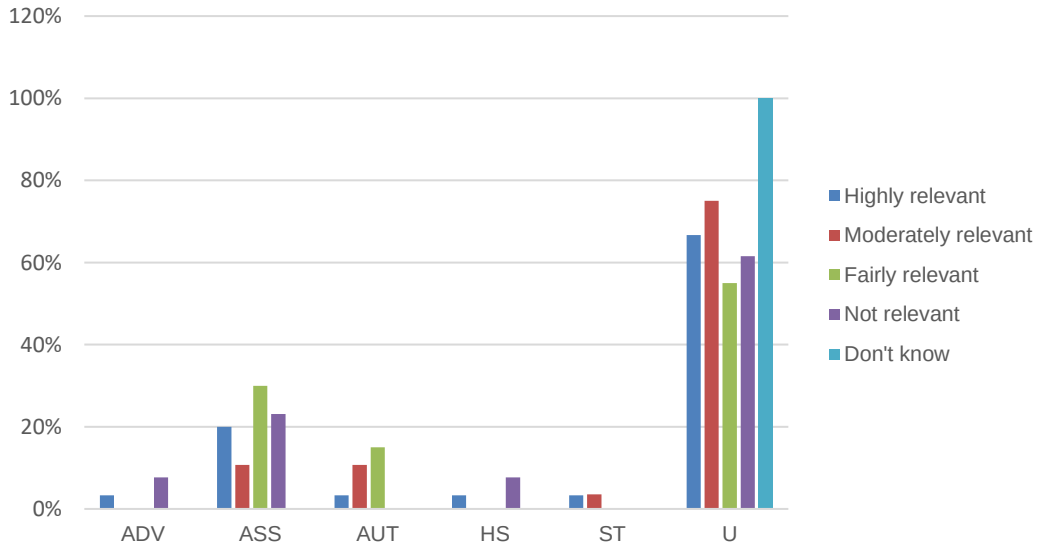

Figure 15: Relevance of Pre-university education policies in relation to respondents' affiliation

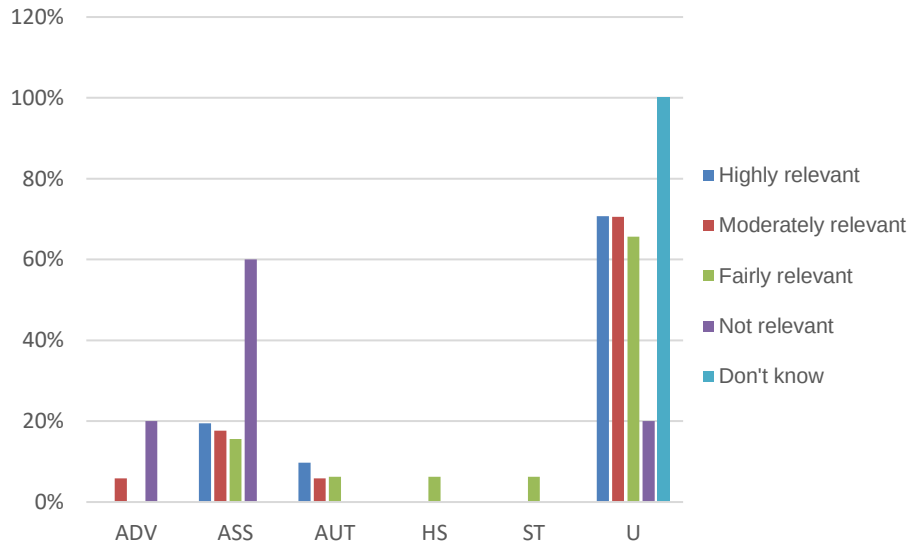

Figure 16: Relevance of University education (including PhD) policies in relation to respondents' affiliation

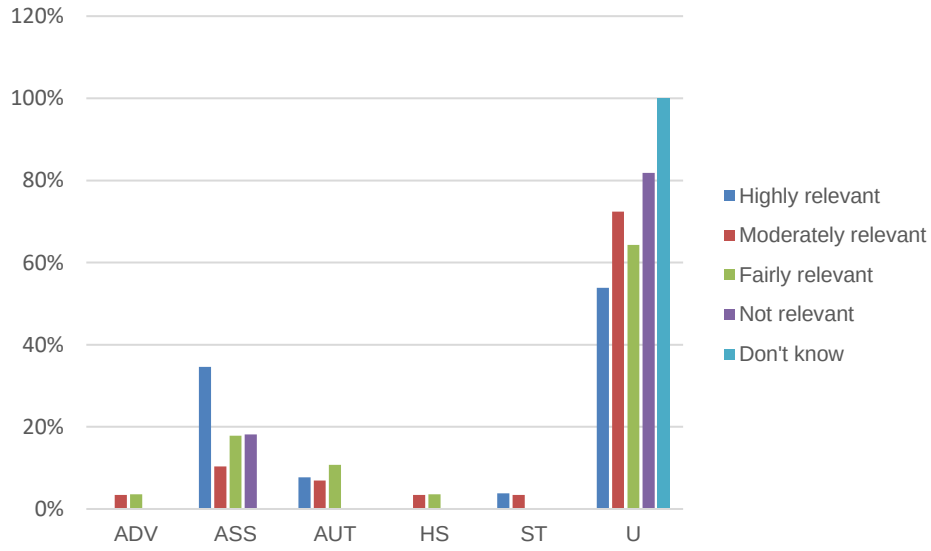

Figure 17: Relevance of Adult learning, vocational education and training policies in relation to respondents' affiliation

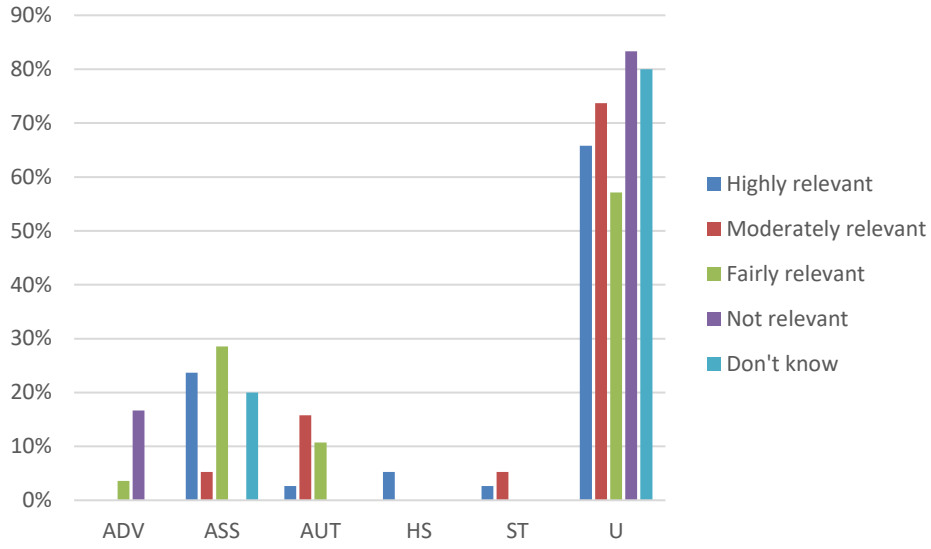

Figure 18: Relevance of Training measures in agriculture/food/forestry policies in relation to respondents' affiliation

According to the role of respondents, *Training measures in agriculture/food/forestry policies* seem to be highly relevant for Professors, Researchers, Coordinators/Heads together with the more obvious *University education policies*, while *Adult learning, vocational education and training policies* seem to be less relevant for the same category of roles.

This can suggest that people with an advanced role in academic and research associations/institutes give more importance to the policies addressed to specific practical training of students and professionals in the AFF fields rather than the adult and vocational education policies.

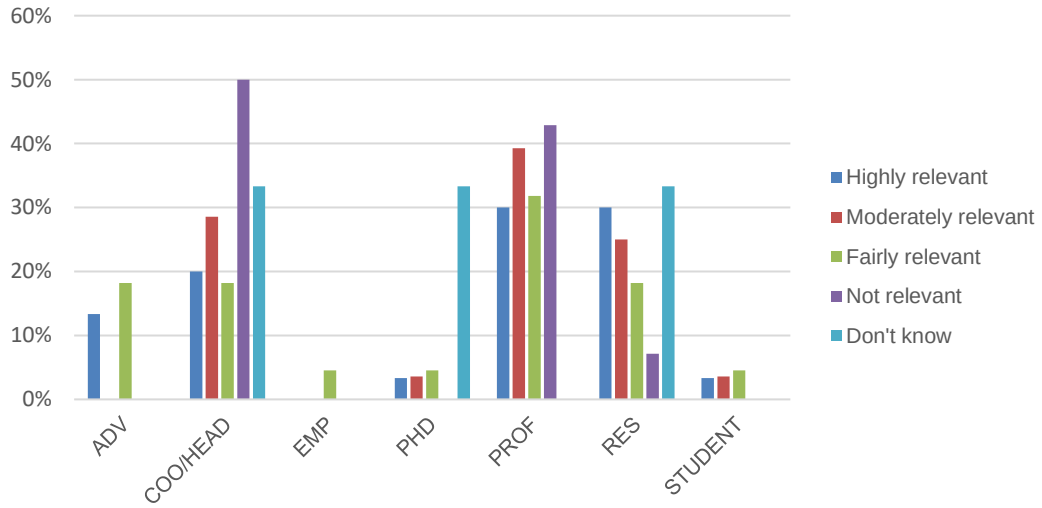

Figure 19: Relevance of Pre-university education policies in relation to respondents' role

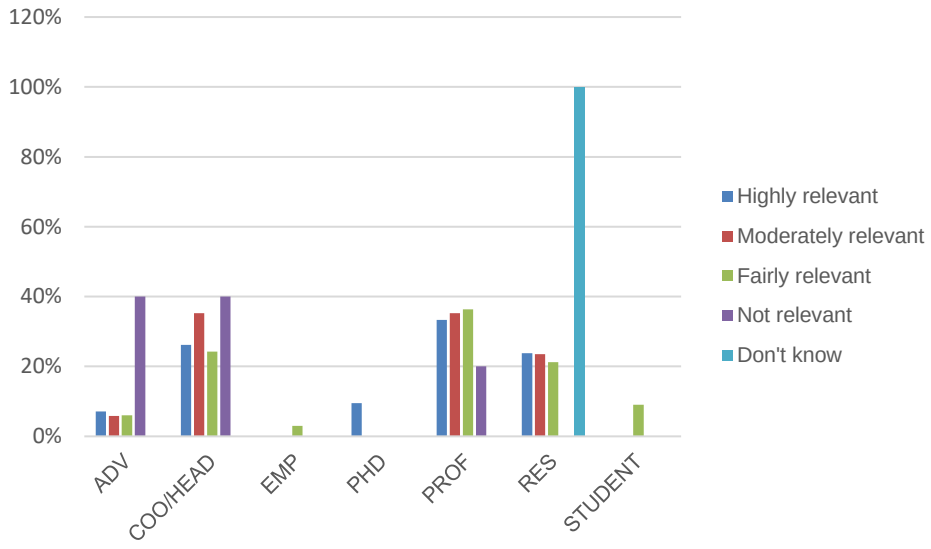

Figure 20: Relevance of University education (including PhD) policies in relation to respondents' role

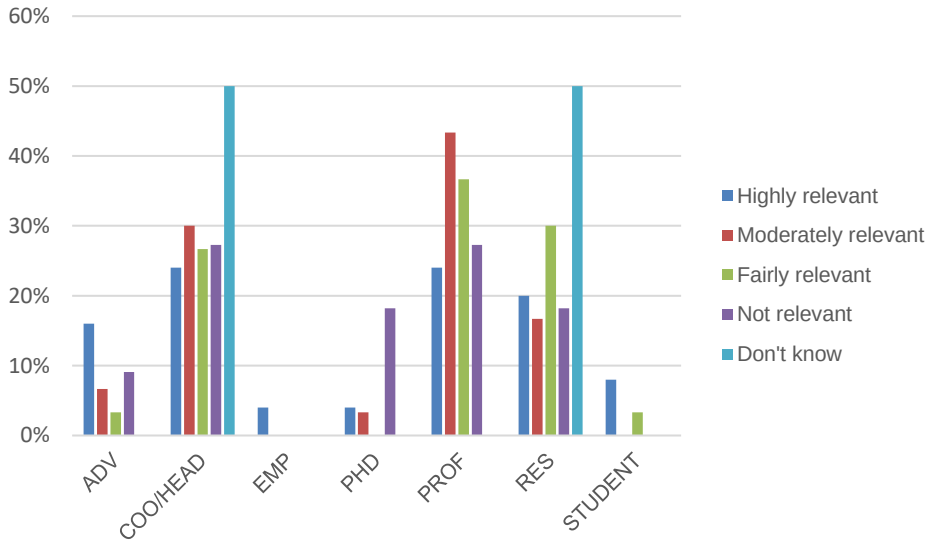

Figure 21: Relevance of Adult learning, vocational education and training policies in relation to respondents' role

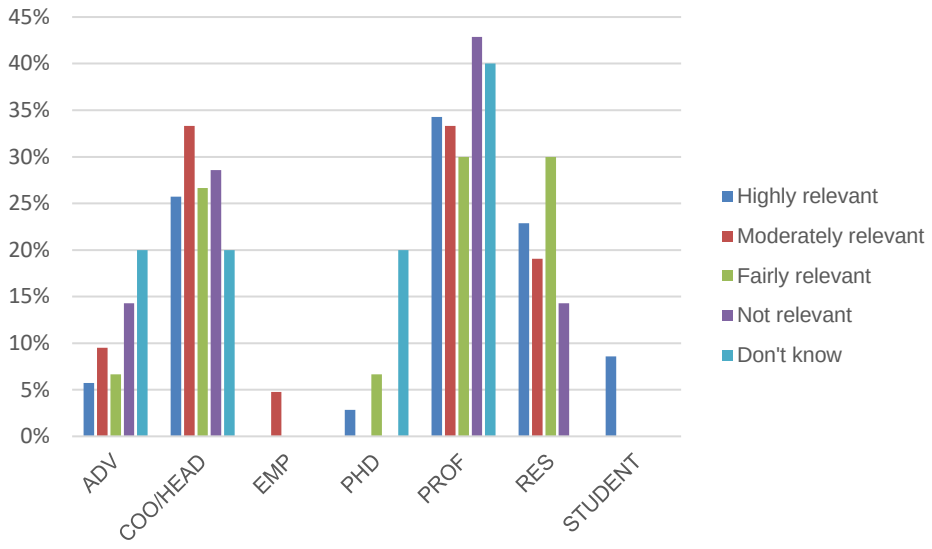

Figure 22: Relevance of Training measures in agriculture/food/forestry policies in relation to respondents' role

Looking at the gender, the only answer that shows a clear opposite trend from the two categories of respondents (female and male) is *Adult learning, vocational education and training policies*, which is considered less relevant for female than male in their sector of activity.

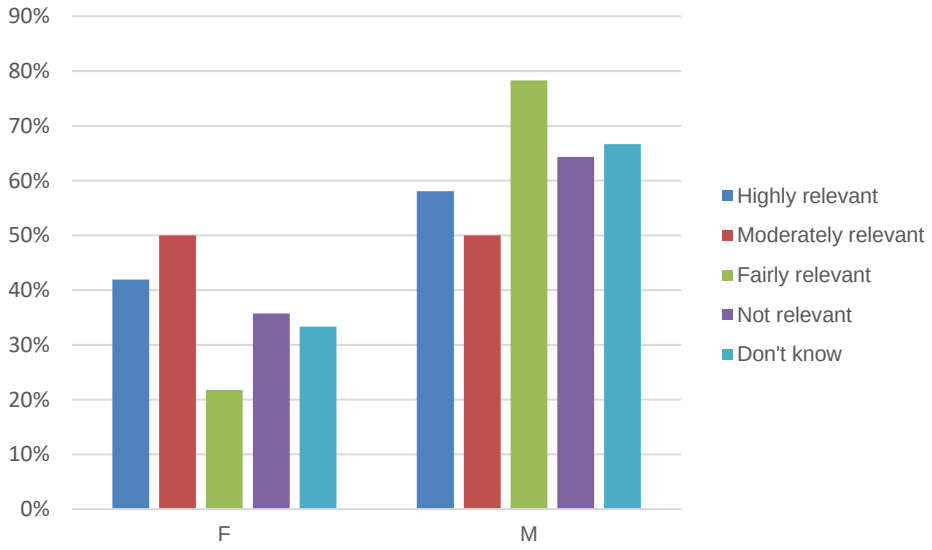

Figure 23: Relevance of Pre-university education policies in relation to respondents' gender

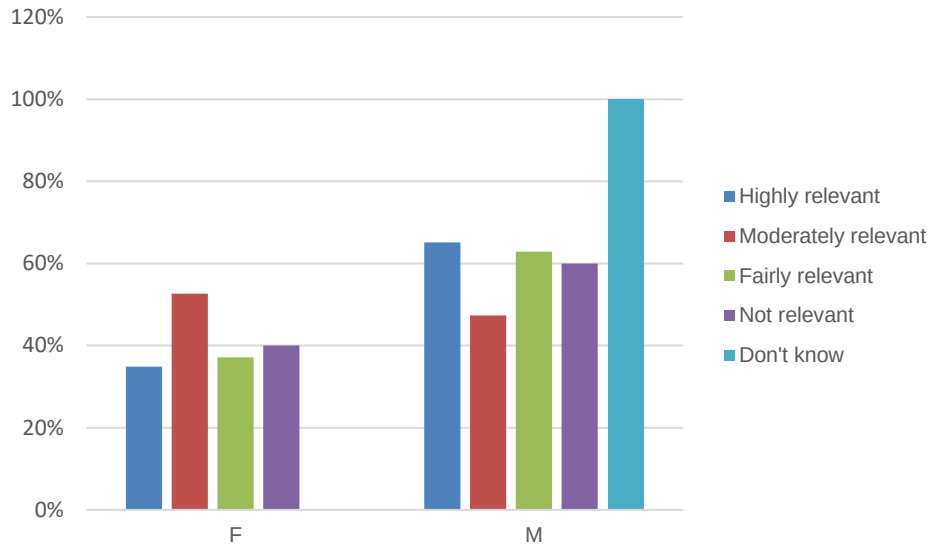

Figure 24: Relevance of University education (including PhD) policies in relation to respondents' gender

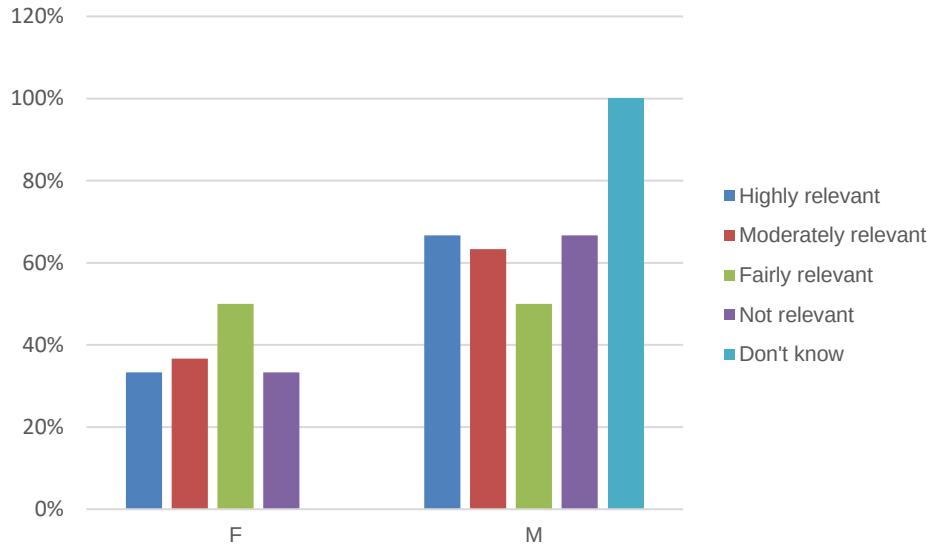

Figure 25: Relevance of Adult learning, vocational education and training policies in relation to respondents' gender

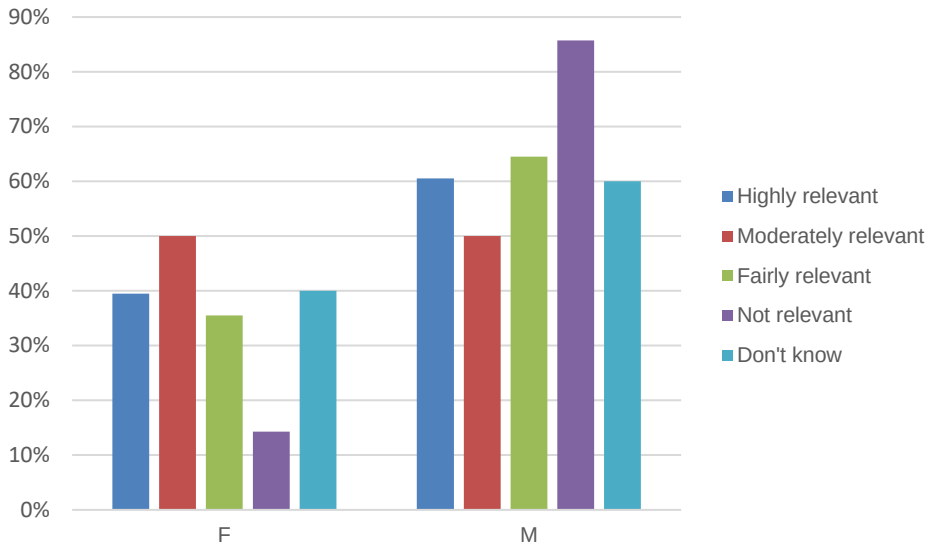

Figure 26: Relevance of Training measures in agriculture/food/forestry policies in relation to respondents' gender

5.2.2 Q58. What is your opinion about the coordination among the policy fields discussed above?

The most striking result from the general questions on AFF policy is that the coordination among the four policy fields discussed above is absent or insufficient for the large part of respondents (n=73). The argumentations/hypothesis that supports this opinion are summarized in the Table below and are mainly centred on: the rigidity among policy-makers and state institutions, the long time in policy changing, the bad coordination among EU, national and regional levels, insufficient networking between academic and non-academic educational policies on AFF, very little coordination among different national ministerial departments that are in charge with educational policies, AFF policies, innovation and research, the education is partly separated from practice and real needs of producers and AFF sector loses its position of significance for politicians. In particular, for the forestry sector, there is a lack of communication among educational levels and prerequisites to access the next levels of education are not coordinated. Moreover, the education policy framework difficulty adapts to the technical progression and the needs of the sector and the new technology.

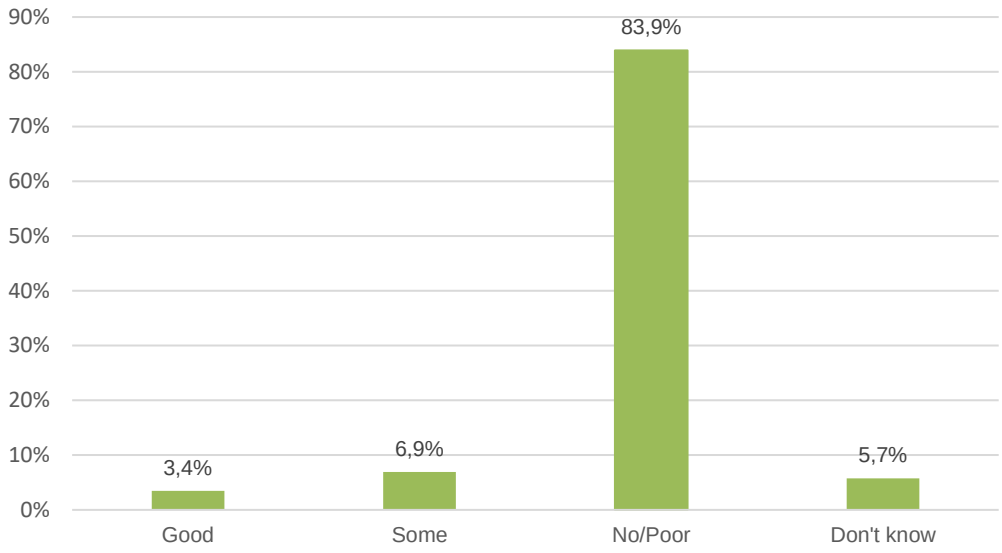

Figure 27: Q58. What is your opinion about the coordination among the policy fields discussed above?
Good=good coordination; Some= some coordination to be improved; No/Poor= No at all coordination or poor coordination

The Table summarizes the most striking specific comments about each category of response:

Good coordination	Some coordination to be improved	Not at all coordination
- Good but not very efficient in fulfilling objectives. - Good coordination but different competencies and skills requested for each institution.	- University and adult education policies are closely linked in the U.S. All the others operate independently. - Consistency and coordination exist among professional and undergraduate education at national level, but the link with longer education is weak. - It works ok, but there is a gap between the high school and the secondary high school in Sweden and the students do not always have skills enough to handle the education even though they have "passed" the high school education. -Education belongs to the federal issues, i.e. the different states have own education policies, however, a certain coordination between the states is given. - Rather good. The forest management school is small compared to the universities and the other levels of education. The courses of the forest management school could be included in the pre-university and vocational educations. - It is variable. Over recent years, funding has been harder to obtain for coordinated projects between different stakeholders.	- Limited coordination at various levels and compartmentalization of educational sectors. - Changes in the policies take too long time, for example when changing the eligibility requirements for the educations. It is easier within the vocational education system where the sector themselves can tell what kind of education that is needed. - Bad coordination between the EU, national and regional policies. - They are not well coordinated. Almost all the farming community is illiterate in our country. - To transform the agrifood system there has to be unique focus on the non-formal and informal education programmes. The experts are expected to fill this gap but they are not equipped in this way. - Traditionally there is a lot of rigidity among policymakers and state institutions. - Coordination and organization of innovative activities tend to stall and get stuck. - The UK is relatively advanced on this matter than other countries, but still much more coordination would be good. - The eligibility requirements for the different levels of education must be coordinated between the policy fields in order to fulfill the demands of educated people within the sector. - The problem arises when the system at one level (for example pre-university) changes and the communication is not good enough with the

Good coordination	Some coordination to be improved	Not at all coordination
		universities, so that their policies/rules are not presently adopted. - There should be more interrelation between academic and non-academic educational policies on agrifood systems. - That is not established at central level but regional one so there is no central planning. - Agribusiness, agroecology, and health are all siloed and disconnected. there is a disproportionate influence in policymaking by multinational food corps. - More specifics education programmes are required to face the agrifood sector digitalization. - There is very little coordination between the fields and the fact that 3 different national ministerial departments are in charge of each of the different elements of the policies. - We need to activate networking issues. - Public policies do not associate producers. - The agrifood sectors slow down change. - Agriculture should be central in the policy but, very often, it is almost abandoned. - Disciplinary solutions are needed to solve future challenges; food (health), environment, climate in Agrifood and Forestry systems. - They may be difficult to coordinate because run by different government departments. - Coordination is important, but differences between university education and technical education for specific working activities should be clear and maintained. - Tribalisms and local advantages prevail over the global advantages so that global players can influx local decisions to advantage their (global) business squeezing the juice and impeding the growth of promising local entities. - The coordination does not work very well, especially between vocational education, other training measures and the university. It is very difficult to change the path to the forestry sector later in life if you chose another education at 16. - Concerning the calibration of degrees and certificates. - There is no coordination between education and life-long learning. - Education is partly separated from practice. - Agriculture loses its position of significance due to politicians.

Table 2: Selected open-ended replies on opinion about the coordination among the policy fields

According to respondents' country, India and Italy group together the majority of respondents giving a negative opinion on coordination, followed by Sweden, Greece and Spain.

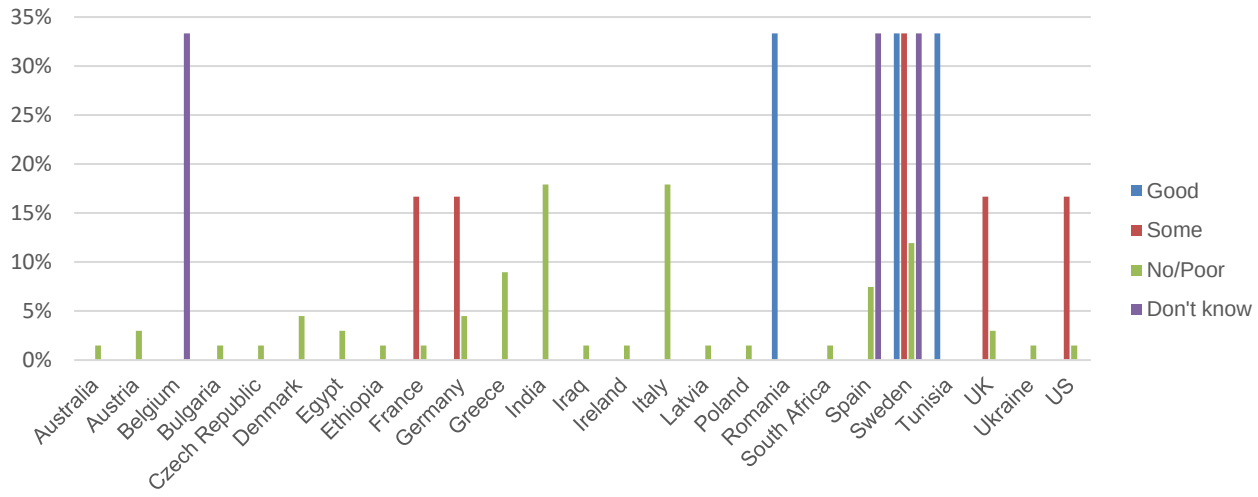

Figure 28: Answers in relation to respondents' country

The answers show to be affected by the affiliation of the majority of respondents as stated in the demographic results, thus the academic field (university) which display the higher number of negative opinions on policy coordination.

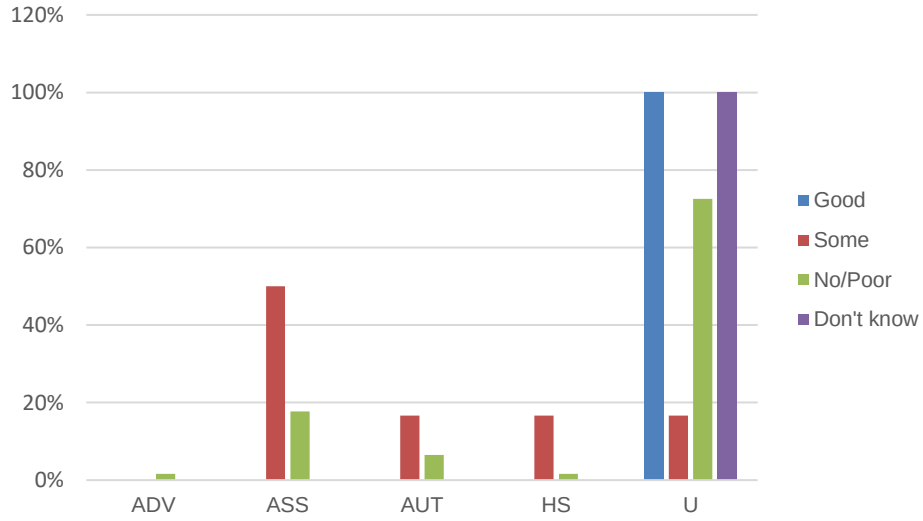

Figure 29: Answers in relation to respondents' affiliation

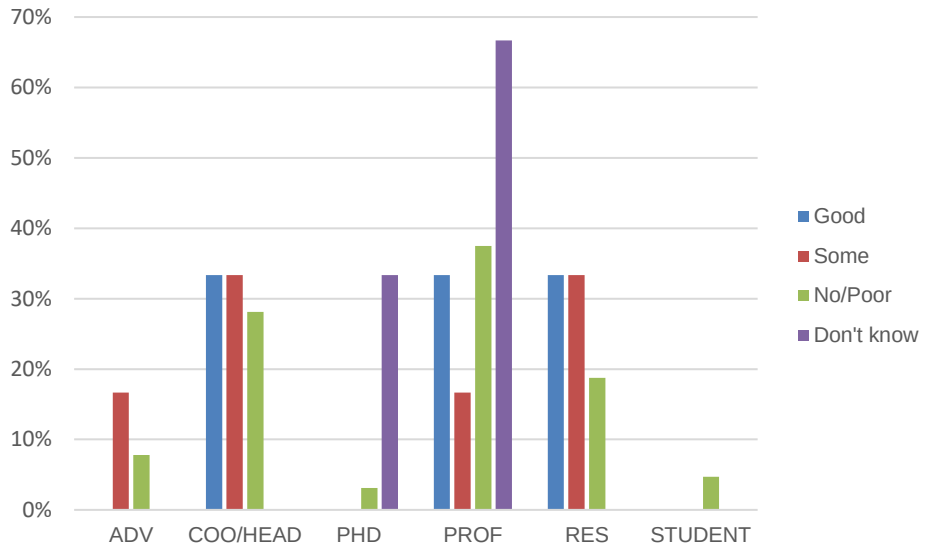

Figure 30: Answers in relation to respondents' role

The gender did not affect the respondents' answers, showing the same proportion of answers.

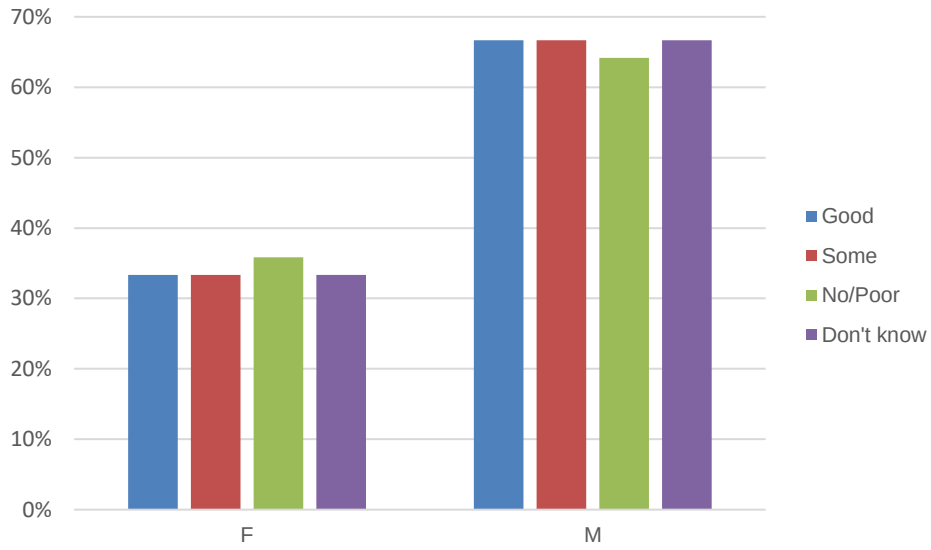

Figure 31: Answers in relation to respondents' gender

On the other hand, the majority of negative answers about policy coordination came from respondents that work at National level reflecting the Demographic distribution discussed above.

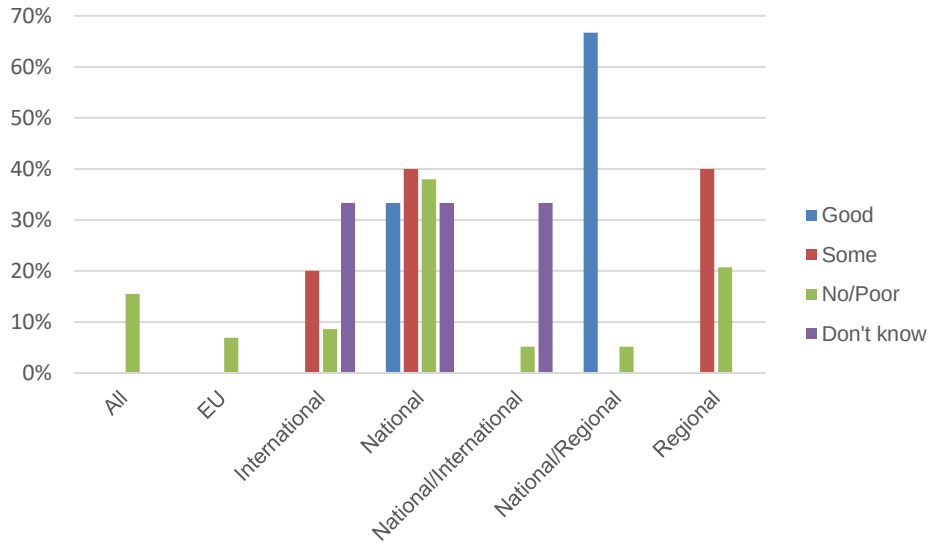

Figure 32: Answers in relation to respondents' level of work (EU, international, national, regional)

5.2.3 Q59. In your county/region do specific departments/administrative offices deal with the organization of education in the agricultural/food/forestry systems?

Considering the question on the existence of specific departments/administrative offices that support AFF education in the different country/region, the majority of respondents gave a positive answer while the countries of origin of respondents reflect the demographic results discussed above as well as the affiliation, role, gender, and level of work.

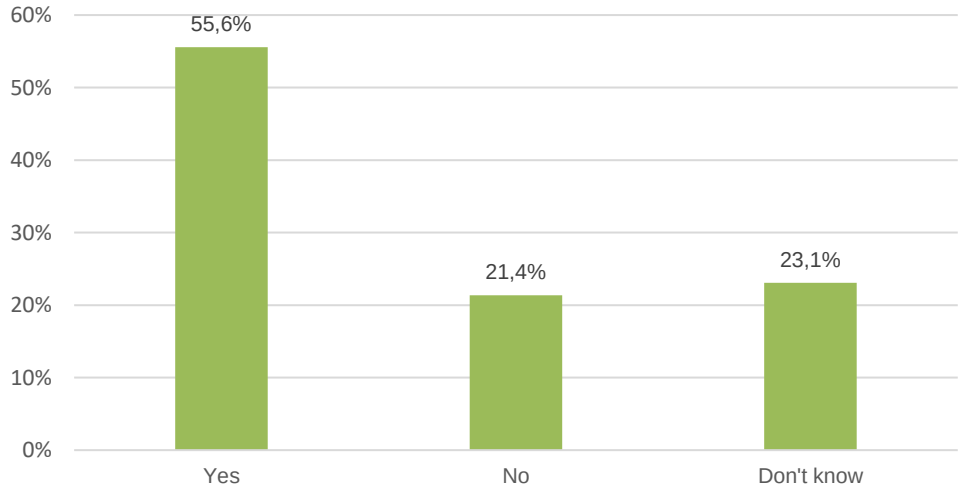

Figure 33: Q59. In your county/region do specific departments/administrative offices deal with the organization of education in the agricultural/food/forestry systems?

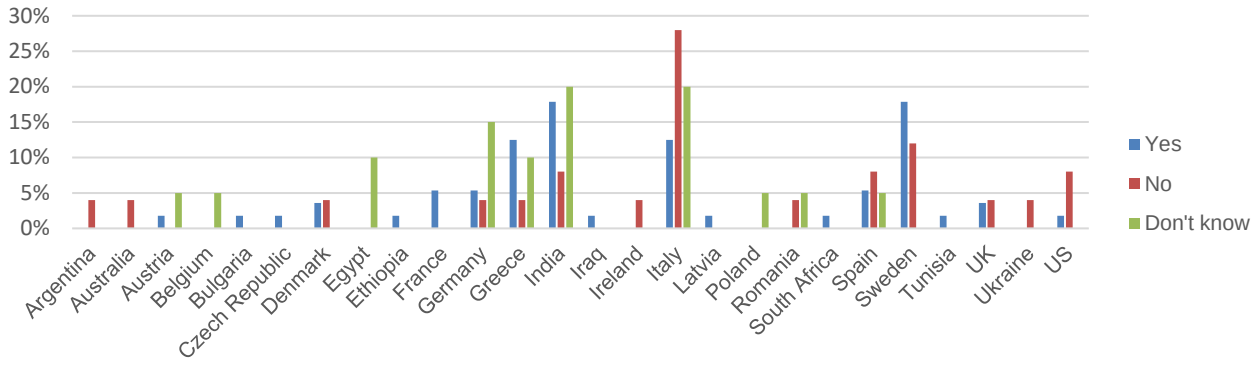

Figure 34: Answers in relation to respondents' country

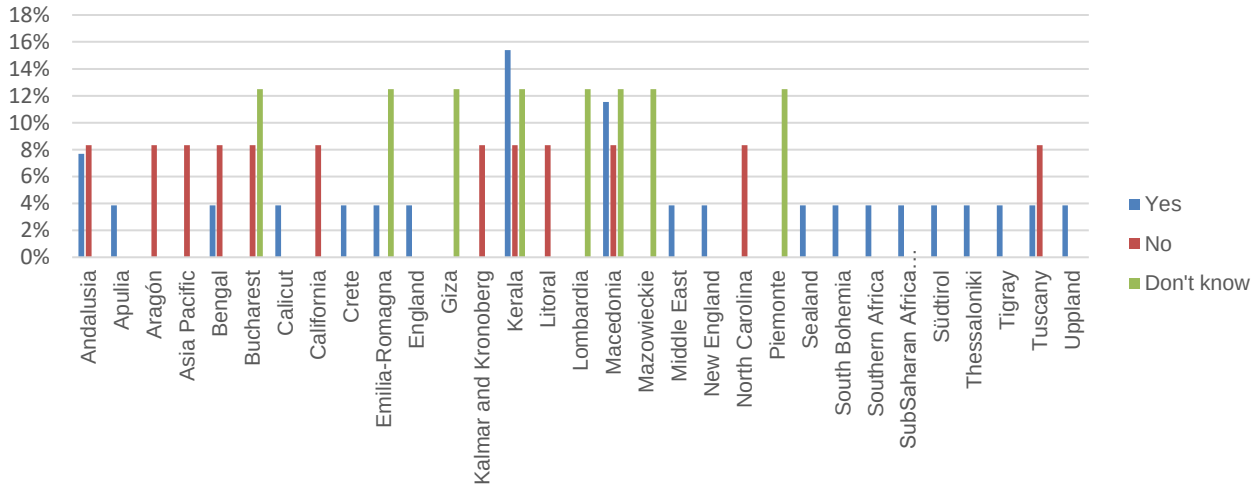

Figure 35: Answers in relation to respondents' region

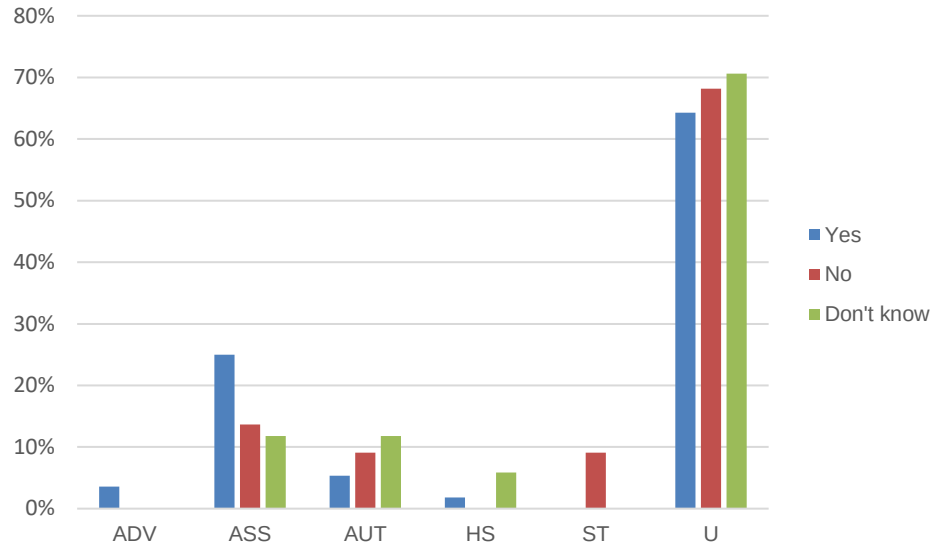

Figure 36: Answers in relation to respondents' affiliation

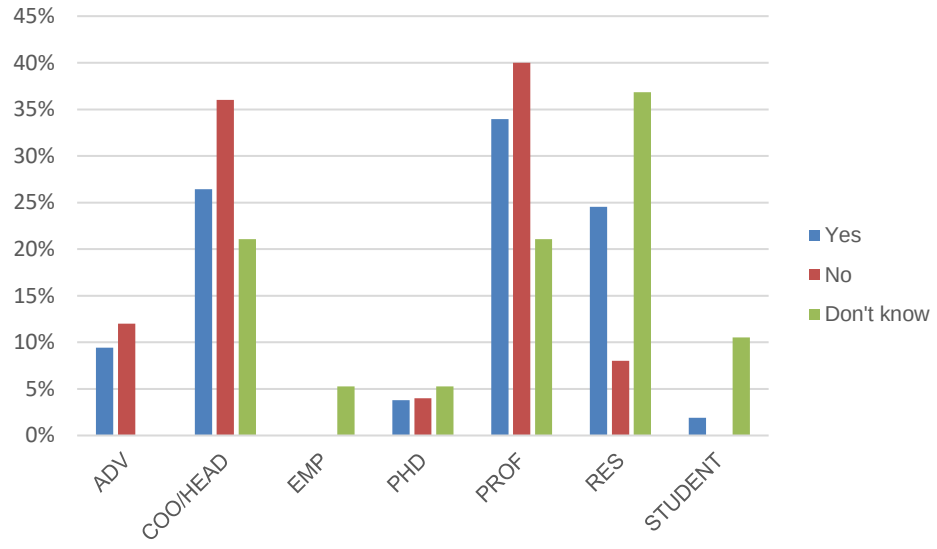

Figure 37: Answers in relation to respondents' role

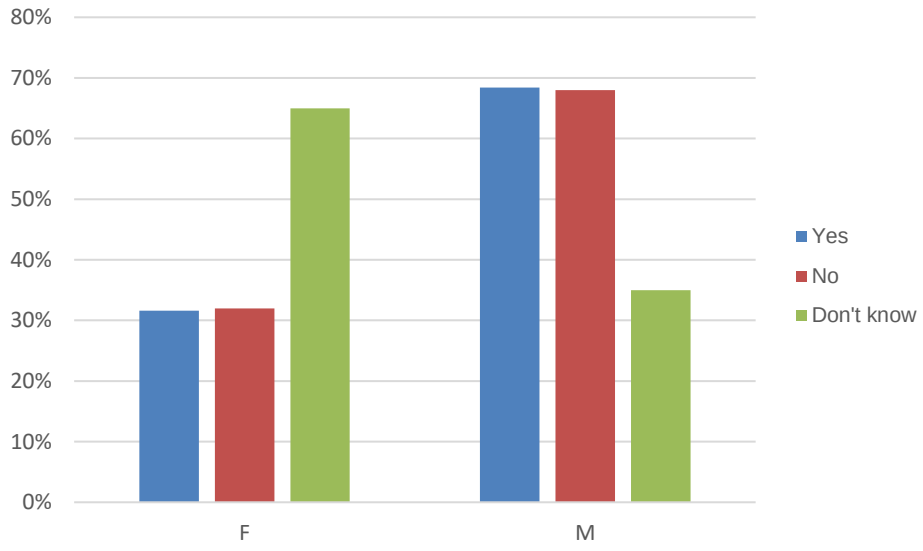

Figure 38: Answers in relation to respondents' gender

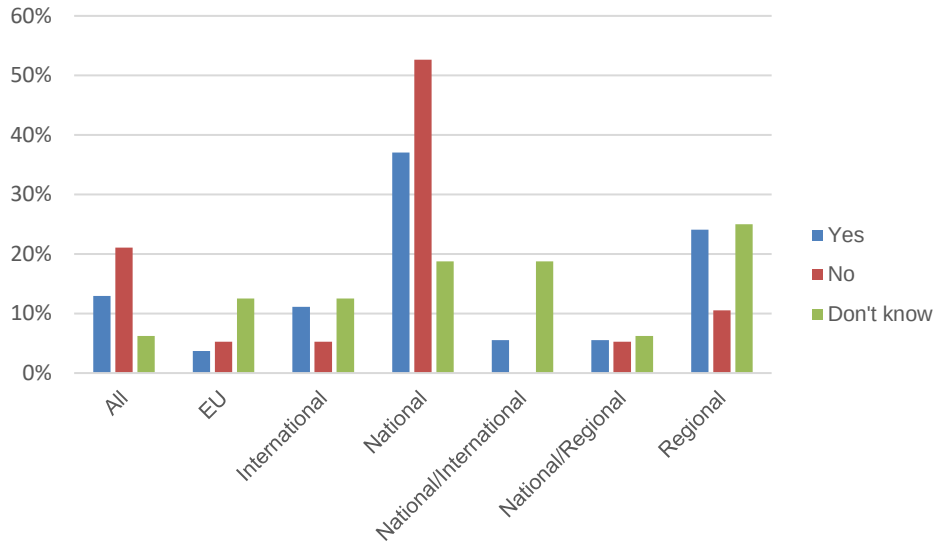

Figure 39: Answers in relation to respondents' level of work (EU, international, national, regional)

5.2.4 Q60. If yes, which is/are the name/s of this/these departments/administrative offices?

The most common Departments/Administrative offices in charge of education in AFF systems mentioned by respondents are Ministries and Departments at national level and some administrations at regional level.

In the majority of respondents' countries, education is under the responsibility of the only Ministry of Education while the Ministry of Agriculture, Food, Forestry does not deal with education. However, some different examples exist. In Sweden, the university education within AFF is in charge of the Ministry of Enterprise and Innovation, while other universities are below the Ministry of Education. This could be important for AFF education development but make collaboration among universities sometimes difficult. In Austria, the Ministry of Education, Science and Research is combined with the Ministry of Economics, thus there is an industrial perspective of education. In France, there is the DGER-Directorate General for Education and Research which is within the Ministry of Agriculture and Food which implements the policy related to agricultural education and training and is involved in the definition and management of the agronomic, biotechnological and veterinary research. In Spain, Andalusia, the IFAPA- Instituto de Investigación y Formación Agroalimentaria which is part of the Ministry for Agriculture, Fishery and Environment which plans education and training programmes for professionals working in AFF systems through technology knowledge transfer.

In other countries, there are specific institutions or agencies involved in vocational education and training in a specific sector like forestry in Sweden.

The main gap that came out from the respondents' opinions and summarized in Table of question Q61 is a lack of task sharing among the different Departments/ Administrative offices that are in charge of education and with policy framework in AFF systems. Each Department has its own task with a lack of cooperation and networking, also regional differences, and on the other hand, Universities have a lot of power and independence to form their own policies.

Q60. The Table summarizes the names of Departments/Administrative offices that deal with the organization of education in AFF systems among countries.

Name of Departments / administrative offices	Country
Ministry of Science	Austria
Ministry of Education, Ministry of Agriculture, and regional administration (NUTS 2) for high school	Czech Republic
Ministries of Education, Ministry of Ag/Food	Denmark
Quality Assurance office	Ethiopia
DGER within the French Ministry of Agriculture, Food and Forest, Directorate General for Education and Research	France
Chamber of Agriculture, Federal Ministries of Education, DEULA, AID (Allgemeiner Informations Dienst), DLG (Deutsche Landwirtschafts Gesellschaft)	Germany
ELGO DIMITRA, Regional Departments of Forestry and Agricultural Development, Ministry of Agriculture, Ministry of Education	Greece
Forestry Department and Agriculture Department, Ministry of Food Processing Industries, Ministry of Human Resource Development	India
Ministry of Agriculture, Food, Forestry Policies, Ministry of Education, University and Research, Ministry of the Environment, Land and Sea, Ministry of Economic Development. Agricultural department of the Regional government	Italy
Departments of Agriculture, Forestry and Fisheries, Higher Education, Science and Technology	South Africa
Regional Ministry for Agriculture, Livestock, Fisheries and Sustainable Development (Andalusia, Spain). IFAPA (Instituto de Investigación y Formación Agroalimentaria)	Spain
Ministry of Education and Research, Ministry of Employment (for the university education within forestry and agriculture). The Swedish National Agency for Education, the Swedish National Agency for Higher Vocational Education, the Swedish public employment service. Swedish Work Environment Authority, Swedish Civil Contingencies Agency. Board of Forestry profession (SYN), Board of agriculture. Swedish Forest Agency	Sweden
Ministry of Agriculture, Ministry of Professional training and work	Tunisia
Department for Education, Department for Business Innovation and Skills	UK
The U.S. Department of Agriculture	US

Table 3: Name of Departments/Administrative offices

5.2.5 Q61. How are tasks shared among the different departments if any?

Q61. The Table summarizes how the tasks are shared, if any, among the different Departments above mentioned in the Respondents' countries.

Sharing of tasks among different departments	Country
All work independently even though the departments are designed to focus on different areas of intervention. Boundaries and coordination are not well known.	Ethiopia
University is under the Ministry of Education while Life-long learning is under the Ministry of Agriculture. There is no sharing among the different departments.	Greece
Each Department has its own task and not many tasks are shared.	India
Tasks are fragmented and separate	Italy
They are very seldom shared due to different authority lines.	South Africa
IFAPA is the only department in charge of agricultural professional training.	Spain
Tasks are separated among the different Ministry and the universities have a lot of power to form their own policies.	Sweden
No big coordination in the field.	Tunisia
DfE covers the school level while DBIS covers higher education. No sharing.	UK
Regional differences in policy but largely overseen by national Dept of Agriculture.	US

Table 4: Sharing of Tasks among Different Departments

5.2.6 Q62. In your county/region, do specific official policy strategy documents on education in the agricultural/food/forestry system exist?

Regarding the availability of specific official policy strategy documents on education in AFF systems in respondents' countries, the majority of respondents are not aware of it (n=61).

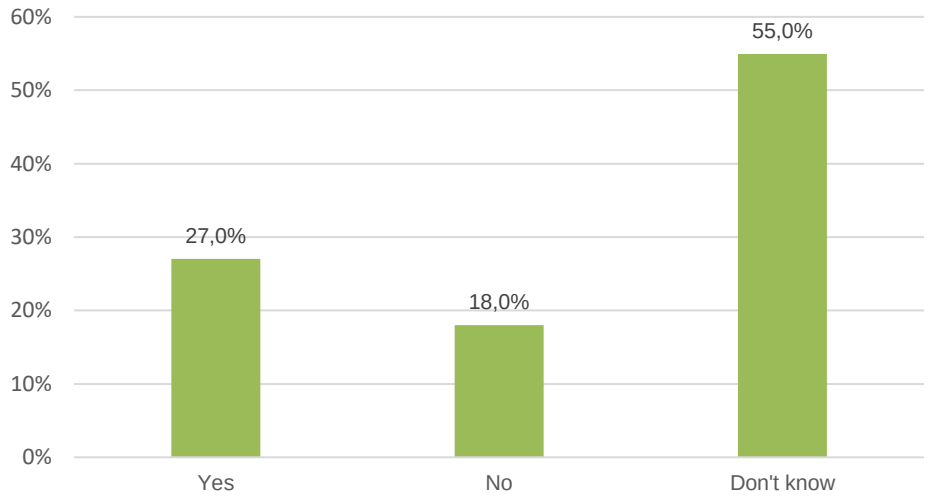

Figure 40: Q62. In your county/region, do specific official policy strategy documents on education in the agricultural/food/forestry system exist?

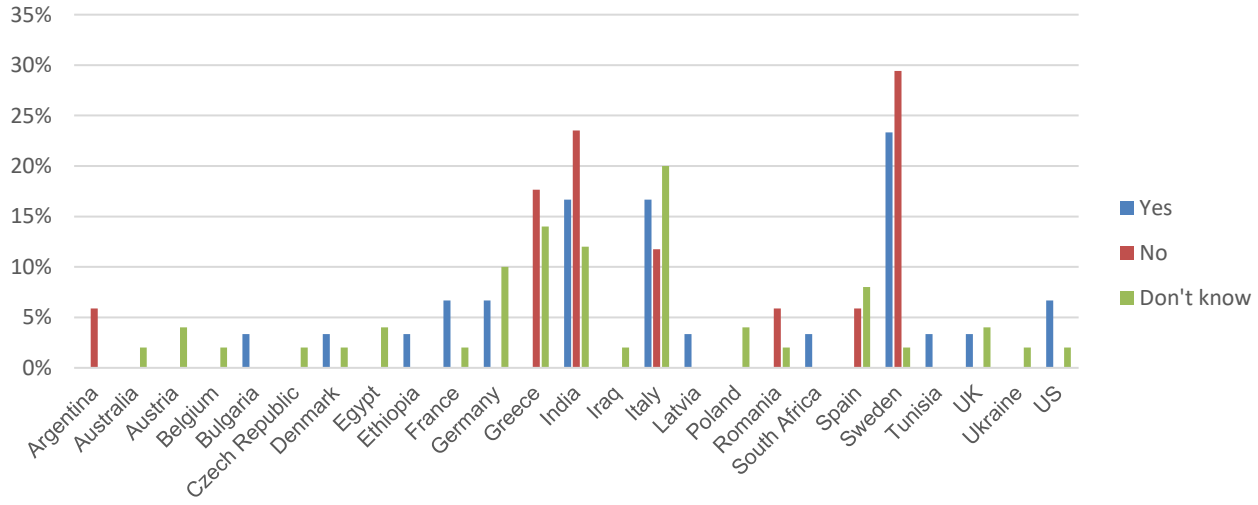

Figure 41: Answers in relation to respondents' country

5.2.7 Q63. If yes, please shortly describe them.

The few respondents that are aware of the availability of official policy strategy documents on education in AFF systems cited those summarized in the Table below. An interesting result is the presence in some countries (France, Sweden) of educational certification/educational validation of skills and knowledge in the AFF systems.

Q63. The Table summarizes the available official policy strategy documents on education in the agricultural/food/forestry systems among Respondents' countries.

Official Policy Strategy Documents	Country
Strategy for agriculture research.	Bulgaria
The Education Act, the Higher Education Act and other legislative documents, but not specific in agriculture.	Czech Republic
Circular, In general - 'to the highest level'.	Denmark
Ethiopian education development roadmap (new), Ethiopian Education and Training policy	Ethiopia
Educational certification in the Agrifood sector (VAE).	France
There are elaborated Syllabus for courses at various levels; Agric. Colleges, formal as well as informal training etc.; elaborated examination schedules for various degrees.	Germany
Agriculture policy, Strategy for doubling farmers' income; National food security mission Fssai; Group Learning through schools.	India
Environmental education initiatives in the agriculture and forestry sector in Südtirol; National Technological Clusters defined by the Italian Ministry for Education, University and Research have been set up to create permanent dialogue platforms between public research networks and enterprises. Clusters directly linked to bioeconomy (Agrifood, Green Chemistry, Smart Factory, Blue Growth and Energy).	Italy
A National Development Plan is the overarching document and framework for departmental policies.	South Africa
The Swedish Forest Validation standard for machine operators, which is being developed with the aim to certificate employee's knowledge and skills in accordance with the requirements within a certain occupation. The validation process has been reviewed by the Board of Forestry Profession (Skogsbrukets yrkesnämnd). Strategy documents by the Swedish Forestry Agency. The Swedish higher education act; The higher education ordinance; Policies for professional education at SLU (Swedish University of Agricultural Sciences); Appropriation directions from the ministry (for SLU). The Swedish National Agency for Education also have strategy documents at the Pre-university level. SLU has strategy documents both at central, faculty and department level. They include both research and education. Political initiatives like "Future Forest" and other initiatives to find new policies by certifications and "green cards".	Sweden
Food safety education.	US

Table 5: Official Policy Strategy Documents

5.2.8 Q64. If not, are they planned to be implemented?

Also about the eventual future implementation of these strategy documents/policies in AFF education the majority of respondents (n=70) are not aware of it.

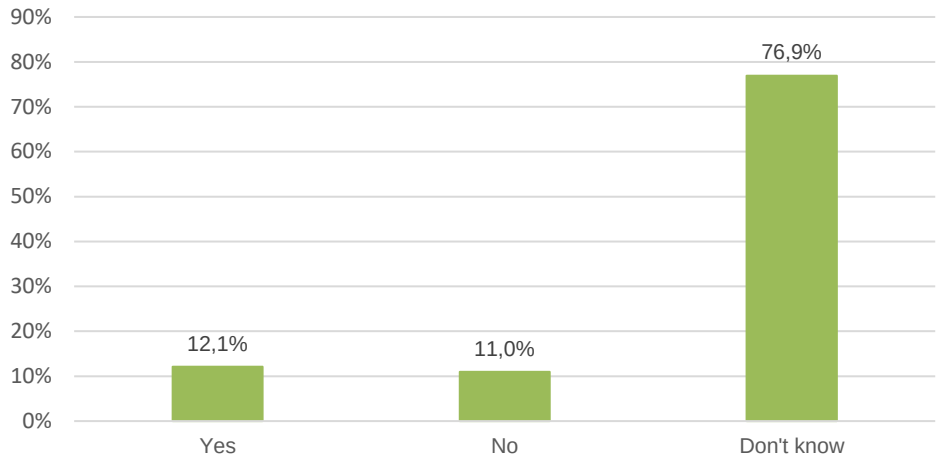

Figure 42: If not, are they planned to be implemented?

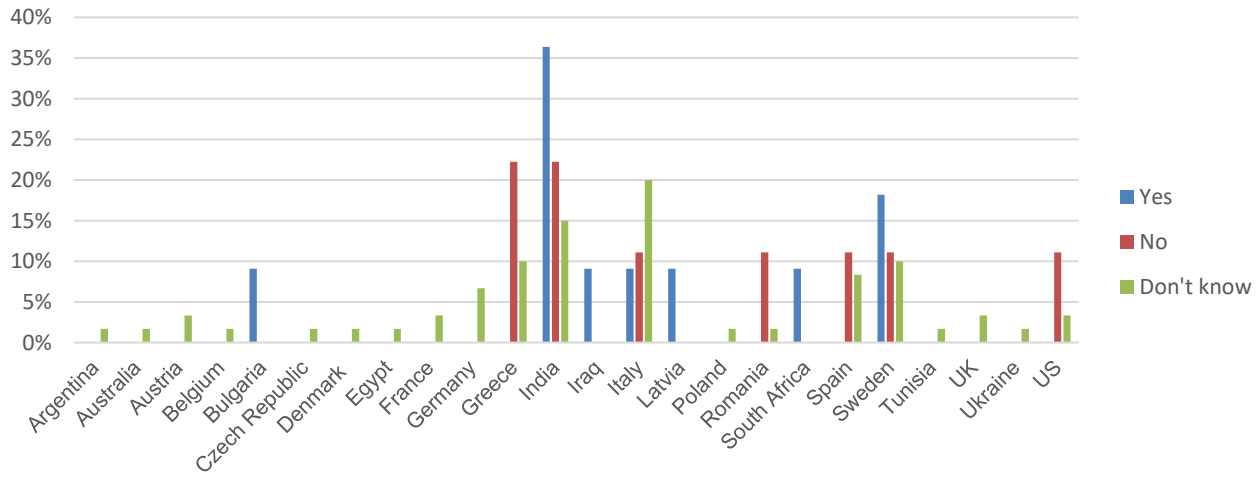

Figure 43: Answers in relation to respondents' country

5.2.9 Q65. Do you know any particular innovative education initiative that has been implemented showing good results?

On the other hand, concerning the availability of innovative education initiatives to be implemented a good number of respondents gave a positive answer, and the initiative mentioned and summarized in the Table below are mainly related to the birth of new Courses that apply a student-oriented and action-based learning models, practical learning and students visiting farms in connections with stakeholders, professionals, and farmers thus promoting entrepreneurship. The two principal countries that deal with the implementation of these programmes and initiatives are India and Sweden, followed by Spain, Greece and Germany and Denmark.

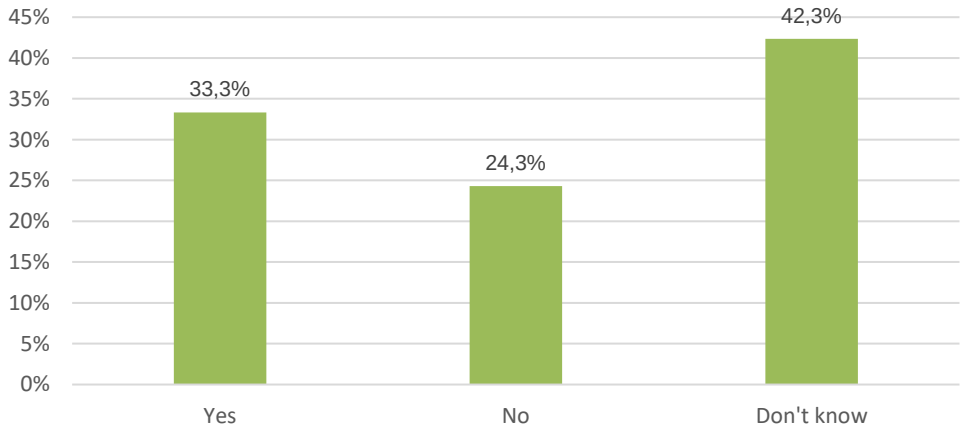

Figure 44: Q65. Do you know any particular innovative education initiative that has been implemented showing good results?

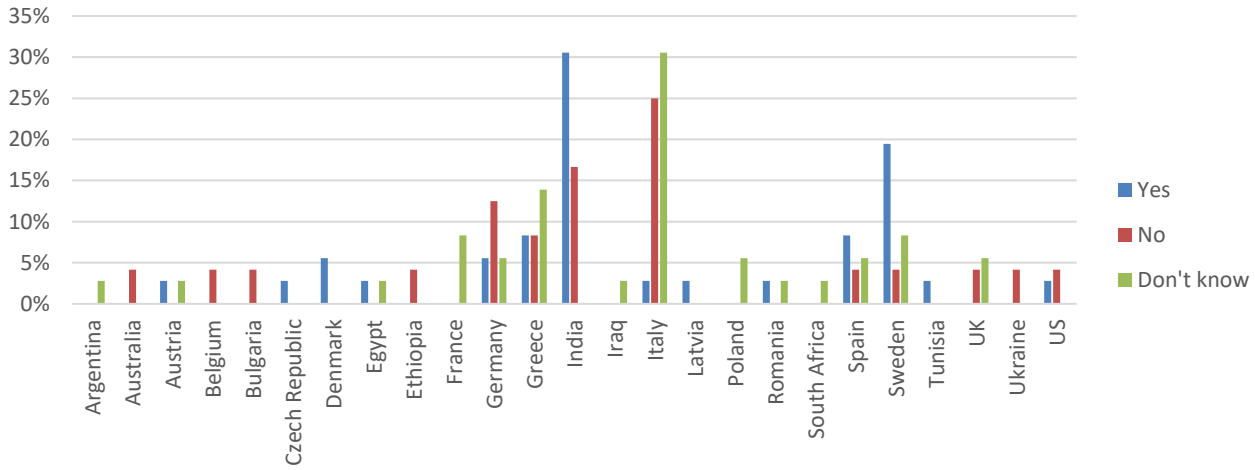

Figure 45: Answers in relation to respondents' country

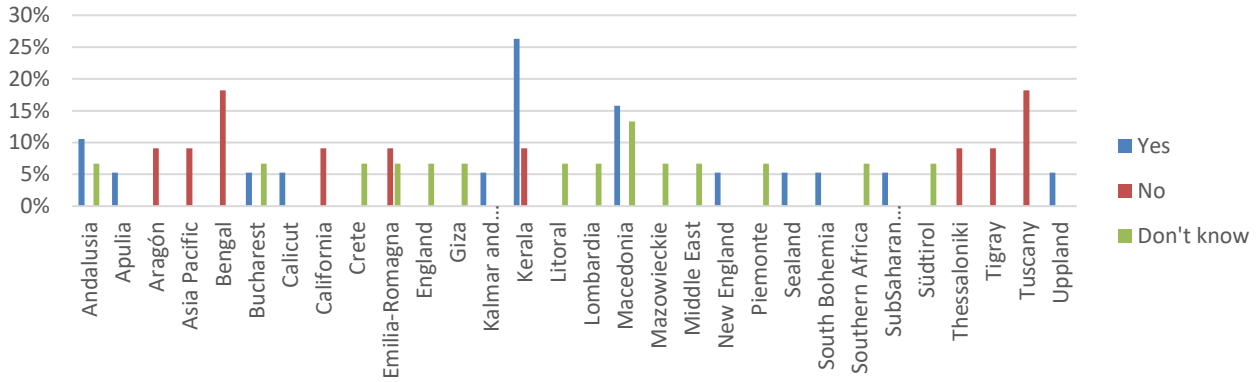

Figure 46: Answers in relation to respondents' region

5.2.10 Q66. If yes, please shortly describe it below.

Q66. The Table summarizes the innovative education initiative that has been implemented with good results among Respondents' countries:

Innovation Education Initiative Implemented	Country
Inter-university course on entrepreneurship.	Austria
Establishment of Waldorf schools with a holistic instrument of education, the reintroduction of workshop teaching and school gardens at primary schools.	Czech Republic
Roskilde University has been committed to problem-oriented project-based learning (PPL). This connects the university with other Danish and international institutions of higher education that utilise various forms of problem-based pedagogies. Master in Integrated Food Studies.	Denmark
Efforts made by some NGOs in upper Egypt to work with small farmers through farmer field schools to decrease the use of chemical pesticides and fertilizers and to use biological methods instead.	Egypt
Using videos and social media. www.accessagriculture.org. All the courses of DEULA.	Germany
TEI of Agriculture in Thessaloniki is collaborating with the American Farm School in order to move toward a more student-oriented and action-based learning model. The "New Agriculture for a New Generation" program is an initiative that aims to create career opportunities and entrepreneurship for youth in the Agrifood sector in Greece. Rutgers University is leading this innovative multiyear program, in partnership with the Agricultural University of Athens and the American Farm School.	Greece
Student-centric learning activities, especially in pre-university level. State level projects started in Kerala, to grow vegetables by schoolchildren around the premises of school. Mathrubhumi SEED Programme. Students visiting farms. Every year Center for Agroecology and Public Health conducts a certificate course to equip the students with core competencies to address the interdisciplinary challenges of sustainable development based on participatory approach. RUCO SNF. Saarang - self-learning for tribal students in Kerala. Private universities are coming up with interdisciplinary courses - example Azim Premji University, TERRI University, Bhoomi College. National Skill Development Programme in Agrifood systems	India
Innovative industrial PhD course.	Italy
The Teach for Romania programme.	Romania
CAP information measures addressed to consumers (i.e. "The Common Agricultural Policy, future for farmers, future for society", developed by ASAJA-Sevilla). Pesticides use and ecological agriculture training courses. Viticulture, several actions, very well coordinated, multi-actor.	Spain
Swedish Forestry Validation (Svensk skogsvalidering - SSV) aims at rate and certificate an employee's knowledge and skills in accordance with the requirements within a certain occupation. The validation process has been reviewed by the Board of Forestry Profession (Skogsbrukets yrkesnämnd). The 20-30 week forestry operation educations that have been cofounded by the Forest Companies and the Municipalities. We offer a distance course called "Sustainable family forestry" (45-90 hp), which has been very successful to improve the general knowledge of forestry among forest owners. Our own web-based "Forest Management School" (Skogsskötselskolan). "Menu" is a centre offering on-line education within the area of foods and food systems for professionals. The "green cards" so that all people working within the forestry sector are at least at a certain basic level. Our own Bachelor in Forest Science is a good example. We are also starting a joint Master program with the Swedish University of Agricultural Sciences.	Sweden
The diploma with "apprentissage" and PPP.	Tunisia
Local agricultural extension services are good sources of information for landowners/managers that are interested in sustainable food systems.	US

Table 6: Innovative education initiative implemented

5.2.11 Gender equality

5.2.11.1 *Q67. Do existing educational policies make a conscious effort to bring in gender equality?*

The very positive result that emerged from respondents‘ answers is that the actual educational policies are well oriented to obtain and guarantee gender equality. However, a high number of respondents are not aware of it.

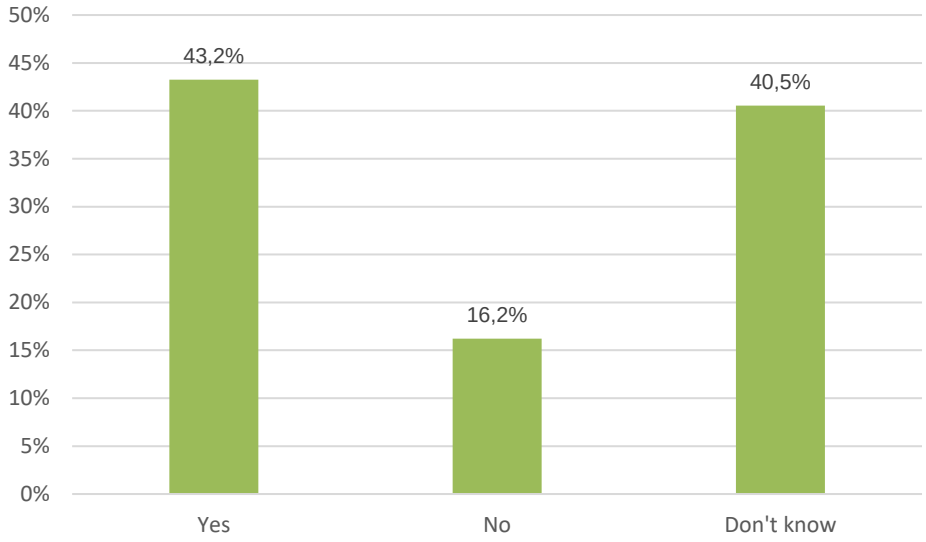

Figure 47: Q67. Do existing educational policies make a conscious effort to bring in gender equality?

Sweden is the country where gender equality is more conscious and many efforts have been made in the last years, especially with the aim to include and encourage women employment in the forestry sector. India and Italy follow this positive trend.

In this question, the proportion of respondents from the different gender (female, male) is the same.

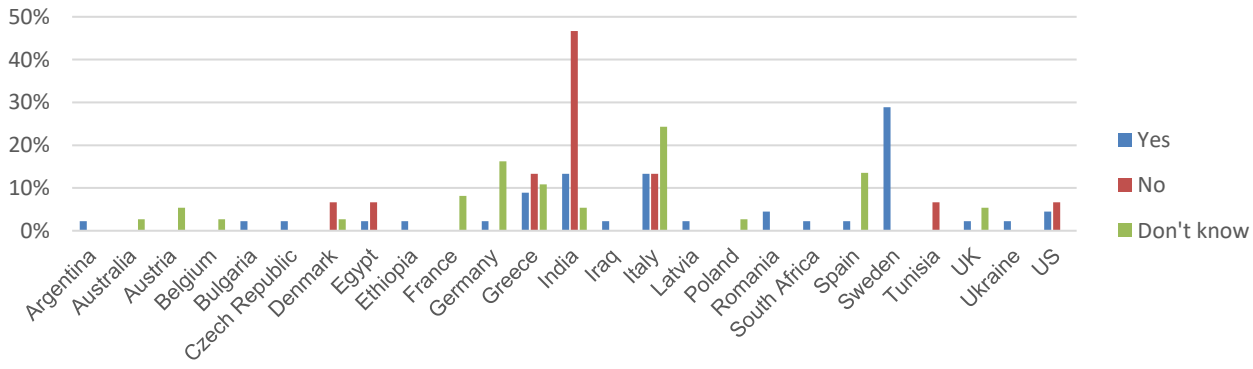

Figure 48: Answers in relation to respondents' country

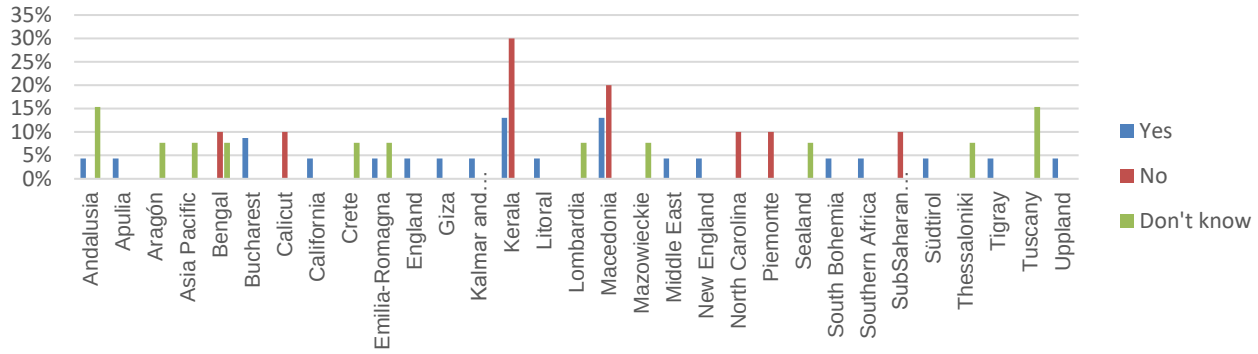

Figure 49: Answers in relation to respondents' region

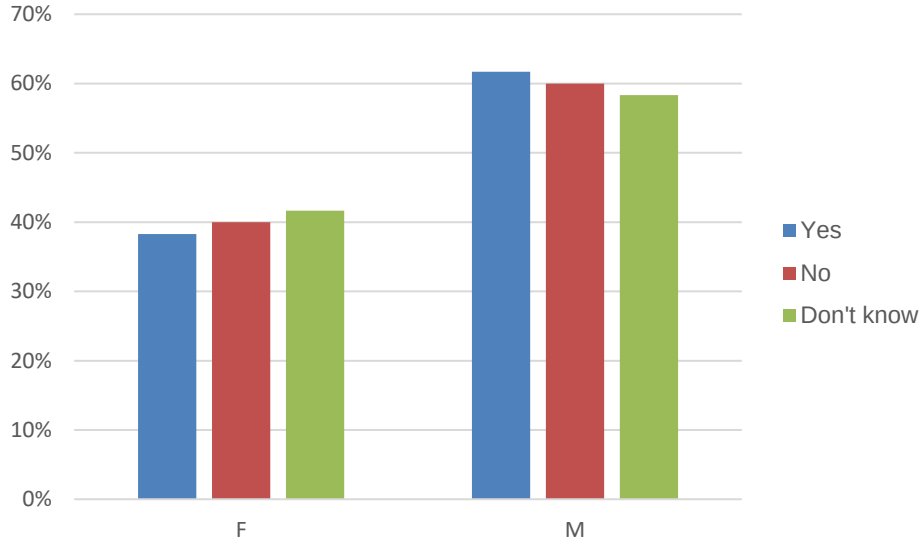

Figure 50: Answers in relation to respondents' gender

5.2.11.2 Q68. If no, what and how gender equality can be brought in?

Concerning the opinions of respondents about the possible actions to bring in gender equality if non-sufficient and/or in the future are summarized in the Table below.

The most interesting suggestions are: to give incentives for women, providing women a safe workplace, to solve this cultural issue about gender by giving good information at school, and make women participate in dissemination of awareness, to encourage women to be more active and be involved in AFF education and work both as learners and trainers.

Q68. The Table summarizes how gender equality can be brought in according to Respondents' countries:

How gender equality can be brought in	Country
Explicitation.	Denmark
Knowing the actual gender roles and responsibilities of women and men in agriculture and food production systems. Involving women in the training and education efforts as both learners and trainers.	Egypt
To give incentives for women.	Greece
Educating the mentors at first and then sensitizing learners on gender dimensions. Through policy framework and more inclusive activities from primary level. Currently, India has the worst gender policies. Transphobic and homophobic system makes it impossible for gender minority to work well and patriarchal influence makes it hard for women to get the best participation. Providing women a safe workplace. Very skewed understanding of Gender now, which focuses on running courses specifically for women - fostering stereotypes. More understanding of gender is very important. Participation of women in dissemination of awareness.	India
As far as gender issue is a cultural and traditional aspect, gender equality should be improved at the school level. At the university level, there is a very low impact on gender issues. However, it is necessary to encourage girls to be more active. It is possible through specific financial instruments (for example, it could be a scholarship only for girls, or it could be a grant encouraging girls' best projects). Naturally by cultural and social information.	Italy
The work of gender equality can always be improved and since last year we offer a course called "Gender competence for the Forestry sector, 7.5 etc. (it is not compulsory). There is also a PhD-course called "Gender and forests". There is still a need to attract females to forestry educations and also to keep them working within the forestry sector after education. There is a lot of work with gender equality going on at the Swedish University of Agricultural Sciences, especially after #meetoo (at the forest faculty in particular). There are several courses and if you are a course leader or main supervisor you are expected to take a course in gender equality, based on case-studies. In general, it is difficult to attract female students to this educations, especially in technology. There is a lot going on in the field of gender equality, but more needs to be done, also to bring in cultural diversity in general in the forestry sector (very few students are born in other countries (or have parents born in other countries)). We also have the up-coming challenge between the cities and the country-side. A new course only about gender equality will be included in the programmes.	Sweden
Involve women and young people together in any educational system and specialization.	Tunisia

Table 7: How gender equality can be brought in

5.3 Answers Across Policy Fields

In the below sections the results of the survey related to each of the Policy Fields can be found: Namely, (1) Pre-university education policies, (2) University education policies, (3) Adult learning, vocational education and training policies (4) Training measures in Agricultural, food and forestry policies. A list of key points is presented to summarize the findings from each section, while all of the other detailed results can be found under Annex 4.

5.3.1 Familiarity of Survey Participants with each Policy Field

A question of familiarity was asked to each participant for each of the four policy fields, to understand how familiar each of the participants was with each policy field. This question required an answer from each participant and for each policy field, two options were provided to the participants: Yes or No. Only if the participant has indicated that they are familiar with the policy field, then they were directed to a set of other questions that were aimed at understanding more detailed information about each field of policy. For all policy fields except for University education policies, the percentage of survey participants that are familiar with each policy field is lower than the percentage of those who are not. Only for the field of University education policies, 79,8% of respondents have noted that they are familiar with policies in this field. This also explains why the highest number of respondents have taken part in the University Education policies section of the survey.

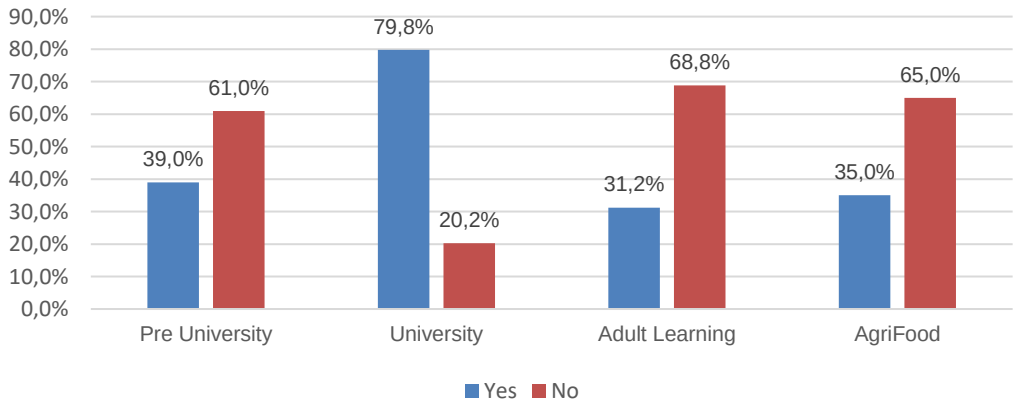

Figure 51: Familiarity of Each Policy Field to Survey Participants

5.3.2 Levels at which policies are designed/managed in Each Policy Field

An open-ended question asking the level at which policies are mainly designed and managed (e.g. regional, country, international) in each respondent's country, was asked separately for each policy field. The answers reveal that for all of the policy fields, the policies are mostly designed on a country level, followed by regional level and then by a mixture of Regional and Country level and Country and University level. Only for the policies regarding Training measures in agricultural, food and forestry sector, a higher percentage of respondents have noted that the policies are designed and managed on a regional level, followed by on a country level. The table below shows the frequencies and percentages of levels policies are designed and managed for each policy field. For this question, all open-ended replies were gathered and grouped together to arrive at the below results. More detailed results are presented under Annex 4.

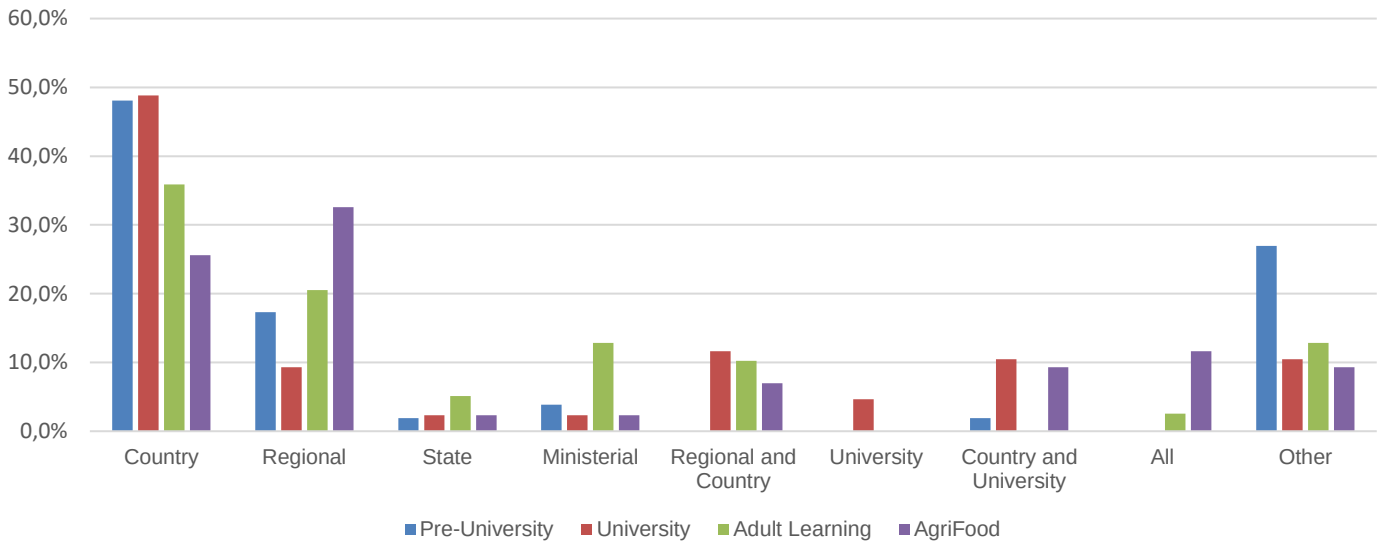

Figure 52: Administrative levels policies are designed and managed

5.3.3 Training taken by survey respondents in each policy field

A question was asked the respondents about whether or not they have participated in training/education activities under each policy field and answers of Yes, No and I don't Know were provided for the participants. Of the collected responses, the percentage of those that have participated in training/education activities is higher than those that have not, except for the policy field of Pre-university Education. Here, 41,4% of respondents have participated in training activities, while 56,9% have not. The policy field of Pre-university is followed by the policy field of Training measures in Agriculture, food and forestry sector, as under this policy field, 38,3% of respondents noted that they have not participated in any training/education under this policy field.

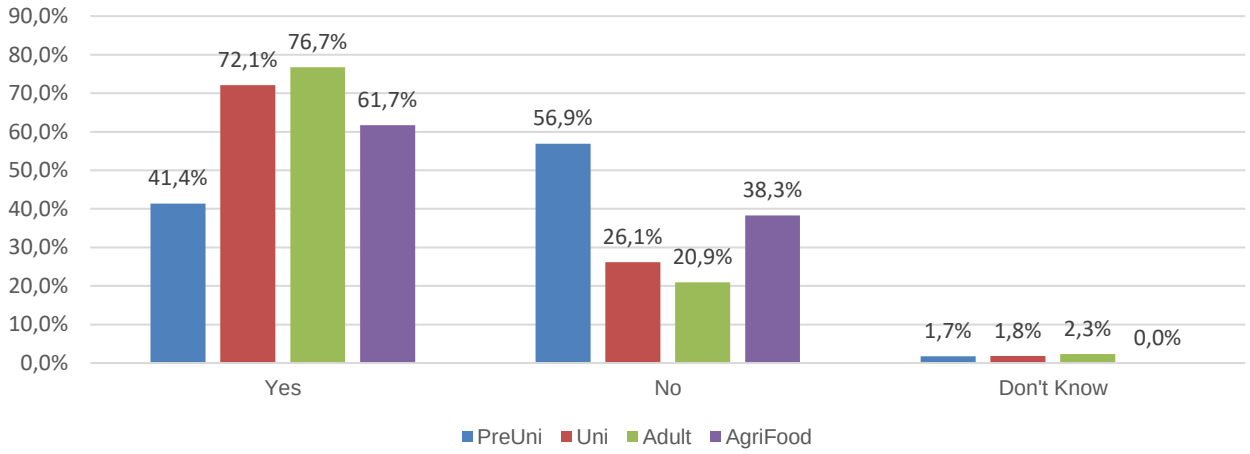

Figure 53: Whether or not survey respondents have participated in training/education activities

5.3.4 To what extent objectives of policies address agricultural/forestry needs

A question was asked to evaluate the participants' perception regarding whether or not policies in each policy field address agricultural/forestry needs; and the choices of answers were provided in a 5-point Likert scale (The lowest being 1 – Not at all, to highest being 5 – very much).

The results for this question reveal that the highest percentage of respondents under each policy field have chosen "2 - to some extent" as their answer. For all of the policy fields, except for Pre-university policies, the "1-not at all" choice is the one with the lowest percentage of answers. For the policy field of Pre-university 19% of respondents believe that the policies in this field are "not at all" able to address agricultural/forestry needs. This is a point that should be taken into consideration. Meanwhile, the policy field of Adult learning and vocational education has been the field where the highest percentage of respondents believe that policies in this field are addressing "very much" agricultural/forestry needs.

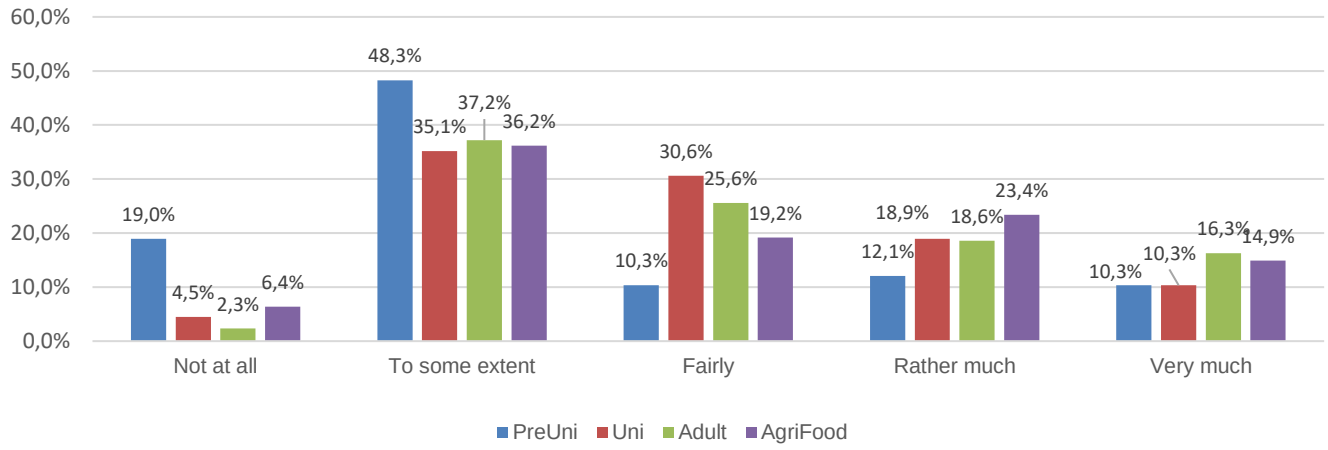

Figure 54: Extent to which policies in each policy field, address agricultural/forestry needs

5.3.5 Financial support provided for each policy field

Respondents were asked whether or not they believe that a sufficient amount of financial support was provided in each policy field. The respondents were given the choice of Yes, No and I don't know as responses. The results clearly show that in all of the policy fields, the majority of respondents believe that a sufficient amount of financial support is not provided. The percentage of those who do not believe that a sufficient amount of financial support is provided varies between 55,3-67,3%, the highest being the policy field of Adult learning and vocational education. The policy field where the highest percentage of respondents believe that a sufficient amount of financial support is provided is for policies in Training measures in Agriculture, food and forestry sector (36,2%). For this question between 8,5-18,2% of respondents have selected the choice of "I don't know", which could also imply that this is among those topics that are not widely known by the stakeholders of the sector.

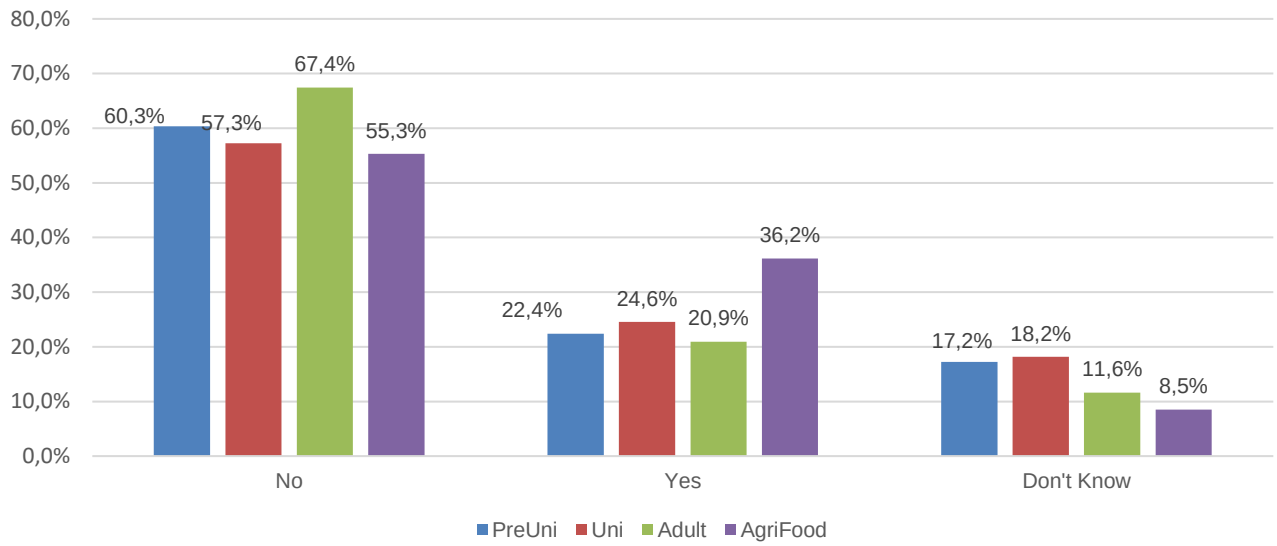

Figure 55: Whether or not sufficient amount of financial support is provided in each policy field

5.3.6 To what extent policies are providing innovative ways of learning

It was then asked to what extent survey respondents believed that policies in each policy field were providing innovative ways of learning. For this question, the respondents were asked to choose an answer among a 5-point Likert scale (The lowest being 1 – Not at all, to highest being 5 – very much).

For this question, the highest percentage of respondents for each policy field have selected "2 - to some extent" as their choice of answer. For all of the policy fields, except for Pre-university, a higher percentage of respondents have selected "3 – fairly", or "4 – rather much", compared to "1 – not at all". For "Pre-university" however, 22,4% of respondents have chosen "1 – not at all" as their response, which was, within the Pre-university field, higher percentage than "fairly" and "rather much" but also was the highest among all policy fields.

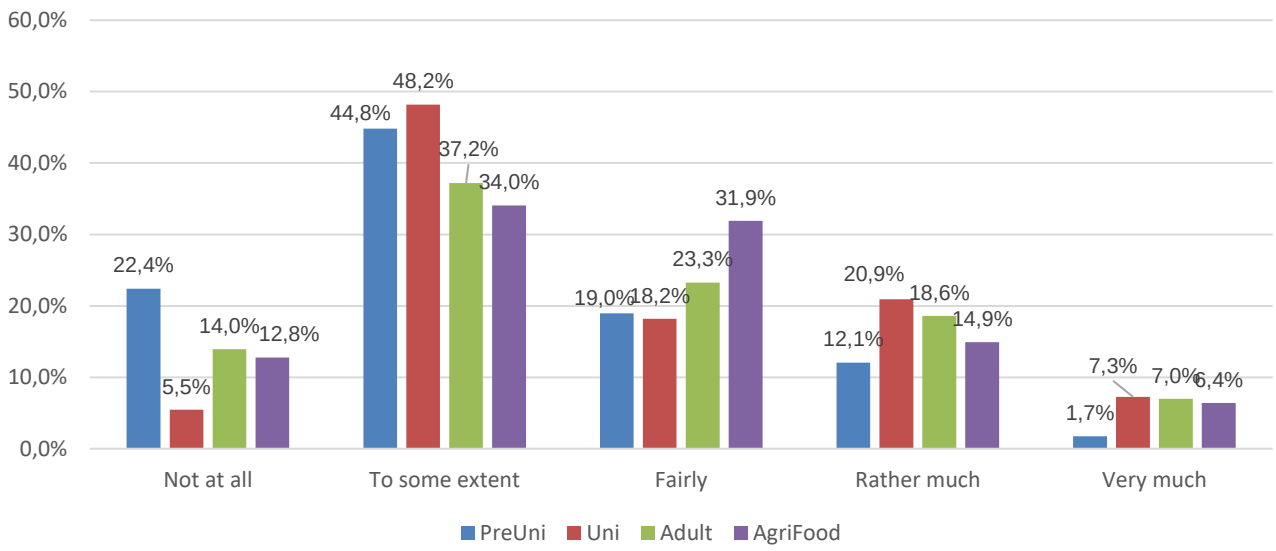

Figure 56: To what extent policies are providing innovative ways of learning

5.3.7 To what extent policies are promoting action-oriented/experiential learning

The respondents were asked, to what extent policies in their opinion are promoting action-oriented/experiential learning (A process of learning by doing, where learners work together towards a common goal, by collaborating with real people, taking action and reflecting upon their experiences from being involved in that activity, in order to tackle real-life problems/issues)? Again, for this question, the respondents were asked to choose an answer among a 5-point Likert scale (The lowest being 1 – Not at all, to highest being 5 – very much).

For this question again, the highest percentage of respondents have selected the second lowest possible answer on the Likert scale, which was "2 – to some extent". While, again, the highest percentage of respondents that choose "1 – not at all" was for the field of Pre-university, this time, the percentage of respondents that selected "not at all" was higher for all other policy fields, compared to the previous questions. This means that a considerable percentage of respondents believe that the policies are "not at all" providing action-oriented/experiential learning.

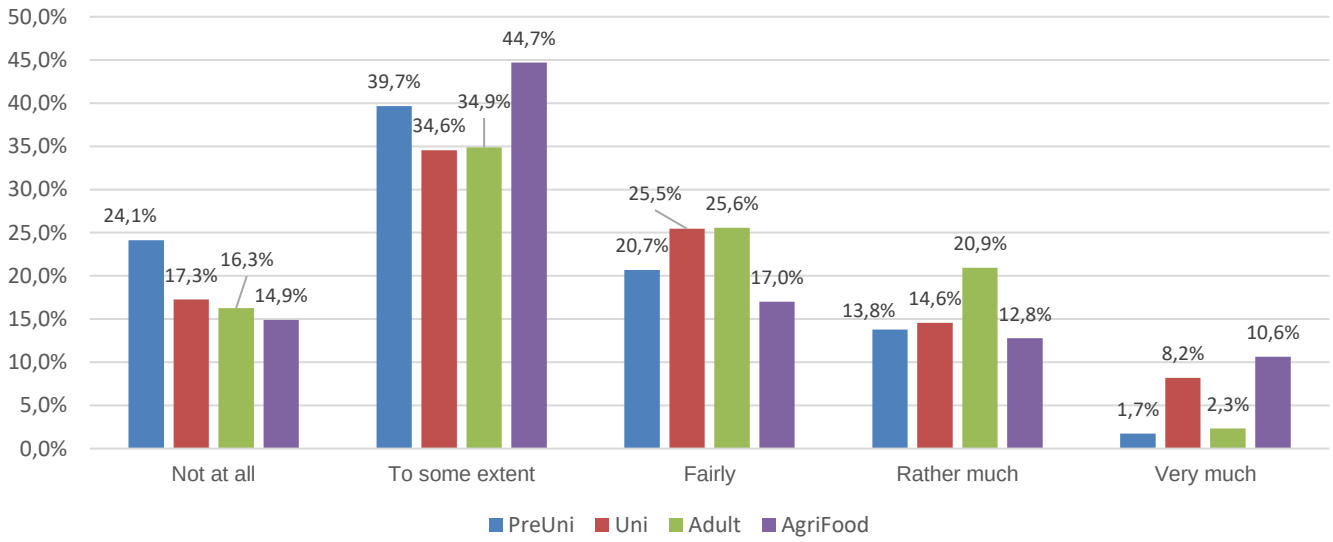

Figure 57: To what extent policies are providing action-oriented/experiential learning

5.3.8 Are policies providing sufficient educational opportunities for young agrifood and forestry professionals

The respondents were asked, to what extent policies in this field provide sufficient educational opportunities for young agrifood and forestry professionals. The respondents were given the choice of Yes, No or I don't know for this question.

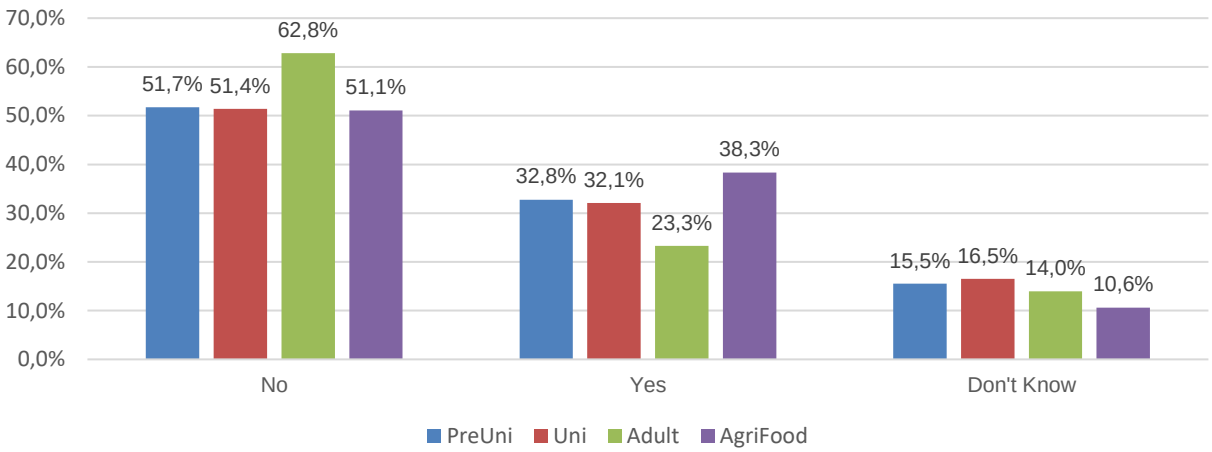

Figure 58: Whether or not policies are providing sufficient educational opportunities for young agrifood and forestry professionals

For all of the policy fields, the percentage of those that replied "No" was considerably higher than the replies of "Yes". The highest percentage of those who believe that policies do not provide sufficient opportunities for young agrifood and forestry professionals were collected in the policy field of Adult Training and Vocational Education.

5.3.9 Are policies effective to improve learners' skills and knowledge

The respondents were asked, to what extent policies in each policy field are effective in improving learners' skills and knowledge. They were asked to choose an answer among a 5-point Likert scale (The lowest being 1 – Not at all effective, to highest being 5 – very much effective).

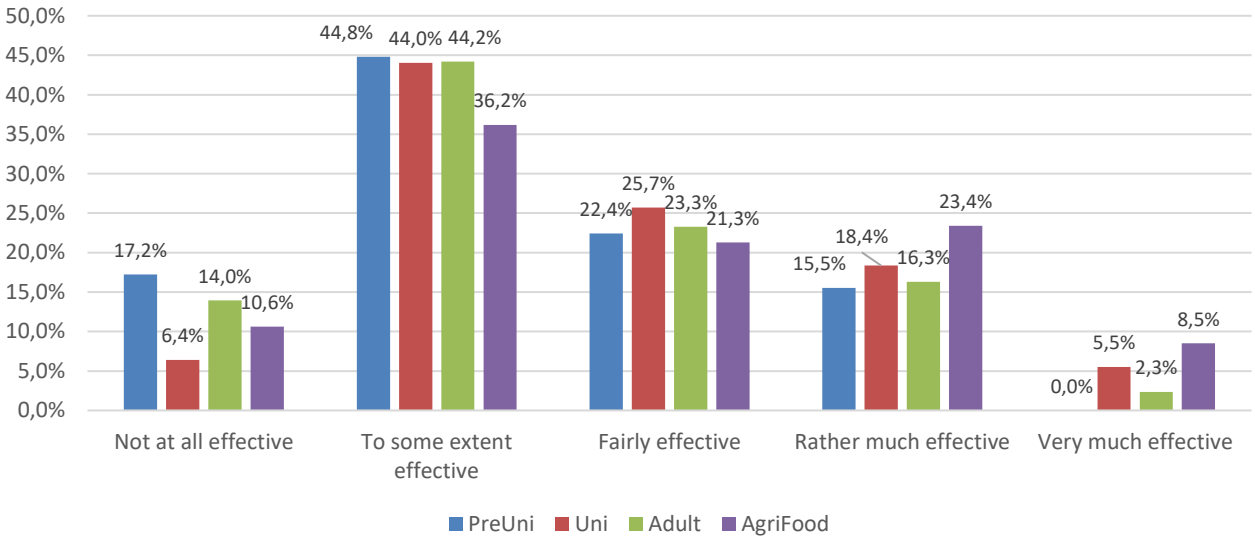

Figure 59: To what extent policies are effective to improve learners' skills and knowledge

The results of this question were also very similar to those questions about to what extent policies are providing innovative ways of learning and those providing action-oriented learning. The highest percentage of respondents in each of the policy field have selected "2 – to some extent effective" as their choice of answer, which was the second lowest answer available. Meanwhile, the policy field where the highest percentage of respondents think that the policies are "not at all effective" was Pre-university policies; while, the one that had the highest percentage of respondents saying the policies are "very much effective" was Training measures in Agriculture, food and forestry policies.

5.3.10 Are policies cost-effective (results obtained with respect to spent resources)?

The respondents were asked, to what extent policies in each policy field are cost-effective, with regards to results obtained with respect to spent resources, in improving learners' skills and knowledge. They were asked to choose an answer among a 5-point Likert scale (The lowest being 1 – Not at all cost-effective, to highest being 5 – very much cost-effective).

Once more in this question, in all of the policy fields, the highest percentage of respondents have selected "2 – to some extent cost-effective" as their choice of answer. The Pre-university field was once more had the highest percentage of respondents, among the others, selecting "1 – not at all effective" as their choice of answer.

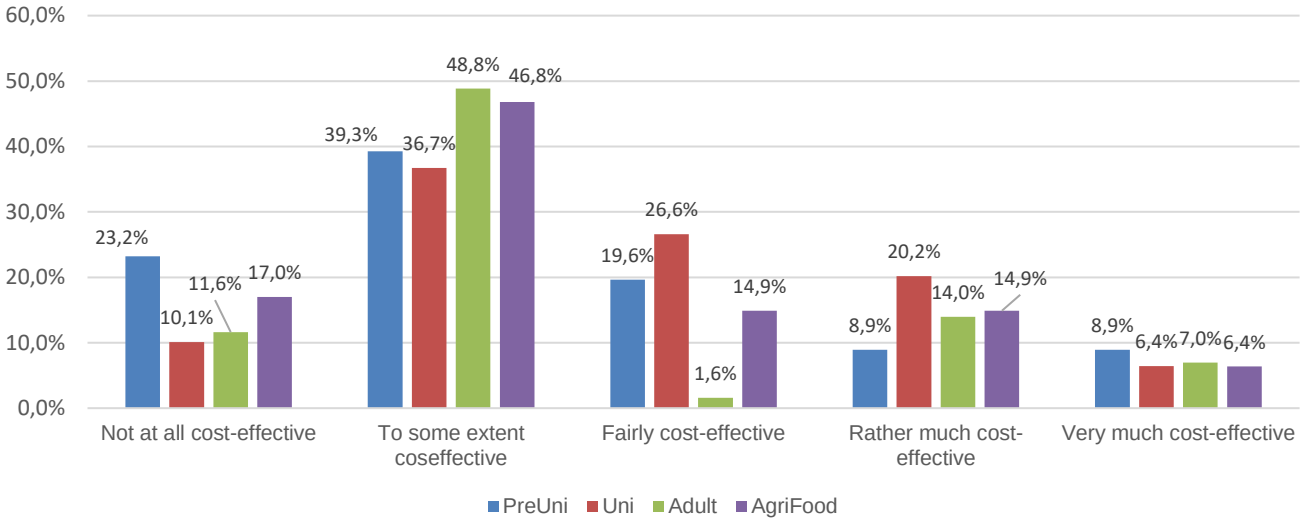

Figure 60: To what extent policies are cost-effective

5.3.11 To what extent policies are effective in each of the given topics

Respondents were asked to rate the effectiveness of policies in each policy field, in a number of specific topics: Namely, environmental sustainability, economic sustainability (competitiveness), social inclusion / social justice, entrepreneurship, innovation, life-long learning, interdisciplinarity, student-centred learning, internationalisation/mobility and networking between academia and stakeholders. Respondents were asked to rate the effectiveness of policies in each of the topics, by choosing an answer among a 5-point Likert scale (The lowest being 1 – Very negatively, to highest being 5 – Very positively). Unlike the other Likert-scale questions discussed earlier, in this set of questions, the respondents were given the chance to also rate the effectiveness of policies in each of the topics, negatively, meaning that some of these policies could be argued to be negatively affecting the issues, provided. Below, the key findings are presented, while all graphs and tables that were utilized to arrive at these findings are given in the Annex section. First, we evaluate answers separately under each policy field, and then we take a look at each topic across each policy field together.

5.3.11.1 Pre-university Education

For Pre-university policies, for rating effectiveness of policies in each topic, a varying number between 48 and 58 respondents have provided answers. The answers given were clustered mostly under the reply categories of "2 – Fairly Negative" and "Neutral", in other words, most respondents have rated Pre-university policies as being effective in each of the topics, as fairly negative or neutral. Meanwhile, Pre-university policies were rated the highest as being effective "5 – very positively" to "economic sustainability (competitiveness)" (10,4%), followed by student-centred learning (8,8%). Environmental sustainability, on the other hand, was rated the highest as "4 – fairly positively" effective, followed by entrepreneurship (29,5%). When we move towards negative responses, we can say that the policies were noted to be "1 - very negatively" effective in student-centred learning (17,5%).

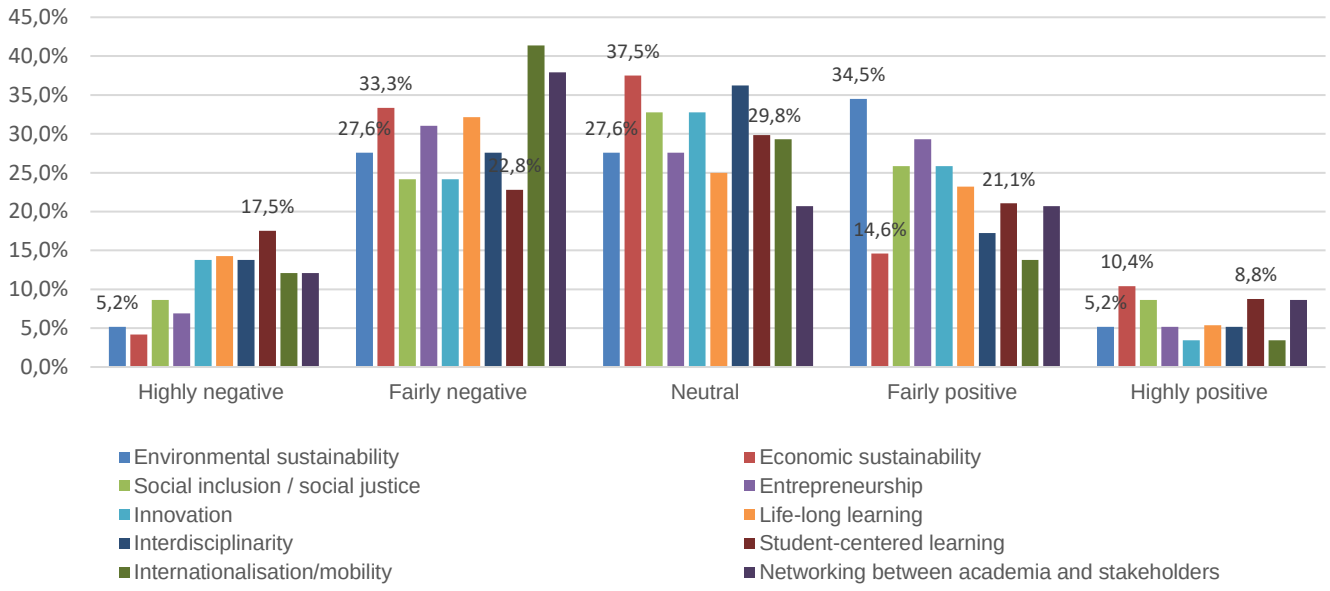

Figure 61: How participants rate the effectiveness of Pre-university policies in each topic

5.3.11.2 University Education

For University policies, for rating effectiveness of policies in each topic, a varying number between 100 and 110 respondents have provided answers for each topic. The answers across all topics were clustered mostly under, policies being effective "3 - Neutrally" or "4 - Fairly positively". While the most frequent "very positively" rated topics were networking between stakeholders and academia (14,5%) and environmental sustainability (14,05%). Environmental sustainability was rated the highest as "4 - fairly positively" affected by policies in this policy field, with a high percentage of 58%. Among all policy fields, and topics in this question, this percentage was the highest for any of the choices of answers under this question across all policy fields.

Meanwhile, interdisciplinarity was rated as being “1 – very negatively” affected by policies in this field (9,2%). Interdisciplinarity was also rated the highest as being “2 – fairly negatively” affected by policies in this field (24,8%). In other words, respondents have rated policies in Pre-university policies as being effective “very negatively” or “fairly negatively” in the area of interdisciplinarity.

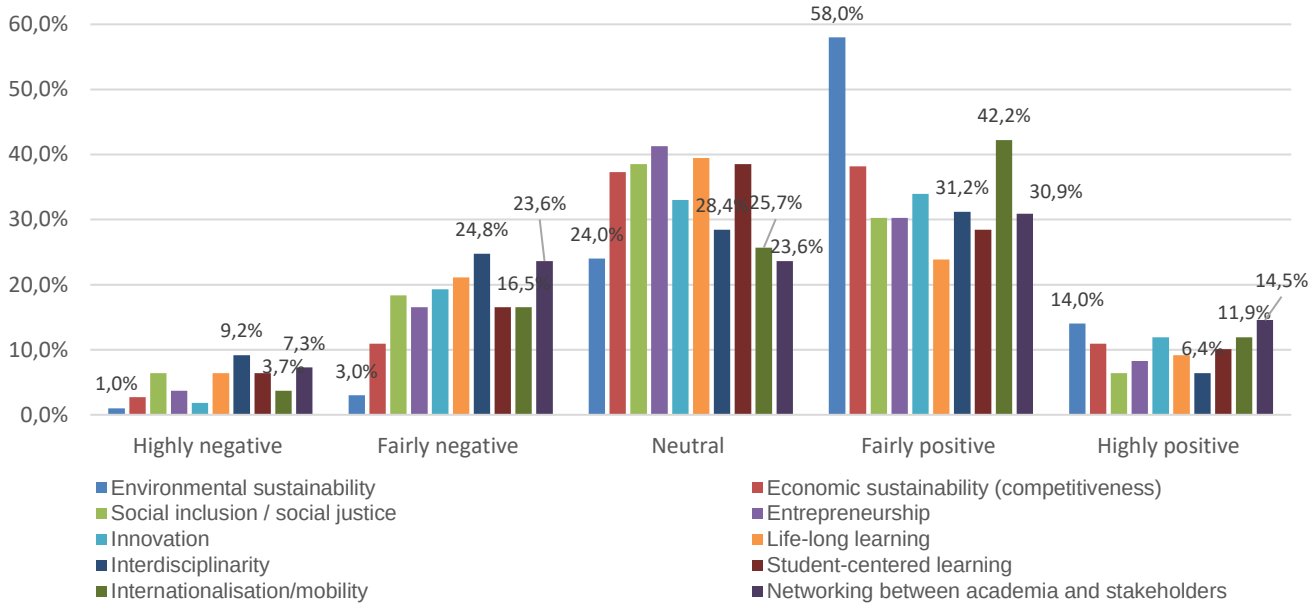

Figure 62: How participants rate the effectiveness of University policies in each topic

5.3.11.3 Adult learning and Vocational Education and training policies

For Adult learning and vocational education policies, for rating effectiveness of policies in each topic, a varying number between 42 and 43 respondents have provided answers for each topic. The answers were mostly clustered at “3 – neutral” and “4 – fairly positive” answers. Among the answers about policies being “very positively” effective in each topic, innovation was the area that has the highest percentage (16,3%). While, among the “4 – fairly positive” answers, economic sustainability (competitiveness) (53,5%) and entrepreneurship (48,8%) had the highest percentages. Meanwhile, the topic that was rated as being “1 – very negatively” affected by policies in this field was internationalisation/mobility by 23,3%. This topic was rated the most negatively being affected across all policy fields.

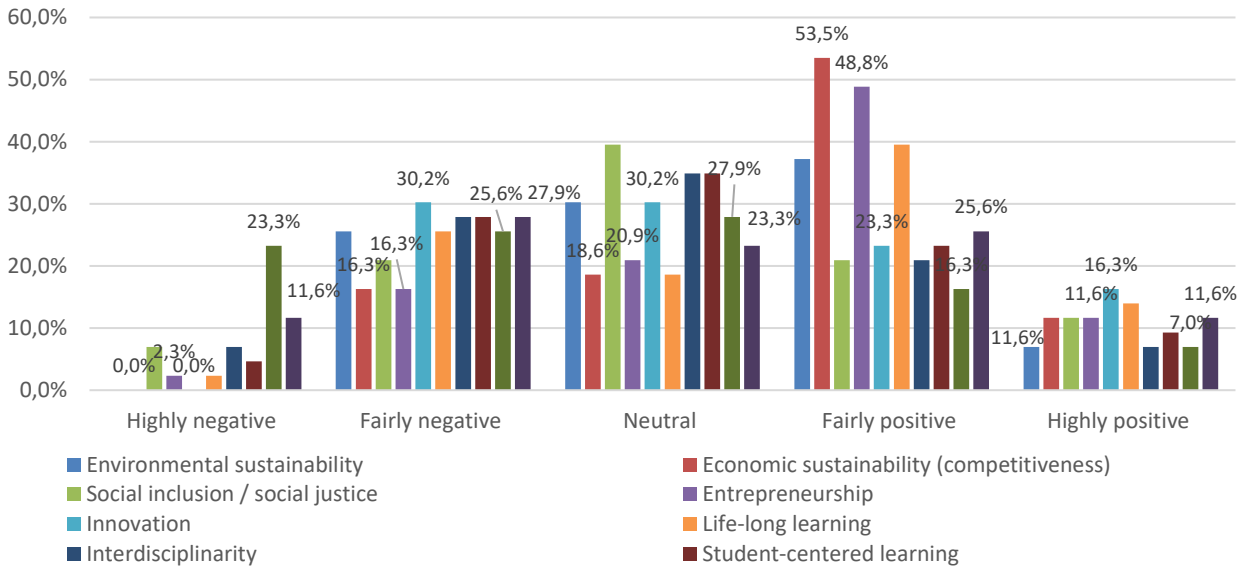

Figure 63: How participants rate the effectiveness of Adult learning and Vocational Education policies in each topic

5.3.11.4 Training measures in agriculture, food and forestry policies

For Training measures policies, we refer to policies that provide economic incentives to attend training programmes for professionals in the agrifood and forestry systems. These measures are for example to some extent provided in the CAP, although they are then implemented at the national or even at the regional level. Also, training measures are often activated in connection with other measures through cross-compliance mechanisms.

Concerning this policy filed, a varying number between 37 and 47 respondents have provided answers for each topic for rating the effectiveness of Training measures policies in each topic. The answers were again clustered in “3 – neutral” and “4 – fairly positive” choice of answers. Environmental sustainability and networking between stakeholders and academia were topics rated “5 – very positive” being affected by policies in this field (26,1% and 18,9% respectively). Meanwhile, internationalisation/mobility once again took the highest percentage as being “1 – very negatively” affected by policies in this field, with 14,9%. In the meantime, networking was among the highest as being rated as “2 – fairly negative”.

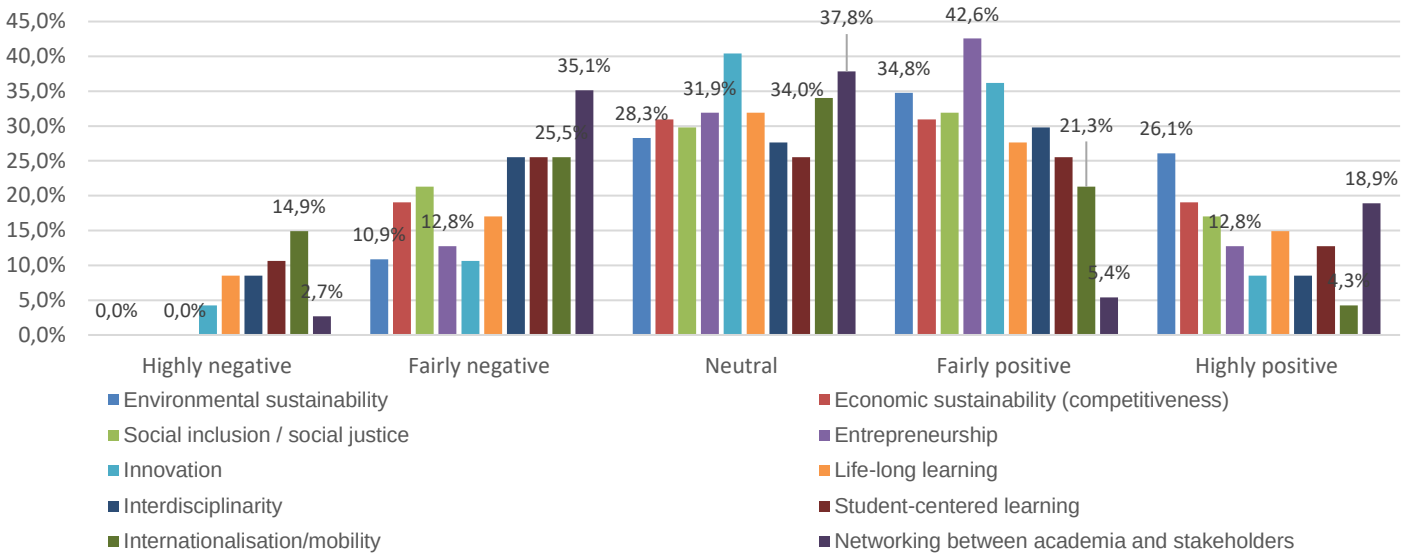

Figure 64: How participants rate the effectiveness of Training measures in agriculture, food and forestry policies in each topic

5.3.12 Answers across all policy fields

Finally, if we were to look at each specific topic across all policy fields and compare answers given to each topic (between, the lowest choice of answer being 1 – very negatively, to highest being 5 – very positively), it is also possible to arrive at some conclusions.

When we take the average of the percentages of respondents that have selected "very negatively" as their answer, across all policy fields (Pre-university, University, Adult learning, and Agrifood policies) for each specific topic, we can see that: Internationalisation/mobility was rated (on average of four policy fields) most frequently as "very negatively" being affected by policies; followed by student-centred learning and interdisciplinarity. Meanwhile, when we take the average of the percentages of respondents that have selected "fairly negatively" as their answer, across all policy fields (Pre-university, University, Adult learning, and Agrifood policies) for each specific topic, we can say that: Networking between stakeholders and academia was selected the most, followed by internationalization, interdisciplinarity and life-long learning.

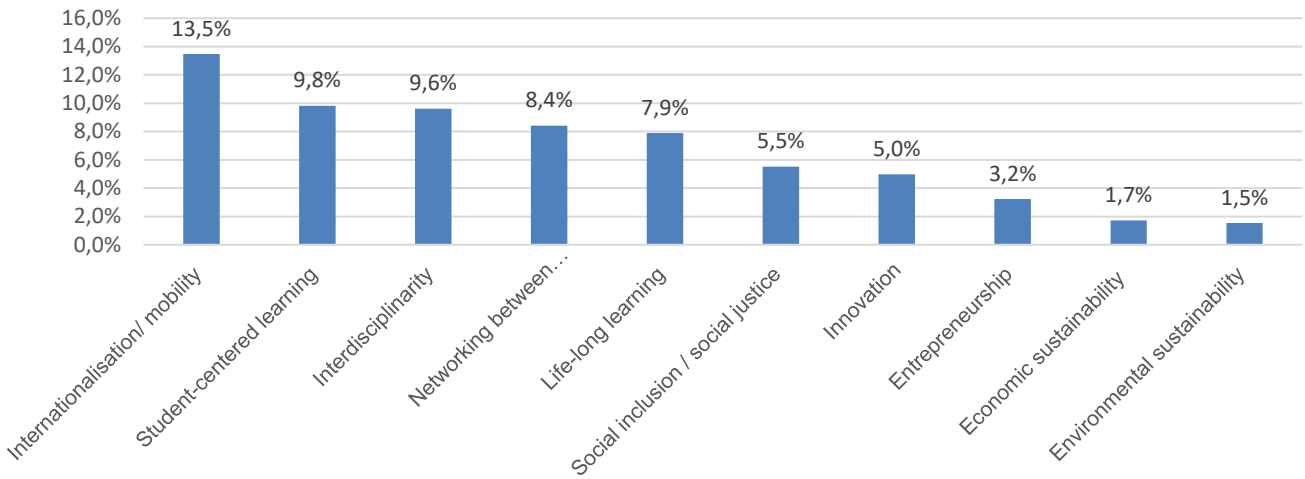

Figure 65: The average percentage of respondents across each policy field that have selected "1 - very negatively" for each topic

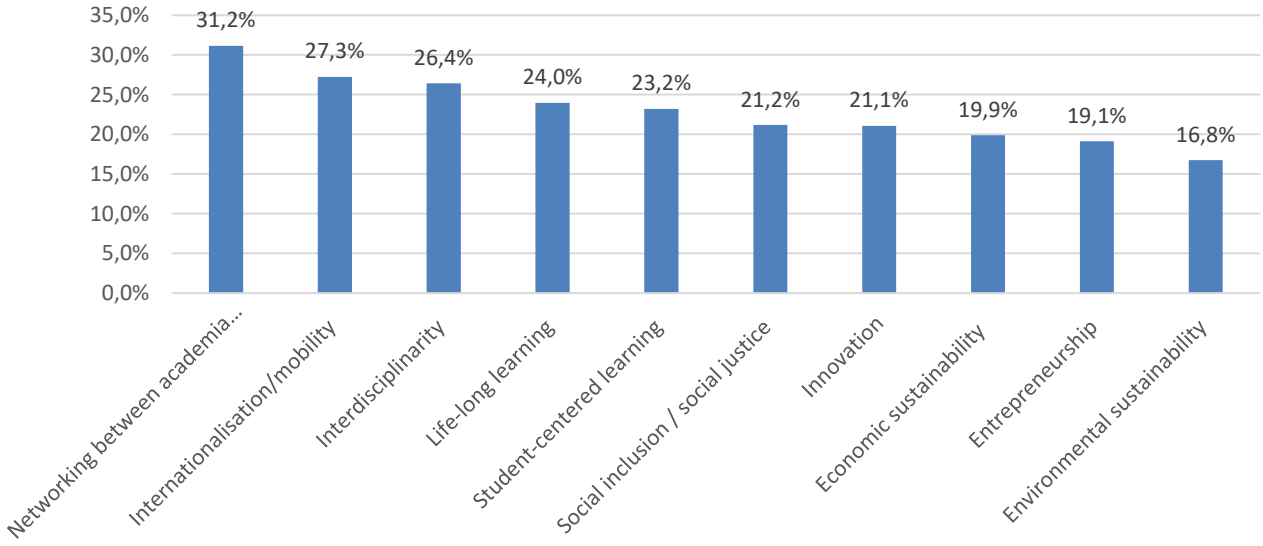

Figure 66: The average percentage of respondents across each policy field that have selected "2 - fairly negatively" for each topic

5.4 Qualitative Questions: Missing areas and Suggestions: How survey participants responded to missing elements and suggestions for each of the policy field

The respondents were asked at the end of questions of each policy field, three open-ended questions to provide them the opportunity to explain better (1) Which are the main missing elements in the current policy framework by referring to the topics listed in the previous question? (2) What they would suggest improving these missing points; and finally (3) Any additional open remark/opinion about policies in this field? All open-ended answers were collected first, and then first, rephrased to make them into main ideas, and then sub-grouped to identify the repeating themes, and finally coded to understand the rate of re-occurrence of each theme. The below sections of a. Missing elements and b. Suggestions provide the percentages of sub-grouped topics for each policy field, in order of repetition/occurrence; and the section of c. Selected details about missing elements and suggestions provide more detailed information about what were the main arguments or ideas brought about by respondents in responding the open-ended questions on missing elements and suggestions to overcome them (for more detail about each question and the open-ended answers, please refer to the Annex section).

5.4.1 Missing elements

When we look across each of the polices fields, we may see that the missing points that were mentioned the most by respondents similar across all policy fields. For Pre-university policies and Adult learning and vocational education policies, the top three missing points mentioned were lack of new learning methods, networking, and sustainability issues. For adult training and vocational education, following the top two missing elements of lack of networking and lack of new learning approaches, the quality of policies (policies linking to reality) was the most mentioned as a missing point. For the Training measures in agriculture, food and forestry policies the missing point that was mentioned the most was lack of quality policies, followed by lack of new learning approaches and lack of networking like the other three policy fields. Furthermore, for this policy field, another missing element that came after the top three ones was interdisciplinarity with 9,4%. For the case of Adult learning and vocational education policies, followed by the top three missing points, that have been already listed, other missing points that were ranked highly were lack of skills (10,8%), lack financial support (8,1%), lack of social inclusion (8,1%) and interdisciplinarity (8,1%) and entrepreneurship (8,1%). The details related to missing elements can be found below under section c named “selected details about missing elements”.

Missing Element	Pre-university	University	Adult learning / vocational	Agrifood
Networking	12,5%	16,7%	13,5%	9,4%
Learning approaches	18,1%	14,9%	13,5%	15,6%
Sustainability	12,5%	9,6%	13,5%	6,3%
Entrepreneurship / Innovation	11,1%	7,9%	8,1%	3,1%
Quality of policies / policies linking to reality	5,6%	10,5%	0,0%	18,8%
Interdisciplinarity	8,3%	6,1%	8,1%	9,4%
Social inclusion	5,6%	5,3%	8,1%	6,3%
Skills	5,6%	5,3%	10,8%	0,0%
Stakeholder engagement	1,4%	5,3%	0,0%	3,1%
Internationalisation / Mobility	2,8%	4,4%	5,4%	6,3%
Quality of education	1,4%	3,5%	5,4%	3,1%
Awareness	2,8%	2,6%	0,0%	0,0%
Quality of governance	6,9%	1,8%	5,4%	6,3%
Quality of research	0,0%	1,8%	0,0%	0,0%
Financial support	0,0%	1,8%	8,1%	3,1%
Motivation	1,4%	0,9%	0,0%	3,1%
Marketing	0,0%	0,9%	0,0%	0,0%
Jobs / Career	4,2%	0,9%	0,0%	0,0%
More learning opportunities	0,0%	0,0%	0,0%	6,3%

Table 7: Missing elements of all policy fields (% of replies in each policy field)

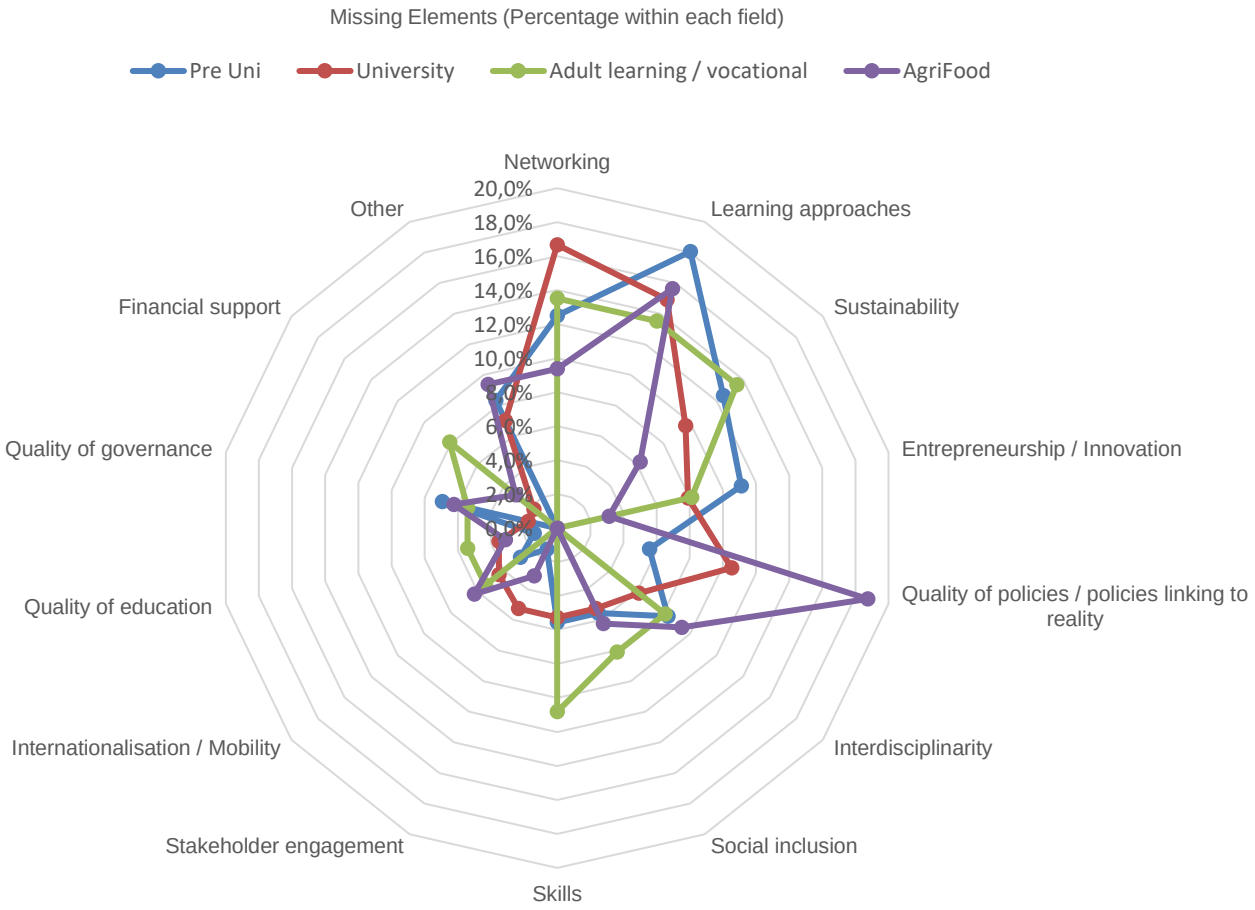

Figure 67: Missing elements in each policy field (according to percentage of answers within each policy field)

5.4.2 Suggestions

For suggestions made by respondents, again, more networking and introduction of new learning methods were always the top two aspects that were suggested, while the top third aspect has varied across policy fields. For Pre-university policies, the third frequent suggestion was to introduce a new educational curricula; for University policies it was to improve the quality of education; for Adult learning and vocational education, it was to introduce more and new learning opportunities to allow for a larger number of students to take part in them; and finally for Training measures in agriculture, food and forestry policies, it was more stakeholder engagement was proposed, in the sense of involving more the stakeholders in education and policy-making.

Suggestions	Pre-university	University	Adult learning / vocational	Agrifood
New learning approached	21,6%	14,1%	30,4%	23,3%
Networking	15,7%	11,1%	17,4%	13,3%
Educational curricula	9,8%	3,0%	8,7%	0,0%
Stakeholder engagement	7,8%	8,1%	4,3%	16,7%
Quality of policies / policies linking to reality	7,8%	6,1%	0,0%	10,0%
Promoting sustainability	5,9%	5,1%	8,7%	0,0%
Skill generation	7,8%	6,1%	4,3%	0,0%
Internationalisation / Mobility	0,0%	2,0%	4,3%	3,3%
Interdisciplinarity	0,0%	4,0%	4,3%	6,7%
Increase motivation	3,9%	1,0%	4,3%	0,0%
Promoting jobs	3,9%	0,0%	0,0%	0,0%
Quality of governance	3,9%	7,1%	4,3%	10,0%
Awareness raising	2,0%	0,0%	0,0%	6,7%
Financial support	2,0%	8,1%	8,7%	6,7%
Entrepreneurship / Innovation	2,0%	8,1%	0,0%	0,0%
Promoting social inclusion	2,0%	2,0%	0,0%	3,3%
Improving quality of research	2,0%	0,0%	0,0%	0,0%
Quality of education	2,0%	10,1%	0,0%	10,0%
More learning opportunities	0,0%	0,0%	13,0%	6,7%
Administrative burdens should be reduced	0,0%	4,0%	0,0%	0,0%

Table 8: Suggestions for improvement in Each Policy Field (Percentages)

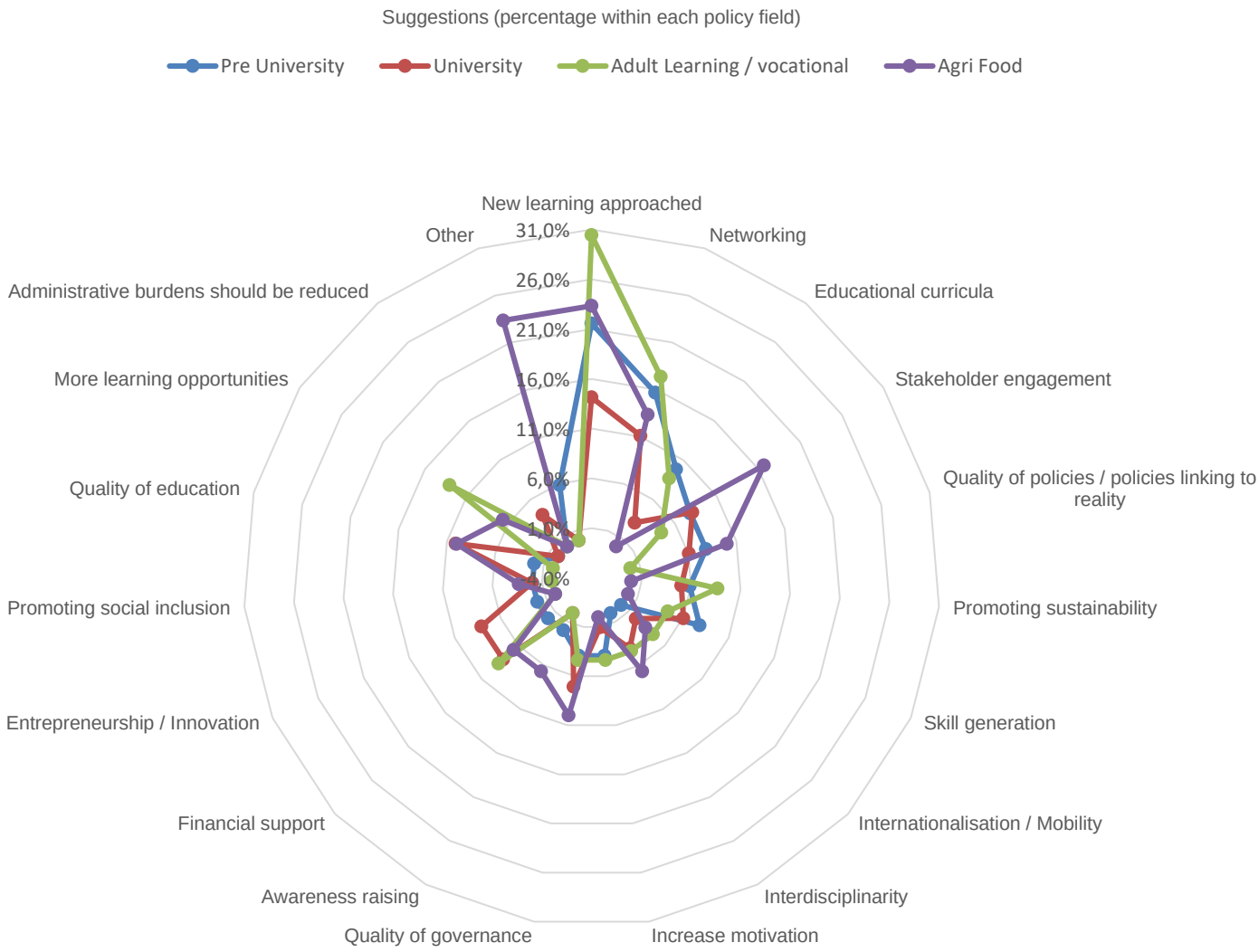

Figure 68: Suggestions for improvement in each policy field (according to percentage of answers within each policy field)

5.4.3 Selected Details about Missing Elements and Suggestions in Each Policy Field

5.4.3.1 Selected Details about Missing Elements and Suggestions in Pre-university Policies

Topic	Comments
Networking	Some participants only have written "networking" as their response; while others gave more details, such as: -Lack of connection between agribusiness universities and communities; -Lack of cooperation between different educational levels; - Lack of integration of research institutions and universities; and - Lack of link to the private sector. They suggest having a direct link from field to market place; more interaction between academia and learner communities; and promoting PPP. Not all respondents of this question had provided their country information but those that did were from France, Greece, Germany, Denmark, Austria.
Sustainability	While some participants wrote only "sustainability" as a response, other responses included: -Lack of agroecological approaches; -sustainability of farming livelihoods; -not taking ecological costs into account in the process; -long term educational sustainability; and -challenges related to ecological intensification Respondents who provided with their country information were from Spain, France, Greece, Ethiopia, India
Entrepreneurship / Innovation	While almost a big proportion of participants mentioned that either entrepreneurship or innovation was missing; others noted that supporting measures for innovation and entrepreneurship were missing. In the same way, also linking to the issue of lack of resources, one respondent argued that there are not enough resources within the forest technology education to promote innovation. These responses came from India (2), Sweden, Italy, Spain, Egypt (of those who provided their country information).
Interdisciplinary	For this topic, no specific detail was provided by respondents; they argued that interdisciplinarity measures are lacking. The responses came from Italy, Sweden, Egypt and India (2).
Learning approaches	For this topic, the respondents have different ideas of what was missing, including: -Effective internalisation by learners, -Learner-centred approaches were missing; -Learning on the job, through work or internships; -Lack of connections with reality in learning; and finally -Participatory learning approaches. They argue that: -We need user-generated innovations; -Introduce experiential learning and action-oriented learning; -Self-Learning; and –More real-life examples. Many respondents also argued that we need to change: -The educational curricula; -Prioritize classes in science and theoretical subjects in curricula, arguing that there is a need to increase the whole quality of the educational curricula. The responses came from Egypt, Latvia and Sweden.
Quality of governance	The respondents have noted that -There is a lack of long-term planning in policy-making; -Lack of organisation; -Lack of budget allocations with other sectors, -Also problems associated with the image of policy-makers, and finally; -There is weak implementation of good ideas. The only respondents who have provided his/her country information was from Germany.
Social inclusion and justice	All respondents have either noted there is a lack of "social inclusion" or "social justice", while one of them argued that there is a lack of social justice to sustain food security. The respondents were from India, Austria (2) and Italy.
Jobs / Career	The respondents have argued that there is -A lack of attractive jobs in the sector; -Lack of decent promotion of jobs; and finally -Lack of decent career advice provided. It was argued that what is needed is: -Skill generation on market analysis; -Skill generation in organic products; and –Skill generation for consumer expectations. It was also noted that we need training of trainers. The respondents that revealed their country information were from Austria (2).
Life-long learning	Respondents from India, Ethiopia and Italy noted that life-long learning was the main missing element, without providing more details.
More attention on scientific methods	This argument was repeated several times by respondents with arguments including: -There is a lack of practice of scientific methods in the area of environmental sustainability, research has not been taken seriously by policy-makers and there is a lack of respect for scientific methods.

Table 9: Open-ended replies to missing elements and suggestions in Pre-university Education policies

5.4.3.2 *Selected Details about Missing Elements and Suggestions in University Policies*

Topic	Comments
Networking	The lack of interaction between academia and stakeholders have been repeated 8 times; while there were also other ideas, including: -Academia is not collaborating with advisors/business or other stakeholders enough; - Effective dialogue is missing between academia and business and lack of links to the private sector; -Lack of networking between academia and local and international stakeholders; -Lack of links between research, innovation and teaching. On respondent also noted that networking happens but in innovation policy, but not in educational policy. It was argued that there is a need to: -Establish public and private cooperation for research and training; -Enhancing universities' link to actual actors in environmental regulation and farm production. The respondents that provided country information were from India (3), Egypt, Greece, Sweden, Latvia, Denmark, France, Spain (2), South Africa and Italy.
Learning approaches	For this topic, the need for life-long learning was repeated the most. Also, a lack of participatory and practice-oriented learning was put forth, in addition to a lack of student-centred learning. Others also noted that agricultural companies can rarely buy mission education, and there is not enough education for alumni. One respondent noted that the student-centred learning possibilities are getting fewer when the policies are aiming at larger groups of students (in order to make the educations more cost-efficient). It was also noted that it is necessary to: -Better linking school with practice and also providing real-life experiences; -Promoting holistic, systems thinking at universities; and –Teaching of strong basic knowledge and theory starting with earlier stages of education. The respondents were from Ethiopia (2), Egypt, Sweden (3), Greece, Italy, Denmark, Romania, Ukraine (2) and India.
Sustainability	Respondents shared ideas including: -Lack of balance between pillars of sustainability, while some noted there was a lack of economic sustainability, while others noted that the main missing element was environmental sustainability, and that students are not thought about environmental sound practices, profitable in agriculture. One respondent noted that agro-ecological approaches shall be made the basis of review and another one said: Scientific community and policymakers are not ready to revisit policy towards integrating agroecology. Meanwhile, some respondents focused on farm-level issues such as: -Lack of overall awareness of connection of environmental, managerial and economic issues at farm level; and that there is a lack of economic sustainability for small and medium-size farmers. It was added that: -Focus should be given to the integration of environmental and agriculture; -Promote environmental resilience instead of considering market forces for policy design; and –Increasing knowledge related to climate change issues. One respondent said we need to focus on economic sustainability. The respondents were from India (3), Sweden (2), Germany, Italy (2), Spain, and the Czech Republic.
Entrepreneurship / Innovation	While three of the respondents noted that "entrepreneurship and innovation" were missing, others provided differing ideas including: -Lack of digitization; -Lack of innovation in teaching; -More encouragement is needed to work with innovation and; -There are not clear policies for motivating innovation and entrepreneurship at universities. Respondents also added that: -There is a need to provide incentives to boost entrepreneurship; -Improving skills towards entrepreneurship; and –Promoting innovation especially in green sectors. The answers came from Ethiopia, Sweden (2), Spain, Bulgaria, South Africa and Italy.
Quality of policies/ policies linking to reality	In this topic, respondents noted that: -There are conflicting policies available; -A real policy is missing; -Adaptation of policy to current needs is very poor and; -There is a very low level of coherence between policies at different levels. It was also added that: - Policies need to simplified; -Policies need to be linked to practical aspects; -National level policies to be revised to suit challenging needs and –Necessity to measure the outcomes. Respondents that provided their country information were from India, Italy (3), USA and Poland.
Interdisciplinarity	For this topic, respondents only noted that interdisciplinarity and transdisciplinarity were the main missing elements in this policy field. One respondent said that: The same material is presented for all students at different disciplines. The respondents were from Germany, Denmark, Ukraine, Austria and Sweden.
Social inclusion	Respondents noted that that attention to social inclusion and gender issues were missing in this policy field. Respondents were from India, France, Spain and Italy (2).

Topic	Comments
Skills	Respondents argued that: -There is a lack of capabilities of students; -There is also a lack of practical experience among faculty members. While all other respondents noted that there is a lack of practical experience and a lack of opportunities to gain practical experience. Respondents were from India, Spain (2) and Belgium.
Stakeholder engagement	While some participants only noted that policies are not inclusive of stakeholders, others gave more detail, such as: -Voice of students is missing in policies; and also, that - the content of learning is not discussed with students. It was added that: - The trainers need to be good facilitators; -We need to enlarge the composition of experts; and –Necessary to have more knowledge of foreign languages. The respondents were from US, Germany, Iraq, Italy and Ukraine.
Internationalisation / Mobility	In this topic, respondents noted that: -There is a lack of mobility; and that -There is a lack of internships for students supporting mobility, while -There is also a lack of financing to send experts abroad to share knowledge. Respondents were from Egypt, Poland (2), UK and India.

Table 10: Open-ended replies to missing elements and suggestions in University Education policies

5.4.3.3 *Selected Details about Missing Elements and Suggestions in Adult learning, vocational education and training policies*

Topic	Comments
Learning approaches	Respondents touched upon -Lack of student-led processes; Lack of action-oriented learning; -Lack of design of specific measures to support learning at work; -Lack of learning by doing; and -Lack of more real-life and needs-based practices. The respondents that provided country information came from Sweden (2), India, Italy.
Networking	Respondents noted that -There is no coordination between farmers and academic centers; -No linkages between academia and business; -Also that professionals do not collaborate sufficiently with students and young entrepreneurs; -There is a lack of cooperation on all levels; and that -There is a need to learn to cooperate locally. Answers came from Egypt, Greece (2), Bulgaria and UK.
Sustainability	Most respondents noted that there is a lack of environmental and social sustainability, while others noted that what is missing is taking into consideration the next generations and climate change; and that preference of momentary profit comes before sustainability of agroecosystem. Answers came from India, Greece, Czech Republic and Italy.
Stakeholder engagement	Respondents noted that wider stakeholder participation is needed, also noting that: -There is a lack of farmers in trade-unions; -There is not sufficient freedom given to civil society organisations; and finally, that -Livelihood of farmers is not the focus of attention of policy-makers. The respondents were from Egypt (2), and India.
Entrepreneurship / Innovation	Respondents drew attention to practice-oriented innovation; and lack of cooperation in entrepreneurship. Responses were from Sweden, India, Czech Republic.
Financial support	For this policy field, this topic has been more important than any of the previous two. Respondents argued that there is a -Need to increase funds for researchers; and that -Funding is missing to promote networking. The same respondent argued that: It is a high cost for a machine operator to participate in the networking and the schools don't have the money to pay his/her extra costs. Respondents were from Iraq, USA and Sweden.
Interdisciplinarity	Under this topic, respondents discussed about lack of interdisciplinarity, without providing further details. Respondents were from Sweden, Romania and India.
Social inclusion	Respondents noted that there is a lack of social inclusion and one of them argued that -We need to provide access to training for those who need it the most. Answers came from India and USA.
Internationalisation / Mobility	Respondents were from Greece and Iraq and did not provide further details.
Quality of education and the need of more education opportunities	Respondents noted that: -There is a lack of training opportunities; and a -Lack of skillful training which is suitable for the job market. The respondent was from Italy.

Table 11: Open-ended replies to missing elements and suggestions in Adult learning, vocational education and Training policies

5.4.3.4 *Selected Details about Missing Elements and Suggestions in Training Measures in Agriculture, food and forestry policies*

Topic	Comments
Learning approaches	Respondents noted that -Reflection is needed in training programmes; -Student-centred and student-centric learning are missing and that we need business-oriented learning and more teamwork; more learning by doing and better relevance to the contemporary requests. It was added that: -We need more learning by doing; -More real-life examples; and –Design of specific measures to support these issues. Answers were from Ethiopia (2), Greece, Romania and India.
Quality of policies / policies linking to reality	Respondents argued that -There is a lack of practical policies; -Lack of continuity of policies; and that -Policies are formulated without consideration of real issues. They noted that there is a need to -Include more experts in the process; -Timely interventions and -Strengthening provincial and national actions into structured programmes. It was added that: -Education programmes must depend on a consensus decision. The responses came from India (2), Spain, USA and South Africa.
Interdisciplinarity	Respondents noted that there is a lack of interdisciplinarity and there needs to be more connection between subjects; however, they did not provide further details. Responses were from India, Romania and Bulgaria.
Networking	Respondents noted there is a lack of connection between academia and stakeholders; and argued that there needs to be more linkages between academia and entrepreneurs; and more networking opportunities should be created. It was added that: There is a need to –Collaborate locally; and –Professionals need to collaborate with students and young entrepreneurs. Answers came from Greece and Romania.
Internationalisation / Mobility	Respondents, noting that there is a lack of mobility, argued that there needs to be more international exchange programmes. Respondents were from Germany and Romania.
More learning opportunities	Respondents from Ethiopia and India argued that there is need to be more learning opportunities created; and the respondent from USA noted that we need better publicly available extension courses to target audiences.
Quality of governance	It was noted that there is a lack of institutional support; and there is a need of -Timely execution of policies and -Better monitoring of policies. All responses were from India (2).
Social inclusion	Respondents mentioned lack of social inclusion and gender issues consideration in the policy-making. Answers were from Spain and India.
Sustainability	For this policy field, the issue of sustainability was much lower in the list of missing elements. It was added that: -We need to help to understand the imperative to engage in ecological transition; and –Balance the aspects of sustainability. Respondents both mentioned, lack of environmental and economic sustainability. Both answers came from Italy (2).
Financial support	Respondents noted that there is a need for -More money; and -More financial support. It was noted that: - We need a broader funding programme across all commodities; and –Pay the entrepreneurs when they are working/networking with students. Respondents were from Sweden and Italy.
Motivation	One respondent noted that there is a lack of motivation for greater activity in gaining experience, from Czech Republic.
Quality of education	One respondent from South Africa noted that we need comprehensive and structured training actions.
Stakeholder engagement	One respondent that has not provided his/her country information noted that EIP AGRI operational groups should be involved with educational issues.

Table 12: Open-ended replies to missing elements and suggestions in Training Measures in Agrifood Policies

6 Discussion and synthesis of the main gaps, needs and problems

The results obtained show that the educational policy highly affects all the policy fields (Pre-university, University, Adult learning and Training measures) in the agricultural, food, forestry (AFF) systems. One of the striking results is that the coordination among the four policy fields discussed in this task is absent or insufficient for the large part of respondents (Figure 27). The argumentations/hypotheses that support this opinion are mainly centred on the rigidity among policymakers and national institutions, the long-time necessary for policy changing and implementation, and the insufficient coordination among EU, national and regional levels policies.

The answers reveal that for all of the policy fields, the policies are mostly designed on a country level, followed by regional level and then by a mixture of Regional and Country level and Country and University Level (Figure 52). Only for the policies regarding Training measures in Agriculture, food and forestry sector, a higher percentage of respondents have noted that the policies are designed and managed on a regional level, followed by on a country level. Thus, there is the necessity of an educational policy framework in the AFF sector at EU and international level in order to gain a better policy harmonization among countries. Furthermore, there is insufficient networking between academic and non-academic educational policies in AFF sector, and very little coordination among different national ministerial departments that are in charge with educational policies, AFF systems policies, innovation and research. One of the main gaps is that in the different countries the Ministries and Departments in charge of education are separated from those in charge of AFF policy and there is a lack of interplay to address the development of the education in the AFF sector specifically. The education is also partly separated from the practice and the real needs of producers and AFF sector, and stakeholders' involvement is still poor. For this reason, the education policy framework difficulty adapts to the technical progression, the new technology, the research advancements and the needs of the AFF sector.

At this moment, the majority of respondents are not aware of the availability of strategy documents to develop and implement the education in the AFF systems, and/or if they are planned to be implemented (Figure 40-42); thus, there is also the necessity of a better communication and dissemination of policy strategy in this field among actors of research and education and among stakeholders.

Another gap that emerged is the insufficient amount of financial support provided for the development of educational policies in the AFF sector in all the four policy fields but especially for Adult learning and vocational education (Figure 55). The respondents also believed that policies are not providing sufficient educational opportunities for young agrifood and forestry professionals (Figure 58). A considerably higher percentage of respondents have selected "No" (between 51-63%), than "Yes" (23,3-38%) to answer this question. At this time, the current policies seem to be only partially efficient to address AFF sector needs and to provide innovative ways of learning and there are still insufficient opportunities for young agrifood and forestry professionals to access adult training and vocational education. For both of the above-mentioned

questions, the percentage of respondents who selected “I don’t know” was also between 10-17%, which may also show that there is also a gap in the knowledge level regarding these issues. In a similar way, for all policy fields except for University education policies, the percentage of survey participants that mentioned “they are familiar with each policy field” is lower than the percentage of those who are not (Figure 51). Only for the field of University education policies, 79,8% of respondents have noted that they are familiar with policies in this field.

The highest percentage of respondents across all policy fields believe that policies (in all of the policy fields) can “to some extent” address agricultural/forestry needs Figure 54). The same has been true for all other 5-scale Likert type questions asked in the survey. In all of the questions and across all fields, the highest percentage of respondents believe that “to some extent” policies “provide innovative ways of learning” (Figure 56), “provide action-oriented/experiential learning” (Figure 57), “policies are effective to improve learners’ skills and knowledge” (Figure 58) and “policies are cost-effective” (Figure 59). Another observed pattern was that the policies in Pre-university Education for all 5-scale Likert questions have received the highest percentage of “Not at all” answers, meaning that this policy field has been the one receiving, in general, the most negative replies.

Regarding the question of to what extent policies are effective in each of the given topics (namely, environmental sustainability, economic sustainability/competitiveness, social inclusion/social justice, entrepreneurship, innovation, life-long learning, interdisciplinarity, student-centred learning, internationalization / mobility and networking between academia and stakeholders) a few findings can be presented (Figure 61-64). For the Pre-university Education policies, the answers given were clustered mostly under the reply categories of “2 – Fairly Negative” and “3 - Neutral. In this policy field, the policies were noted to be “very negatively” effective in student-centred learning (17,5%), which comes across as the area that needs the biggest improvement, according to survey responses. For University policies, the answers across all topics were clustered mostly under, policies being effective “3 - Neutrally” or “4 - Fairly positively”. Interdisciplinarity was the area, which has been rated as being “1 – very negatively” affected by policies in this field (9,2%). Interdisciplinarity was also rated the highest as being “2 – fairly negatively” affected by policies in this field (24,8%). For Adult learning and vocational education policies, the answers were mostly clustered at “3 – neutral” and “4 – fairly positive” answers. Here, the topic that was rated as being “1 – very negatively” affected by policies was internationalisation/mobility by 23,3%. This topic was rated the most negatively being affected across all policy fields. Finally, for Training measures in agriculture, food and forestry policies, internationalisation/mobility once again took the highest percentage as being “1 – very negatively” affected by policies in this field, with 14,9%. In the meantime, networking was among the highest as being rated as “2 – fairly negative”.

When we look across the missing elements in each of the polices fields, that were collected by respondents through an open-ended question, we may see that the main gaps appeared to be the lack of new learning methods, the insufficient networking, the lack of an efficient sustainability and the scarce quality of policies in the AFF sector, and finally, the lack of interdisciplinarity, entrepreneurship and innovation. To cite some examples, the lack of networking was addressed as the lack of connection between agribusiness universities/research institutions and communities/private sector, together with the lack of cooperation between different educational levels as the main

missing elements in the actual educational policy. Regarding the scarce attention to sustainability, the respondents mentioned the lack of an agroecological approach and long-term educational sustainability, together with not taking ecological costs into account in the process. Supporting measures for innovation and entrepreneurship are actually missing in educational policy. The reason seems to be both the lack of innovation in teaching, the lack of entrepreneurship skills in agricultural and forestry programmes/curricula and the need for more incentives to boost entrepreneurship in the AFF sector for young professionals. The examples that were brought up by the respondents stress the need for initiatives like NextFOOD that aims to develop the education system supported by new policy instruments that will serve the future sustainability learners.

For all these reasons, the quality of educational policy in the AFF sector is perceived as poor. There is a lack of long-term planning in policy-making, lack of budget allocation for this educational sector and a real policy is missing. Furthermore, there is a very low level of coherence between policies at different levels: policies need to be simplified, to be linked more to practical aspects, and national level policies to be revised to suit challenging needs.

Finally, the learning approaches have to be revised: lack of participatory and practice-oriented learning is seen as an essential bottleneck, in addition to student-centred learning. It is necessary to better connect the school with practice and also provide real-life experiences, promoting holistic thinking, and giving basic knowledge starting with earlier stages of education (high school).

7 Conclusions and the work ahead

In this study, we investigated the current problems and gaps in educational policies related to AFF systems through a survey distributed among stakeholders, farmers, value chain actors, innovation brokers, bachelor and master degree coordinators, PhD coordinators, teachers, researchers, experts, advisors, local and EU authorities and policy-makers. The lack of a good quality educational policy in this sector and the lack of networking, sustainability, entrepreneurship and innovative learning methods, especially student-centred learning, came out as the most important gaps actually perceived. These results emphasize that in order to make a transition of the education sector towards a more sustainable education, a development of policies that supports initiatives for student-centred and interdisciplinary education methods is needed.

The findings in this Task are thus extremely and interestingly connected with the case studies proposed and addressed by the NextFOOD projects in WP2, which aims to identify gaps and needs in educational programmes and approaches by developing in the selected case studies innovative ways of learning (multi-actor approach, inter-disciplinary, student-centred learning, participatory learning, and action-directed learning) and new curricula.

Some limitations affect this work, primarily inherent to the current state of educational policies in the AFF field which is mostly lacking. Secondly, the respondents sample is largely biased towards high-level educated staff working in academic institutions. However, several interesting results were found and have to be taken into due consideration to propose recommendations and policy instruments for an improvement of the educational policy framework in AFF systems.

In conclusion, this work provided a background for task 4.2 of the NEXTFOOD project aiming to propose new policy instruments to manage strategically this interface towards more effective and efficient policies that will contribute to develop an education for a more sustainable, flexible, and competitive agrifood and forestry sector, as well as connecting with the case studies and the following tasks of the project, aimed at identifying explicit policy improvement options.

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Annex 2 – Summary of reviewed literature

What's new in the research on agricultural entrepreneurship?
Dias, C.S.L., Rodrigues, R.G., Ferreira, J.J., (2019) Journal of Rural Studies, 65, pp. 99-115.

The study analyses the state-of-the-art on agricultural entrepreneurship through a literature review. The results are grouped in three categories:

- Entrepreneurial Skills and Behavior
- Entrepreneurial Strategies
- Community and Entrepreneurial Activity

The first section Entrepreneurial Skills and Behavior focuses mainly on the assessment of entrepreneurship programmes targeted at agricultural students in higher education, in addition to women and young farmers. Some points made are as follows:

Entrepreneurial attitudes in the agricultural sector are determined more by education than age and gender: Entrepreneurship programmes should target not only farmers but also to agricultural students in higher education institutes

Entrepreneurial intentions of students who had attended entrepreneurship courses are higher: Agricultural colleges should integrate entrepreneurship into their educational programmes (also making links to other subjects - management, economics, marketing and technology)

Although younger farmers are less likely to become entrepreneur in the agricultural sector, young farmers are more productive and achieve higher profitability, investment and engagement in Agri-environmental schemes

- Government training programmes are essential to promote youth involvement in agricultural businesses and improve their entrepreneurial skills
- There are entrepreneurship programmes for young farmers in less developed countries that provide both entrepreneurial and technological capacities, with positive results but it is needed to expand those programmes to other farmers and other countries

Non-governmental organizations (NGOs) also implement important entrepreneurship training projects in less developed countries: Although an example is given for a project that has failed in Sri Lanka aiming to help farmers become ecologically and economically successful organic farmers – which may be due to insufficient duration of the program.

Other recommendations include:

- Technology programmes to give additional training and support to develop entrepreneurial skill
- Training programmes to consider the particular training requirements of the different agricultural sub-sectors, such as mushroom, vegetable, poultry, dairy and oil palm sectors
    - Urban farms to have a special role to generate jobs for the youth: As many urban farms, beyond food production, have a model of social entrepreneurship, and these can be used as a policy tool

Human Capital and the CAP: The Case for Radical Policy Reform
Caskie, P., (2018) *EuroChoices*, 17 (3), pp. 31-36.

The article discusses that the development of human capital receives insufficient attention in the CAP, that reform is required, and that EU and national responsibilities for agricultural education and farmer life-long learning could be better integrated; and in this regard addresses three main questions:

- Why is change necessary?
- What changes should be made?
- How should change be implemented?

The paper discusses, under each heading, the following topics as summarized below:

Why is change necessary?

- Despite longstanding interventions to promote specialist agricultural education, farmer attainment metrics remain disappointing. Likewise, participation rates in life-long learning are much lower for farmers than for the working population generally.
- The EU Strategic Working Group of the Standing Committee for Agricultural Research on AKIS (SCAR-AKIS, 2017) produced a paper with recommendations for transformation of the system. These include the need, especially in Eastern European countries, to address the gaps that exist in basic knowledge and skills, the requirement for a broader curriculum to address the wide-ranging challenges that exist and the necessity for more attention to be paid to life-long learning as a driver of innovation.

What changes should be made?

There is potential to apply measures on minimum practitioner competency, practitioner accreditation and continuing professional development to agriculture. Other occupations, faced with the challenge to eliminate poor performance, and encourage best practice, have introduced minimum qualifications or equivalent competency based accreditation frameworks. Minimum levels of competency can be established as a mandatory requirement for anyone operating in an industry or can be held on a voluntary basis. Once registered, practitioners are usually required to maintain existing competencies, keep pace with changes in regulatory standards and stay in touch with technological developments. This is done by engaging in Continuing Professional Development (CPD).

In preparation for a career in agriculture, new entrants are already encouraged to undertake formal training. Some Member States have made good progress in fostering relevant educational attainment, with France in particular achieving very high rates of full formal training. The goal, in future, should be that all new entrants to farming reach a prescribed level of educational attainment. To this end, possession of relevant qualifications could be incentivized and their absence penalized.

How should change be implemented?

As part of this policy framework, a share of the future EU agriculture budget should be placed in a Knowledge Fund to be allocated in the form of Knowledge Vouchers. Given ingrained barriers to change that must be overcome, farmers using Knowledge Vouchers to finance training, skills and competency development should be rewarded

with a cash payment. Farmers that do not engage in education and life-long learning would see subsidy payments reduced.

The challenges of innovation for sustainable agriculture and rural development: Integrating local actions into European policies with the Reflective Learning Methodology

Moschitz, H., Home, R., (2014) *Action Research*, 12 (4), pp. 392-409.

The paper examines the Reflective Learning Methodology (a participatory action research approach) by describing and analysing its application in a European level action research project (SOLINSA – Support of Learning and Innovation Networks for Sustainable Agriculture).

Reflecting Learning Methodology involves identifying some of the challenges of transdisciplinary research and finding ways of addressing them and critically reflecting on the role of the researcher in participatory action research. Authors believe that innovation for sustainable agriculture needs such action research and with the Reflective Learning Methodology they have provided a potential tool, which can be further developed and adapted to the needs of other research projects.

The paper argues that as linear view of innovation in agricultural contexts is being replaced by systems approaches, agricultural producers are also seen as important actors rather than merely consumers of the technologies that are generated by agricultural research and transferred by education and extension services for subsequent adoption. However, it is argued that this new understanding is not reflected within the European policy framework, so learning and innovation networks for sustainable agriculture (LINSA) have formed in response.

In agreement with the findings of Moschitz (2013), the paper concludes that good facilitation is needed to manage such a project, and that it is a case of process management rather than project management. For many researchers, the research demanded new roles as facilitators and mediators. Filling these roles required new skills, which were enabled by the decision to build capacity building and internal reflection into the project. At the project level, the Reflective Learning Methodology enabled a rich and informed reflection of general conclusions from case study work that fed into scientific synthesis, policy recommendations and a training course for advisors and innovation brokers. The overall process identified the desirability of collective continuous reflection that enabled co-creation of knowledge.

Evaluation of a Multi-Case Participatory Action Research Project: The Case of SOLINSA

Home, Robert; Rump, Niels, 2015. *Journal of Agricultural Education and Extension*, v21 n1 p73-89

The paper describes the systematic evaluation of participatory action research with 17 European networks (LINSA) as part of a research project titled SOLINSA: Support of Learning and Innovation Networks for Sustainable Agriculture.

Methodology: Participatory action research was carried out over three years in collaboration with the 17 LINSA using a learning-oriented evaluation that was adapted to SOLINSA. The collaboration was evaluated using a structured evaluation instrument that was developed in the project.

Findings: Joint reflection; facilitated by a member of the research team and in collaboration with the LINSA, stimulated internal engagement, enable a d rethinking of the network's positioning, contributed to strategy development, and enabled creation of concrete outputs. Researchers and participants expressed that collaborative action research can be considered successful when both parties give and gain benefits, such as new knowledge or improved practical solutions.

Practical implications: Comparison of self-evaluation of different networks using a single tool enabled the identification of common factors that contribute to successful collaboration. Included in these common factors was the need to identify and build a working relationship with key partners based on mutual trust and commitment, and to gain a balance between guidance and listening, interactions and freedom, and positive and critical reflection: a fragile equilibrium that is difficult and time-consuming to establish.

Innovation Systems and Knowledge Communities in the Agriculture and Agrifood Sector: A Literature Review

Jean-Marc Touzard, Ludovic Temple, Guy Faure et Bernard Triomphe De Boeck Supérieur, 2015, Journal of Innovation Economics & Management

This article aims to analyse by conducting a literature review, how different “knowledge communities” use the concept of Innovation Systems (IS) in agriculture or agrifood systems, and how these uses question the specifics of innovation in this sector: Do these communities’ scientific publications reflect a simple application of a general IS approach to a sector? Or do they instead give rise to more original proposals which include the conditions under which innovation can take place in the agriculture and agrifood sector? These results suggest that there exist four distinct knowledge communities, each of which questions in a different manner the specific character of the work mobilizing IS to study agricultural and/or agrifood innovation.

Developing the Knowledge, Skills and Talent of Youth to Further Food Security and Nutrition

FAO REPORT, 2016

This document provides case studies from different regions (8 from Africa, 1 from Europe, 2 from Near East, 6 from Asia and Pacific Islands, 3 from Latin America), that set out the challenges, successes and lessons learned relating to the development of knowledge, skills and capacity for youth in agriculture. The case studies cover the areas of peer-to-peer knowledge transfer, vocational training and skills development, and education systems and research. Specific issues concerned with how to integrate

traditional or intergenerational knowledge and the use of new technologies is also discussed. The conclusions discuss how learning from these initiatives can inform the broader policy environment as well as the design of youth-targeted policies, projects and programmes - with the overarching objective of providing attractive, remunerative and sustainable livelihoods for youth in agriculture to further food security and nutrition.

Closing the extension gap: Information and communication technology in sustainable agriculture

Lubell, M., McRoberts, N., (2018) *California Agriculture*, 72 (4), pp. 236-242.

This paper examines ICT use among extension professionals working on sustainable agriculture in California. The study emphasizes the role of social media platforms such as Twitter, Facebook and LinkedIn as innovative extension tools for building knowledge networks, coordination, communication, outreach and education. ("Extension professionals" are broadly defined as professionals engaged in agriculture outreach and extension, either based at a university or elsewhere throughout the food system and agricultural knowledge networks).

Why is ICT use important?

- Social media tools allow extension professionals, farmers and other agricultural stakeholders to communicate in new ways about the broad range of issues affecting agroecological systems.
- As data scientists integrate ICT with "big" data, farmers can downscale diverse sets of information for local decision-making and upscale local data to see emergent patterns at multiple scales.

Adoption of ICT in agricultural sector depends on what?

- Study draws on diffusion of innovation theory and suggests that ICT adoption depends on how extension professionals perceive the attributes of this innovative technology, such as its relative advantage over other extension tools and its complexity.
- How demographic characteristics of extension professionals influence ICT adoption is also examined.

Policy recommendations:

- Developing policy recommendations to improve the appropriate use of ICT requires identifying the critical barriers to ICT adoption among extension professionals.
- The traditional top-down model of delivering land-grant university research to local clientele is becoming obsolete, especially when resources are scarce. It must be complemented by a more bottom-up model, where in addition to developing and broadcasting new knowledge, land-grant universities and other extension organizations must build innovation systems that coordinate knowledge networks among different stakeholders.
- Such networks seek to synergistically combine social, technical and experiential learning.
- New ICTs are potentially important tools in this endeavour, especially when used to complement other methods of outreach and education.
- It is also important for agricultural extension organizations, including land-grant universities, to establish clear guidelines for recognizing the value of ICT as an

extension tool that complements traditional communication strategies and ways of extending knowledge.

Educational needs and perceptions of the sustainability of precision agriculture: survey evidence from Greece

Kountios, G., Ragkos, A., Bournaris, T., Papadavid, G., Michailidis, A., 2018. Precision Agric, 19:537–554 https://doi.org/10.1007/s11119-017-9537-2

Precision agriculture (PA) constitutes a dynamic production method which is gaining attention in several parts of the world. Its environmental and economic sustainability has been examined in terms of its ability to reduce the adverse effects of agrochemical use—by regulating their application to the levels needed at the land parcel level—and of its contribution to higher incomes and profitability. At the social level, PA has been linked to collective action although little insight is available regarding the role of various actors and education.

This study tackles PA through an assessment of the attitudes of farmers towards the elements of its sustainability and of their educational needs. The analysis of survey data of a sample of young farmers in Greece showed that the majority of respondents were not familiar with PA. Significant differences were found between the attitudes of knowledgeable and non-knowledgeable farmers, the former demonstrating better acknowledgement of the environmental, economic and social sustainability of PA. Important educational needs were also detected, with group and individual methods being the most preferred ones for education and information campaigns. The results of the analysis could be of use for the design of Common Agricultural Policy Pillar II measures for the promotion of PA targeting to specific audiences and actors.

The role of citizen science in addressing grand challenges in food and agriculture research

Ryan SF et al., 2018

Although there is a long history of public engagement in agriculture and food science, the term ‘citizen science’ has rarely been applied to these efforts. Similarly, in the emerging field of citizen science, most new citizen science projects do not focus on food or agriculture. Here, the paper convened thought leaders from a broad range of fields related to citizen science, agriculture, and food science to highlight key opportunities for bridging these overlapping yet disconnected communities/fields and identify ways to leverage their respective strengths.

Specifically, the paper argues that

- Citizen science projects are addressing many grand challenges facing our food systems, as outlined by the United States National Institute of Food and Agriculture, as well as broader Sustainable Development Goals set by the United Nations Development Programme,
- There exist emerging opportunities and unique challenges for citizen science in agriculture/food research, and
- The greatest opportunities for the development of citizen science projects in agriculture and food science will be gained by using the existing infrastructure and tools of Extension programmes and through the engagement of urban

communities. Further, they argue there is no better time to foster greater collaboration between these fields given the trend of shrinking Extension programmes, the increasing need to apply innovative solutions to address rising demands on agricultural systems, and the exponential growth of the field of citizen science.

Agri-Environment Scheme Design: Past Lessons and Future Suggestions

Paula Cullen, Pierre Dupraz, James Moran, Pat Murphy, Ronan O'Flaherty, Cathal O'Donoghue, Robert O'Shea and Mary Ryan, 2018, 91st Annual Conference of Agricultural Economics Society and European Association of Agricultural Economists (EAAE)

A panel of experts from the areas of agricultural economics, ecology, agri-environmental policy and agricultural extension were bought together for a novel workshop on agri-environment schemes conducted at the Agricultural Economics Society's 91st Annual Conference. This document presents the discussions and results of the panel.

Advisory services: Knowledge transfer is critical in educating farmers and supporting them, as the role of the farmer in the design stage grows. Complexity cannot be passed on to the farmers if that results in non-participation, therefore it must be absorbed through the process of creating the schemes and by the advisory services. This increases the need for expertise amongst advisory services and may require more specialised knowledge and education (Murphy, 2017). Hence, the importance of integrated local farm advisory systems in participatory-partnership results-based schemes was emphasized.

Future schemes: One objective, one tool? There was a strong consensus among the panel that spatially targeted results-based agri-environment schemes created using a multi-actor approach are key to improving the environmental performance of farms through improving biodiversity and water quality. However, there is still a place for top-down action-based schemes in delivering common interventions at a scale that can effect greater change. The challenge for policymakers is to provide a scheme infrastructure that allows for farmers to become directly involved in solving their local issues, in a supportive regulatory and policy framework. Policy-makers will need to step back and pass on some of the responsibility for creation, monitoring and evaluation of schemes, to a more supportive role in partnership with other actors. In making these changes, consideration must be given to scheme complexity. Increasing the role of advisory services was agreed upon by the panel as a way to minimise the complexity that gets passed on to the farmer. Advisory services are also important in increasing farmer awareness of environmental issues on their land. (not directly related, about knowledge networks and policy in biogas sector)

Knowledge networks and their role in shaping the relations within the Agricultural Knowledge and Innovation System in the agroenergy sector. The case of biogas in Tuscany (Italy)

Gava, O., Favilli, E., Bartolini, F., Brunori, G., 2017, *Journal of Rural Studies*, 56, pp. 100-113.

The objective of the analysis is to help and understand the interplay between biogas adopters and the stakeholders of the Agricultural Knowledge and Innovations System (AKIS). Specifically, the paper proposes an application of social network analysis that aims at bringing out the influence of knowledge exchanged within the system on adopters' business decisions, as well as adopters' contribution to knowledge upgrading.

Self-education, upstream industry, agronomists, farmer/biogas unions, university, public-funded projects, and public research centers are AKIS' stakeholders, which adopters turn to when seeking for information and/or know-how. Upstream industry is the most influential node and the one that can help knowledge diffusion across adopters, regardless of their background. Self-accessible resources are major providers of information at the adoption-decision stage. The networks are centralized on self-education tools, while upstream industry and the Research Center on Animal Productions are the brokers. Policy intervention aimed at improving AKIS in the biogas sector should involve the upstream industry in decision-making, while considering the duality of self-accessible information vs. physical advisors. This paper shows evidence from a region where public incentives have allowed biogas diffusion, despite the region not being intrinsically suitable for it. Study findings may be useful for policy-makers and researchers who deal with the prevention, or mitigation, of the negative externalities of land use change via the promotion of informed technology diffusion.

(Education needs and implications for policy, yet less on existing policy measures or necessary upgrading, also document is a bit old – from 2014)

Innovation and skills: Implications for the agrifood sector

Jack, C., Anderson, D., Connolly, N., (2014) *Education and Training*, 56 (4), pp. 271-286.

The purpose of this paper is to explore how firms within the agrifood sector consider the way innovation and technology adoption will have impact on future skills and training needs and identifies where the industry considers the appropriate policy interventions are required.

In total, 30 companies were interviewed, providing representation from all the food and drinks sub-sectors and covering at least 50 per cent of employee numbers in each sub-sector. The survey focuses on current and future skills requirements for specific cohorts of employees in the sector; specifically, those who have undertaken further full-time training beyond minimum school leaving age. In addition, it aimed to seek employer feedback on those entering the labour market for the first time.

The results support the need for strong intermediate levels of educational attainment. In addition, the acquisition of work-related generic skills is essential for creating a more "flexible" and multi-skilled workforce. Up-skilling programmes, particularly for lower to mid-level management roles, will become increasingly important in the future. Experience gained through work placement and vacation and weekend work is viewed very positively. Companies expressed a greater need for engagement between the further and higher education sectors and industry in relation to the content, design and delivery of educational programmes to adequately meet the needs of the sector.

An Emerging Signature Pedagogy for Sustainable Food Systems Education

Will Valley, Hannah Wittman, Nicolas Jordan, Selena Ahmed, and Ryan Galt, 2017, Renewable Agriculture and Food Systems

The dominant tendency within university settings is to conceptualize and address diverse food system challenges as separate, disconnected issues is a key barrier to food system transformation. To address this fragmented approach, educators in North American institutes of higher education have begun new degree programmes, specializations and certificates related to food systems. These programmes, which are termed as sustainable food system education (SFSE) programmes, have a common goal: to support post-secondary students across a range of disciplines in developing the knowledge, skills and dispositions to effectively address complex challenges in the food system.

Within this study, authors study four undergraduate SFSE programmes (in Northern American Universities); identify common pedagogical themes evident in these programmes, and then propose a signature pedagogy (SP) for sustainable food systems education. Signature pedagogies are conceptual models that identify the primary elements by which professional education in a specific field is designed, structured and implemented. The programmes studied are: (1) the Land, Food and Community series curriculum at University of British Columbia (UBC), (2) the Sustainable Food and Bioenergy Systems major at Montana State University (MSU), (3) the University of Minnesota (UMN) Food Systems major and (4) the Sustainable Agriculture and Food Systems major at the University of California, Davis (UC Davis).

The seven themes that occurred in all four SFSE programmes: collective action, systems thinking, experiential learning, communication and collaboration skills, research skills, interdisciplinary and critical reflection. By making these themes and their function explicit within a pedagogical framework, they seek to spur critical and creative thought regarding challenges of professional education in the field of sustainable food systems.

In addition to program development, there are also important questions about evaluating the outcomes of individual programmes and SFSE programmes as a whole. 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 wicked and ill-structured problems by using systems approaches and engaging with diverse stakeholders. The SP of SFSE is clearly structured to create and facilitate these outcomes. Yet, to date there has been little systematic assessment of the effectiveness of these programmes in terms of the learning outcomes for their students and their students' performances in their working and civic environments once graduated. The authors believe these questions are worth asking: To what extent have they prepared their graduates to make decisions and take action within the contexts of complexity and uncertainty, exposed their graduates to multi-, inter- and trans- disciplinary collaborations and cultivated in their students' appropriate values, attitudes and dispositions towards diverse ways of seeing and

knowing?

Facilitating transformation and competence development in sustainable agriculture university education: An experiential and action oriented approach (2016), Migliorini, P., Lieblein, G., *Sustainability (Switzerland)*, 8 (12), art. no. 1243,

The importance of bringing university students closer to stakeholders in society as part of their learning process is high regarding sustainable agriculture, because of its applied approach. University programmes based on experiential and action-oriented learning have been developed over the past decades, but more knowledge is needed about the impact of these educational activities. The aim of this study is to examine the impacts of experiential and action-oriented learning on competency development as well as transformational impacts on the students of a short course in sustainable agriculture held at the University of Gastronomic Sciences in Bra, Italy.

The results suggest that students improve on several core competences as a result of their participation in the short course, and also signs of deep transformational processes among the students.

(Country Level Research on Agricultural Education – with some policy recommendations)

Curriculum Analysis of Food Safety Competences at Elementary and Upper-Secondary Level of Formal Education Inside Food-Related Programmes in Slovenia
2018, Andrej Ovca , Mojca Jev˘snik, and Peter Raspor

The aim of this study was to analyse the existing food safety elements in the syllabi at the elementary (for students between 6 and 14 y of age) and upper-secondary level (food-related programmes) of formal education (for students between 15 and 18 y of age) in Slovenia.

The results revealed the elementary level as a good prestige for education at the next level concerning food safety elements. At the upper-secondary level, the acquisition of knowledge and development of skills related to food safety elements of interest are well supported. However, based on frequent errors made by professional food handlers reported in the literature, the role of food handlers and their food safety awareness should receive more attention in the syllabi.

To support this and to overcome a lack of educational objectives identified, several actions are suggested. Based on methodological recommendations for the teacher in the syllabi, the importance of qualified teachers was once again confirmed. Vocational schools are and will remain an indispensable pillar in the education of future professional food handlers; however, teachers with sufficient knowledge and a positive attitude toward food safety seems to be, besides quality curricula, one of the important factors in achieving the proper attitudes of people required to implement food safety.

The European networks of research, education and training stakeholders in agroecology

2018, Rose Nicot, Stéphane Bellon, Allison Loconto, Guillaume Ollivier

Open Agriculture. 2018; 3: 537–552

The paper attempts to understand the ways that the term agroecology is conceptualized by different participants and study the dynamics of research, education and training organizations. The study addresses the core research question of: what dynamics emerge in the networks of European stakeholders of agroecology.

The significant difference that has been observed between the agroecological concepts in research and those in education/training emphasizes the gap between these two disciplines. The latter support a more political, transdisciplinary and holistic view of agroecology when compared to the former. Moreover, collaboration among European agroecology stakeholders is limited in both research and education/training. The paper also finds that in most cases, collaboration between scholars does not guarantee a shared notion of agroecology, and conversely, sharing the same notion of agroecology does not assure collaboration. This led us to question the feasibility of institutionalizing agroecology and the missing link between a shared vision and the collective mobilization of stakeholders around a strong agroecology programme. (Policy Document)

New approaches on Agricultural Education Systems

WG SCAR-AKIS Policy Brief, 2017

The purpose of this position paper is to bring the importance of agricultural education within the AKIS to the scene and to better understand the evolving needs of education. This paper tests different initiatives that innovate education with a view to adapt it to the farmers' present and future needs. The study contributes to identifying main drivers for the agricultural education systems and its evolving needs within the interactive innovation model. It provides food for thought for the H2020 multi-actor approach and also for national and regional education engaged at different levels (tertiary, secondary and primary formal education and life-long training). The paper puts forth following challenges for the agricultural education sector in Europe:

- hard, basic skills and technical knowledge stay key, but continuous input is needed to upkeep this knowledge
- more attention is paid to soft skills, entrepreneurship and willingness to learn, adapt and evolve;
- scale enlargement;
- diversification of business models;
- process innovation;
- cooperation and networking;
- inter-disciplinary understanding;
- collective cost reduction and quality improvement;
- political sensitivity to different views of different stakeholders;
- meeting consumer demands such as high quality, sustainable and locally produced products.

In accordance with these challenges, the paper lays out: The evolution of the agricultural system under the headings of: 1. Actors in the agricultural educational system; 2. Connecting education stronger with the AKIS and its actors; 3. New forms of education. And provides case studies for innovating education. The cases are as follows:

1. Developing better connections between researchers and teachers: the example of BOGO and WURKS - the Netherlands

2. Bridging the gap between agricultural research and farm advice: the example of Advanced Training Partnership (ATP) - Wales-UK

3. Strengthening linkages between university professors, researchers and advisory services: Mixed technological Networks (RMT in French)- France

4. Building advisors' capacity - Master in Agricultural Innovation Support (MAIS) - Ireland

5. Involvement of students through gamification – the MezőGÉPész contest – Hungary

And further presents recommendations for transformation of the agricultural education system

- A people centred interactive approach connecting production with consumption
- Basic agricultural education for efficient valorisation of new developments and innovation
- Cross-sectoral education
- Life-long learning
- Students learn better in real live practical settings
- ICT tools can enrich teaching methods
- Promote multi-actor cooperation through EU instruments for knowledge and innovation

Using policy discourses to open up the conceptual space of farm education: inspiration from a Belgian farm education network
Crivits, M., de Krom, M.P.M.M., Block, T., Dessein, J., (2018) *Environmental Education Research*, 24 (9), pp. 1320-1339. Cited 2 times.

Farm education organized by farmers and directed towards students and groups of citizens is a relatively new practice often considered as one specific business strategy to diversify farmers' income.

The paper argues that on the European level three different competing policy paradigms or discourses are being advocated and reveals these three distinct educative practices by specifying each in terms of goals, relations and actions. The study uses a case study on a regional farm education network in Belgium to illustrate how farmer's educative efforts can be enrolled differently in educational practices according to different discursive frames; and how these education practices enable or constrain social and educational arrangements that promote a sustainability transition.

Boosting entrepreneurship education within the knowledge network of the Dutch agrifood sciences: The new 'Wageningen' approach

Hulsink, W., Dons, H., Lans, T., Blok, V., (2014). *Handbook on the Entrepreneurial University*, pp. 248-278.

This study addresses the politics that have put the concept of the entrepreneurial university and the promotion of entrepreneurialism on the agenda of one particular university, namely Wageningen University & Research centre (and its associated higher education institutes) through the development of a new collaborative teaching and extension program. This contribution concentrates on the joint approach of the Dutch agrifood sector to make their dedicated university, research institutes and universities of applied sciences in this specific domain more entrepreneurial.

The study assesses the impact and the lessons learned from implementing the DAFNE program (Dutch Agrifood Network of Entrepreneurship) and seeks an answer to the following research questions: i) how did the process of establishing an entrepreneurial university evolve in the specific 'Wageningen' setting; ii) what was the impact of the new entrepreneurship promotion program DAFNE and what were its learning experiences?

The authors operationalize the overarching research question by critically evaluating a number of projects that were part of the DAFNE program. They also evaluate what they have contributed to the entrepreneurial curriculum of the partners and the larger support structure for innovation, technology transfer and new business.

The findings of the study were threefold:

First, the transformation towards entrepreneurship universities has initially led to confusion among the different partners in DAFNE. Sharing theories within the Wageningen approach and between established entrepreneurship in the primary sector and the emerging entrepreneurship in life sciences, was necessary to sharpen the focus of developing and entrepreneurial mindset, strengthening entrepreneurial competencies and knowledge valorisation activities. The Waeghals initiative, as well as the appointment of two part-time entrepreneurship professors around 2000 facilitated this process (I don't understand this part). Second, the DAFNE programme was successful in terms of introducing entrepreneurship courses to the curriculum. Such projects are difficult to maintain and therefore less sustainable because of their dependence on external inputs. One of the reasons these projects were not integrated in the curriculum was the fact that they have been developed separately by different DAFNE stakeholders, and not part of an overarching, shared vision on entrepreneurial pedagogy and didactics. Although there was consensus about key characteristics of entrepreneurial learning (e.g action-oriented, experiential) among the partners, a clear translation towards didactics (e.g. role of teacher, type of learning activities, learning environment) was not formulated explicitly in the DAFNE program. Third, if Higher Education Institutions move to an entrepreneurial (applied) university, internal human resource practices should evolve in this direction as well; for instance, by fostering soft factors such as willingness to change rather than focusing on classical hard factors such as time and money.

In general, there is a large gap between policy and practice in school organizations. Managers and teachers operate in separate zones and have different needs.

Blurring the boundaries between vocational education, business and research in the agrifood domain

Wals, A.E.J., Lans, T., Kupper, H., (2012). *Journal of Vocational Education and Training*, 64 (1), pp. 3-23.

This article discusses the emergence and significance of new knowledge configurations within the Dutch agrifood context. Knowledge configurations can be characterised as arrangements between VET and (often regional) partners in business and research aimed at improving knowledge transfer, circulation or co-creation. Based on a literature review and an empirical study involving 18 knowledge management experts and 11 exemplary 'knowledge configurations,' the authors describe their key characteristics and the factors and guiding principles that contribute to their success or lack thereof.

Annex 3 - Final questionnaire

Introduction

This survey is part of the H2020 European Project NEXTFOOD "Educating the next generation of professionals in the agrifood system". The aim of the survey is to gather preliminary information on existing public policies and programmes related to Agricultural, Food, and Forestry education and to collect opinions on their effectiveness in the training of students, managers and operators, in addition to identifying gaps and areas of improvement. While the role of policies is dependent on the overall functioning of the education system, we do not ask to provide judgments about the system as a whole. Also, you are asked to provide your personal opinion and not the position of your institution. The target audience of the survey are stakeholders, farmers, value chain actors, innovation brokers, bachelor and master degree coordinators, PhD coordinators, teachers, researchers, experts, advisors, local and EU authorities and policymakers.

We thank you in advance for your time and participation.

How to fill in the survey

In Question 1 you will be asked to fill in a table with your opinion on 4 different fields of policy. Then, further questions will be focused on each of the above-mentioned policy fields. If you tick "Yes" you will be asked to answer a set of identical questions for each policy field. If you tick "No" you will be directed to the next policy field and so on, until a final set of generic questions. The estimated time to end the survey is 5-15 minutes depending on the questions addressed.

Privacy and confidentiality

Responses you give in the questionnaires will be recorded. Your recorded data will be de-identified; hence it will not be possible to identify you afterwards. Information will be processed during the phase of data analysis and will be shown in project reports. It will not be possible to identify the source of the information. The results of this investigation may be published in scientific journals or conferences and may be used in further studies. Nothing of the provided personal data will be handed out to third parties. By submitting this form you are indicating that you have read the description of the study and that you agree to the terms as described.

* 1. How would you rate the relevance of the following fields of public policy in affecting your sector of activity in the region/country you are mainly working?

	Highly relevant	Fairly relevant	Moderately relevant	Not relevant	Don't know
Pre-university education policies					
University education (including PhD) policies					
Adult learning, vocational education and training policies					
Training measures in agriculture/food/ forestry policies (e.g. CAP)					

Educational Policies on Agrifood and Forestry Systems

Pre-university education policies

* 2. Are you aware of/familiar with pre-university education policies?

If you choose "Yes" to this question you will be directed to a set of further questions focusing on this policy field.

Yes ○

No ○

3. At what administrative scale are policies in this field mainly designed/managed in your country (e.g. regional, country, international)?

4. Have you participated in training/education activities under this policy field?

Yes ○

No ○

Don't Know ○

5. To what extent do you believe that the objectives of policies in this field address the agricultural/food/forestry needs?

Not at all ○

To some extent ○

Fairly ○

Rather much ○

Very much ○

6. In the scope of policies in this field, is sufficient amount of financial support (grants, scholarships) provided to young professionals?

Yes ○

No ○

Don't Know ○

7. To what extent do you think policies in this field are promoting innovative ways of learning? Not at all Rather much

Not at all ○

To some extent ○

Fairly ○

Rather much ○

Very much ○

8. In particular, to what extent do you think policies in this field are promoting action-oriented/experiential learning (A process of learning by doing, where learners work together towards a common goal, by collaborating with real people, taking action and reflecting upon their experiences from being involved in that activity, in order to tackle real-life problems/issues)?

Not at all ○

To some extent ○

Fairly ○

Rather much ○

Very much ○

9. Do policies in this field provide sufficient educational opportunities for young agri-food and forestry professionals?

Yes ○

No ○

Don't Know ○

10. Do you think policies in this field are effective to improve learners' (e.g. food producer/forester/student/food operator) knowledge and skills?

Not at all effective ○

To some extent effective ○

Fairly effective ○

Rather much effective ○

Very much effective ○

11. Do you think policies in this field are cost-effective (results obtained with respect to spent resources)? Not at all cost-effective Rather cost-effective

Not at all cost-effective ○

To some extent cost-effective ○

Fairly cost-effective ○

Rather much cost-effective ○

Very much cost-effective ○

12. How would you rate the effect of policies in this field on the following topics?

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive
Environmental sustainability					
Economic sustainability (competitiveness)					
Social inclusion/ social justice					
Entrepreneurship					
Innovation					
Life-long learning					
Interdisciplinarity					
Student-centred learning					
Internationalisation/mobility					
Networking between academia and stakeholders					

13. Which are the main missing elements in the current policy framework by referring to the topics listed in the previous question?

14. What would you suggest to improve?

15. Any additional open remark/opinion about policies in this field?

University education policies

* 16. Are you aware of/familiar with pre-university education policies?

If you choose "Yes" to this question you will be directed to a set of further questions focusing on this policy field.

Yes ○

No ○

17. At what administrative scale are policies in this field mainly designed/managed in your country (e.g. regional, country, international)?

18. Have you participated in training/education activities under this policy field?

Yes ○

No ○

Don't Know ○

19. To what extent do you believe that the objectives of policies in this field address the agricultural/food/forestry needs?

Not at all ○

To some extent ○

Fairly ○

Rather much ○

Very much ○

20. In the scope of policies in this field, is sufficient amount of financial support (grants, scholarships) provided to young professionals?

Yes ○

No ○

Don't Know ○

21. To what extent do you think policies in this field are promoting innovative ways of learning? Not at all Rather much

Not at all ○

To some extent ○

Fairly ○

Rather much ○

Very much ○

22. In particular, to what extent do you think policies in this field are promoting action-oriented/experiential learning (A process of learning by doing, where learners work together towards a common goal, by collaborating with real people, taking action and reflecting upon their experiences from being involved in that activity, in order to tackle real-life problems/issues)?

- Not at all ○
- To some extent ○
- Fairly ○
- Rather much ○
- Very much ○

23. Do policies in this field provide sufficient educational opportunities for young agri-food and forestry professionals?

- Yes ○
- No ○
- Don't Know ○

24. Do you think policies in this field are effective to improve learners' (e.g. food producer/forester/student/food operator) knowledge and skills?

- Not at all effective ○
- To some extent effective ○
- Fairly effective ○
- Rather much effective ○
- Very much effective ○

25. Do you think policies in this field are cost-effective (results obtained with respect to spent resources)? Not at all cost-effective Rather cost-effective

- Not at all cost-effective ○
- To some extent cost-effective ○
- Fairly cost-effective ○
- Rather much cost-effective ○
- Very much cost-effective ○

26. How would you rate the effect of policies in this field on the following topics?

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive
Environmental sustainability					
Economic sustainability (competitiveness)					
Social inclusion/ social justice					
Entrepreneurship					
Innovation					
Life-long learning					
Interdisciplinarity					
Student-centred learning					
Internationalisation/mobility					
Networking between academia and stakeholders					

27. Which are the main missing elements in the current policy framework by referring to the topics listed in the previous question?

28. What would you suggest to improve?

29. Any additional open remark/opinion about policies in this field?

* 30. Are you aware of/familiar with pre-university education policies?

If you choose "Yes" to this question you will be directed to a set of further questions focusing on this policy field.

Yes ○

No ○

31. At what administrative scale are policies in this field mainly designed/managed in your country (e.g. regional, country, international)?

32. Have you participated in training/education activities under this policy field?

Yes ○

No ○

Don't Know ○

33. To what extent do you believe that the objectives of policies in this field address the agricultural/food/forestry needs?

Not at all ○

To some extent ○

Fairly ○

Rather much ○

Very much ○

34. In the scope of policies in this field, is sufficient amount of financial support (grants, scholarships) provided to young professionals?

Yes ○

No ○

Don't Know ○

35. To what extent do you think policies in this field are promoting innovative ways of learning? Not at all Rather much

Not at all ○

To some extent ○

Fairly ○

Rather much ○

Very much ○

36. In particular, to what extent do you think policies in this field are promoting action-oriented/experiential learning (A process of learning by doing, where learners work together towards a common goal, by collaborating with real people, taking action and reflecting upon their experiences from being involved in that activity, in order to tackle real-life problems/issues)?

Not at all ○

To some extent ○

Fairly ○

Rather much ○

Very much ○

37. Do policies in this field provide sufficient educational opportunities for young agri-food and forestry professionals?

Yes ○

No ○

Don't Know ○

38. Do you think policies in this field are effective to improve learners' (e.g. food producer/forester/student/food operator) knowledge and skills?

Not at all effective ○

To some extent effective ○

Fairly effective ○

Rather much effective ○

Very much effective ○

39. Do you think policies in this field are cost-effective (results obtained with respect to spent resources)? Not at all cost-effective Rather cost-effective

Not at all cost-effective ○

To some extent cost-effective ○

Fairly cost-effective ○

Rather much cost-effective ○

Very much cost-effective ○

40. How would you rate the effect of policies in this field on the following topics?

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive
Environmental sustainability					
Economic sustainability (competitiveness)					
Social inclusion/ social justice					
Entrepreneurship					
Innovation					
Life-long learning					
Interdisciplinarity					
Student-centred learning					
Internationalisation/mobility					
Networking between academia and stakeholders					

41. Which are the main missing elements in the current policy framework by referring to the topics listed in the previous question?

42. What would you suggest to improve?

43. Any additional open remark/opinion about policies in this field?

Educational Policies on Agrifood and Forestry Systems

Training measures in agriculture/food/forestry policies

* 44. Are you aware of/familiar with pre-university education policies?

If you choose "Yes" to this question you will be directed to a set of further questions focusing on this policy field.

Yes ○

No ○

45. At what administrative scale are policies in this field mainly designed/managed in your country (e.g. regional, country, international)?

46. Have you participated in training/education activities under this policy field?

Yes ○

No ○

Don't Know ○

47. To what extent do you believe that the objectives of policies in this field address the agricultural/food/forestry needs?

Not at all ○

To some extent ○

Fairly ○

Rather much ○

Very much ○

48. In the scope of policies in this field, is sufficient amount of financial support (grants, scholarships) provided to young professionals?

Yes ○

No ○

Don't Know ○

49. To what extent do you think policies in this field are promoting innovative ways of learning? Not at all Rather much

Not at all ○

To some extent ○

Fairly ○

Rather much ○

Very much ○

50. In particular, to what extent do you think policies in this field are promoting action-oriented/experiential learning (A process of learning by doing, where learners work together towards a common goal, by collaborating with real people, taking action and reflecting upon their experiences from being involved in that activity, in order to tackle real-life problems/issues)?

- Not at all ○
- To some extent ○
- Fairly ○
- Rather much ○
- Very much ○

51. Do policies in this field provide sufficient educational opportunities for young agri-food and forestry professionals?

- Yes ○
- No ○
- Don't Know ○

52. Do you think policies in this field are effective to improve learners' (e.g. food producer/forester/student/food operator) knowledge and skills?

- Not at all effective ○
- To some extent effective ○
- Fairly effective ○
- Rather much effective ○
- Very much effective ○

53. Do you think policies in this field are cost-effective (results obtained with respect to spent resources)? Not at all cost-effective Rather cost-effective

- Not at all cost-effective ○
- To some extent cost-effective ○
- Fairly cost-effective ○
- Rather much cost-effective ○
- Very much cost-effective ○

54. How would you rate the effect of policies in this field on the following topics?

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive
Environmental sustainability					
Economic sustainability (competitiveness)					
Social inclusion/ social justice					
Entrepreneurship					
Innovation					
Life-long learning					
Interdisciplinarity					
Student-centred learning					
Internationalisation/mobility					
Networking between academia and stakeholders					

55. Which are the main missing elements in the current policy framework by referring to the topics listed in the previous question?

56. What would you suggest to improve?

57. Any additional open remark/opinion about policies in this field?

Final questions

58. What is your opinion about the coordination among the policy fields discussed above

59. In your country/region do specific departments/administrative offices deal with the organization of education in the agricultural/food/forestry system?

Yes ○

No ○

Don't Know ○

60. If yes, which is/are the name/s of this/these departments/administrative offices?

61. How are tasks shared among the different departments if any?

62. In your country/region, do specific official policy strategy documents on education in the agricultural/food/forestry system exist?

Yes ○

No ○

Don't Know ○

63. If yes, please shortly describe them.

64. If not, are they planned to be implemented?

65. Do you know any particular innovative education initiative that has been implemented showing good results?

66. If yes, please shorty describe it below.

Yes ○

No ○

Don't Know ○

67. Do existing educational policies make a conscious effort to bring in gender equality?

Yes ○

No ○

Don't Know ○

68. If no, what and how gender equality can be brought in?

69. If you want to receive our final report and be updated on the oucome of this research please provide your e-mail contact.

70. Interviewee role and general info

Affiliation/Institution/Company (if you have more than one affiliation, please list all)

Role

Age

Gender

Level of education

Are you partner in NEXTFOOD?

Are your working mainly at regional/national/international or EU level?

Country Region (if relevant)

Annex 4 – Details about the Survey Responses

1. Questions across All Policy Fields

The below table shows the familiarity of each participant of each of the policy field.

Table 1: Familiarity of Each Field of Policy to Survey Participants

	Pre-university		University		Adult learning		Agrifood	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Yes	71	%37,77	130	%69,15	44	%23,4	49	%26,06
No	111	%59,04	33	%17,55	97	%51,60	91	%48,40

Table 2: Administrative scales the policies in each field are mainly designed and managed

	Pre-university		University		Adult learning		Agrifood	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Country	25	48,1%	42	48,8%	14	35,9%	11	25,6%
Regional	9	17,3%	8	9,3%	8	20,5%	14	32,6%
State	1	1,9%	2	2,3%	2	5,1%	1	2,3%
Ministerial	2	3,8%	2	2,3%	5	12,8%	1	2,3%
Regional &Country	0	0,0%	10	11,6%	4	10,3%	3	7,0%
University	0	0,0%	4	4,7%	0	0,0%	0	0,0%
Country &University	1	1,9%	9	10,5%	0	0,0%	4	9,3%
All	0	0,0%	0	0,0%	1	2,6%	5	11,6%
Other	14	26,9%	9	10,5%	5	12,8%	4	9,3%
TOTAL	52		86		39		43	

Table 3: Whether respondents have participated in training/education activities under each policy field

	Pre-university		University		Adult learning		Agrifood	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Yes	24	41,4%	80	72,1%	33	76,7%	29	61,7%
No	33	56,9%	29	26,1%	9	20,9%	18	38,3%
Don't Know	1	1,7%	2	1,8%	1	2,3%	0	0,0%
TOTAL	58		111		43		47	

Table 4: To what extent participants believe that objectives of policies in each field address agricultural/forestry needs

	Pre-university		University		Adult learning		Agrifood	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Not at all	11	19,0%	5	4,5%	1	2,3%	3	6,4%
To some extent	28	48,3%	39	35,1%	16	37,2%	17	36,2%
Fairly	6	10,3%	34	30,6%	11	25,6%	9	19,2%
Rather much	7	12,1%	21	18,9%	8	18,6%	11	23,4%
Very much	6	10,3%	12	10,3%	7	16,3%	7	14,9%
TOTAL	58		111		43		47	

Table 5: Whether or not survey respondents believe that sufficient amount of financial support is provided for each policy field

	Pre-university		University		Adult		Agrifood	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
No	13	60,3%	63	57,3%	29	67,4%	26	55,3%
Yes	35	22,4%	27	24,6%	9	20,9%	17	36,2%
Don't Know	10	17,2%	20	18,2%	5	11,6%	4	8,5%
TOTAL	58		110		43		47	

Table 6: To what extent policies are providing action-oriented/experiential learning

	Pre-university		University		Adult learning		Agrifood	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Not at all	14	24,1%	19	17,3%	7	16,3%	7	14,9%
To some extent	23	39,7%	38	34,6%	15	34,9%	21	44,7%
Fairly	12	20,7%	28	25,5%	11	25,6%	8	17,0%
Rather much	8	13,8%	16	14,6%	9	20,9%	6	12,8%
Very much	1	1,7%	9	8,2%	1	2,3%	5	10,6%
TOTAL	58		110		43		47	

Table 7: To what extent policies are providing innovative ways of learning

	Pre-university		University		Adult learning		Agrifood	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Not at all	13	22,4%	6	5,5%	6	14,0%	6	12,8%
To some extent	26	44,8%	53	48,2%	16	37,2%	16	34,0%
Fairly	11	19,0%	20	18,2%	10	23,3%	15	31,9%
Rather much	7	12,1%	23	20,9%	8	18,6%	7	14,9%
Very much	1	1,7%	8	7,3%	3	7,0%	3	6,4%
TOTAL	58		110		43		47	

Table 8: Whether or not policies are providing sufficient educational opportunities for young agrifood and forestry professionals

	Pre-university		University		Adult learning		Agrifood	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
No	30	51,7%	56	51,4%	27	62,8%	24	51,1%
Yes	19	32,8%	35	32,1%	10	23,3%	18	38,3%
Don't Know	9	15,5%	18	16,5%	6	14,0%	5	10,6%
TOTAL	58		109		43		47	

Table 9: To what extent policies are effective to improve learners' skills and knowledge

	Pre-university		University		Adult learning		Agrifood	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Not at all effective	10	17,2%	7	6,4%	6	14,0%	5	10,6%
To some extent effective	26	44,8%	48	44,0%	19	44,2%	17	36,2%
Fairly effective	13	22,4%	28	25,7%	10	23,3%	10	21,3%
Rather much effective	9	15,5%	20	18,4%	7	16,3%	11	23,4%
Very much effective	0	0,0%	6	5,5%	1	2,3%	4	8,5%
TOTAL	58		109		43		47	

Table 10: To what extent policies are cost-effective

	Pre-university		University		Adult learning		Agrifood	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Not at all cost-effective	13	23,2%	11	10,1%	5	11,6%	8	17,0%
To some extent cost-effective	22	39,3%	40	36,7%	21	48,8%	22	46,8%
Fairly cost-effective	11	19,6%	29	26,6%	8	1,6%	7	14,9%
Rather much cost-effective	5	8,9%	22	20,2%	6	14,0%	7	14,9%
Very much cost-effective	5	8,9%	7	6,4%	3	7,0%	3	6,4%
TOTAL	56		109		43		47	

Table 11: How participants rate effectiveness of Pre-university policies in each topic

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive
Environmental sustainability	5,2%	27,6%	27,6%	34,5%	5,2%
Economic sustainability	4,2%	33,3%	37,5%	14,6%	10,4%
Social inclusion / social justice	8,6%	24,1%	32,8%	25,9%	8,6%
Entrepreneurship	6,9%	31,0%	27,6%	29,3%	5,2%
Innovation	13,8%	24,1%	32,8%	25,9%	3,4%
Life-long learning	14,3%	32,1%	25,0%	23,2%	5,4%
Interdisciplinarity	13,8%	27,6%	36,2%	17,2%	5,2%
Student-centred learning	17,5%	22,8%	29,8%	21,1%	8,8%
Internationalisation/mobility	12,1%	41,4%	29,3%	13,8%	3,4%
Networking between academia and stakeholders	12,1%	37,9%	20,7%	20,7%	8,6%

Table 12: How participants rate effectiveness of University policies in each topic

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive
Environmental sustainability	1,0%	3,0%	24,0%	58,0%	14,0%
Economic sustainability (competitiveness)	2,7%	10,9%	37,3%	38,2%	10,9%
Social inclusion / social justice	6,4%	18,3%	38,5%	30,3%	6,4%
Entrepreneurship	3,7%	16,5%	41,3%	30,3%	8,3%
Innovation	1,8%	19,3%	33,0%	33,9%	11,9%
Life-long learning	6,4%	21,1%	39,4%	23,9%	9,2%
Interdisciplinarity	9,2%	24,8%	28,4%	31,2%	6,4%
Student-centred learning	6,4%	16,5%	38,5%	28,4%	10,1%
Internationalisation/mobility	3,7%	16,5%	25,7%	42,2%	11,9%
Networking between academia and stakeholders	7,3%	23,6%	23,6%	30,9%	14,5%

Table 13: How participants rate effectiveness of Adult learning and Vocational Education policies in each topic

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive
Environmental sustainability	0,0%	25,6%	30,2%	37,2%	7,0%
Economic sustainability (competitiveness)	0,0%	16,3%	18,6%	53,5%	11,6%
Social inclusion / social justice	7,0%	20,9%	39,5%	20,9%	11,6%
Entrepreneurship	2,3%	16,3%	20,9%	48,8%	11,6%
Innovation	0,0%	30,2%	30,2%	23,3%	16,3%
Life-long learning	2,3%	25,6%	18,6%	39,5%	14,0%
Interdisciplinarity	7,0%	27,9%	34,9%	20,9%	7,0%
Student-centred learning	4,7%	27,9%	34,9%	23,3%	9,3%
Internationalisation/mobility	23,3%	25,6%	27,9%	16,3%	7,0%
Networking between academia and stakeholders	11,6%	27,9%	23,3%	25,6%	11,6%

Table 14: How participants rate effectiveness of Training measures in agriculture, food and forestry policies in each topic

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive
Environmental sustainability	0,0%	10,9%	28,3%	34,8%	26,1%
Economic sustainability (competitiveness)	0,0%	19,0%	31,0%	31,0%	19,0%
Social inclusion / social justice	0,0%	21,3%	29,8%	31,9%	17,0%
Entrepreneurship	0,0%	12,8%	31,9%	42,6%	12,8%
Innovation	4,3%	10,6%	40,4%	36,2%	8,5%
Life-long learning	8,5%	17,0%	31,9%	27,7%	14,9%
Interdisciplinarity	8,5%	25,5%	27,7%	29,8%	8,5%
Student-centred learning	10,6%	25,5%	25,5%	25,5%	12,8%
Internationalisation/mobility	14,9%	25,5%	34,0%	21,3%	4,3%
Networking between academia and stakeholders	2,7%	35,1%	37,8%	5,4%	18,9%

2. Specific Questions about Pre-university Policies

How many participants from each country said the policies are governed on a certain level

Table 15: The Number of participants mentioning a certain level in which policies in this field are designed and managed

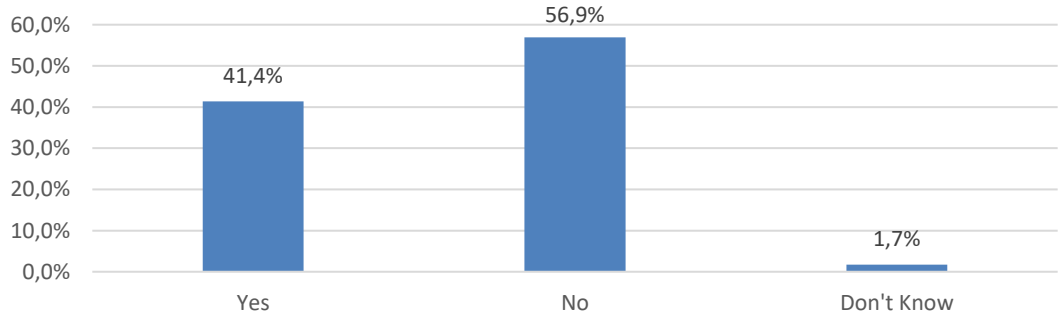
	Country	Regional	State	State and Country	Other
Denmark	3				
Egypt	1				
Ethiopia					1
France	1	1			
Greece	4			1	
Germany		1		1	
India	3	3		2	
Italy	3	3			2
Romania	1				
Spain	2				
Sweden	5				
Tunisia	1				
USA					1
Ukraine					1

Question 4. Have you participated in training/education activities under this policy field?

Table 16: Number of participants that have participated in training activities under this policy field

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	0	1	.53	1.72	1.72
Yes	1	24	12.77	41.38	43.10
No	2	33	17.55	56.90	100.00
	.	130	69.15	Missing	
	Total	188	100.0	100.0	

Figure 1: Training taken by participa

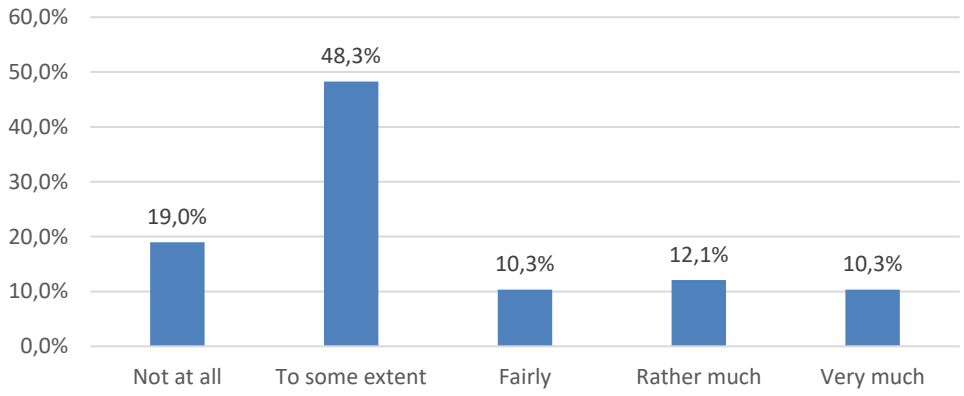


Question 5. To what extent do you believe that the objectives of policies in this field address the agricultural/food/forestry needs?

Table 17: To what extent participants believe objectives of policies in this field address agricultural/forestry needs

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Not at all	1	11	5.85	18.97	18.97
To some extent	2	28	14.89	48.28	67.24
Fairly	3	6	3.19	10.34	77.59
Rather much	4	7	3.72	12.07	89.66
Very much	5	6	3.19	10.34	100.00
	.	130	69.15	Missing	
	Total	188	100.0	100.0	

Figure 2: Extent to which policies address agricultural/forestry needs

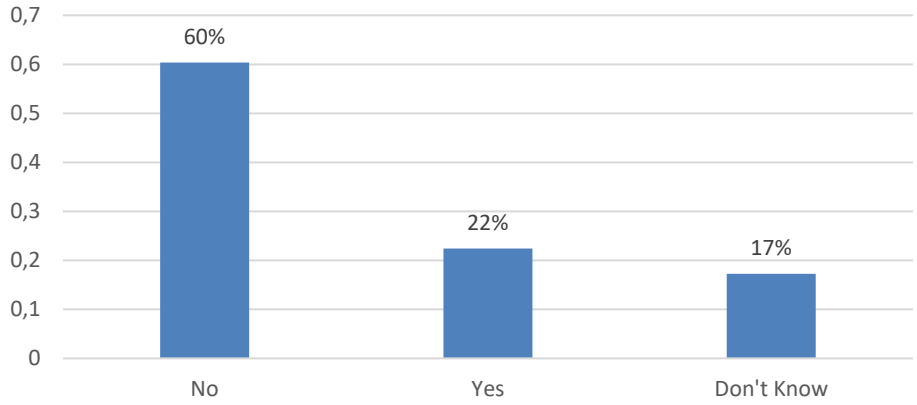


Question 6. In the scope of policies in this field, is sufficient amount of financial support (grants, scholarships) provided to young professionals?

Table 18: Number of participants that believe sufficient amount of financial support is provided to young professional

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Don't Know	0	10	5.32	17.24	17.24
Yes	1	13	6.91	22.41	39.66
No	2	35	18.62	60.34	100.00
	.	130	69.15	Missing	
	Total	188	100.0	100.0	

Figure 3: Is sufficient of financial support provided

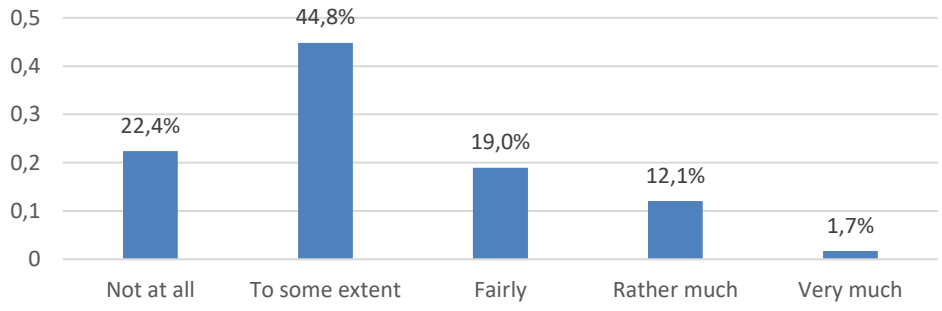


Question 7. To what extent do you think policies in this field are promoting innovative ways of learning?

Table 19: To what extent the policies in this field are promoting innovative ways of learning

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Not at all	1	13	6.91	22.41	22.41
To some extent	2	26	13.83	44.83	67.24
Fairly	3	11	5.85	18.97	86.21
Rather much	4	7	3.72	12.07	98.28
Very much	5	1	.53	1.72	100.00
	.	130	69.15	Missing	
	Total	188	100.0	100.0	

Figure 4: To what extent policies in the field are providing innovative ways

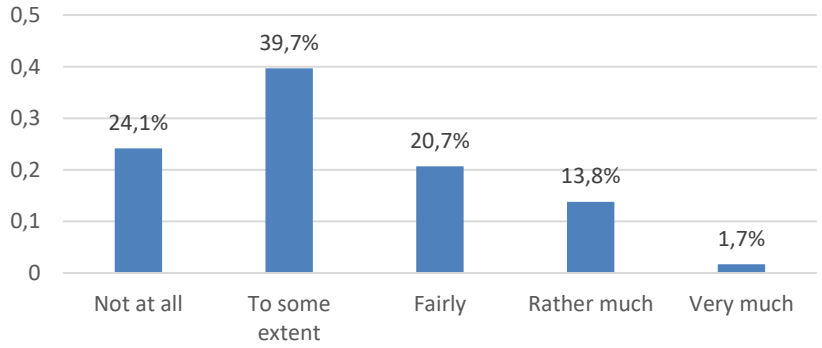


Question 8. In particular, to what extent do you think policies in this field are promoting action-oriented/experiential learning (A process of learning by doing, where learners work together towards a common goal, by collaborating with real people, taking action and reflecting upon their experiences from being involved in that activity, in order to tackle real-life problems/issues)?

Table 20: To what extent the policies in this field are promoting action oriented/experiential learning

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Not at all	1	14	7.45	24.14	24.14
To some extent	2	23	12.23	39.66	63.79
Fairly	3	12	6.38	20.69	84.48
Rather much	4	8	4.26	13.79	98.28
Very much	5	1	.53	1.72	100.00
	.	130	69.15	Missing	
	Total	188	100.0	100.0	

Figure 5: To what extent policies in the field are providing action oriented /experiential learning



Question 9. Do policies in this field provide sufficient educational opportunities for young agrifood and forestry professionals?

Table 21: The number of participants that believe policies in this field provide sufficient educational opportunities for young agri-business and forestry professionals

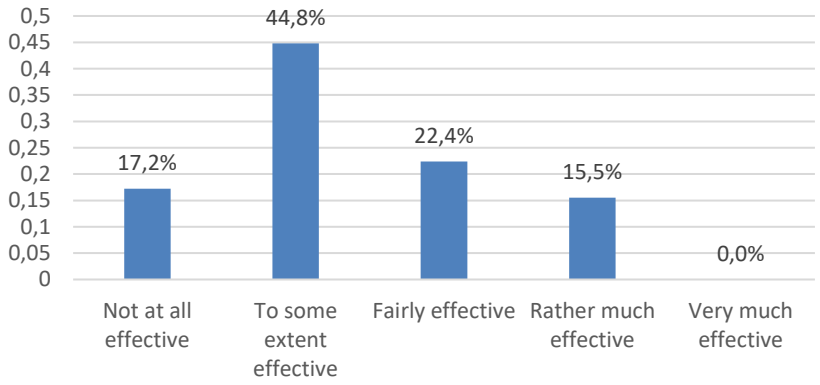
Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Don't Know	0	9	4.79	15.52	15.52
Yes	1	19	10.11	32.76	48.28
No	2	30	15.96	51.72	100.00
	.	130	69.15	Missing	
	Total	188	100.0	100.0	

Question 10. Do you think policies in this field are effective to improve learners' (e.g. food producer/forester/student/food operator) knowledge and skills?

Table 22: To what extent policies in this field are effective to improve learners' knowledge and skills

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Not at all effective	1	10	5.32	17.24	17.24
To some extent effective	2	26	13.83	44.83	62.07
Fairly effective	3	13	6.91	22.41	84.48
Rather effective	4	9	4.79	15.52	100.00
	.	130	69.15	Missing	
	Total	188	100.0	100.0	

Figure 6: To what extent policies in the field are effective to improve learners' skills and knowledge

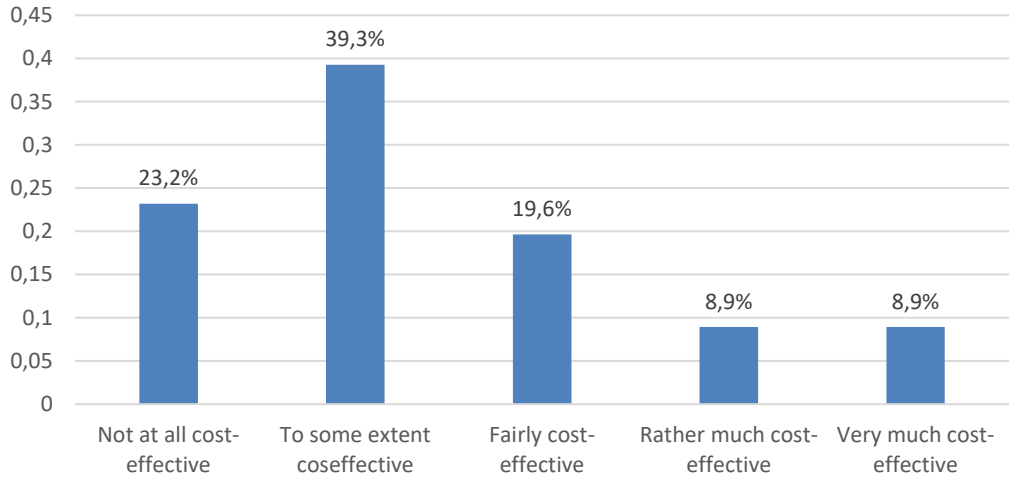


Question 11. Do you think policies in this field are cost-effective (results obtained with respect to spent resources)?

Table 23: To what extent policies in this field are cost-effective

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Not at all cost-effective	1	13	6.91	23.21	23.21
To some extent cost-effective	2	22	11.70	39.29	62.50
Fairly cost-effective	3	11	5.85	19.64	82.14
Rather much cost-effective	4	5	2.66	8.93	91.07
Very cost-effective	5	5	2.66	8.93	100.00
	.	132	70.21	Missing	
	Total	188	100.0	100.0	

Figure 7: To what extent policies in the field are cost-effective

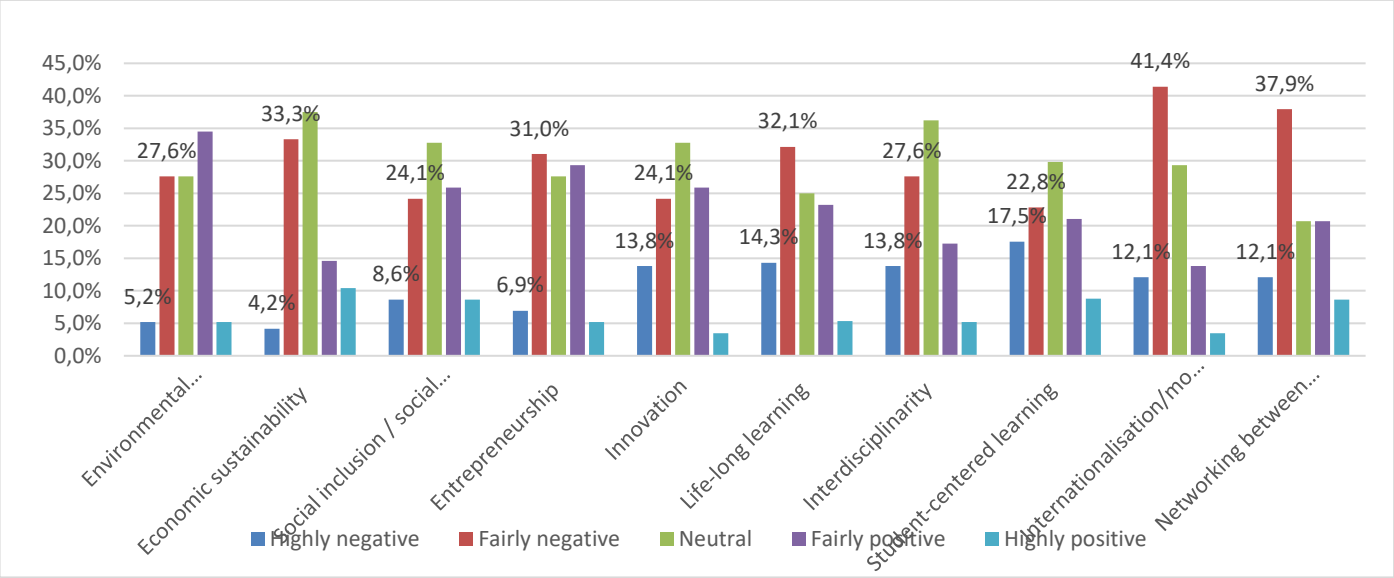


Question 12. How would you rate the effect of policies in this field on the following topics?

Table 24: To what extent respondents rate effectiveness of Pre-university policies in each topic (frequency)

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive
Environmental sustainability	3	16	16	20	3
Economic sustainability	2	16	18	7	5
Social inclusion / social justice	5	14	19	15	5
Entrepreneurship	4	18	16	17	3
Innovation	8	14	19	15	2
Life-long learning	8	18	14	13	3
Interdisciplinarity	8	16	21	10	3
Student-centred learning	10	13	17	12	5
Internationalisation/mobility	7	24	17	8	2
Networking between academia and stakeholders	7	22	12	12	5

Figure 8: How respondents rate the effectiveness of Pre-university policies in each topic (presented according to the topics)



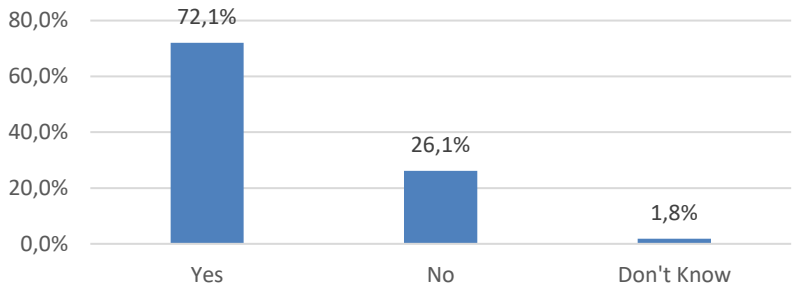
3. Specific Questions about University Policies

Question 18. Have you participated in training/education activities under this policy field?

Table 25: Number of participants that have participated in training activities under this policy field

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Don't Know	0	2	1.04	1.80	1.80
Yes	1	80	41.45	72.07	73.87
No	2	29	15.03	26.13	100.00
	.	82	42.49	Missing	
	Total	193	100.0	100.0	

Figure 9: Training taken by participants

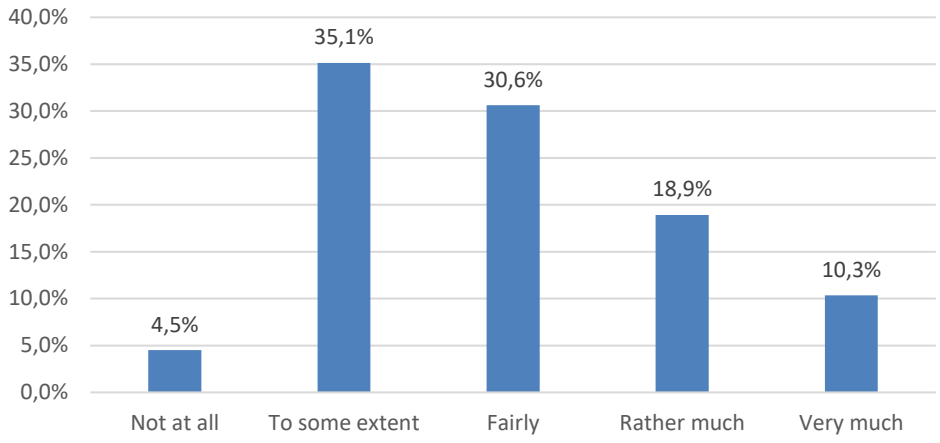


Question 19. To what extent do you believe that the objectives of policies in this field address the agricultural/food/forestry needs?

Table 26: To what extent participants believe objectives of policies in this field address agricultural/forestry needs

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Not at all	1	5	2.59	4.50	4.50
To some extent	2	39	20.21	35.14	39.64
Fairly	3	34	17.62	30.63	70.27
Rather much	4	21	10.88	18.92	89.19
Very much	5	12	6.22	10.81	100.00
	.	82	42.49	Missing	
	Total	193	100.0	100.0	

Figure 10: Extent to which policies address agricultural/forestry needs

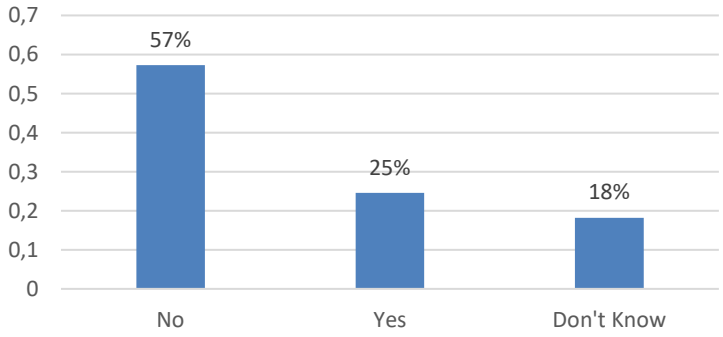


Question 20. In the scope of policies in this field, is sufficient amount of financial support (grants, scholarships) provided to young professionals?

Table 27: Number of participants that believe sufficient amount of financial support is provided to young professional

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Don't Know	0	20	10.36	18.18	18.18
Yes	1	27	13.99	24.55	42.73
No	2	63	32.64	57.27	100.00
	.	83	43.01	Missing	
	Total	193	100.0	100.0	

Figure 11: Is sufficient of financial support provided

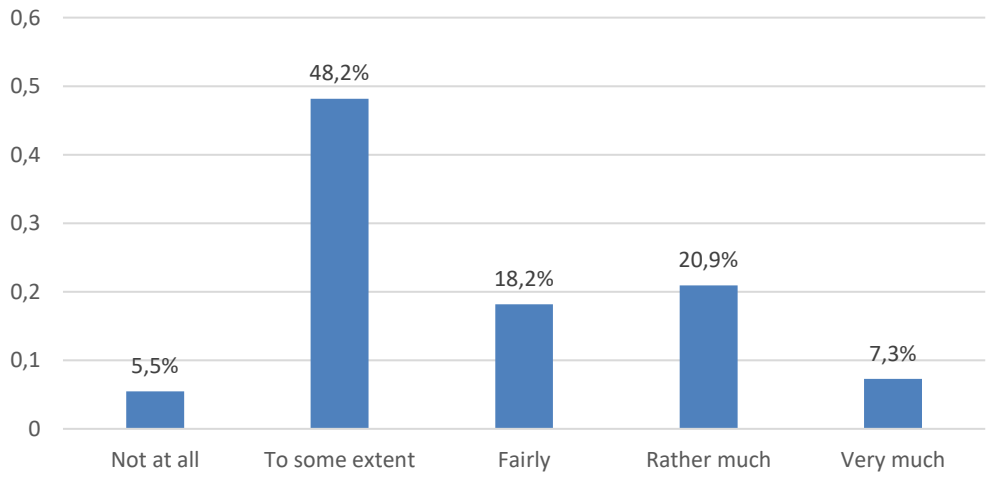


Question 21. To what extent do you think policies in this field are promoting innovative ways of learning?

Table 28: To what extent the policies in this field are promoting innovative ways of learning

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Not at all	1	6	3.11	5.45	5.45
To some extent	2	53	27.46	48.18	53.64
Fairly	3	20	10.36	18.18	71.82
Rather much	4	23	11.92	20.91	92.73
Very much	5	8	4.15	7.27	100.00
	.	83	43.01	Missing	
	Total	193	100.0	100.0	

Figure 12: To what extent policies in the field are providing innovative ways

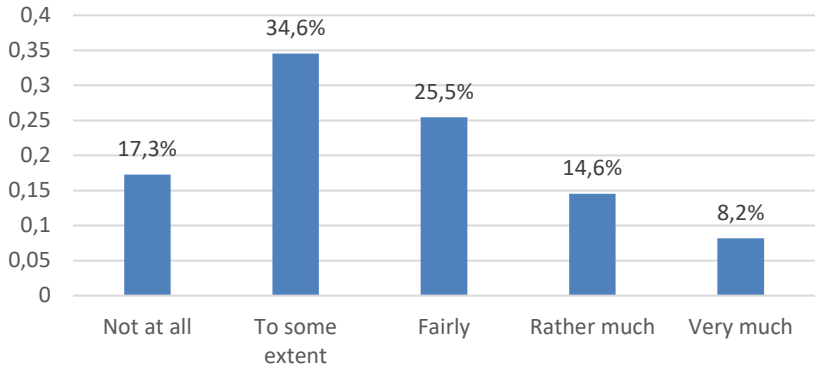


Question 22. In particular, to what extent do you think policies in this field are promoting action-oriented/experiential learning (A process of learning by doing, where learners work together towards a common goal, by collaborating with real people, taking action and reflecting upon their experiences from being involved in that activity, in order to tackle real-life problems/issues)?

Table 29: To what extent the policies in this field are promoting action oriented/experiential learning

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Not at all	1	19	9.84	17.27	17.27
To some extent	2	38	19.69	34.55	51.82
Fairly	3	28	14.51	25.45	77.27
Rather much	4	16	8.29	14.55	91.82
Very much	5	9	4.66	8.18	100.00
	.	83	43.01	Missing	
	Total	193	100.0	100.0	

Figure 13: To what extent policies in the field are providing action oriented /experiential learning

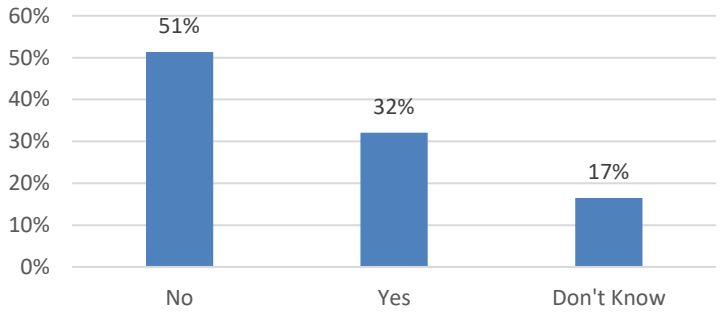


Question 23. Do policies in this field provide sufficient educational opportunities for young agrifood and forestry professionals?

Table 30: The number of participants that believe policies in this field provide sufficient educational opportunities for young agri-business and forestry professionals

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Don't Know	0	18	9.33	16.51	16.51
Yes	1	35	18.13	32.11	48.62
No	2	56	29.02	51.38	100.00
	.	84	43.52	Missing	
	Total	193	100.0	100.0	

Figure 14: Number of participants who believe policies in this field provide sufficient educational opportunities for young agrifood professional

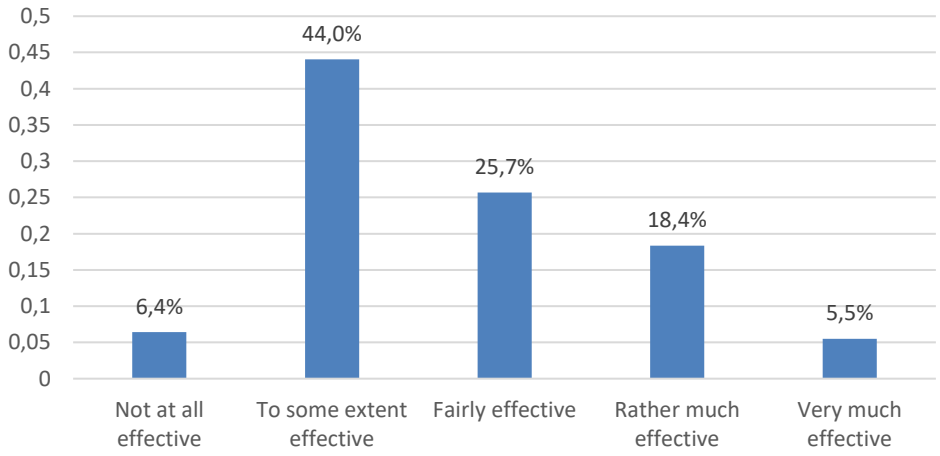


Question 24. Do you think policies in this field are effective to improve learners' (e.g. food producer/forester/student/food operator) knowledge and skills?

Table 31: To what extent policies in this field are effective to improve learners' knowledge and skills

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Not at all effective	1	7	3.63	6.42	6.42
To some extent effective	2	48	24.87	44.04	50.46
Fairly effective	3	28	14.51	25.69	76.15
Rather effective	4	20	10.36	18.35	94.50
Very effective	5	6	3.11	5.50	100.00
	.	84	43.52	Missing	
	Total	193	100.0	100.0	

Figure 15: To what extent policies in the field are effective to improve learners' skills and knowledge

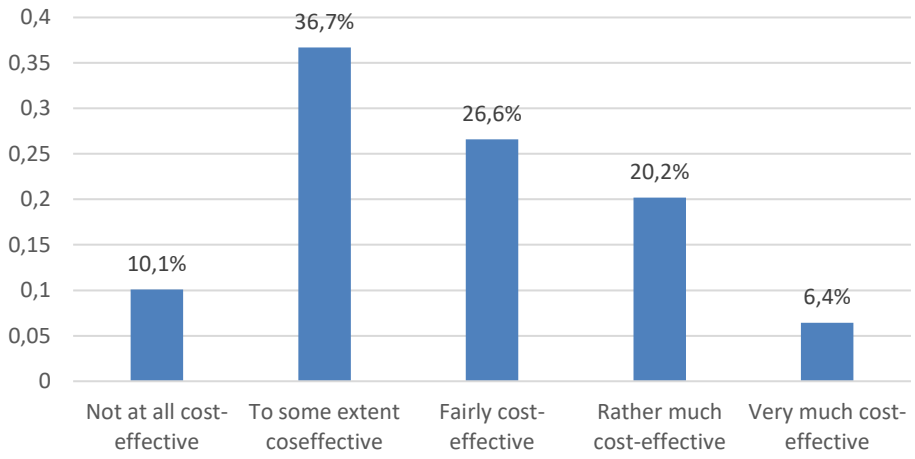


Question 25. Do you think policies in this field are cost-effective (results obtained with respect to spent resources)?

Table 32: To what extent policies in this field are cost-effective

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Not at all cost effective	1	11	5.70	10.09	10.09
To some extent cost effective	2	40	20.73	36.70	46.79
Fairly cost effective	3	29	15.03	26.61	73.39
Rather cost effective	4	22	11.40	20.18	93.58
Very cost effective	5	7	3.63	6.42	100.00
	.	84	43.52	Missing	
	Total	193	100.0	100.0	

Figure 16: To what extent policies in the field are cost-effective

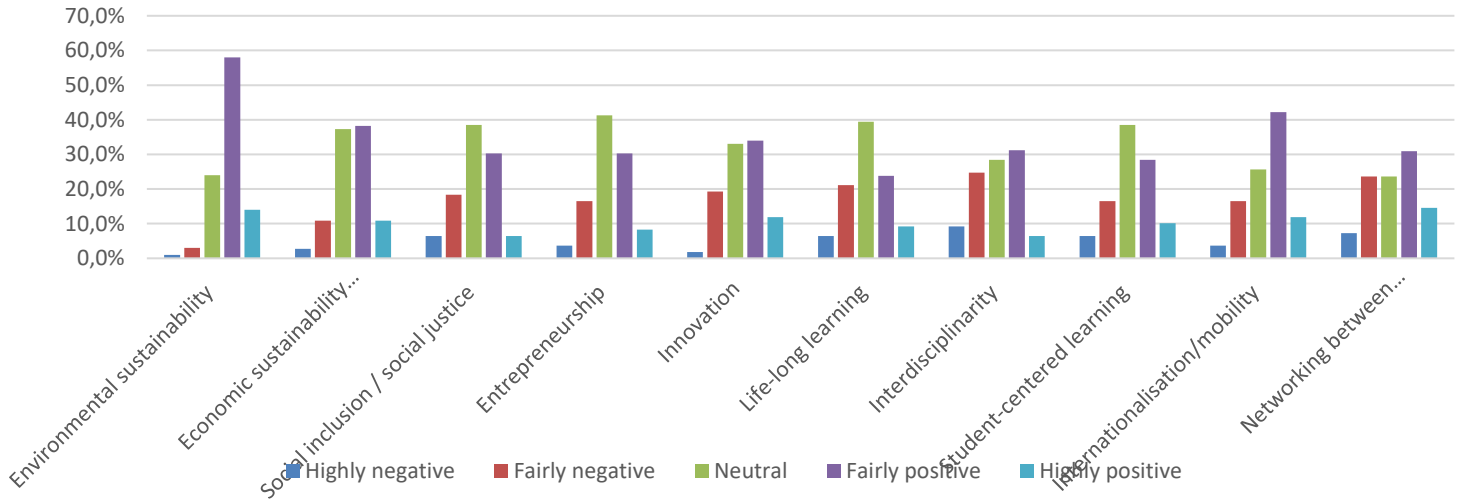


Question 26. How would you rate the effect of policies in this field on the following topics?

Table 33: To what extent respondents rate effectiveness of Pre-university policies in each topic (frequency)

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive	TOTAL
Environmental sustainability	1	3	24	58	14	100
Economic sustainability (competitiveness)	3	12	41	42	12	110
Social inclusion / social justice	7	20	42	33	7	109
Entrepreneurship	4	18	45	33	9	109
Innovation	2	21	36	37	13	109
Life-long learning	7	23	43	26	10	109
Interdisciplinarity	10	27	31	34	7	109
Student-centred learning	7	18	42	31	11	109
Internationalisation/mobility	4	18	28	46	13	109
Networking between academia and stakeholders	8	26	26	34	16	110

Figure 17: How do respondents rate the effectiveness of University Education policies in each topic



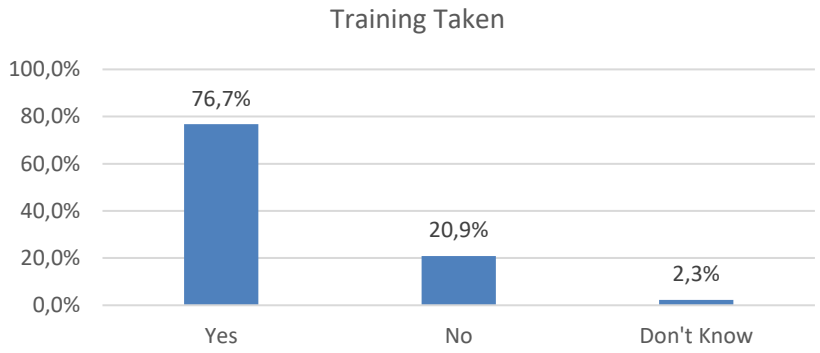
4. Specific Questions about Adult Learning Policies

Question 32. Have you participated in training/education activities under this policy field?

Table 34: Number of participants that have participated in training activities under this policy field

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Don't Know	0	1	.52	2.33	2.33
Yes	1	33	17.10	76.74	79.07
No	2	9	4.66	20.93	100.00
	.	150	77.72	Missing	
	Total	193	100.0	100.0	

Figure 18: Training taken by participants

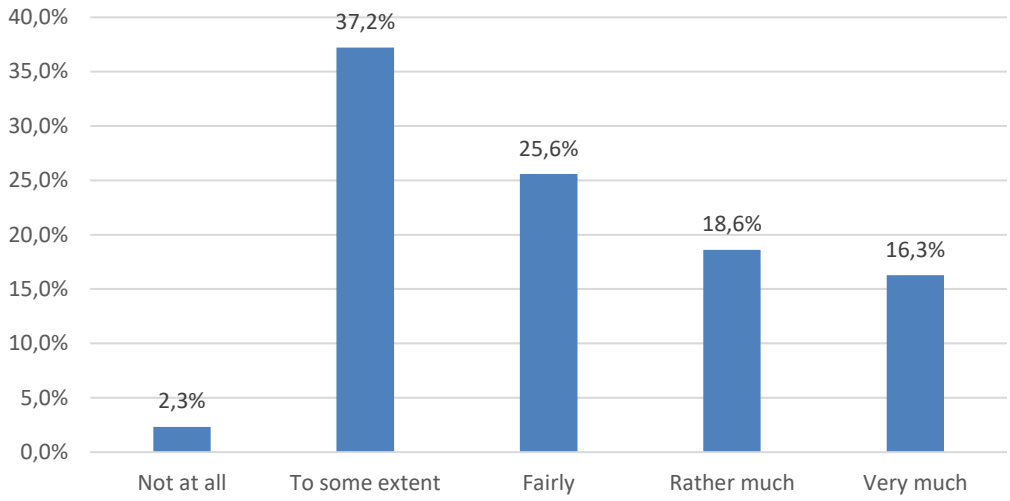


Question 33. To what extent do you believe that the objectives of policies in this field address the agricultural/food/forestry needs?

Table 35: To what extent participants believe objectives of policies in this field address agricultural/forestry needs

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Not at all	1	1	.52	2.33	2.33
To some extent	2	16	8.29	37.21	39.53
Fairly	3	11	5.70	25.58	65.12
Rather much	4	8	4.15	18.60	83.72
Very much	5	7	3.63	16.28	100.00
	.	150	77.72	Missing	
	Total	193	100.0	100.0	

Figure 19: Extent to which policies address agricultural/forestry needs

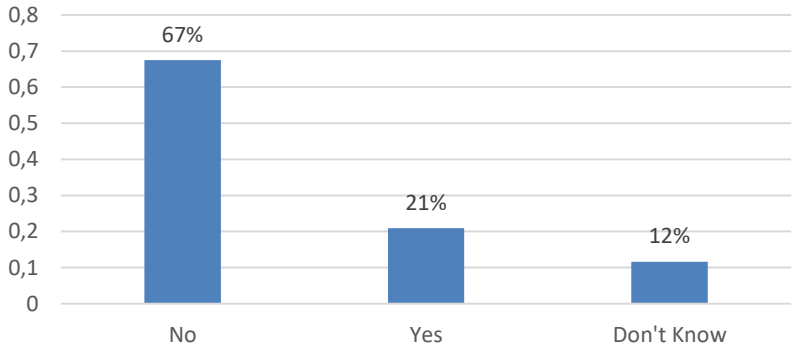


Question 34. In the scope of policies in this field, is sufficient amount of financial support (grants, scholarships) provided to young professionals?

Table 36: Number of participants that believe sufficient amount of financial support is provided to young professional

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Don't Know	0	5	2.59	11.63	11.63
Yes	1	9	4.66	20.93	32.56
No	2	29	15.03	67.44	100.00
	.	150	77.72	Missing	
	Total	193	100.0	100.0	

Figure 20: Is sufficient of financial support provided

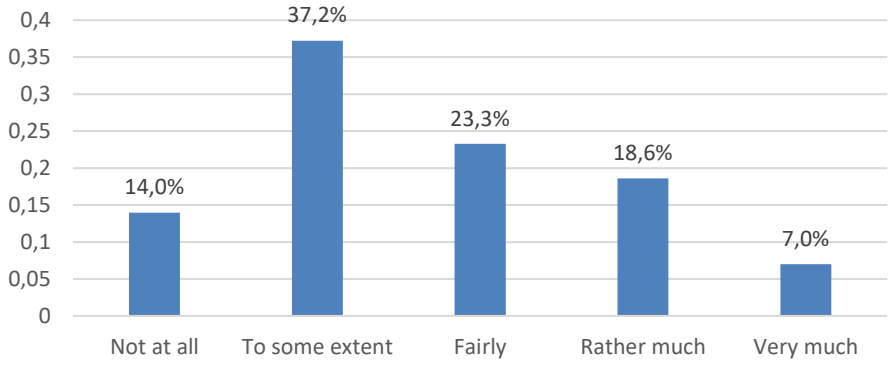


Question 35. To what extent do you think policies in this field are promoting innovative ways of learning?

Table 37: To what extent the policies in this field are promoting innovative ways of learning

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Not at all	1	6	3.11	13.95	13.95
To some extent	2	16	8.29	37.21	51.16
Fairly	3	10	5.18	23.26	74.42
Rather much	4	8	4.15	18.60	93.02
Very much	5	3	1.55	6.98	100.00
	.	150	77.72	Missing	
	Total	193	100.0	100.0	

Figure 21: To what extent policies in the field are providing innovative ways

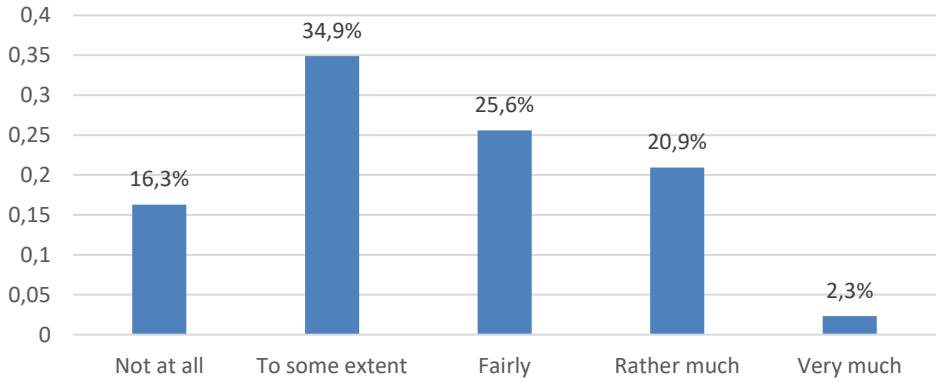


Question 36. In particular, to what extent do you think policies in this field are promoting action-oriented/experiential learning (A process of learning by doing, where learners work together towards a common goal, by collaborating with real people, taking action and reflecting upon their experiences from being involved in that activity, in order to tackle real-life problems/issues)?

Table 38: To what extent the policies in this field are promoting action oriented/experiential learning

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Not at all	1	7	3.63	16.28	16.28
To some extent	2	15	7.77	34.88	51.16
Fairly	3	11	5.70	25.58	76.74
Rather much	4	9	4.66	20.93	97.67
Very much	5	1	.52	2.33	100.00
	.	150	77.72	Missing	
	Total	193	100.0	100.0	

Figure 22: To what extent policies in the field are providing action oriented /experiential learning



Question 37. Do policies in this field provide sufficient educational opportunities for young agrifood and forestry professionals?

Table 39: The number of participants that believe policies in this field provide sufficient educational opportunities for young agri-business and forestry professionals

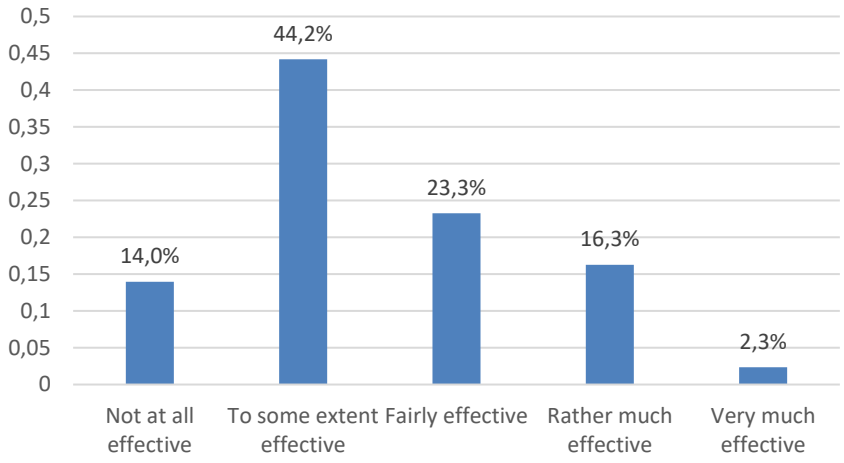
Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Don't Know	0	6	3.11	13.95	13.95
Yes	1	10	5.18	23.26	37.21
No	2	27	13.99	62.79	100.00
	.	150	77.72	Missing	
	Total	193	100.0	100.0	

Question 38. Do you think policies in this field are effective to improve learners' (e.g. food producer/forester/student/food operator) knowledge and skills?

Table 40: To what extent policies in this field are effective to improve learners' knowledge and skills

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Not at all effective	1	6	3.11	13.95	13.95
To some extent effective	2	19	9.84	44.19	58.14
Fairly effective	3	10	5.18	23.26	81.40
Rather effective	4	7	3.63	16.28	97.67
Very effective	5	1	.52	2.33	100.00
	.	150	77.72	Missing	
	Total	193	100.0	100.0	

Figure 23: To what extent policies in the field are effective to improve learners' skills and knowledge

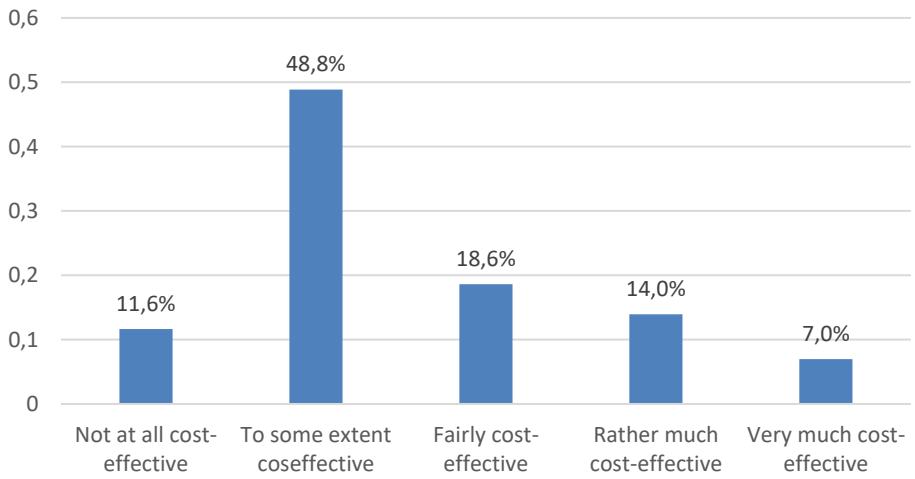


Question 39. Do you think policies in this field are cost-effective (results obtained with respect to spent resources)?

Table 41: To what extent policies in this field are cost-effective

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Not at all cost effective	1	5	2.59	11.63	11.63
To some extent cost effective	2	21	10.88	48.84	60.47
Fairly cost effective	3	8	4.15	18.60	79.07
Rather cost effective	4	6	3.11	13.95	93.02
Very cost effective	5	3	1.55	6.98	100.00
	.	150	77.72	Missing	
	Total	193	100.0	100.0	

Figure 24: To what extent policies in the field are cost-effective

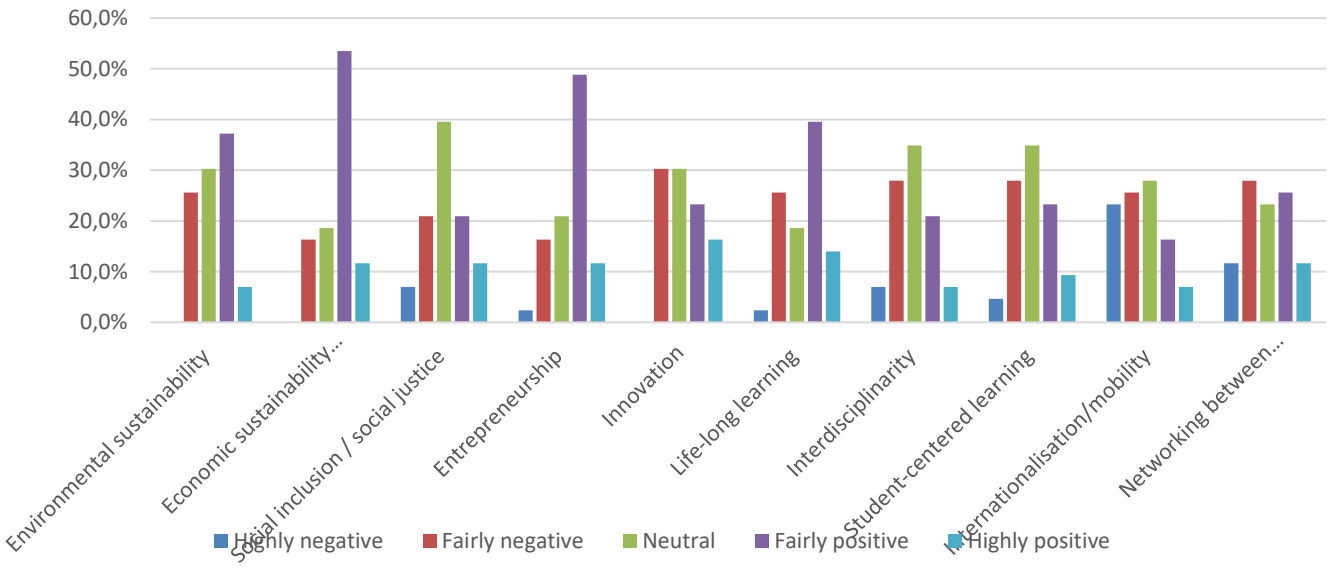


Question 40. How would you rate the effect of policies in this field on the following topics?

Table 42: To what extent respondents rate effectiveness of Adult training and vocational education policies in each topic (frequency)

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive	TOTAL
Environmental sustainability	0	11	13	16	3	43
Economic sustainability (competitiveness)	0	7	8	23	5	43
Social inclusion / social justice	3	9	17	9	5	43
Entrepreneurship	1	7	9	21	5	43
Innovation	0	13	13	10	7	43
Life-long learning	1	11	8	17	6	43
Interdisciplinarity	3	12	15	9	3	42
Student-centred learning	2	12	15	10	4	43
Internationalisation/mobility	10	11	12	7	3	43
Networking between academia and stakeholders	5	12	10	11	5	43

Figure 25: How respondents rate the effectiveness of Adult learning policies in each topic



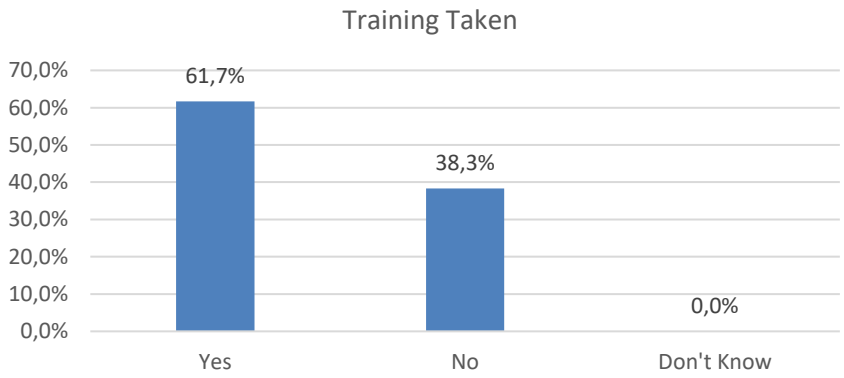
5. Specific Questions about Training Measures in Agriculture, food and forestry policies

Question 46. Have you participated in training/education activities under this policy field?

Table 43: Number of participants that have participated in training activities under this policy field

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Yes	1	29	15.03	61.70	61.70
No	2	18	9.33	38.30	100.00
	.	146	75.65	Missing	
	Total	193	100.0	100.0	

Figure 26: Training taken by participants

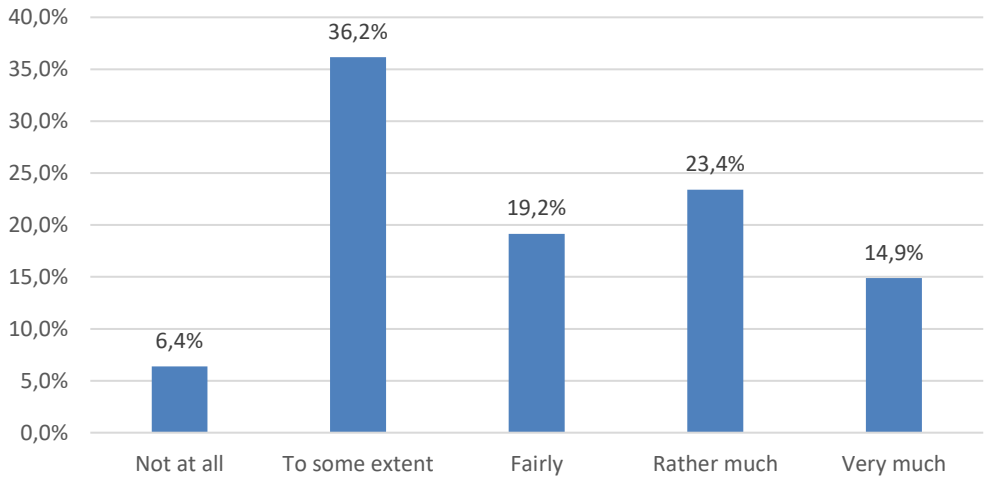


Question 47. To what extent do you believe that the objectives of policies in this field address the agricultural/food/forestry needs?

Table 44: To what extent participants believe objectives of policies in this field address agricultural/forestry needs

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Not at all	1	3	1.55	6.38	6.38
To some extent	2	17	8.81	36.17	42.55
Fairly	3	9	4.66	19.15	61.70
Rather much	4	11	5.70	23.40	85.11
Very much	5	7	3.63	14.89	100.00
	.	146	75.65	Missing	
	Total	193	100.0	100.0	

Figure 27: Extent to which policies address agricultural/forestry needs

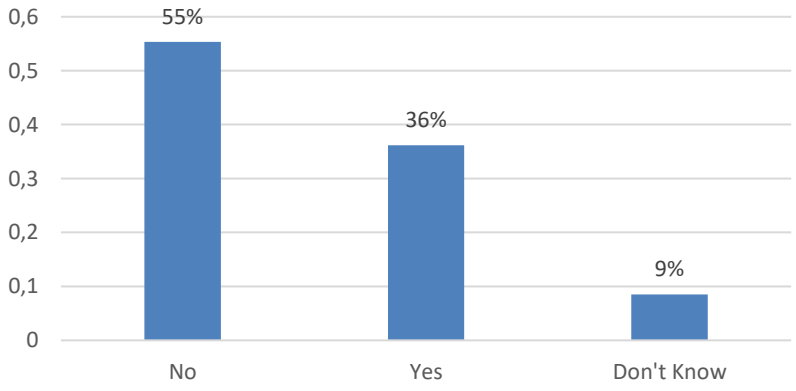


Question 48. In the scope of policies in this field, is sufficient amount of financial support (grants, scholarships) provided to young professionals?

Table 45: Number of participants that believe sufficient amount of financial support is provided to young professional

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Don't Know	0	4	2.07	8.51	8.51
Yes	1	17	8.81	36.17	44.68
No	2	26	13.47	55.32	100.00
	.	146	75.65	Missing	
	Total	193	100.0	100.0	

Figure 28: Is sufficient of financial support provided

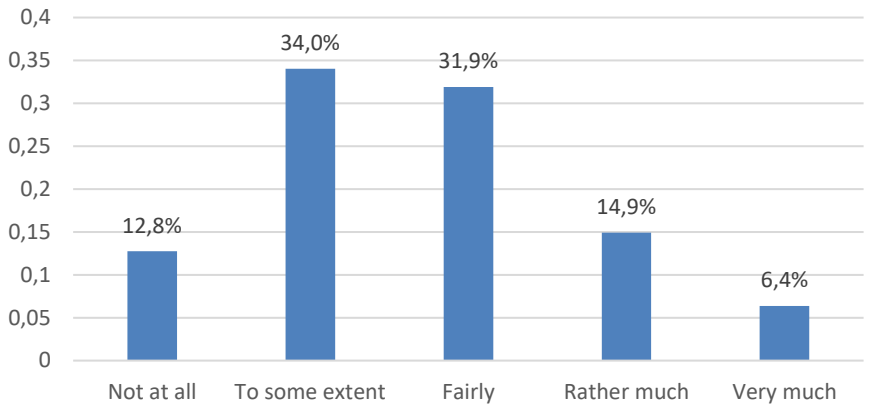


Question 49. To what extent do you think policies in this field are promoting innovative ways of learning?

Table 46: To what extent the policies in this field are promoting innovative ways of learning

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Not at all	1	6	3.11	12.77	12.77
To some extent	2	16	8.29	34.04	46.81
Fairly	3	15	7.77	31.91	78.72
Rather much	4	7	3.63	14.89	93.62
Very much	5	3	1.55	6.38	100.00
	.	146	75.65	Missing	
	Total	193	100.0	100.0	

Figure 29: To what extent policies in the field are providing innovative ways

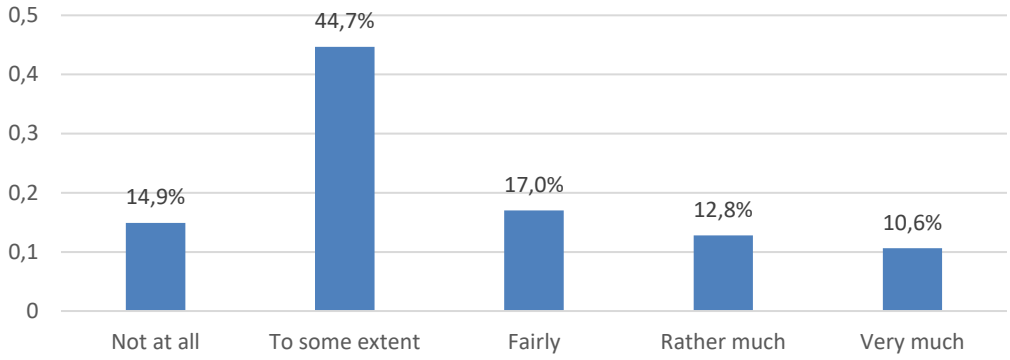


Question 50. In particular, to what extent do you think policies in this field are promoting action-oriented/experiential learning (A process of learning by doing, where learners work together towards a common goal, by collaborating with real people, taking action and reflecting upon their experiences from being involved in that activity, in order to tackle real-life problems/issues)?

Table 47: To what extent the policies in this field are promoting action oriented/experiential learning

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Not at all	1	7	3.63	14.89	14.89
To some extent	2	21	10.88	44.68	59.57
Fairly	3	8	4.15	17.02	76.60
Rather much	4	6	3.11	12.77	89.36
Very much	5	5	2.59	10.64	100.00
	.	146	75.65	Missing	
	Total	193	100.0	100.0	

Figure 30: To what extent policies in the field are providing action oriented /experiential learning



Question 51. Do policies in this field provide sufficient educational opportunities for young agrifood and forestry professionals?

Table 48: The number of participants that believe policies in this field provide sufficient educational opportunities for young agri-business and forestry professionals

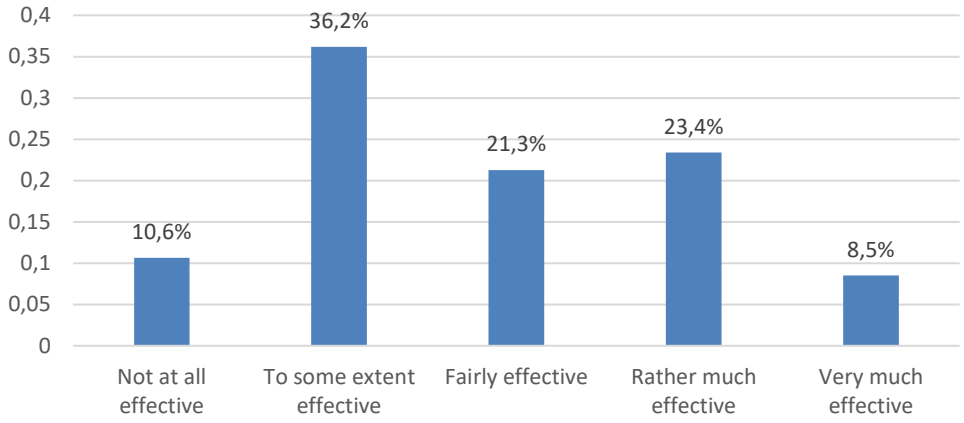
Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Don't Know	0	5	2.59	10.64	10.64
Yes	1	18	9.33	38.30	48.94
No	2	24	12.44	51.06	100.00
	.	146	75.65	Missing	
	Total	193	100.0	100.0	

Question 52. Do you think policies in this field are effective to improve learners' (e.g. food producer/forester/student/food operator) knowledge and skills?

Table 49: To what extent policies in this field are effective to improve learners' knowledge and skills

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Not at all effective	1	5	2.59	10.64	10.64
To some extent effective	2	17	8.81	36.17	46.81
Fairly effective	3	10	5.18	21.28	68.09
Rather effective	4	11	5.70	23.40	91.49
Very effective	5	4	2.07	8.51	100.00
	.	146	75.65	Missing	
	Total	193	100.0	100.0	

Figure 31: To what extent policies in the field are effective to improve learners' skills and knowledge



Question 53. Do you think policies in this field are cost-effective (results obtained with respect to spent resources)?

Table 50: To what extent policies in this field are cost-effective

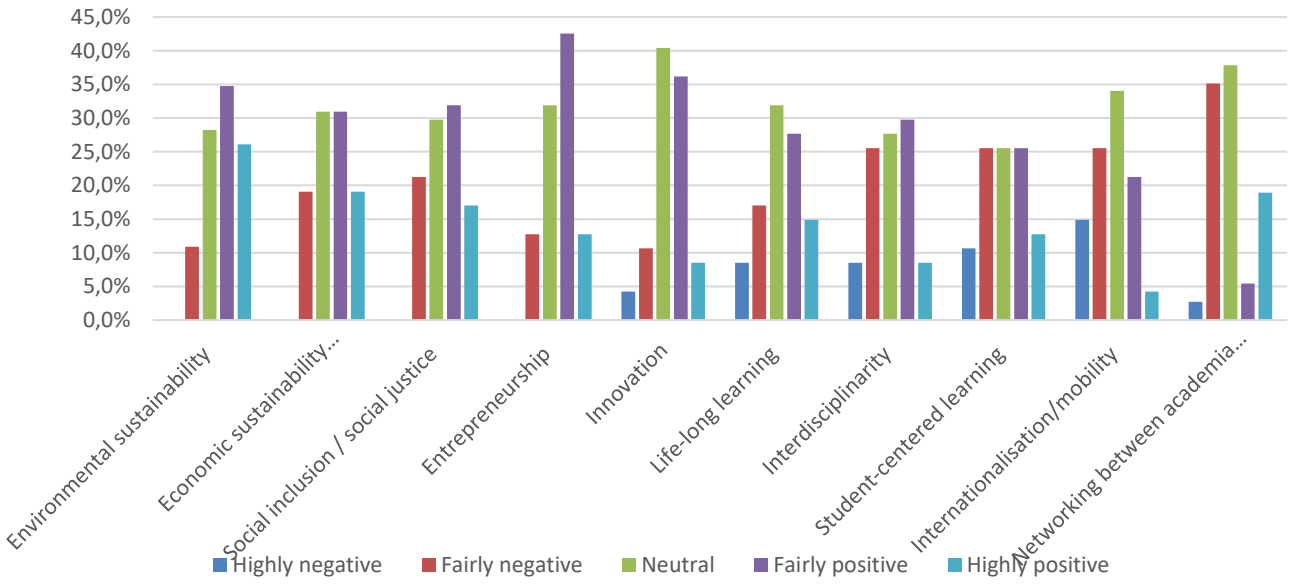
Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
Not at all cost effective	1	8	4.15	17.02	17.02
To some extent cost effective	2	22	11.40	46.81	63.83
Fairly cost effective	3	7	3.63	14.89	78.72
Rather cost effective	4	7	3.63	14.89	93.62
Very cost effective	5	3	1.55	6.38	100.00
	.	146	75.65	Missing	
	Total	193	100.0	100.0	

Question 54. How would you rate the effect of policies in this field on the following topics?

Table 51: To what extent respondents rate effectiveness of Training measures in agriculture, food and forestry policies in each topic (frequency)

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive	TOTAL
Environmental sustainability	0	5	13	16	12	46
Economic sustainability (competitiveness)	0	8	13	13	8	42
Social inclusion / social justice	0	10	14	15	8	47
Entrepreneurship	0	6	15	20	6	47
Innovation	2	5	19	17	4	47
Life-long learning	4	8	15	13	7	47
Interdisciplinarity	4	12	13	14	4	47
Student-centred learning	5	12	12	12	6	47
Internationalisation/mobility	7	12	16	10	2	47
Networking between academia and stakeholders	1	13	14	2	7	37

Figure 32: To what extent respondents rate effectiveness of Tmeasures in agriculture, food and forestry policies in each topic



6. Results across all policy fields

Questions of 12, 26, 40 and 54: How would you rate the effect of policies in this field on the following topics?

Table 52: Environmental Sustainability

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive
Pre-university	5,2%	27,6%	27,6%	34,5%	5,2%
University	1,0%	3,0%	24,0%	58,0%	14,0%
Adult learning	0,0%	25,6%	30,2%	37,2%	7,0%
Agrifood	0,0%	10,9%	28,3%	34,8%	26,1%

Figure 33: Environmental Sustainability

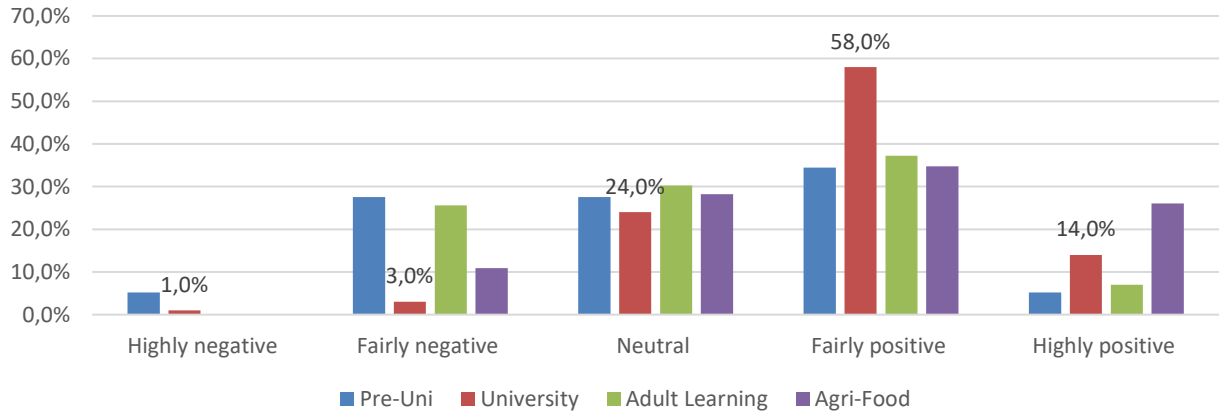


Table 53: Economic Sustainability (competitiveness)

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive
Pre-university	4,2%	33,3%	37,5%	14,6%	10,4%
University	2,7%	10,9%	37,3%	38,2%	10,9%
Adult learning	0,0%	16,3%	18,6%	53,5%	11,6%
Agrifood	0,0%	19,0%	31,0%	31,0%	19,0%

Figure 34: Economic Sustainability (competitiveness)

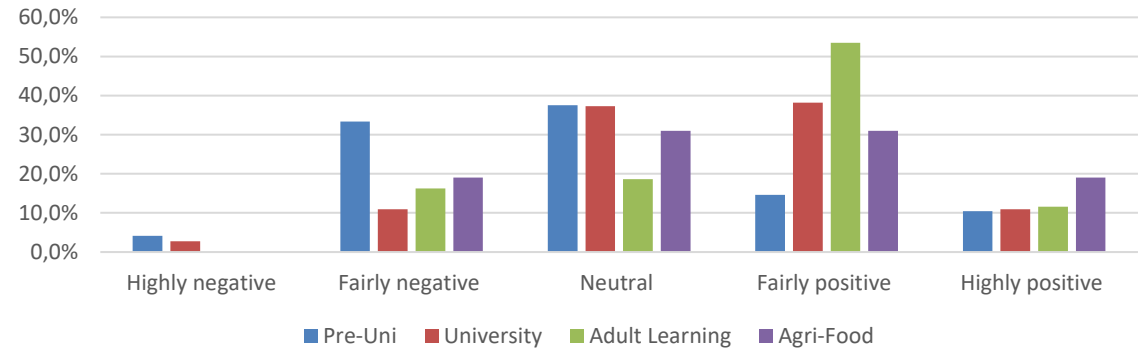


Table 54: Social Inclusion

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive
Pre-university	8,6%	24,1%	32,8%	25,9%	8,6%
University	6,4%	18,3%	38,5%	30,3%	6,4%
Adult learning	7,0%	20,9%	39,5%	20,9%	11,6%
Agrifood	0,0%	21,3%	29,8%	31,9%	17,0%

Figure 35: Social Inclusion

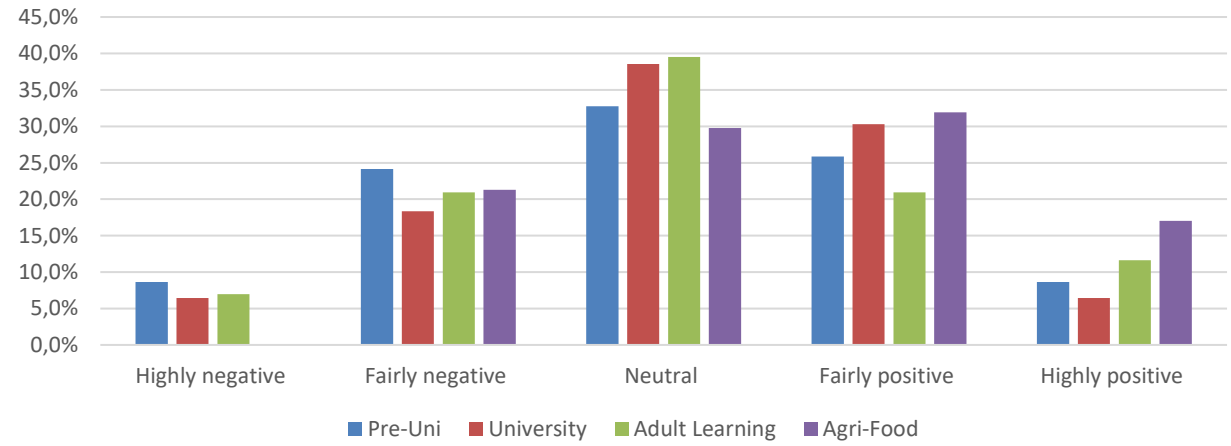


Table 55: Entrepreneurship

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive
Pre-Uni	6,9%	31,0%	27,6%	29,3%	5,2%
University	3,7%	16,5%	41,3%	30,3%	8,3%
Adult learning	2,3%	16,3%	20,9%	48,8%	11,6%
Agrifood	0,0%	12,8%	31,9%	42,6%	12,8%

Figure 36: Entrepreneurship

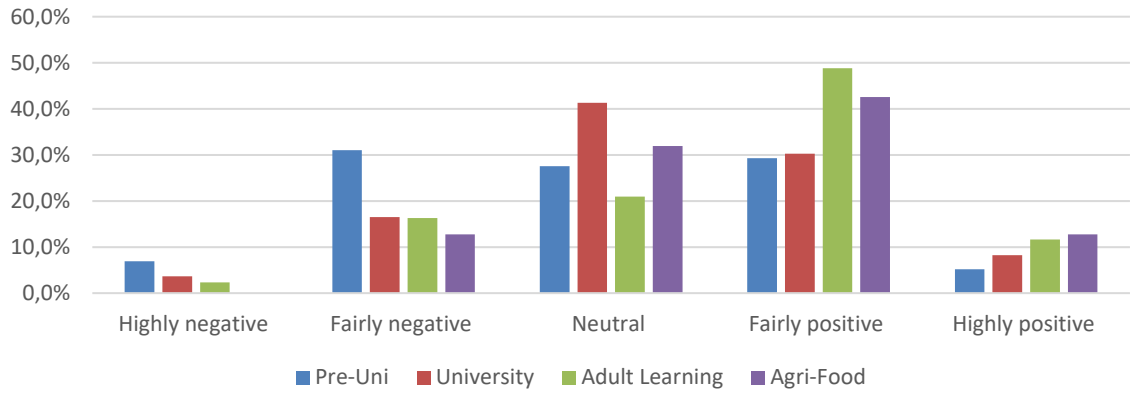


Table 56: Innovation

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive
Pre-university	13,79%	24,14%	32,76%	25,86%	3,45%
University	1,83%	19,27%	33,03%	33,94%	11,93%
Adult learning	0,00%	30,23%	30,23%	23,26%	16,28%
Agrifood	4,26%	10,64%	40,43%	36,17%	8,51%

Figure 37: Innovation

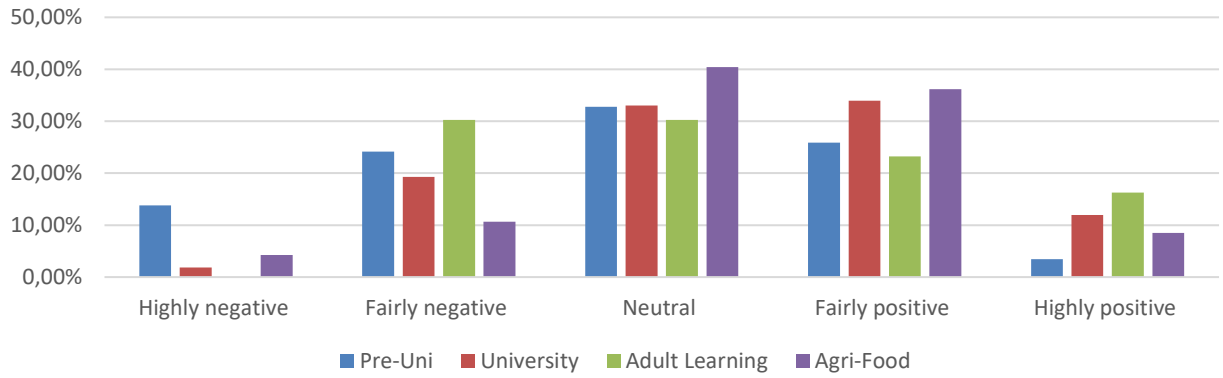


Table 57: Life-long Learning

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive
Pre-university	14,3%	32,1%	25,0%	23,2%	5,4%
University	6,4%	21,1%	39,4%	23,9%	9,2%
Adult learning	2,3%	25,6%	18,6%	39,5%	14,0%
Agrifood	8,5%	17,0%	31,9%	27,7%	14,9%

Figure 38: Life-long Learning

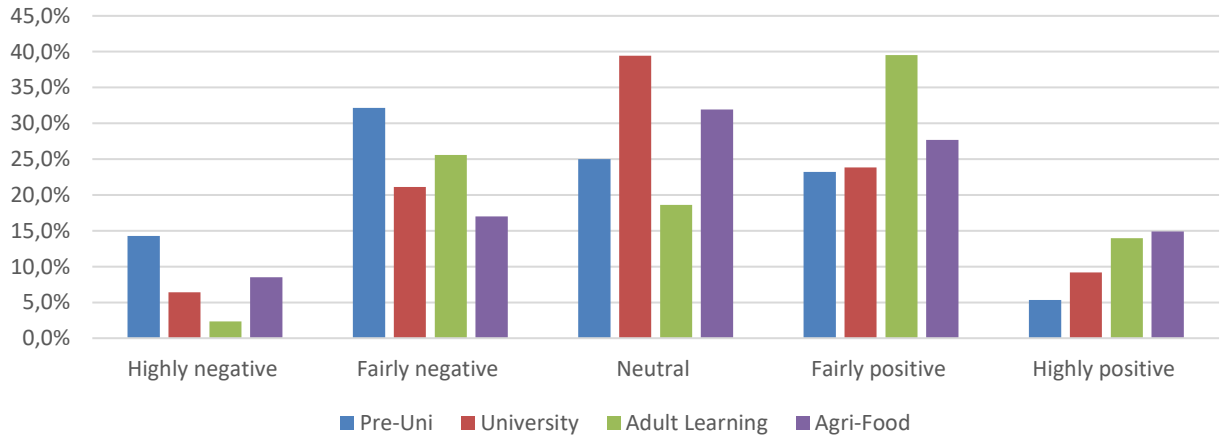


Table 58: Interdisciplinarity

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive
Pre-university	13,8%	27,6%	36,2%	17,2%	5,2%
University	9,2%	24,8%	28,4%	31,2%	6,4%
Adult learning	7,0%	27,9%	34,9%	20,9%	7,0%
Agrifood	8,5%	25,5%	27,7%	29,8%	8,5%

Figure 39: Interdisciplinary

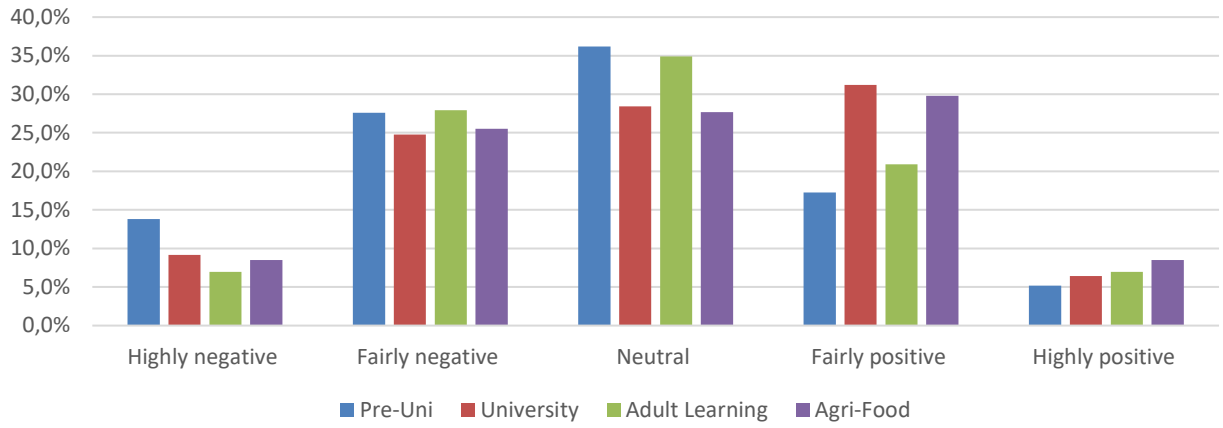


Table 59: Student-centred learning

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive
Pre-university	17,5%	22,8%	29,8%	21,1%	8,8%
University	6,4%	16,5%	38,5%	28,4%	10,1%
Adult learning	4,7%	27,9%	34,9%	23,3%	9,3%
Agrifood	10,6%	25,5%	25,5%	25,5%	12,8%

Figure 40: Student-centred Learning

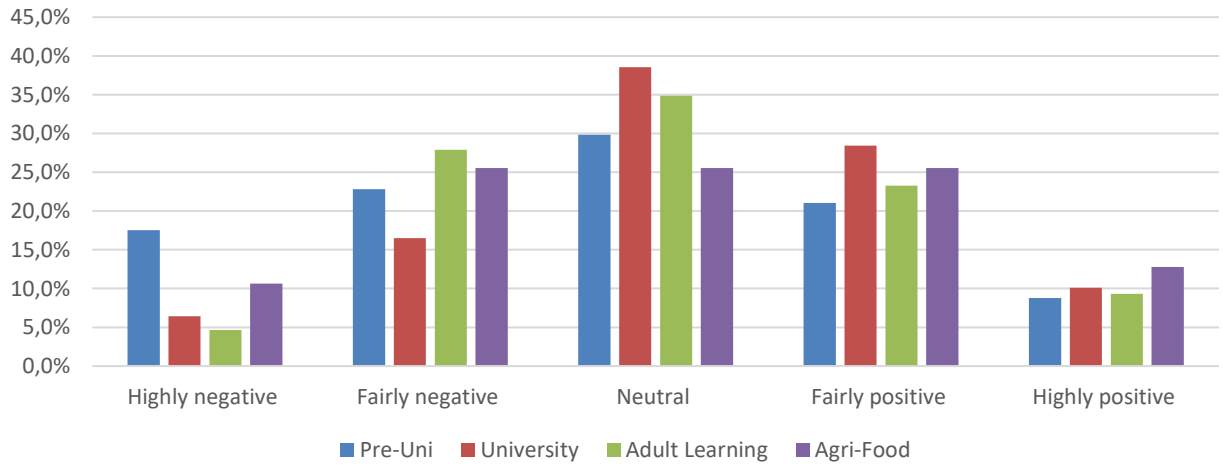


Table 60: Internationalisation / mobility

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive
Pre-university	12,1%	41,4%	29,3%	13,8%	3,4%
University	3,7%	16,5%	25,7%	42,2%	11,9%
Adult learning	23,3%	25,6%	27,9%	16,3%	7,0%
Agrifood	14,9%	25,5%	34,0%	21,3%	4,3%

Figure 41: Internationalisation / Mobility

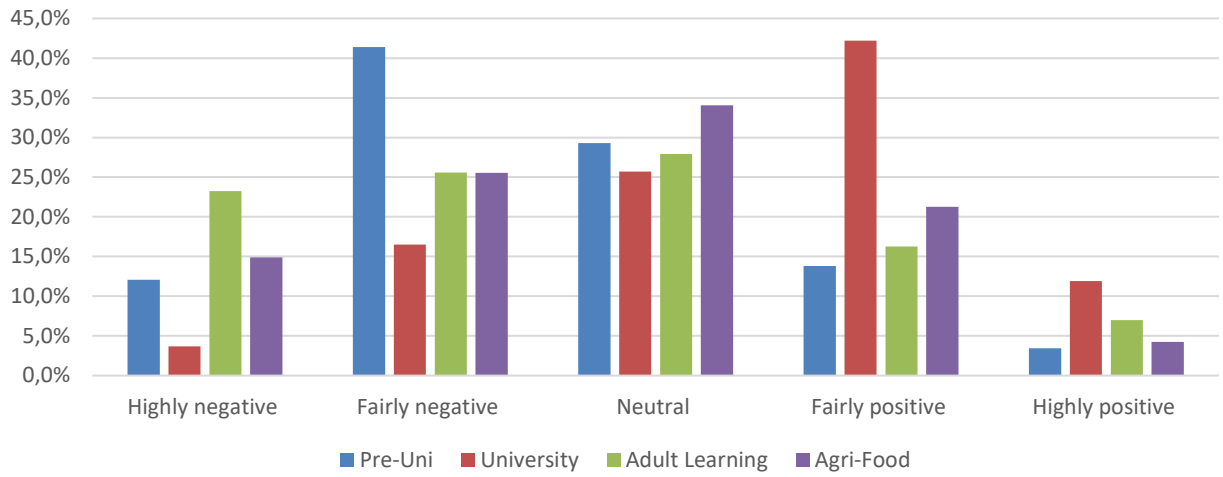
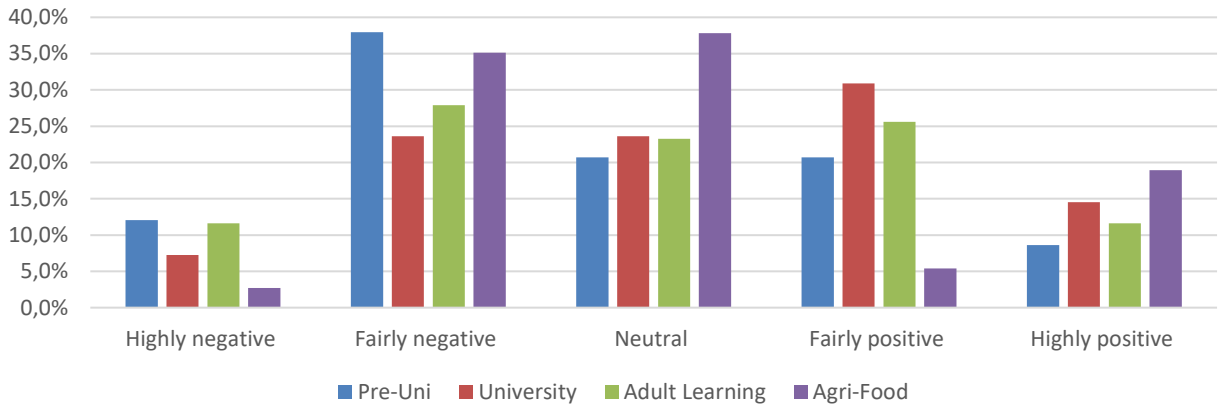


Table 61: Networking between academia and stakeholders

	Highly negative	Fairly negative	Neutral	Fairly positive	Highly positive
Pre-university	12,1%	37,9%	20,7%	20,7%	8,6%
University	7,3%	23,6%	23,6%	30,9%	14,5%
Adult learning	11,6%	27,9%	23,3%	25,6%	11,6%
Agrifood	2,7%	35,1%	37,8%	5,4%	18,9%

Figure 42: Networking between stakeholders and academia



Qualitative Questions: Regarding "Missing elements in current policy", "Suggestions that participants what to make" and any "additional comments" – for all of the Policy Fields

A Collective Picture of All Policy Fields

Table 62: Missing elements of all policy fields (Frequency of answers)

	Pre Uni	University	Adult learning / vocational	AgriFood
Networking	9	19	5	3
Learning approaches	13	17	5	5
Sustainability	9	11	5	2
Entrepreneurship / Innovation	8	12	3	1
Quality of policies / policies linking to reality	4	9	0	6
Interdisciplinarity	6	7	3	3
Social inclusion	4	6	3	2
Skills	4	6	4	0
Stakeholder engagement	1	6	0	1
Internationalisation / Mobility	2	5	2	2
Quality of education	1	4	2	1
Awareness	2	3	0	0
Quality of governance	5	2	2	2
Quality of research	0	2	0	0
Financial support	0	2	3	1
Motivation	1	1	0	1
Marketing	0	1	0	0
Jobs / Career	3	1	0	0
More learning opportunities	0		0	2
TOTAL	72	114	37	32

Figure 43: Missing elements in each policy field (frequency of answers)

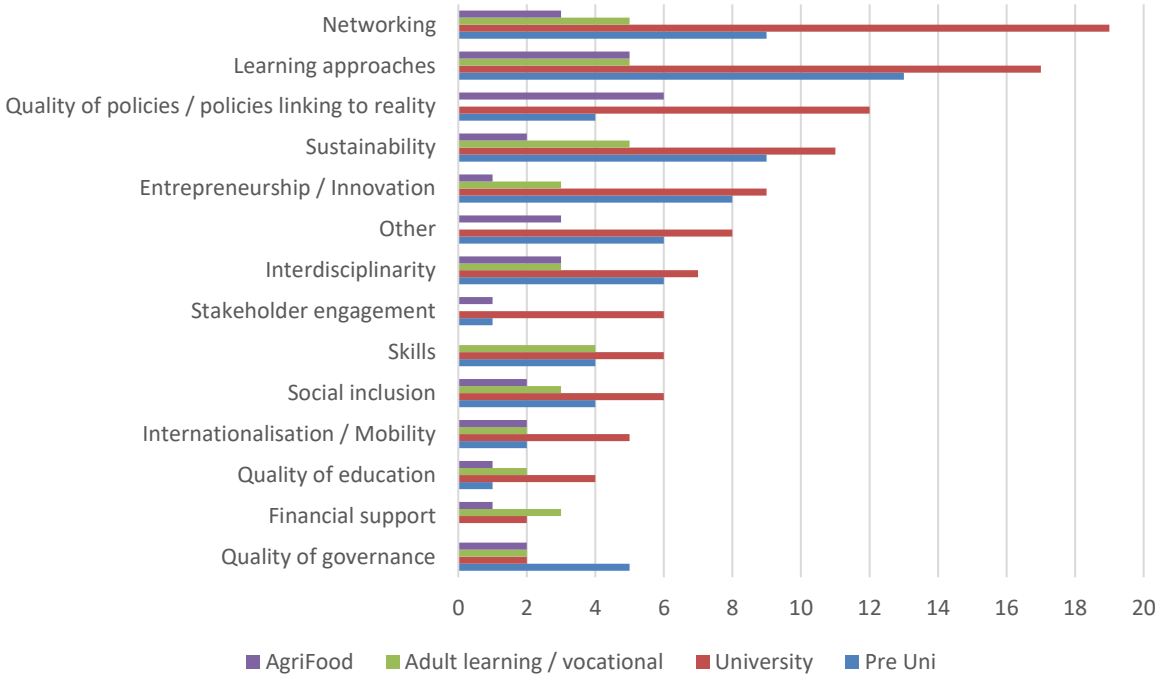


Figure 44: Missing elements in each policy field (according to percentage of answers within each policy field)

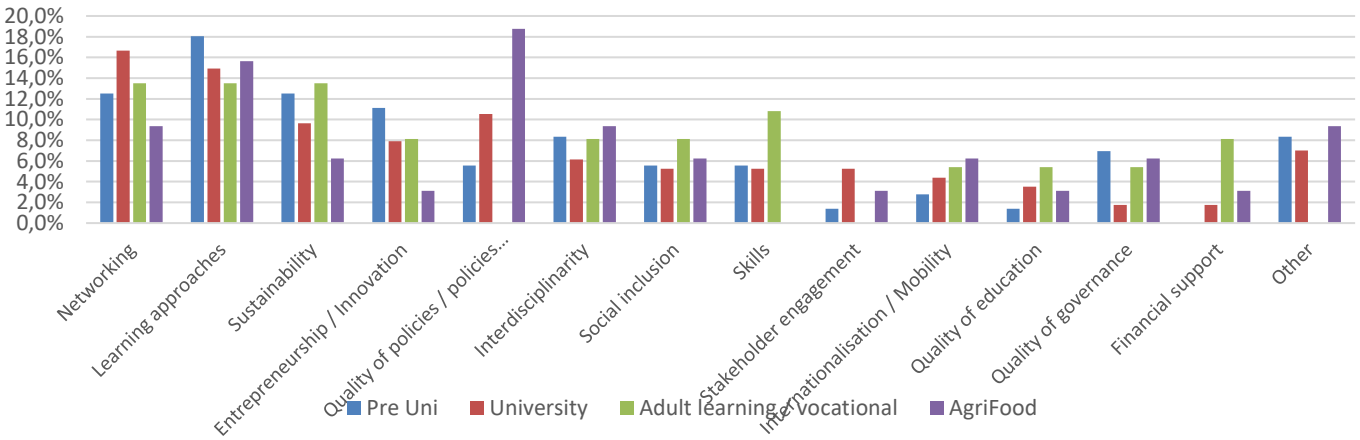


Table 63: Suggestions in Each Policy Field (Frequencies)

	Pre-university	University	Adult learning / vocational	Agri Food
New learning approached	11	14	7	7
Networking	8	11	4	4
Educational curricula	5	3	2	0
Stakeholder engagement	4	8	1	5
Quality of policies / policies linking to reality	4	6	0	3
Promoting sustainability	3	5	2	0
Skill generation	4	6	1	0
Internationalisation / Mobility	0	2	1	1
Interdisciplinarity	0	4	1	2
Increase motivation	2	1	1	0
Promoting jobs	2	0	0	0
Quality of governance	2	7	1	3
Awareness raising	1	0	0	2
Financial support	1	8	2	2
Entrepreneurship / Innovation	1	8	0	0
Promoting social inclusion	1	2	0	1
Improving quality of research	1	0	0	0
Quality of education	1	10	0	3
More learning opportunities	0	0	3	2
Administrative burdens should be reduced	0	4	0	0
TOTAL	51	99	23	30

Figure 45: Suggestions in each policy field (according to frequency of answers)

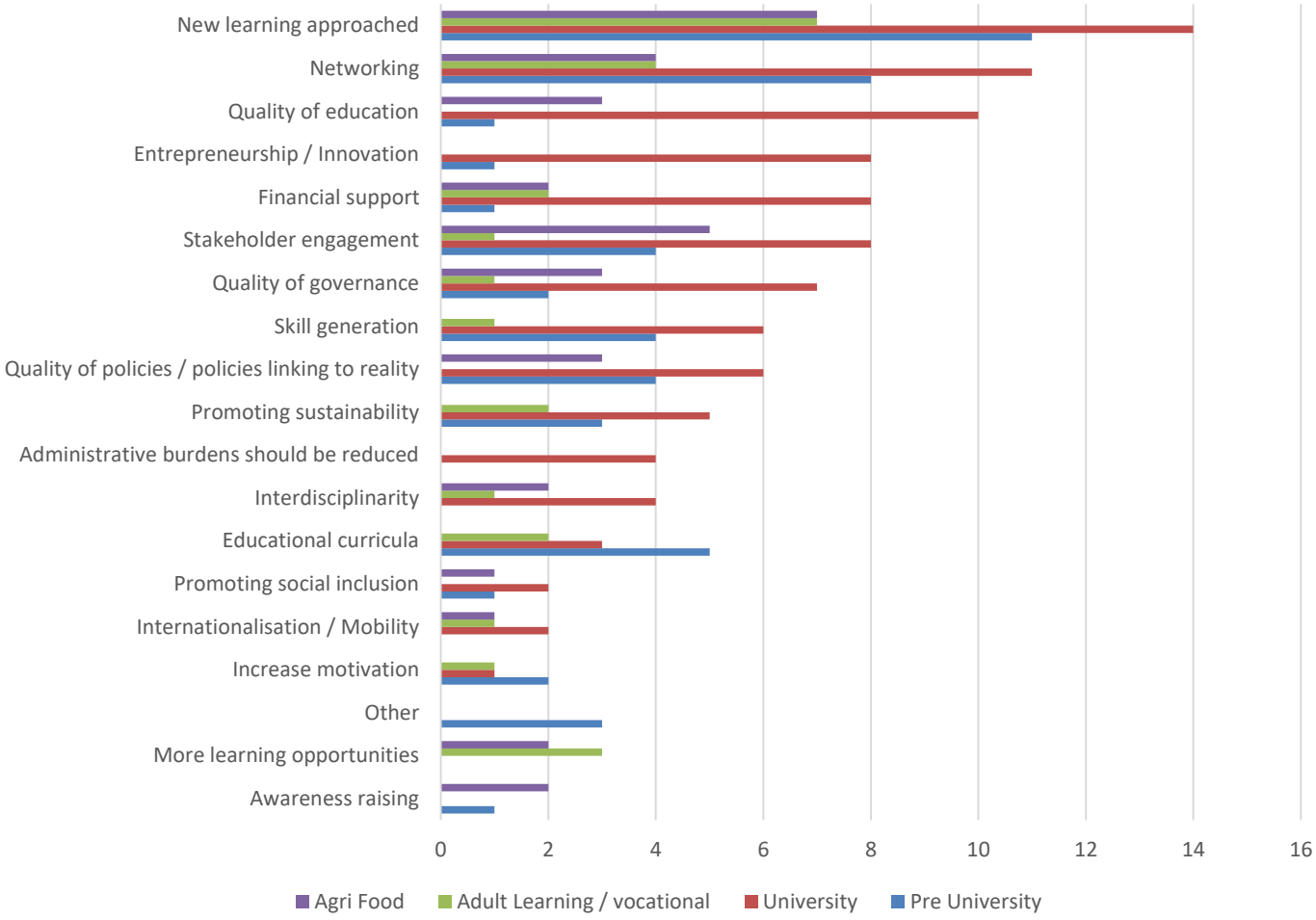
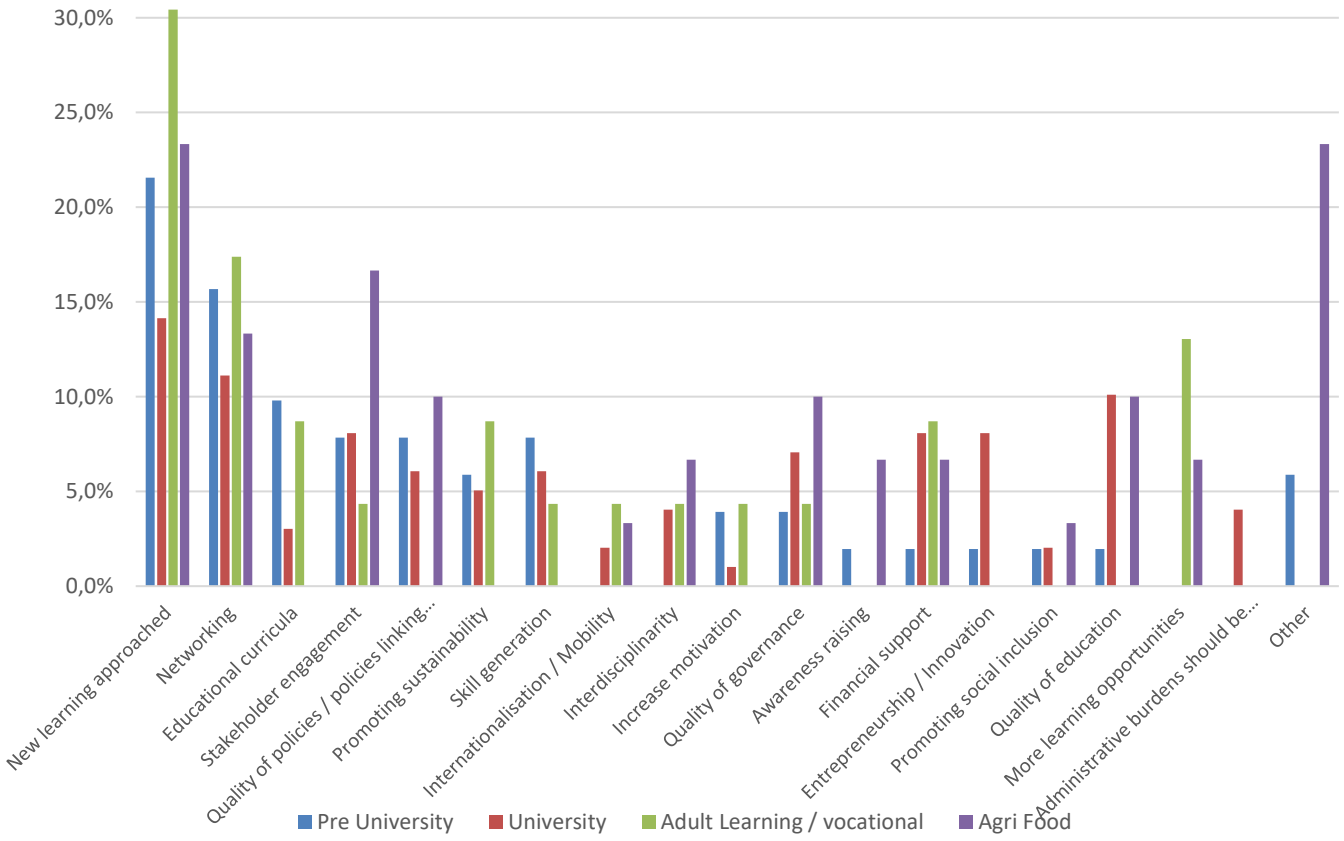


Figure 46: Suggestions in each policy field (according to percentage of answers within each policy field)



Detailed information about each Policy Field

Pre-university Policies

Table 64: Missing Elements in Current Policy (Compact Version)

General Category	Number of occurrences	Country of respondent
Networking	9	France, Greece, Germany, Denmark, Austria
Sustainability	9	Spain, France, Greece, Ethiopia, India
Entrepreneurship / Innovation	8	India (2), Sweden, Italy, Spain, Egypt
Interdisciplinary	6	Italy, Sweden, Egypt, India (2)
Learning approaches	4	Egypt, Latvia, Sweden
Planning	4	Germany,
Social inclusion and justice	4	India, Austria (2), Italy
Jobs / Career	3	Austria (2)
Life-long learning	3	India, Ethiopia, Italy
More attention on scientific methods	3	
Internationalisation/Mobility	2	India, Austria (2)
Low awareness	2	Ethiopia
More attention on agricultural sciences	2	Italy
No missing element	2	
Skills	2	Italy
Weak implementation, weak practicality	2	France
Biosafety	1	
Competitiveness	1	
Image of policymakers	1	
Motivation / Future prospects	1	Austria
Natural disaster management	1	India
Number of students	1	
Quality of education	1	USA
Real life experience	1	
TOTAL	73	

- 45 respondents have provided a response to this open-ended question.
- From these 45 respondents, 73 aspects have been collected (Each respondent were allowed to list as many aspects as they wanted)
- The aspects that were mentioned the most were the issue of lack of networks/connections between institutions or actors and the issue of Sustainability.
    - For “the lack of networks”, 4 respondents have mentioned, “lack of networks between academia and stakeholders”, while other replies were lack of connections between agribusiness universities and communities, lack of cooperation between educational levels and integration of research institutions and universities.

- The following most mentioned aspect was the lack of Entrepreneurship and Innovation. Under this category, some of the replies included: The lack of resources to promote innovation, lack of supporting measures for innovation and entrepreneurship.
- For more information about which countries have mentioned which aspects, we can have a look at Table 2. For more detailed information about the answers and to see how each category has been grouped, we can have a look at Table 3.

How findings were derived:

- For this question, all responses were re-written in a more precise way. Then each answer was sub-grouped under a larger category (that can be seen under table 3); and finally, the aspects listed under subcategories were once more put into a larger category (which can be seen under Table 2). This allowed for having distributional statistics about the data.

Table 65: Missing Elements in Current Policy (More detailed Version)

General Category	Response
Biosafety	Skills
Competitiveness	International competitiveness
Entrepreneurship / Innovation	Entrepreneurship
Entrepreneurship / Innovation	Innovation (4)
Entrepreneurship / Innovation	Sufficient resources to promote innovation
Entrepreneurship / Innovation	Supporting measures for innovation
Entrepreneurship / Innovation	Supporting measures for entrepreneurship
Image of policymakers	Quality of governance
Interdisciplinary	Interdisciplinary approaches (5)
Internationalisation/Mobility	Internationalisation/Mobility (2)
Jobs /Career	Attractive jobs
Jobs / Career	Decent promotion of jobs
Jobs / Career	Lack of career advice
Learning approaches	Effective internalisation by learners
Learning approaches	Learner centered approaches
Learning approaches	Learning through work/internship
Learning approaches	Connection with reality
Learning approaches	Participatory learning
Life-long learning	Life Long Learning (3)
Low awareness	Low awareness level
Low awareness	Low awareness level about other country situations
More attention on agricultural sciences	Limited attention to agrifood sciences
More attention on agricultural sciences	Policies addressing issues in relation to food and agriculture
More attention on scientific methods	Practice of scientific methods in the area of environmental sustainability
More attention on scientific methods	Research not taken seriously by policymakers
More attention on scientific methods	Respect for scientific method in the area of environmental sustainability
Motivation	Willingness
Skills	Skills
Skills	Trained teachers

General Category	Response
Skills	Natural disaster management
Networking	Connection between agribusiness universities and communities
Networking	Cooperation between education levels
Networking	Integration of research institutions and universities
Networking	Link with the private sector
Networking	Networking
More learning opportunities	Number of students
Quality of governance	long-term planning (2)
Quality of governance	Organisation
Quality of governance	Policies of budget allocations with other sectors
Quality of education	Quality of education is very low
Social inclusion and justice	Social Inclusion (2)
Social inclusion and justice	Social justice
Social inclusion and justice	Social justice to sustain food security
Stakeholder engagement	Stakeholder engagement
Sustainability	Agroecological approaches
Sustainability	Challenges of ecological intensification
Sustainability	Environmental sustainability
Sustainability	Initial input in sustainable practices high
Sustainability	Long-term educational sustainability
Sustainability	Sustainability
Sustainability	Sustainability of farming livelihoods
Sustainability	Taking ecological costs into account in the process
Sustainability	Taking ecological costs into account in the process
Quality of policies	Practical viability of policies
Quality of governance	Weak implementation of good ideas

Question 14. What would you suggest to improve?

Table 66: Suggestions for Improvement (Compact Version)

General Category	Number of occurrences	Country of respondent
New innovation learning methods / experiential learning	11	Greece, India
Networking	8	India, Sweden, Greece, Tunisia, Italy
Educational curricula	5	Denmark, India, USA, Sweden
Stakeholder engagement	4	USA, Italy
All aspects should be changed	3	Egypt, Romania
Promoting sustainability	3	
Revision of policy	3	India
Skill generation (students and teachers)	3	France, Italy
Increase motivation about the sector	2	UK
Promoting agricultural jobs / green jobs	2	UK, Sweden
Avoid control of political groups	1	Spain
Generate capacity to respond to crisis	1	Czech Republic
Introducing awareness raising activities	1	Italy
More centralised system at national level	1	
More resources / funds	1	Sweden
New business development / Innovation	1	
Promoting social inclusion	1	Italy
Urgent need to shift research	1	
Direct link to practical experiences	1	Ethiopia
Improve quality	1	Ukraine
Nothing	1	Denmark
TOTAL	55	

- 42 respondents have provided a response to this open-ended question.
- From these 42 respondents, 55 answers were collected.

Table 67: Suggestions for Improvement (Detailed Version)

Response	General Category
All aspects of education process	All aspects should be changed
All aspects of education process	All aspects should be changed
Avoid control of political groups	Avoid control of political groups
Inclusion of courses about natural resources	Educational curricula
Educational curricula	Educational curricula
Educational curricula	Educational curricula
Prioritizing curriculum time for science classes	Educational curricula
Re-including theoretical subjects in curricula	Educational curricula
Emphasis to theory	Emphasis to theory
Improve the whole quality	Improving the quality
Promoting agriculture as a career option	Increase motivation about the sector
Stressing importance of agrifood sector for health and well-being	Increase motivation about the sector
Introducing awareness raising activities	Increasing awareness
Resource needed for new technology and innovation	More resources / funds
More funds and scholarships	More resources / funds
Direct link from field to market place	Networking
More interaction between academia and learner communities	Networking
Cooperation between pre-University and Uni levels	Networking
Creating link between academia and business	Networking
Promoting PPP	Networking
Contribution from academia to policymaking	Networking
Partnership with universities and companies	Networking
Introducing learning methods to account for knowledge, skills, right attitude	New learning methods / experiential learning / practices examples
Participatory approaches	New learning methods / experiential learning / practices examples
Introducing user generated innovations	New learning methods / experiential learning / practices examples
Providing practical experiences	New learning methods / experiential learning / practices examples
Experiential Learning	New learning methods / experiential learning / practices examples
Self-Learning	New learning methods / experiential learning / practices examples
Emphasis to action oriented learning	New learning methods / experiential learning / practices examples
Providing practices experiences	New learning methods / experiential learning / practices examples
Promoting an open mind	New learning methods / experiential learning / practices examples
Motivations for Life Long Learning	New learning methods / experiential learning / practices examples
Real life examples	New learning methods / experiential learning / practices examples
More action oriented	New learning methods / experiential learning / practices examples
Nothing	Nothing
Promoting social inclusion	Promoting social inclusion

Promoting green jobs	Promoting agricultural jobs / green jobs
Promoting sustainable agriculture practices	Promoting sustainability
Balance between aspects of sustainability	Promoting sustainability
Revision of policies to make it comprehensive	Revision of policy
Revisiting national system of agricultural education and research	Revision of policy
Policy making body to include different disciplines	Revision of policy
Measures and policies to support new business development	Revision of policy
Response	**General Category**
More centralised system at national level	Revision of policy
Improving decision making capacity of producers	Skill generation (students and teachers)
Skill generation on market analysis	Skill generation (students and teachers)
Skill generation on organic products	Skill generation (students and teachers)
Skill generation on consumer expectations	Skill generation (students and teachers)
Training of trainers	Skill generation (students and teachers)
Generate capacity to respond to crisis	Skill generation (students and teachers)
Community involvement	Stakeholder engagement
Involving both students and teachers	Stakeholder engagement
Multi-stakeholder design	Stakeholder engagement
Involving students	Stakeholder engagement
Informing stakeholders about policies and schemes	Stakeholder engagement
Involvement of different stakeholders	Stakeholder engagement
Expose students to views of consumers	Stakeholder engagement
Involvement of NGOs	Stakeholder engagement
Urgent need to shift research, education and research	Urgent need to shift research

- The aspects that has been mentioned the most by respondents (11 respondents) was new innovation learning methods / experiential learning. Among these responses some of the answers were: Participatory approaches, providing practical experiences, experiential learning, action-oriented learning and providing real life practices.
- This was followed by networking, which was mentioned 8 times. Respondents argued that: direct link should be established between the field and the market place, more interaction between academia and learner communities, creating a link between academia and business, contribution of academia to policymaking and the promotion of PPP.

How findings were derived:

- *Same as the previous question.*

Question 15. Any additional open remark/opinion about policies in this field?

Table 68: Any additional comments

Aspects	Country
Enforcement should be in place	
Policies must be revisited	
Policies must be revisited - Policies shall include climate change issues	
Consider livelihood status of developing countries	
New ways of learning / teaching - Problem solving method is missing	
New ways of learning / teaching - Schools should aim to create entrepreneurs	Ethiopia
New ways of learning / teaching - students are not promoted to think and innovate	
New ways of learning / teaching - schools are creating the same type of students	Ethiopia
New ways of learning / teaching - Tailor-made education programmes need to be designed	Greece
New ways of learning / teaching - More practical education	Sweden
New ways of learning / teaching - Action learning	Greece
Farmers are blamed for everything	
"Agriculture first should become the motto"	India
Policies must be revisited - Policies should be formed after considering the real issue	
Policies must be revisited - Policies should be updated more frequently to catch up with technical progress	Sweden
Too much emphasis on economic growth	Czech Republic
Lack of career opportunities	UK
Eliminate school-work alteration	Italy

University Level Policies

Question 27. Which are the main missing elements in the current policy framework by referring to the topics listed in the previous question?

Table 69: University Level - Missing Elements in Current Policy (Compact version – including number of repetitions and percentage, as well as country information)

General Category	Frequency of Replies	%	Country
Networking	19	16%	India (3), Egypt, Greece, Sweden, Latvia, Denmark, France, Spain (2), South Africa, Italy
Learning approaches	17	14%	Ethiopia (2), Egypt, Sweden (3), Greece, Italy, Denmark, Romania, Ukraine (2), India
Sustainability	11	9%	India (3), Sweden (2), Germany, Italy (2), Spain, Czech Republic
Entrepreneurship / Innovation	9	8%	Ethiopia, Sweden (2), Spain, Bulgaria, South Africa, Italy
Quality of policies / policies linking to reality	9	8%	India, Italy (3), USA, Poland
Interdisciplinarity	7	6%	Germany, Denmark, Ukraine, Austria, Sweden
Social inclusion	6	5%	India, France, Spain, Italy (2)
Skills	6	5%	India, Spain (2), Belgium
Stakeholder engagement	6	5%	US, Germany, Iraq, Italy, Ukraine
Internationalisation / Mobility	5	4%	Egypt, Poland (2), UK, India
Quality of education	4	3%	Italy, Sweden, Spain
No missing element	4	3%	Italy, USA, Sweden
Quality of policies / policies linking to reality	3	3%	Italy, Belgium (2)
Awareness	3	3%	Germany, Italy, Spain
Quality of governance	2	2%	Egypt (2)
Quality of research	2	2%	India
Financial support	2	2%	Italy, India
Motivation	1	1%	India
Marketing	1	1%	Germany
Jobs / Career	1	1%	Greece
TOTAL	118		

Table 70: University Level - Missing Elements in Current Policy (Detailed Version – including all answers in a revised form)

General Category	Responses
Awareness	Knowledge and vision of the problems at world scale
Awareness	Students are missing awareness about what is happening in other parts of the world
Awareness	Students can be more informed about different policy options
Entrepreneurship / Innovation	Digitisation and Innovation
Entrepreneurship / Innovation	Entrepreneurship and innovation (3)
Entrepreneurship / Innovation	Lack of innovation in teaching
Entrepreneurship / Innovation	More encouragement needed to work with innovation

General Category	Responses
Entrepreneurship / Innovation	No clear policies for motivating innovation and entrepreneurship at universities
Entrepreneurship / Innovation	Support to innovative entrepreneurship
Entrepreneurship / Innovation	Technical action effectiveness
Financial support	Grants
Financial support	Low availability of financial support for students
Interdisciplinarity	Interdisciplinarity (6)
Interdisciplinarity	Transdisciplinarity
Internationalisation / Mobility	Financing of experts to go abroad to share knowledge
Internationalisation / Mobility	International exposure
Internationalisation / Mobility	Internship for students supporting mobility
Internationalisation / Mobility	Mobility (2)
Jobs / Career	More encouragement to work in green sectors
Learning approaches	Learning is not student-centred
Learning approaches	Maintenance of strong basic knowledge
Learning approaches	Participatory learning
Learning approaches	Practice oriented education
Learning approaches	Student centred learning (6)
Learning approaches	Agricultural companies can rarely buy mission education
Learning approaches	Education for alumni
Learning approaches	Life-long learning (5)
Learning approaches	Inclusion of Science and Technology
Marketing	Markets and marketing
Motivation	Interest and motivation
Networking	Academia not collaborating with advisors/business/other stakeholders enough
Networking	Collaboration with actual agricultural development enterprises, research centers, extensions or farm enterprises
Networking	Effective dialogue between education and business (mainly public education institutions)
Networking	Interaction between academia and stakeholders (8)
Networking	Link to private sector
Networking	Links between research and innovation and teaching
Networking	Networking (2)
Networking	Networking between academia and local and international stakeholders
Networking	Networking is under innovation policy, not educational policy
Networking	Relationship between stakeholders
Networking	The understanding that complex problems need collaboration across disciplines
No missing element	No missing element (4)
Quality education	Lack of quality of education
Quality of education	Specific competences are not part of education pathway at universities
Quality of education	Decoupling quality of education from cost-effectiveness at universities
Quality of education	Lack of holism in education (social sustainability of triple bottom line is missing)
Quality of education	Integration of students in the economic cycle early in university

General Category	Responses
Quality of governance	Budgets
Quality of governance	National coordination
Quality of governance	Transparency
Quality of governance	Not all policies are followed
Quality of governance	Effective implementation
Quality of policies / policies linking to reality	Adaptation of policy to current needs is very poor
Quality of policies / policies linking to reality	A real policy is missing
Quality of policies / policies linking to reality	Conflicting policies
Quality of policies / policies linking to reality	Low level of coherence between policies at different levels
Quality of research	Implementation of research
Quality of research	Participatory research is absent
Skills	Lack of capacities of students
Skills	Training aspects
Skills	Practical experience
Skills	Lack of practical experience among faculty members
Skills	Opportunities for practice
Skills	Practical experience
Social inclusion	Gender Issues
Social inclusion	Social inclusion (4)
Stakeholder engagement	It is not inclusive of local stakeholders
Stakeholder engagement	Content of learning is not discussed with students
Stakeholder engagement	Influence of lobbyists on agricultural policies and curricula
Stakeholder engagement	Low levels of policies advocacy
Stakeholder engagement	Students can be encouraged to participate in policies
Stakeholder engagement	There is a gap between policymakers and the stakeholders (professors, students, farmers)
Sustainability	Agro-ecological approaches to be made the basis of review
Sustainability	Balance between pillars of sustainability
Sustainability	Business management
Sustainability	Economic sustainability for small and medium farmers
Sustainability	Economics pillar of sustainability (2)
Sustainability	Environmental sustainability (2)
Sustainability	Overall awareness of connection of environmental, managerial and economic issues at farm level
Sustainability	Scientific community and policymakers are not ready to revisit policy towards integrating agroecology
Sustainability	Students are not thought about environmental sound practices, profitable in agriculture

Question 28. What would you suggest to improve?

Table 71: University Level – Suggestions for improvement (Compact version – including number of repetitions and percentage, as well as country information)

General Category	Frequency	%	Country
Learning approaches	14	13,9%	Austria (2), Italy, Ethiopia, Sweden (3), Denmark, India, Belgium, Latvia, Romania
Networking	11	10,9%	Italy, India, Greece, France, Spain, Tunisia, South Africa
Entrepreneurship / Innovation	8	7,9%	Egypt, Sweden, Germany (2), Italy
Financial support	8	7,9%	Ukraine, Sweden (2), Poland, South Africa, Italy (2)
Quality of education	8	7,9%	India, Ethiopia, Sweden (2), Poland, Egypt
Stakeholder engagement	8	7,9%	India, Germany, Iraq, Italy, India
Quality of governance	7	6,9%	Egypt (2), Ethiopia, India, Italy, Bulgaria
Quality of policies / policies linking to reality	6	5,9%	Spain, USA, Sweden, Poland, India (2)
Skills	6	5,9%	Argentina, South Africa, Italy (2), Spain
Sustainability	5	5,0%	US, Germany, Italy
Administrative solutions for universities	4	4,0%	Czech Republic, Italy
Interdisciplinarity	4	4,0%	UK, Sweden (2)
Educational Curricula	3	3,0%	Denmark, Germany
Education quality	2	2,0%	UK, Ukraine
Internationalisation / Mobility	2	2,0%	Italy
Social inclusion	2	2,0%	Spain, India
Marketing	1	1,0%	Marketing
Motivation	1	1,0%	Italy
No missing element	1	1,0%	Denmark
TOTAL	101	100,0%	

Table 72: University Level – Suggestions for Improvement (Detailed Version – including all answers in a revised form)

General Category	Responses
Administrative solutions for universities	Relieving academics of too many roles
Administrative solutions for universities	Reduce administrative burdens
Administrative solutions for universities	Administrative obstacles should be reduced
Administrative solutions for universities	New administrative/economic solutions
Education quality	To revise all the system of education
Education quality	To consider requirements of the interested employers
Educational Curricula	Curricula
Educational curricula	Revising curricula to pay more attention to society as a whole
Educational curricula	New courses
Entrepreneurship / Innovation	Innovation (2)
Entrepreneurship / Innovation	Provide incentives to boost entrepreneurship
Entrepreneurship / Innovation	Promoting innovation especially in green sectors
Entrepreneurship / Innovation	Improving skills towards entrepreneurship
Entrepreneurship / Innovation	More attention to innovation and entrepreneurship
Entrepreneurship / Innovation	Promote power of knowledge and technology transfer
Entrepreneurship / Innovation	Entrepreneurship
Financial support	Improvement of grants

Financial support	Increase funding for effective collaboration
Financial support	More money so number of students can still be low
Financial support	Financing (2)
Financial support	Funding for PhD courses
Financial support	Providing more financial support
Interdisciplinarity	To strengthen interconnectivity among different areas
Interdisciplinarity	Bring transdisciplinary nature in education
Interdisciplinarity	More interdisciplinary education programmes
Interdisciplinarity	Interdisciplinarity
Internationalisation / Mobility	More attention to mobility
Internationalisation / Mobility	Improve students' mobility
Learning approaches	Action learning (2)
Learning approaches	Better linking school with practice
Learning approaches	Experience-based education
Learning approaches	New definition of company for missioned education
Learning approaches	Holistic / systems thinking universities
Learning approaches	Promoting participatory approaches
Learning approaches	Life-long learning
Learning approaches	Students should try to solve "real" problems
Learning approaches	More practical experience
Learning approaches	To make a link with real life
Learning approaches	More practice for students
Learning approaches	Include more practical work in social science
Learning approaches	Teaching strong basic knowledge and theory
Marketing	Help invest in marketing
Motivation	Motivation about the sector
Networking	Effective collaboration
Networking	Cooperation between academia and industry
Networking	Stakeholder and state networking
Networking	Frequent contacts between academia and stakeholders
Networking	Public and private cooperation for research and training
Networking	View private sector as positive agent for change
Networking	Links between actors
Networking	Partnership with private sector
Networking	Support educators' role in business and other related institutions
Networking	Promote interaction between teachers-stakeholders
Networking	Enhancing university's connection with actual actors in environmental regulation and farm production
Networking / financial support	Financial support
No missing element	No missing element
Quality of education	Access to learning materials
Quality of education	Increasing number of years students stay at university
Quality of education	Flexibility of the education system
Quality of education	Do more
Quality of education	Prioritize differently
Quality of education	Targeting

Quality of education	Stronger primary and secondary education
Quality of education	Academic freedom
Quality of governance	Bottom-up approach based on transparency
Quality of governance	Allocating sufficient budget
Quality of governance	Widening the scope of AKIS policy for post-2020
Quality of governance	Need based institutional support
Quality of governance	Balancing national, regional and local policies
Quality of governance	Improving requirements for hiring experts in public administration
Quality of governance	Transparency
Quality of policies / policies linking to reality	Motivate students to participate in out-of-faculty activities
Quality of policies / policies linking to reality	Couple food with health policy
Quality of policies / policies linking to reality	Policies need to be simplified
Quality of policies / policies linking to reality	Measuring the outcomes
Quality of policies / policies linking to reality	Policies linked to practical aspects
Quality of policies / policies linking to reality	More action-oriented policies
Quality of policies / policies linking to reality	National level policies to be revised to suit challenging needs
Skills	Training trainers to be good facilitators
Skills	Enlarge experts' composition
Skills	Knowledge of foreign languages
Skills	Send university professors back to school
Skills	More relation between supply and demand of professionals
Skills	Quality control when access to university
Social inclusion	Social inclusion
Social inclusion	Access to individuals
Stakeholder engagement	Farmers' participation in daily discourse in agriculture classes.
Stakeholder engagement	Participation of stakeholders in policy design
Stakeholder engagement	Strengthening the position of stakeholders in trade agreements
Stakeholder engagement	More awareness from grassroots level
Stakeholder engagement	Promoting students' participation in policymaking
Stakeholder engagement	Discuss policies with different sectors, starting from farmers, academic and entrepreneurs
Stakeholder engagement	Improve participation of stakeholders
Stakeholder engagement	Policymakers should listen to farmers
Sustainability	Focus should be given to integration of environment and agriculture
Sustainability	Promote environmental resilience instead of considering market forces for policy design
Sustainability	Increasing knowledge related to changes due to climate change
Sustainability	More attention to economic sustainability
Sustainability	Increasing social and environmental aspects of sustainability

Question 29. Any additional open remark/opinion about policies in this field?

Table 73: Additional Comments (University Level)

Additional Comments
Forest extension must be promoted like crop extension
Different universities should have different missions (entrepreneurship, research, trainer, practitioners). Otherwise all students cannot have all these skills together
We are educating what the sector wants now, but we need to also think about skill needs for the future.
Decentralisation
Inclusive policies encouraging agricultural policies are needed
Unclear if Young professionals are currently "non-students" at university level
The universities are free to decide ad form their own educations
We should have compulsory training for developing practical skills for the green sector
The knowledge and awareness level of the population at large is very low
There is not enough think-tanks present for knowledge and awareness raising
Focus should be on missing areas

Adult learning, vocational education and training policies

Question 41. Which are the main missing elements in the current policy framework by referring to the topics listed in the previous question?

Table 74: Adult, Vocational Education and Training Policies - Missing Elements in Current Policy (Compact version – including number of repetitions and percentage, as well as country information)

General Category	Frequency	%	Country
Learning approaches	5	13,2%	Sweden (2), India, Italy
Networking	5	13,2%	Egypt, Greece (2), Bulgaria, UK
Sustainability	5	13,2%	India, Greece, Czech Republic, Italy
Stakeholder engagement	4	10,5%	Egypt (2), India
Entrepreneurship / Innovation	3	7,9%	Sweden, India, Czech Republic
Financial support	3	7,9%	Iraq, USA, Sweden
Interdisciplinarity	3	7,9%	Sweden, Romania, India
Social inclusion	3	7,9%	India, USA
Internationalisation / Mobility	2	5,3%	Greece, Iraq
Quality of education	2	5,3%	Italy
Quality of governance	2	5,3%	Argentina (2)
No missing element	1	2,6%	Denmark
TOTAL	38		

Table: Adult learning, vocational education and training Policies - Missing Elements in Current Policy (Detailed Version – including all answers in a revised form)

General Category	Responses	Country
Entrepreneurship / Innovation	Innovation	Sweden
Entrepreneurship / Innovation	Practice orientation innovation	India
Entrepreneurship / Innovation	Willingness to cooperate in entrepreneurship	Czech Republic
Financial support	Increase funds for researchers	Iraq
Financial support	Cost for development and implementation	USA
Financial support	Funding is missing to promote networking	Sweden
Interdisciplinarity	Interdisciplinarity	Sweden
Interdisciplinarity	Lack of interdisciplinary content	Romania
Interdisciplinarity	Interdisciplinarity	India
Internationalisation / Mobility	Internationalisation	Greece
Internationalisation / Mobility	Increase mobility strategy	Iraq
Learning approaches	Lack of basic training	Sweden
Learning approaches	Student-centred learning	India
Learning approaches	The rationale power over traditional problem solving	Italy
Learning approaches	Life-long learning	Sweden
Learning approaches	Practice opportunities	
Networking	No coordination between farmers and academic centers	Egypt
Networking	Networking	Greece
Networking	Linkages of academia and business	Greece
Networking	Networking between academia and business	Bulgaria
Networking	Lack of linkage between academia and stakeholders	UK
No missing element	No missing element	Denmark
Quality of education	Lack of training opportunities	Italy
Quality of education	Lack of skillful training which is suitable for the job market	
Quality of governance	People are dependent on the desires of the party in government	Argentina
Quality of governance	The addressing of policies is incorrect	Argentina
Social inclusion	Social inclusion	
Social inclusion	Inclusiveness	India
Social inclusion	Access to training for those who need it the most	USA
Stakeholder engagement	Participation of stakeholders	
Stakeholder engagement	Lack of farmers' trade-unions	Egypt
Stakeholder engagement	Livelihood of farmers is not a focus of attention by policymakers	India
Stakeholder engagement	Freedom of civil society organisations	Egypt
Sustainability	Environmental sustainability	
Sustainability	Economic and social sustainability	India
Sustainability	Taking into account next generations and climate change	Greece
Sustainability	Preference of momentary profit before sustainability of agroecosystem	Czech Republic
Sustainability	Environmental and social sustainability	Italy

Question 42. What would you suggest to improve?

Table 75: Adult learning, vocational education and training Policies – Suggestions for improvement (Compact version – including number of repetitions and percentage, as well as country information)

General Category	Frequency	%	Country
Learning approaches	7	28,0%	India (4), Greece, Italy
Networking	4	16,0%	Germany, Greece (2), France
More learning opportunities	3	12,0%	Spain, Italy, UK
Educational curricula	2	8,0%	
Financial support	2	8,0%	Greece, USA
Sustainability	2	8,0%	France, Czech Republic
Interdisciplinarity	1	4,0%	Romania
Internationalisation / Mobility	1	4,0%	Germany
Motivation	1	4,0%	Greece
Quality of governance	1	4,0%	Argentina
Skills	1	4,0%	India
Stakeholder engagement	1	4,0%	
TOTAL	26		

Table 76: Adult learning, vocational education and training Policies – Suggestions for Improvement (Detailed Version – including all answers in a revised form)

General Category	Collected answers (revised)	Country
Educational curricula	Prepare curriculum according to the needs of the labour market	
Educational curricula	New curriculum	
Financial support	Funding for programmes	Greece
Financial support	A broader funding program across all commodities	USA
Financial support	Pay the entrepreneurs when they are working/networking with students	Sweden
Interdisciplinarity	Interdisciplinary courses	Romania
Internationalisation / Mobility	Special programmes for exchange	Germany
Learning approaches	Student-centred learning	
Learning approaches	Student-led processes	India
Learning approaches	Action oriented learning	India
Learning approaches	Design measures to support learning at work	Greece
Learning approaches	Learning by doing	Italy
Learning approaches	Action oriented	India
Learning approaches	More real-life and needs-based	India
More learning opportunities	More participation	Spain
More learning opportunities	Education is provided	Italy
More learning opportunities	SMEs should access training and innovation without harming their day-to-day activities	UK
Motivation	Academic encouragement	Greece
Networking	More international networking	Germany
Networking	Professionals collaborating with students and young entrepreneurs	Greece
Networking	Cooperation	Greece
Networking	Learn to cooperate locally	France
Quality of governance	Educational programmes must depend on consensus decision	Argentina
Skills	Developing a trainers pool	India
Stakeholder engagement	Wider stakeholder participation is needed	
Sustainability	Help to understand the imperative to engage in ecological transition	France
Sustainability	Balance in aspects of sustainability	Czech Republic

Question 43. Any additional open remark/opinion about policies in this field?

Table 77: Additional Comments (Adult Learning and Vocational)

Additional Comments	Country
Need to introduce forest lab and extension Training centers at farm level	
Learning by doing is the missing element starting from undergraduate level	Iraq
Better education	Czech Republic
Interdisciplinarity	Czech Republic
Holistic thinking and action	Czech Republic
Enlarging the audience	Italy
Consistent policy enforcement across all commodities	USA
Too complicated and difficult to change education path because of prerequisite courses. If some of these courses would be open to everyone, the needs of the sector would be better addressed	Sweden
It must be easier for municipalities to arrange vocational training within forestry.	Sweden
More funding must be provided by the government.	Sweden
Education for machine operators in the forestry sector is expensive to arrange.	Sweden

Training measures in agriculture/food/forestry policies

Question 55. Which are the main missing elements in the current policy framework by referring to the topics listed in the previous question?

Table 78: Training measures in agriculture/food/forestry policies - Missing Elements in Current Policy (Compact version – including number of repetitions and percentage, as well as country information)

General Category	Frequency	%	Country
Learning approaches	5	14,3%	Ethiopia (2), Greece, Romania, India
Quality of policies / policies linking to reality	4	11,4%	India (2), Spain
Interdisciplinarity	3	8,6%	India, Romania, Bulgaria
Networking	3	8,6%	Greece, Romania
No missing element	3	8,6%	Sweden, USA
Quality of policies / policies linking to reality	2	5,7%	USA (2)
Internationalisation / Mobility	2	5,7%	Germany, Romania
More learning opportunities	2	5,7%	Ethiopia, India
Quality of governance	2	5,7%	India (2)
Social inclusion	2	5,7%	Spain, India
Sustainability	2	5,7%	Italy (2)
Entrepreneurship / Innovation	1	2,9%	Italy
Financial support	1	2,9%	Sweden
Motivation	1	2,9%	Czech Republic
Quality of education	1	2,9%	South Africa
Stakeholder engagement	1	2,9%	
TOTAL	35		

Table 79: Training measures in agriculture/food/forestry policies - Missing Elements in Current Policy (Detailed Version – including all answers in a revised form)

General Category	Collected answers (revised)	Country
Quality of policies / policies linking to reality	Conflicting policies across food production and processes	USA
Quality of policies / policies linking to reality	Conflicting messages by regulators	USA
Entrepreneurship / Innovation	Innovation	Italy
Financial support	Not enough resources for innovation	Sweden
Interdisciplinarity	Lack of interdisciplinarity	India
Interdisciplinarity	Interdisciplinarity	Romania
Interdisciplinarity	Interdisciplinary topics	Bulgaria
Internationalisation / Mobility	Internationalisation	Germany
Internationalisation / Mobility	Mobility	Romania
Learning approaches	Reflection in the training programmes	Ethiopia
Learning approaches	Life-long learning	Ethiopia
Learning approaches	Business oriented programmes	Greece
Learning approaches	Student-centred learning	Romania
Learning approaches	Student centric learning	India
More learning opportunities	Language of the training	Ethiopia
More learning opportunities	More learning opportunities	India
Motivation	Motivation for greater activity in gaining experience	Czech Republic
Networking	Networking between academia and stakeholders	
Networking	Networking	Greece
Networking	Networking	Romania
No missing element	No main missing element	
No missing element	No missing element	Sweden
No missing element	All elements are quite strong	USA
Quality of education	Comprehensive and structured training actions	South Africa
Quality of governance	Institutional support	India
Quality of governance	Lack of attention from policymakers	India
Quality of policies / policies linking to reality	Include more professionals	Spain
Quality of policies / policies linking to reality	Practical policies	India
Quality of policies / policies linking to reality	Continuity of policies	India
Quality of policies / policies linking to reality	Policies are formulated without consideration of the real issue	
Social inclusion	Gender issues	Spain
Social inclusion	Lack of social inclusiveness	India
Stakeholder engagement	EIP AGRI operational groups should be involved with educational issues	
Sustainability	Economic sustainability	Italy
Sustainability	Environmental and social sustainability	Italy

Question 56. What would you suggest to improve?

Table 80: Training measures in agriculture/food/forestry policies – Suggestions for improvement (Compact version – including number of repetitions and percentage, as well as country information)

General Category	Frequency	%	Country
Learning approaches	7	20,0%	Czech Republic (2), Italy (3), Czech Republic, Ethiopia
Stakeholder engagement	5	14,3%	India, Spain
Networking	4	11,4%	Greece (2), Romania
Quality of education	3	8,6%	India (2), Czech Republic
Quality of policies	3	8,6%	India, South Africa, Poland
Quality of governance	3	8,6%	India (2), India, US
Financial support	2	5,7%	Sweden, Italy
Interdisciplinarity	2	5,7%	Bulgaria, India
Internationalisation / Mobility	1	2,9%	Germany
Availability of information	1	2,9%	Italy
Marketing	1	2,9%	India
Awareness	1	2,9%	India
More learning opportunities	1	2,9%	USA
Social inclusion	1	2,9%	India
TOTAL	35		

Table 81: Training measures in agriculture/food/forestry policies – Suggestions for Improvement (Detailed Version – including all answers in a revised form)

General Category	Collected responses	Country
Availability of information	Improve economic information	Italy
Financial support	More money	Sweden
Financial support	Financial support	Italy
Quality of governance	Unified regulatory body	USA
Interdisciplinarity	Connection between different topics	Bulgaria
Interdisciplinarity	Interdisciplinarity	India
Internationalisation / Mobility	More international exchange programmes	Germany
Learning approaches	Participatory learning	Czech Republic
Learning approaches	Team work	Czech Republic
Learning approaches	Including more learning by doing	Italy
Learning approaches	Education approach	Italy
Learning approaches	Action-oriented learning, reflection and visioning	Ethiopia
Learning approaches	Better contact with practice	Czech Republic
Learning approaches	Relevance to the contemporary requests	Italy
Marketing	Introduction of efficient marketing strategies	India
Awareness	More awareness	India
More learning opportunities	Better publicly available extension courses to target audiences	USA
Networking	Networking between academia and stakeholders	
Networking	New learning actions to improve cooperation	Greece
Networking	Linkages with academia and entrepreneurs	Greece
Networking	More networking opportunities	Romania
Quality of education	Far sighted programmes	India
Quality of education	Education from primary level	India
Quality of education	Cyclical education	Czech Republic
Quality of policies	Timely interventions	India
Quality of policies	Strengthening provincial and national actions into structured programmes	South Africa
Quality of policies	Uniform policy across food	Poland
Social inclusion	Inclusive policies	India
Stakeholder engagement	More involvement in young farmers associations	Germany
Stakeholder engagement	Holding special sessions of state assemblies	India
Stakeholder engagement	The policy-making body should include stakeholders' representatives	
Stakeholder engagement	Include more professionals	Spain
Stakeholder engagement	EIP AGRI operational groups should be more involved with educational issues	
Quality of governance	Timely execution of policies	India
Quality of governance	Monitoring of policies	India

Q57. Any additional open remark/opinion about policies in this field?

Table 82: Additional Comments (Training Measures in Agriculture, food and forestry policies)

Additional comments	Country
Necessary to have training center at farm level	
Trainings should also equip trainers with communication skills, reflections skills, visioning	Ethiopia
More inclusive policy framework	India
Enhance inclusive learning	India
These type of education is not as regulated as the other types	Sweden
It works fine with the present budget and approach at the moment	Sweden
Projects and policies to support innovation transferring	Greece
Increasing interdisciplinarity	Italy
This kind of shorter educations/training measure is usually paid for by the employer. It is a good and cost-efficient way of developing the skills of the employee.	Sweden