



Smart Agriculture for Resource Efficiency

Training Activity in Poland

PROGRAMME: ERASMUS+

KEY ACTION: SMALL-SCALE PARTNERSHIPS IN VOCATIONAL EDUCATION AND
TRAINING (KA210-VET)

REFERENCE NO: 2024-2-PL01-KA210-VET-000289700

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SARE

Smart Agriculture
for Resource Efficiency



Project Information

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Reference No: 2024-2-PL01-KA210-VET-000289700

Project Title: Smart Agriculture for Resource Efficiency

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Contact Information

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General Information

Partner's Name: Fundacja Wektory Współpracy

Dates: 14.04.2026 – 17.04.2026

Place: Księcia Janusza I 32, 18-400 Łomża

Format: Blended model: in-person workshop sessions combined with guided at-home/self-study tasks using SARE DigiHub resources

Number of participants: 10 participants

Target group reached: Farmers, agricultural practitioners and one trainer/adviser linked to the agricultural sector

Training Activity Description

Background and Purpose of the Training

The National Training Activity in Poland was implemented as part of the SARE project – Smart Agriculture for Resource Efficiency. The training aimed to enhance farmers' and agricultural practitioners' digital and green skills, with a strong focus on practical use of smart agriculture, resource efficiency and sustainable farming practices. The activity also supported the project objective of modernising vocational education and training in agriculture by using updated training materials, digital tools and blended learning methods.

The training addressed current needs of the agricultural sector, including rapid technological development, climate-related challenges, rising input costs, water and energy efficiency, and the need to reduce environmental impact.

Participant Profile and Recruitment

The activity involved 10 participants from Poland. All participants belonged to the direct target group of the SARE project or were closely connected with it through agricultural advisory/training work. According to the evaluation survey, the participant group included:

Role	Number of participants	Share
Agricultural practitioner	5	50%
Farmer	4	40%
Trainer / agricultural adviser	1	10%

Participants were invited through local and professional contacts of Fundacja Wektory Współpracy, including contacts with farmers, agricultural practitioners and stakeholders from the local agricultural environment. The recruitment focused on participants who could benefit from practical knowledge on digital agriculture, sustainable farming, water and energy efficiency, and who could further apply or disseminate the learning outcomes in their own work.

Training Methodology and Learning Approach

The training was delivered through a blended model combining face-to-face sessions with guided individual work. The face-to-face component focused on explanations, examples, group discussion and practical reflection, while the at-home component encouraged participants to use the SARE DigiHub, review training materials and relate the content to their own farms or professional context. The methodology combined short theoretical inputs with practical examples and reflection tasks.

Participants were introduced to the SARE project and its results, including Activity 3 – SARE DigiHub and Activity 4 – SARE Training Material. The DigiHub was used as a central learning space providing access to training materials, PowerPoints, best practices, videos/resources and quizzes. The training materials covered Sustainable Farming, Resource Efficiency and Smart Agriculture.

Agenda for 4-Day Training Programme

The programme covered 32 hours in total, structured across four training days. Each day combined 6 hours of in-person learning with 2 hours of guided at-home/self-study work.

Date	Topic	Activities	Duration
Day 1 14.04.2026	SARE project introduction and foundations of sustainable farming	09:00–09:30 Registration, participant list and welcome 09:30–10:15 Introduction to SARE objectives, partners and expected results 10:15–11:30 Activity 3: SARE DigiHub – platform presentation and navigation 11:30–11:45 Coffee break 11:45–13:15 Sustainable farming: sustainability principles, farming challenges and EU context 13:15–14:00 Lunch break 14:00–15:30 Key sustainable practices: crop rotation, diversification and soil protection 15:30–16:00 Reflection: participants’ current practices and local needs At-home task: review the Sustainable Farming resources on SARE DigiHub and identify one practice applicable to own farm/work.	8 hours
Day 2 15.04.2026	Resource efficiency: water, soil, energy and nutrient management	09:00–09:15 Recap of Day 1 09:15–10:45 Resource efficiency in smart agriculture: producing more with less 10:45–11:00 Coffee break 11:00–12:30 Water cycle on the farm, water losses and irrigation planning 12:30–13:15 Lunch break 13:15–14:45 Soil health and water retention: cover crops, organic matter, reduced tillage 14:45–15:45 Energy efficiency and renewable energy options for farms 15:45–16:00 Daily reflection and questions At-home task: draft a simple water or energy-saving idea for own farm/work context.	8 hours
Day 3 16.04.2026	Smart Agriculture and digital tools for farm decision-making	09:00–09:15 Recap of Day 2 09:15–10:45 What is Smart Agriculture? Main principles and relevance for farmers 10:45–11:00 Coffee break 11:00–12:30 Digital technologies: IoT sensors, soil/weather data, AI, drones and data platforms 12:30–13:15 Lunch break 13:15–14:30 Practical examples: data-driven decisions, precision irrigation and renewable energy integration 14:30–15:30 Barriers and enablers: costs, digital skills, infrastructure and advisory support	8 hours

		15:30–16:00 DigiHub quizzes/resources and group reflection At-home task: complete selected DigiHub quiz/resources and identify one digital solution relevant to own work.	
Day 4 17.04.2026	Application, evaluation and follow-up	09:00–09:15 Recap of Day 3 09:15–10:45 Developing simple farm-level action plans for resource efficiency and sustainability 10:45–11:00 Coffee break 11:00–12:30 Integrated pest management, crop diversification and sustainable farm resilience 12:30–13:15 Lunch break 13:15–14:15 Group discussion: feasibility, costs and local implementation in Poland 14:15–15:00 Summary of key learning outcomes and future use of SARE DigiHub 15:00–15:30 Evaluation survey completion 15:30–16:00 Closing, Europass certificate information and next steps At-home task: final review of materials and preparation of individual follow-up actions.	8 hours

Description of the Training

At the beginning of the activity, participants were introduced to the SARE project, its Erasmus+ framework, partnership and main expected results. The facilitator explained that SARE aims to improve digital and green competencies in agriculture through open educational resources, practical training materials and the SARE DigiHub.

Activity 3: SARE DigiHub

Participants were shown the SARE DigiHub as the main digital access point for project resources. The platform was presented as a space where farmers, trainers and agricultural stakeholders can access expert information, best practices, interactive training materials, downloadable resources, PowerPoints, videos/resources and quizzes. Participants were encouraged to use the platform beyond the training for continuous learning.

Activity 4: SARE Training Materials

The training was also based on the SARE Activity 4 training materials. The Sustainable Farming module introduced practical sustainable farming principles, including crop rotation, crop diversification, conservation tillage, organic methods, efficient irrigation, integrated pest management, agroforestry and the link between farming practices, environmental protection and long-term economic viability.

The Resource Efficiency module focused on water, energy and nutrient efficiency in modern agriculture. Participants discussed where losses occur on farms, how water retention can be improved, how irrigation efficiency can be increased through drip systems and monitoring, and how farmers can develop simple water and energy-saving plans.

The Smart Agriculture module presented digital technologies and data-driven approaches, including IoT sensors, AI/data analytics, drones/satellite imaging, automation, data platforms, renewable energy integration and practical decision-making based on weather, soil and crop data. Particular attention was paid to the relevance of smart agriculture for Polish farms, including both opportunities and barriers such as cost, digital skills and rural connectivity.

Results and Learning Outcomes Achieved

The training achieved its planned output of reaching 10 participants from the Polish agricultural

sector and delivering a 32-hour programme. Based on the facilitator's observations and survey responses, the following learning outcomes were achieved:

- Participants increased their understanding of Smart Agriculture and its practical meaning for farm management.
- Participants learned how IoT sensors, AI, drones, data platforms, weather data and soil/crop information can support better decision-making.
- Participants strengthened their knowledge of resource efficiency, especially water and energy savings, irrigation efficiency and soil moisture monitoring.
- Participants improved their understanding of sustainable farming practices, including crop rotation, conservation tillage, integrated pest management and soil protection.
- Participants became familiar with the SARE DigiHub and declared that the resources are relevant for their work and can support continuous learning.
- Participants identified areas where SARE materials could be further improved, especially through more Polish case studies, more video explanations and more interactive tools.

Training Evaluation

At the end of the training, all 10 participants completed the evaluation survey. The results show a high level of satisfaction, positive learning outcomes and strong relevance of the training content.

Digital Skills Before and After Training

Digital skill level	Before training	After training
Very low (0–25%)	2 participants	0 participants
Basic (26–50%)	4 participants	2 participants
Intermediate (51–75%)	3 participants	5 participants
Advanced (76–100%)	1 participant	3 participants

The survey indicates a clear shift towards higher digital competence. Before the training, 6 out of 10 participants assessed their digital skills as very low or basic. After the training, no participant selected very low, and 8 out of 10 participants assessed their skills as intermediate or advanced.

Learning Outcomes and Thematic Results

The detailed item-level results for learning outcomes show that all participants assessed the training positively. No participant selected “Disagree” or “Strongly Disagree” for any learning outcome item. The strongest result was recorded for understanding the benefits of crop rotation and diversification, where all 10 participants selected “Strongly Agree”. Strong results were also recorded for understanding Smart Agriculture in practice and identifying a digital solution applicable to participants' own farm/work, with 7 participants selecting “Strongly Agree” and 3 selecting “Agree” for each item. The comparatively lower, but still positive, results appeared in the more technical areas: explaining IoT/AI/drones, using data for decision-making, and applying soil moisture monitoring methods, where some participants selected “Neutral”. This confirms that the training was effective, while future follow-up should include more practical demonstrations of sensors, monitoring tools and data-based decision-making.

Theme	Learning outcome	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Average
Smart Agriculture & Digital Tools	5. Understand what Smart Agriculture means in practice.	7	3	0	0	0	4.70/5
Smart Agriculture & Digital Tools	6. Explain how IoT sensors, AI, drones or data platforms can improve farm management.	3	5	2	0	0	4.10/5
Smart Agriculture & Digital Tools	7. Use data (weather, soil, crop data) for better decision-making.	3	5	2	0	0	4.10/5
Smart Agriculture & Digital Tools	8. Identify at least one digital solution applicable to my farm/work.	7	3	0	0	0	4.70/5
Resource Efficiency	9. Identify where water and energy losses occur on my farm.	6	4	0	0	0	4.60/5
Resource Efficiency	10. Improve irrigation efficiency (e.g., drip systems, monitoring).	2	8	0	0	0	4.20/5
Resource Efficiency	11. Apply soil moisture monitoring methods (low-tech or digital).	1	7	2	0	0	3.90/5
Resource Efficiency	12. Develop a simple water or energy-saving plan.	4	6	0	0	0	4.40/5
Sustainable Farming Practices	13. Understand benefits of crop rotation and diversification.	10	0	0	0	0	5.00/5
Sustainable Farming Practices	14. Apply conservation tillage or soil health practices.	2	8	0	0	0	4.20/5
Sustainable Farming Practices	15. Implement integrated pest management (IPM) principles.	2	7	1	0	0	4.10/5
Sustainable Farming Practices	16. Recognize how sustainable farming aligns with EU policies (Green Deal, CAP).	5	3	2	0	0	4.30/5

The item-level analysis confirms that the highest results were achieved for understanding crop rotation and diversification (average 5.00/5), awareness of climate-smart agriculture (4.90/5), trainer explanations and training structure (both 4.80/5), understanding resource efficiency (4.80/5), and motivation to adopt sustainable practices (4.80/5). The comparatively lower, but still positive, results concerned applying soil moisture monitoring methods and increasing digital competence (both 3.90/5). This indicates that participants benefited from the training, while more practical demonstrations of digital and monitoring tools would be useful in the future.

Overall Satisfaction and Recommendation

Indicator	Result
Very satisfied	6 (60%)
Satisfied	4 (40%)
Neutral / dissatisfied	0 (0%)
Would recommend: Yes	9 (90%)
Would recommend: Maybe	1 (10%)
Would recommend: No	0 (0%)

All participants were satisfied or very satisfied with the training. In addition, 9 out of 10 participants stated that they would recommend the training to others, while 1 participant answered “Maybe”. This confirms the relevance and practical value of the training format for the Polish agricultural context.

SARE DigiHub Evaluation and Feedback

The SARE DigiHub was evaluated positively. All participants agreed or strongly agreed that it is easy to navigate, that the resources are relevant for their work, that they plan to use DigiHub resources in the future, and that the DigiHub supports continuous learning beyond the training. Participants especially valued access to training materials in Polish, downloadable resources, visual explanations and practical examples related to water saving, smart farming and sustainability.

At the same time, participants suggested further improvements that could make the platform even more accessible and practical, especially for farmers with lower digital skills or less experience with online learning. These suggestions included: more Polish farm examples, more step-by-step videos, audio/video explanations, a clearer beginner-friendly interface, a keyword search/filter option, more interactive elements and a simple tool for estimating potential water savings.

Qualitative Feedback from Participants

Feedback area	Main points raised by participants
Most valuable aspects	Practical explanation of water-loss reduction; use of simple digital tools; linking weather/soil data to farm planning; soil protection and crop rotation; practical climate-smart agriculture and resource efficiency.
DigiHub strengths	Training materials in Polish; downloadable resources in one place; visuals and simple explanations; examples on water management, irrigation efficiency, smart farming and sustainability; possibility to return to materials after the training.
Suggested DigiHub improvements	More Polish case studies from small family farms; more step-by-step videos and audio/video explanations; bigger text and simpler menu; searchable database/keyword filter; more interactive elements, including a simple water-saving estimation tool.
Suggested training improvements	More time for questions and cost-related discussion; slower explanation of new digital topics; more nutrient management content; separation of some content into beginner/advanced levels; more concrete Polish examples.
Additional comments	Participants described the training as well suited to current needs in Polish agriculture, useful for advisers and practitioners, and encouraging for farm modernisation.

Evaluation Conclusions

The evaluation confirms that the SARE Training Activity in Poland achieved its learning objectives and was positively received by participants. The training increased awareness of climate-smart agriculture, improved understanding of resource efficiency, strengthened motivation to adopt sustainable practices and supported the development of digital competences.

The most important follow-up recommendations are:

- Continue using the SARE DigiHub as the main resource for post-training learning and access to project materials.
- Add more Polish case studies, especially from small and family farms, to increase local relevance.
- Prepare short step-by-step videos and audio/video explanations for participants who prefer less text-based learning.
- Include more practical examples on nutrient management, pest management and implementation costs.
- Consider beginner and advanced learning paths for digital agriculture topics, so participants with different starting skill levels can learn at an appropriate pace.

These recommendations should be considered in future use and dissemination of SARE results, as they would further improve accessibility, practical application and long-term impact of the training materials.

Conclusions

The National Training Activity in Poland was successfully completed between 14.04.2026 and 17.04.2026 in Łomża. The activity reached the planned number of 10 participants and delivered a 32-hour programme based on SARE Activities 3 and 4. The training directly supported the SARE project objectives by improving participants' digital and green skills, increasing awareness of climate-smart agriculture and promoting the use of open digital learning resources.

Evaluation results confirm that the training was relevant, well structured and useful for the Polish agricultural context. Participants particularly valued the practical approach, the focus on water and resource efficiency, the link between digital tools and real farm decisions, and the availability of DigiHub resources for future use.

The main follow-up recommendation is to continue strengthening the practical and localized dimension of the resources by adding more Polish farm case studies, short video explanations, beginner-friendly guidance and interactive tools. These additions would further increase accessibility for farmers with different levels of digital skills and would support broader uptake of SARE results after the project.

Evidences





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