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The FarmForward Project: Sustainable and Transformative Strategies for Climate-Resilient Agriculture in VET

WP2

Needs Analysis National Report

Poland

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The FarmForward Project: Sustainable and Transformative Strategies for Climate-Resilient Farming in VET

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Preliminary Remarks

This report presents the key outcomes of Work Package 2 – Needs Assessment and Capacity Building in Climate Resilient Farming, collected in Poland. The objective was to conduct a comprehensive analysis of the needs and capacity gaps in climate-resilient farming.

The main deliverable of this work package will be the Needs Analysis Report, which maps the specific challenges and requirements faced by farmers in each project country. By identifying these issues, the report will aim to support the transition towards more climate-resilient agricultural practices. The insights gathered from this assessment will serve as the foundation for the FarmForward project, directly informing the development of training materials, tools, and educational activities to be implemented throughout the project lifecycle.

Educators – Survey Analysis

Introduction

This report analyzes responses from educators in agricultural training to assess the integration of climate resilience and sustainable practices in their programs. The data highlights educator profiles, current practices, challenges, and future needs to address the climate crisis in agriculture.

Respondent Profile

Respondents were all from Poland, primarily identify as teachers (40%), consultants

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(8%), trainers (3%), and other roles (49%), such as researchers or extension workers.

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This diversity reflects varied perspectives, with teachers dominating university-based education.

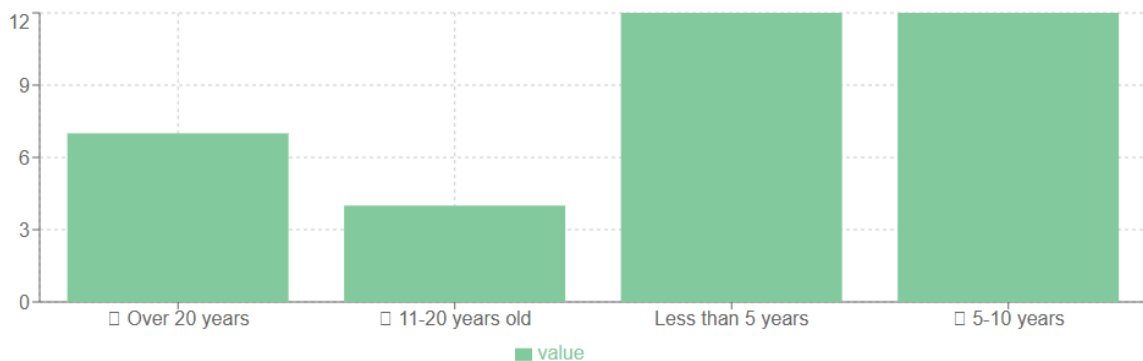
The dataset includes 37 respondents, primarily teachers, consultants, and other roles in agricultural education. Most work at universities, with varying years of experience.

Professional Roles



Experience levels vary: 24% have over 20 years, 16% have 11-20 years, 24% have 5-10 years, and 35% have less than 5 years. This mix suggests a blend of seasoned and newer educators, with newer educators potentially more open to innovative teaching methods.

Years of Experience



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Most respondents (68%) work at universities, 3% at independent training organizations, and 29% at other institutions (e.g., NGOs or extension services). University dominance indicates a focus on for

Common formats include on-site classes (76%), online courses (62%), field demonstrations (41%), and blended learning (59%). The preference for in-person and blended formats underscores the value of hands-on and flexible learning approaches.

mal education, but other institutions highlight community-based training.

Climate Education in Current Practice

Only 24% of respondents have received training in climate crisis adaptation/mitigation, indicating a gap in professional development. Confidence in teaching climate-related topics is moderate, with 43% rating their confidence 4 or 5 on a 5-point scale.

38% of respondents rate their programs as effectively incorporating sustainable practices and climate resilience (rating 4 or 5). Key topics include soil health, water management, and agroforestry, but gaps exist in integrating renewable energy and smart technologies.

43% of educators feel confident (rating 4 or 5) teaching about the climate crisis, but 24% rate their confidence low (1 or 2). This correlates with only 24% having received climate-specific training, highlighting a need for professional development.

Only 30% of respondents report adequate institutional support for climate-related professional development (rating 4 or 5). Limited funding and resources hinder capacity-building, particularly for non-university educators.

Use of Tools and Innovation

Only 35% frequently use digital platforms (e.g., satellite data, precision agriculture tools) to teach climate impacts (rating 4 or 5). Barriers include lack of access and

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training, despite high interest in smart technology.

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46% of educators consider on-farm demonstrations critical (rating 4 or 5), yet access to demonstration farms is limited, with 70% requesting such resources. This gap restricts hands-on learning opportunities.

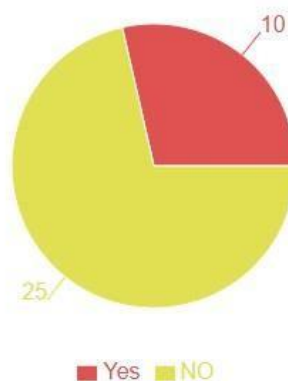
38% regularly collaborate with farmers and industry stakeholders (rating 4 or 5), but many report limited engagement due to time constraints and lack of networks. Stronger partnerships could enhance practical relevance.

Learner Engagement and Policy Support

51% report high student interest in sustainable agriculture and climate resilience (rating 4 or 5). This enthusiasm suggests potential for deeper engagement if resources and curricula are enhanced.

Only 27% believe government policies adequately support integrating climate topics into education (rating 4 or 5). Awareness of policy incentives is moderate (41% rating 4 or 5), indicating a need for better policy communication.

Climate Training Received



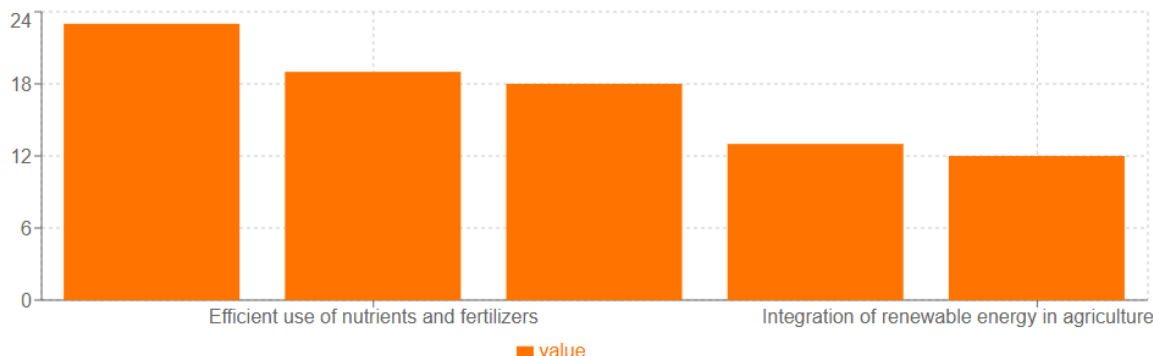
Priority Areas for Improvement

Educators prioritize drought-tolerant crop varieties (59%), precision farming technology (54%), and nature-based solutions (46%) for further training. These align with urgent needs for water management and soil health.

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Top Priority Topics



Top requested resources include funding for training materials (76%), access to demonstration farms (46%), and updated digital tools (41%). These resources are critical for practical and innovative

Challenges and Barriers

Educators face challenges like insufficient funding, lack of quality materials, and limited time. Changing regulations and lack of awareness also hinder effective teaching, particularly for newer educators.

Financial constraints (cited by 30%) and traditional mindsets (27%) are the biggest barriers to farmers adopting climate-resilient techniques. Training programs addressing economic viability could bridge this gap.

60% of respondents highlight water deficits as a major future concern, followed by pest pressure (24%) and lack of effective chemical protection (22%). Emerging challenges include rapid technological advancements and climate-driven crop changes.

Key challenges include lack of funding, limited access to quality materials, and farmers' resistance to change due to financial constraints and traditional mindsets. An interesting insight: 60% of respondents noted water management as a critical future

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concern, reflecting regional drought pressures.

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Recommendations and Insights

Key themes include the urgent need for water management, the adoption of drought-resistant crops, and the integration of smart technologies. Financial and knowledge barriers must be addressed to enhance resilience.

To effectively enhance climate resilience in agriculture, several key recommendations have emerged. Increasing funding for training materials and demonstration farms is essential to support hands-on learning and the development of practical skills among farmers. Additionally, the creation of accessible digital tools and platforms can play a significant role in illustrating the impacts of climate change and promoting effective, evidence-based solutions. Strengthening partnerships with farmers and relevant stakeholders is also crucial to ensure that training activities are aligned with real-world needs and adapted to local conditions. Furthermore, prioritizing training on water management, drought-resistant crops, and regenerative agricultural practices will significantly contribute to building resilience in farming systems. Lastly, advocating for clearer policy incentives will support the advancement of climate-smart agriculture education and encourage the broader adoption of sustainable farming practices.

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Learners – Survey Analysis

Introduction

This report provides an analysis of the responses collected from learners who participated in the survey. The purpose of this analysis is to gain a deeper understanding of the learners' educational background, awareness of climate issues in agriculture, engagement with climate-related content, and future career goals. The insights obtained from this analysis will support the development of effective training strategies and educational materials focused on sustainable and climate-resilient agriculture.

Respondent Profile

A total of 35 respondents from Poland completed the survey. All of them are currently enrolled in agricultural education or training programs, with the majority studying at the university level. The respondents represent a diverse group of learners with various interests and levels of experience in agriculture.

All respondents identified as university-level students. Their primary areas of study include agribusiness, crop production, livestock breeding, mixed farming systems, and sustainable agriculture. Some students indicated interdisciplinary interests, such as combining agribusiness with practical farming applications.

The majority of respondents—more than 80%—stated that they intend to work in the agricultural sector after completing their studies. A smaller number were unsure about their future career plans, indicating a need for greater career guidance and exposure to climate-related job opportunities in agriculture.

The students, primarily studying mixed farming, crop production, livestock breeding, and agribusiness, show a strong awareness of climate threats and a keen interest in learning climate-resilient farming techniques. However, many feel their education

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lacks sufficient practical examples and preparation for addressing climate challenges. Key areas of focus include water management, resilient crop varieties, and precision

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farming technologies. A notable finding is that 77% of respondents prefer practical workshops or field visits, highlighting a demand for hands-on learning.

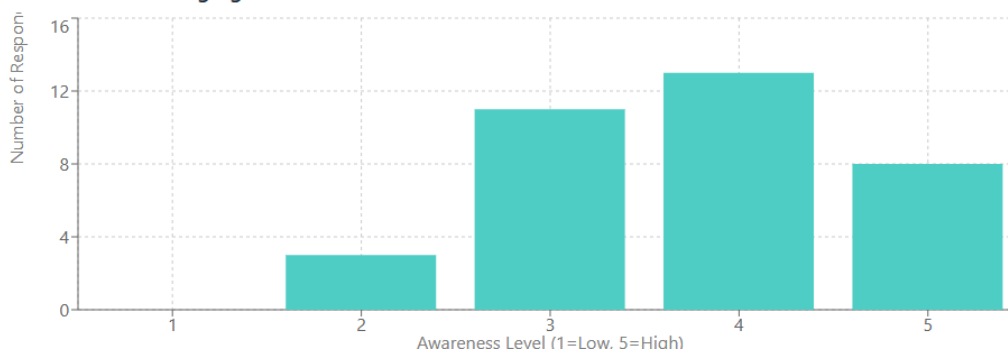
Current Training on Climate Topics

While climate-related topics are present in the current curriculum, most respondents felt that their training only partially covers the challenges and strategies related to the climate crisis in agriculture. Although sustainable practices and adaptive farming methods are occasionally discussed, learners expressed a desire for more in-depth and applied content.

Learners reported a moderate to high level of awareness of emerging climate threats. Most rated their awareness between 3 and 5 on a 5-point scale. They demonstrated understanding of issues such as extreme weather events, increased pest and disease outbreaks, and changing seasonal patterns, all of which are likely to affect future agricultural productivity.

Most students (94%) are aware of the climate crisis’s impact on agriculture, with 83% rating their awareness of emerging threats like extreme weather and new pests/diseases as moderate to high. There is strong interest in climate-resilient farming techniques, with 80% expressing a desire to learn more, including 46% rating this highly (4–5). However, only 66% feel their classes emphasize sustainable and adaptive methods adequately, and just 23% rate this highly, indicating a need for greater focus.

Awareness of Emerging Climate Threats



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The quality of climate-related education was seen as adequate, but not exceptional. Learners acknowledged that their trainers were generally prepared; however, there was a notable lack of practical case studies and hands-on examples of how agriculture can adapt to the climate crisis. 71% believe teachers are moderately prepared to teach climate topics, but only 34% rate this highly, suggesting gaps in instructor readiness. Students note a lack of real-world examples of climate adaptation, with only 60% rating this moderately to highly and 26% giving high marks. Confidence in addressing climate challenges is also moderate, with 66% rating it 3–5 but only 29% feeling highly prepared.

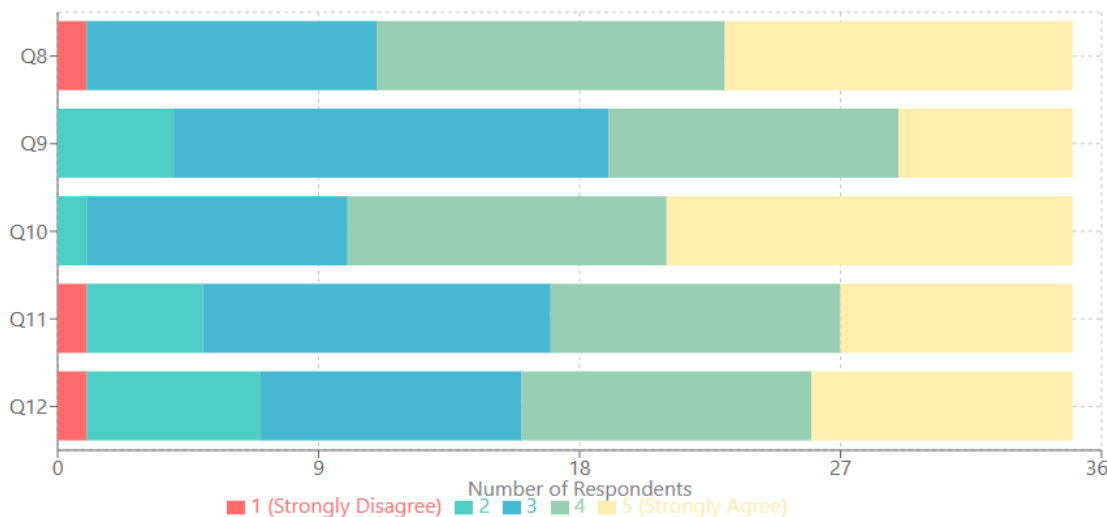
Respondents indicated that while they had some foundational knowledge, they did not feel fully prepared to address climate-related agricultural challenges. They highlighted a gap between theoretical instruction and practical, real-world application, emphasizing the need for more experiential learning opportunities.

Students call for more practical training in areas like precision farming (63%), climate adaptation strategies (57%), and regenerative agriculture (37%), citing barriers such as limited time, financial resources, and access to current knowledge. They prefer practical workshops or field visits (77%), followed by online modules (46%) and traditional lectures (40%), and suggest more hands-on classes and real-world case studies. Overall, while students are engaged and aware, training programs need more practical, actionable content to better prepare them for sustainable farming careers.

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Perceptions of Climate-Resilient Education



Interest and Engagement

Interest in climate-smart agriculture is very high among respondents. Most learners expressed a strong willingness to deepen their knowledge of climate-resilient farming techniques and to actively engage in learning opportunities beyond their formal education.

Learners are highly motivated by their desire to become part of the solution to climate change in agriculture. Their motivation stems from concerns about the environmental future, a strong interest in sustainable practices, and a curiosity about innovative technologies and farming methods.

An overwhelming majority—over 85%—expressed a willingness to participate in additional training programs focused on climate resilience in agriculture. Only a few respondents expressed low or uncertain interest, which may stem from time constraints or other commitments.

Most respondents believe their instructors are well-prepared to teach climate-related topics, although a few noted gaps in knowledge or the use of outdated content. Learners suggested that instructors should continue to receive updated training to

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remain informed about the latest climate-smart innovations.

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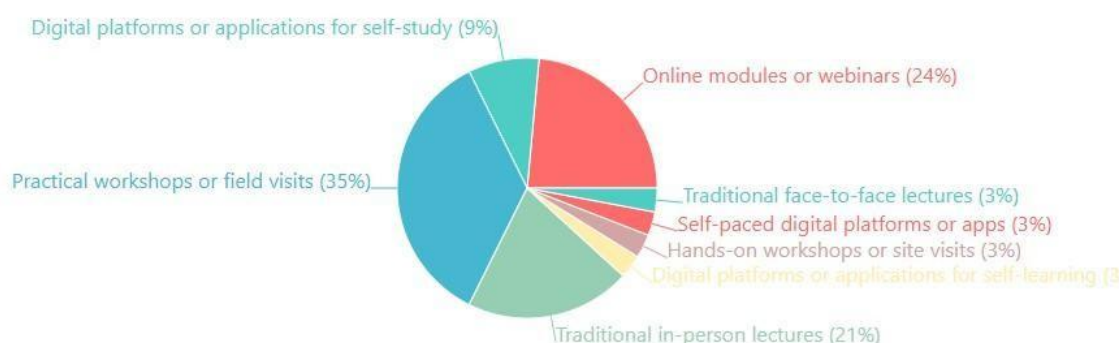


Learning Preferences and Needs

Learners showed a clear preference for hands-on and flexible learning approaches. Practical workshops, field visits, and blended learning that combines theory with real-life examples were particularly valued. Additionally, learners appreciate digital flexibility, such as online modules and interactive platforms.

The most favored learning formats include practical workshops, field visits, and online learning modules. Learners also indicated interest in webinars and interactive platforms. Traditional classroom-based instruction was rated lower in terms of effectiveness for climate-related training.

Preferred Teaching Formats



Respondents expressed a strong desire for more in-depth training in climate adaptation strategies, precision farming technologies, soil and water conservation, and the integration of renewable energy in agriculture. These areas are seen as crucial to future professional success in the sector.

Knowledge Gaps and Challenges

Learners identified several knowledge gaps, including a lack of exposure to advanced digital tools, difficulty in applying theoretical concepts to real scenarios, and a limited understanding of project planning and monitoring in a climate-smart context.

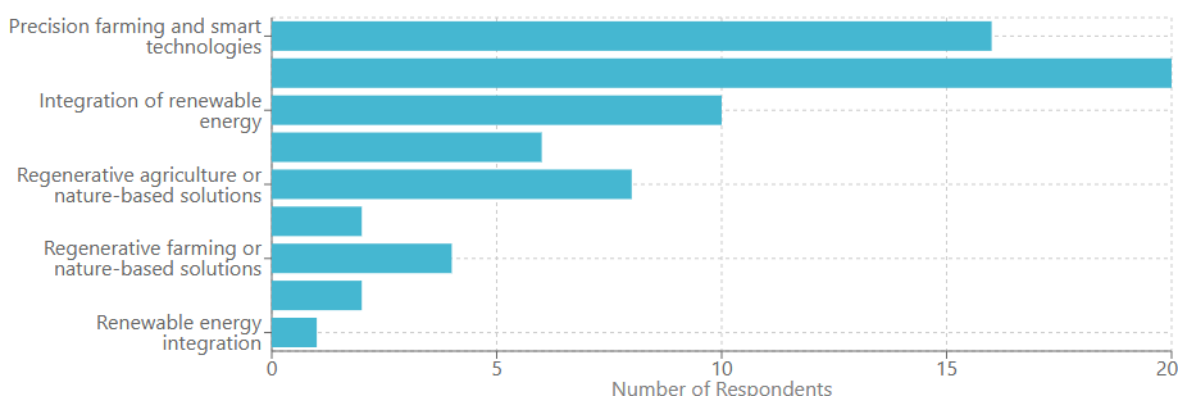
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The most commonly cited missing skills were digital and technical competencies, such as working with sensors, remote sensing, and GIS tools. Other missing areas include water management, farm business planning, and climate policy awareness.

Respondents highlighted several obstacles to the adoption of climate-smart farming practices. These include limited public awareness, resistance to change among older generations, time and funding constraints, and confusion stemming from complex or rapidly changing policy environments.

Desired Training Areas



Future Vision

When asked about their long-term aspirations, learners saw themselves involved in sustainable farming, conducting research, or advocating for regenerative practices. While many have a clear vision of their future in climate-smart agriculture, some expressed uncertainty due to external challenges and lack of institutional support.

The overall career outlook among learners is optimistic. Most respondents see climate-smart agriculture as an essential part of their future work. However, they also emphasized the importance of supportive policy frameworks, access to funding, and lifelong learning opportunities to make these careers viable.

Suggestions for Education Improvement

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Learners suggested that educational programs should include more case studies, access to digital tools, and stronger links with real-world farming practices. There was

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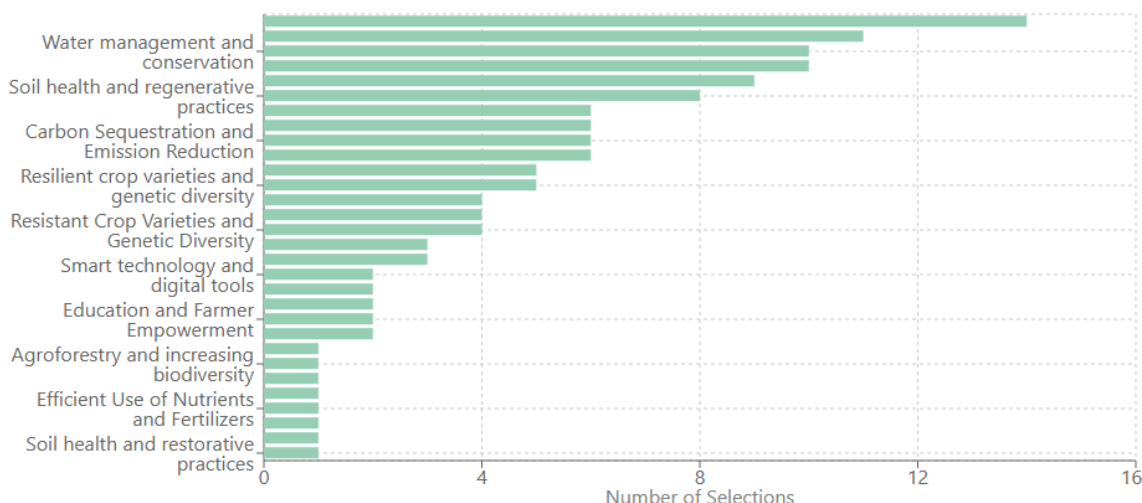
also a call for less theoretical and more action-based content that reflects the realities of climate adaptation on farms.

Key recommendations from learners include increasing the availability of practical internships, improving access to training in climate-friendly farming technologies, and fostering peer-to-peer learning and community engagement initiatives.

Recommendations

Based on the survey results, it is recommended that institutions develop modular, learner-centered courses that focus on digital agriculture, sustainable practices, and climate adaptation. Training programs should also invest in instructor development and foster stronger collaborations between education providers and agricultural businesses.

Top Climate-Resilient Aspects



This analysis reveals that learners are highly motivated and aware of climate-related agricultural challenges. However, there is a disconnect between theoretical learning and real-world application. Improving trainer preparedness, offering more interactive and applied learning formats, and strengthening the digital and practical components of education will be key to equipping future agricultural professionals for climate

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resilience. The survey reveals a strong interest among university students in climate-resilient agriculture, with high awareness of climate threats and a desire for more

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practical, hands-on training. While students value learning about water management, resilient crop varieties, and precision farming, many feel their education lacks sufficient real-world examples and practical applications. Institutions should prioritize integrating field visits, workshops, and digital tools into curricula to better prepare students for sustainable farming careers. Addressing barriers like time, cost, and access to knowledge will be critical to enhancing climate-resilient agricultural education.

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Stakeholders – Survey Analysis

Introduction

This report analyzes responses from the Stakeholder Questionnaire, focusing on the impact of the climate crisis on agriculture and the strategies stakeholders employ to enhance resilience. The survey captures insights from various organizations, including farmers' associations, cooperatives, research facilities, NGOs, and government institutions, to identify key challenges, successful practices, and future opportunities.

Respondent Profile

The survey includes responses from farmers' associations (29%), cooperatives (21%), research facilities (24%), NGOs (12%), government institutions (9%), and other organizations (6%).

Organizations have varied experience levels: 26% have less than 5 years, 29% have 5-10 years, 18% have 11-20 years, and 26% have over 20 years in the field.

Perception of Climate Impacts

Most respondents (76%) agree or strongly agree that the climate crisis significantly affects agricultural productivity (average score: 3.1/5). Additionally, 82% report being well-informed about climate impacts, and 71% actively support adaptation strategies.

Support Mechanisms and Collaboration

Only 59% of respondents believe they have sufficient resources for resilience, and just 53% find government policies adequate. However, 94% emphasize the importance of collaboration between farmers, researchers, policymakers, and civil society.

Current Activities and Advocacy

65% of organizations promote innovative agricultural techniques, and 59% use digital tools like remote sensing and early warning systems to adapt to climate change.

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Priority Areas and Capacity Building Needs

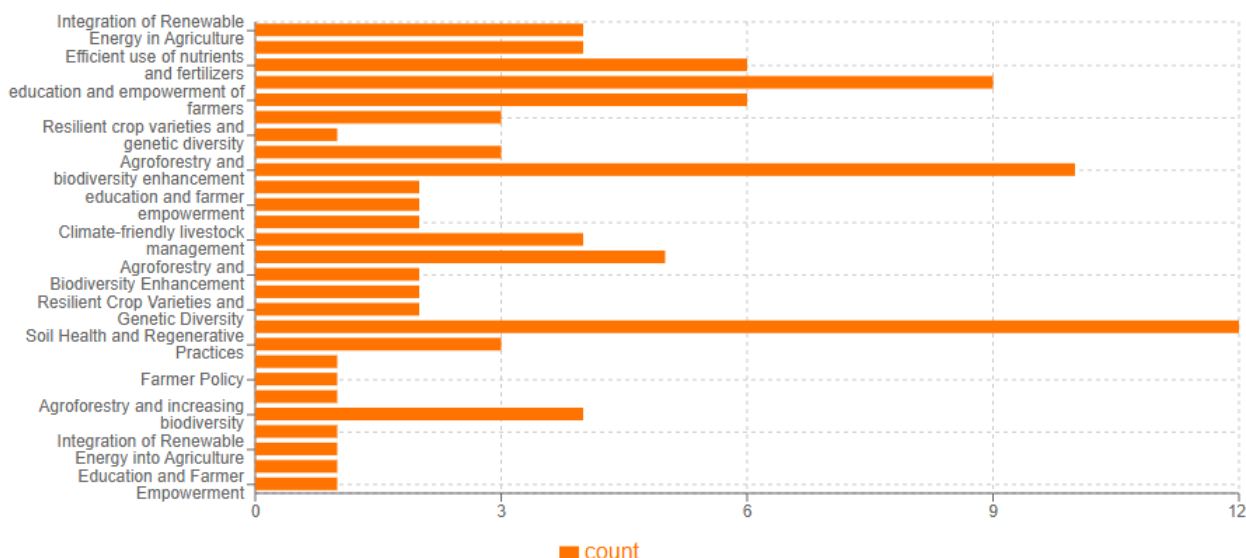
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Key priorities include agroforestry and biodiversity enhancement (26%), carbon sequestration (24%), and policy/education (21%). An interesting finding: agroforestry is frequently cited, reflecting a growing interest in nature-based solutions.

Priority Areas and Capacity Building Needs

Priority Areas



Challenges and Best Practices

Major challenges include lack of funding (41%), limited farmer knowledge (18%), and infrastructure issues (12%). Successful practices include drought-resistant crop varieties, agroecology, and sustainable water management.

Future Risks & Opportunities

Respondents foresee increased droughts, floods, and soil degradation as major risks. Opportunities include adopting innovative technologies and agroecology to enhance resilience.

Recommendations

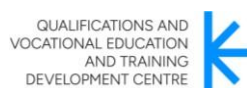
To effectively support climate-resilient agriculture, increased funding and subsidies

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should be prioritized to enable the adoption of sustainable practices. Training programs should be enhanced, emphasizing agroecology and digital tools to equip

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stakeholders with essential skills. Collaboration can be strengthened through demonstration farms and robust policy frameworks to promote practical solutions and knowledge sharing. Additionally, the development of comprehensive guides and digital platforms will ensure accessible resources for advancing climate adaptation in farming communities.

Conclusions

This report summarizes the key findings from WP2 - Needs Assessment and Capacity Building in Climate Resilient Farming of the FarmForward project, focusing on a needs assessment and capacity-building for climate-resilient farming in Poland. Insights were drawn from surveys of educators, learners, and stakeholders in the agricultural sector. Educators reported moderate integration of climate topics in teaching, citing limited training, inadequate resources, and low institutional support. Learners demonstrated high awareness and motivation but called for more practical, hands-on learning and real-world applications. Stakeholders - such as NGOs, cooperatives, and government bodies - highlighted resource gaps, the need for improved collaboration, and a focus on nature-based and digital solutions like agroforestry and remote sensing. Across all groups, key priorities included water management, drought-resistant crops, precision farming, and stronger policy support. The report recommends investing in professional development, improving access to demonstration farms and digital tools, and fostering collaboration to build a more climate-resilient agricultural future.

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